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Empowering external statistics – how to deal with blurred data sources?[1]

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Empowering External Statistic - How to deal with blurred data sources?

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Work in progress

The paper sheds light on the challenges faced by statistical compilers in economies where cash cross-border flows are present. We tackle country specific experience – the Macedonian case, where significant amount of remittances enters the country in cash. Furthermore, given the existence of informal economy in the exchange of good and services, underlying cash inflows and outflows are also present. These specifics of cross –border flows affect the compilation of the balance of payments statistics. The bulk of the cash net-inflows is exchanged for domestic currency, recorded in the secondary income of the non – government sector which creates around 16% of GDP in the current account balance. Given that the sources of cross - border cash inflows and outflows are heterogeneous, statistics compilers are challenged – first, in identifying the causes of cash inflows and outflows and provide for proper statistical classification and second, in identifying and setting stable sources for collection of statistics. The paper will elaborate on the main steps undertaken in this respect and the implications they have for the external statistics. It will stress the importance of blending statistical sources – surveys, micro and macro data – for providing efficient estimates of the underlying transactions.

Key words: External statistics, Cross – border flows, Informal channels, Survey data.

JEL classification: C83, F24, F62, O17

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1. Introduction

The globalization process has been intensive in the last three decades, implying rising and diverse cross – border flows. The challenges for national compilers of external statistics for proper capturing the occurrence and the nature of the rising flows have been mounting as well. In the recent years, a massive process of digitalization came on board, creating hybrid types of financial instruments, and allowing for new types of assets based on cryptography, which can be easily traded across borders. This opens an entirely new field, where statisticians have to understand the nature, the purpose and the functions of the innovative instruments and provide for a proper statistical coverage and classification.

Apart from the new challenges posed by the globalization and digitalization, some "traditional" challenges are lingering, as well. One of them are the informal cross – border flows, which are difficult to be properly measured and captured. They require an extra efforts in devising the most suitable and stable data source, which will allow for continuity, consistency and comparability. In this paper we will shed some light on this matter, on a country specific case – the Macedonian case. Macedonian economy is featured with relatively strong presence of informal economy in the overall economic activities. This holds for some of the cross border activities as well, and can be noted by the large amount of foreign currency cash exchanged.

As the source of the cash inflows is difficult to be pinpointed, very often prior assumptions are made. Given the profile of our economy, the assumption reveals possibility that the main source is related to cash remittances, informal trade, and money flowing in and out of the "mattresses". These assumptions point to the necessity to devise alternative data sources that cannot be based on the conventional sources, such as the payment transactions platforms or direct reporting. They rather require alternatives such as survey data, cross checking with micro data, and thus provide for estimates, and no precise statistical measurement.

The importance of these estimates does not have statistical relevance, only. For a small economy, with tight trade and financial integration with the rest of a world, the external statistics is the main tool for scrutinizing the sources of strengths and potential vulnerabilities. Hence, it is one of the pivotal platforms for the policymakers in the decision-making process, thus requiring a well ordered external statistics as possible.

The paper is organised as follows. The first part discusses the literature through the lenses of the approaches used for statistical estimation. The second one provides stylised facts. The third one gives an overview of a survey, its design and results, envisaged to be used as a source for estimating part of the cross –border flows through informal channels. In the fourth section, we simulate alternative statistical data on remittances, after applying the new source and estimates. The last sections concludes.

2. Review of literature

Globalisation and international migration in the last decades has been intensifying enlisting remittances as one of the main financial flows in developing countries. The latest WB estimates for 2019 indicate that they are likely to reach $550 billion, thus outperforming FDI inflows and official development assistance (WB, 2019). Having in mind their importance, in terms of volume and spill - overs to the economy, the issue of their measurement has been put to the fore on the international organizations and national statistical authorities' agenda. Besides the constant increase of remittances over time, still the general perception of the economists is that they are underestimated (Centre for Latin American monetary statistics) and that there is space for further improvement in the methods of statistical compilation. The reasons behind this thinking is the heterogeneous nature of these flows, with many transactions that have small value, channelled through formal and informal channels.

The compilation practices evolved with time, as a result of international initiatives, improved legal and institutional arrangements and continuous work on financial literacy of the individuals. However, there are still challenges that compilers of external statistics face. Having in mind the transaction channels could be formal, but informal as well, the main difficulty is to obtain accurate source data for remittances. This hindrance poses a need for statisticians to review current data sources, to assess potential sources and alternative methods for estimation, as well as to construct data strategy for a combined approach in collection of data for remittances. So where do we stand now in terms of methodologies used? Is the use of combined methods a common tool and way forward?

The typical way of capturing remittances for the BOP collection purposes is the ITRS system, which represents a formal channel containing resident-nonresident transactions routed through the banking system. The biggest advantage of this system is its simplicity, low cost and timeliness, as well as accuracy (especially for the ITRS without a threshold). It should be noted, that in most cases this system was designed and kept in countries with some kind of foreign exchange controls. However, the liberalization and reporting thresholds led to abandoning or a need to complement this data source with other methods and data sources. This is the case for many EU countries. The decision of the EU of reporting exception of cross border settlements below 50.000[1] euros directly influenced the quality of this data source, as most of these transactions are small and cannot be captured. This, together with the disadvantages of ITRS that is recording only the formal channel, and in some cases, net amounts instead of gross flows, misclassification, as well as lack of information for the time of economic ownership transfer led to finding alternative ways of data collection models, at least in the EU. However this system is still core data source in the Western Balkan countries (North Macedonia, Montenegro, Serbia) and in some

[1] Regulation (EU) 2019/518 of the European Parliament and of the Council of 19 March 2019 amending Regulation (EC) No 924/2009 as regards certain charges on cross-border payments in the Union and currency conversion charges.

forms in other EU countries (integrated or for cross checking in Greece, Portugal and Estonia, as a starting point and base for estimation of remittances in Belgium and Sweden etc.).

One of the alternative solutions is direct reporting, in which case the information is collected directly from the Money Transfer Operators (MTOs) and not through the banks. In practice, this means obtaining data from reports declared by numerous operators, of large or small scale, depending on the country. Italy, is one of the examples where the main source for remittances is the data from Money Transfer Operators, while information from MTOs, combined with other sources, are also used in the Czech Republic, Romania and France. However, this data collection channel has disadvantages also. Direct reporting requires a lot of resources and in many cases, data compilers are not interested in individual transactions, but only in total. Often, an obstacle for distinguishing remittance from non-remittance are the "poor financial records" of the MTOs and the "netting" principle applied in the MTOs internal records instead recording the transactions on a gross basis, which is required for appropriate compilation.

The ITRS and direct reporting are capturing transactions through formal channels. However, in economies suffering from domination of informal cross-border flow transactions these collection methods are not optimal and are not effective. Maybe to a lesser extent, but this also holds for the more developed economies. Household surveys are viewed as a potential and valuable data source that can alleviate some of the constraints in data gathering. In many economies, "household surveys are most commonly used to estimate personal transfers" (International Monetary Fund, 2009). In some cases, central banks conduct specialised remittances survey, while more often they use existing surveys conducted by statistical offices[2], in which variables for remittances are incorporated. The main advantage of the specialised household survey conducted by the Central Bank is the focus on households that receive remittances, getting important granular information and insights in the nature of the flows, which cannot be extracted from the formal channel information's. There are many countries that apply this method, such as the case of Albania (conducts specialized Remittance Survey), Philippines (Rider to a Labour force Survey), also Ireland and Poland that conduct specific households survey for remittances. However, it is important to stress that household surveys do not measure current transactions in the financial system, but instead they register stories about amounts, frequency and channels of transaction in a given reference period. Survey data indicate the remittance behaviour instead of actual cash flows as credits or debits through the financial system and provide auxiliary information for indirect estimation of the inflows. Thus, the results are prone to underreporting and misclassifications. These features are quite important in designing an integrated system based on combined data sources.

[2] Labour Force Survey, Survey of Income and Living Conditions, Household Budget Survey, Demographic Surveys etc.

In some countries where data collection systems are weak, with insufficient quality, or it is too expensive to set up a system or conduct a survey, an econometric models for estimation of remittances are applied. This is called use of "indirect data sources", or use of "secondary data" (IMF, 2009). In these cases, data compilers make estimations based on demographic models, econometric models, or residual modelling. The demographic models could be quite straightforward, deriving personal transfers as a product of remittances senders by an average amount sent, even though different modalities can be applied. Setting a model in which remittances are an explanatory variable dependant on the behaviour of other variables, such as, income, migration, transaction costs and etc. is the essence of the econometric modelling approach. And finally, residual estimation – approach by which remittances are estimated as a residual of all recorded flows that generate inflows and outflows, indicating that the eventual discrepancies are unobservable remittances (IMF, 2009). Different countries are using specific indirect data methods. In most of the European countries, estimation models based on available data sources are used. This approach is followed in Austria, Bosnia and Hercegovina, Belgium, Switzerland, Denmark, Estonia, Finland, Hungary, Latvia, Netherland, Norway and Poland. However, this method also has drawbacks. The models heavily depend on the data used and the assumptions made, which are difficult to be verified in practice. The residual method may overestimate remittances as it can include other items etc.

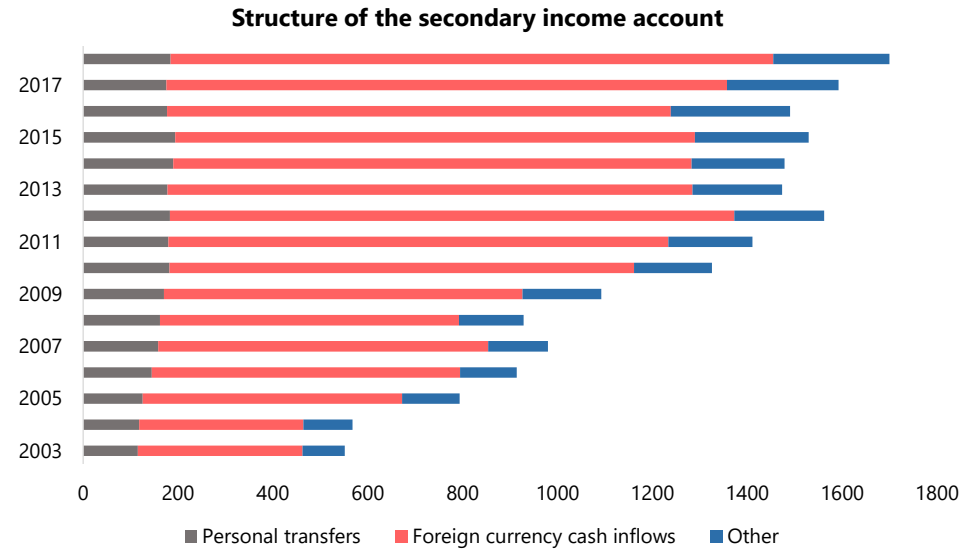
Scrutinizing all methods one can conclude that remittances are heterogeneous and no single data source can ensure adequate reporting of all transactions. This is why blending statistical sources and setting up an integrated system that is based on deep understanding of the system, data collection practices, alternative sources and prioritization of data is essential. Or as Reinke states, for significant improvement of the quality of the remittances data, innovative combination of the data sources is crucial (Reinke, J. 2006).

3. Stylised facts

The balance of payments position of the Macedonian economy has a very specific feature, related to a sizeable amount of foreign currency cash net - inflows. Under a prior assumption that the bulk of them relate to current transactions, they are recorded as part of the current account balance. The main data source are the banks that record all the transactions routed through the banking system. Through the ITRS they provide data on personal transfers and embed the information from the MTOs. They also provide data on the amount of foreign currency cash bought and sold with households (banks foreign exchange transactions) and the net amount bought from the exchange offices on a standalone basis. Given the difficulties in identifying the exact sources of the foreign currency cash inflows, most of the net – inflows are recorded as "other current transfers - foreign currency cash flows".

Structure of private secondary income, net in Euro million

Chart 1

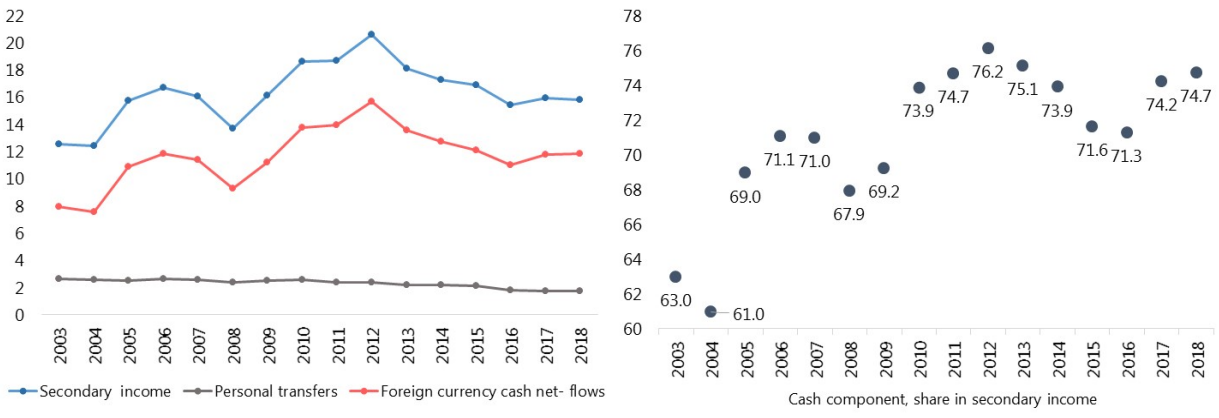


Source: NBRNM, BOP statistics.

The size of the net–inflows for the cash component only in a longer time span (2013 -2018) averaged close to 12% of GDP. At the same time the deficit in the trade of good and services averaged close to 19% of GDP, indicating that above 60% of it was covered with unidentified inflows in foreign currency. The scrutiny of the overall structure of the secondary income reveals rising share of the cash component. The average share in 2003-2009 period equalled around 67%, while afterwards it averaged close to 74%, with no major deviations from the mean along the years. Hence, the importance of this component relative to the others in the secondary income gained significant weight.

Cash component, share in GDP and in the secondary income, in %

Chart 2



Source: NBRNM, BOP statistics.

Observing the dynamics of the foreign currency cash net – inflows, it is visible that in general it was rising until 2012, while its share to GDP started to decline afterwards and stabilized in the last three years to slightly below 12% of GDP. Despite the notable trend, there are few turning points in the path of the foreign currency cash net – inflows, which could indicate one of the potential causes and sources of the foreign cash component. The first one is the occurrence of the global crisis at end 2008 and 2009, when amidst the uncertainty economic agents started to convert domestic into foreign currency cash, which translated into lower net – inflows. The second one of a same nature, but smaller impact was the Greek crisis in 2015 and internal political crisis in 2016. An event with an opposite effect that yielded in significant inflow of foreign currency was the Euro Zone crisis at end 2011, when the future of the Euro currency was questioned.

These turning points in the dynamics of the foreign currency cash component reveal the impact of the confidence effect on the dynamics of this BOP component. Given the anecdotal and survey evidence for foreign currency in circulation being present in the economy, these flows indicate that foreign currency coming in and out of the mattresses is probably one of the sources which adds to the overall cash inflows. As the history of macroeconomic instability was replaced with a longstanding stability of the prices, currency and stability of the banking system, the strong confidence and interest rate differentials enabled foreign currency to come into the system. These flows cannot be measured statistically, and capturing them in the external statistics poses challenges.

The first potential source of the foreign currency cash net –inflows in the BOP sheds light on the extraordinary complexity of the component. The two other important potential sources increase it and pose significant challenges for compilers of statistics. Namely, the second source relates to possible cash flows underpinning informal trade of goods and services, which cannot be captured in the official statistics. The presence of the informal economy in general, has been specific for the Macedonian economy as well. Wide range of estimates exist, including an official estimates from the National Statistics Office, used as a correction factor in the compilation of the national accounts. They range from 16% to 40%, indicating large potential of informal economy to generate flows that are not statistically captured.

The third source, which we will put emphasis on in the paper, refers to net – inflows based on remittances. Formal remittances, personal transfers sent from migrants to their home country are relatively modest. They gravitate around 2% of GDP, with a declining trend. Yet, besides the formal channel, presumable large amount of remittances come in cash, through informal channels. This last component is in fact not pertinent to the Macedonian case only. It is widely – recognized matter in the external statistics, because "remittances are diverse (e.g. cash and non-cash; channelled through formal and informal routes)... there is no single data source that can guarantee accurate estimates. Countries use a variety of data sources based on the patterns and the channels employed in their countries" (World Bank, 2009).

Shedding light on the three possible source of the net –inflows of foreign currency cash in the external statistics reveals their different nature, as well as the need for different approaches for their statistical coverage. The difference in their

essence also indicate that different factors can drive their dynamics, they may point to different sources of vulnerabilities and strengths, and may indicate susceptibility of the economy to different types of shocks. Given the size and the importance of the inflows, identifying and allocating these inflows in the appropriate BOP position is of a crucial statistical, but policy relevance, as well.

Given the focus of the paper, which is providing for alternative approach to the identification of the informal remittances, we will focus on this matter mostly. In the statistical perimeter, many countries use reporting from commercial banks, which may not include informal flows or flows through money transfer operators. The existence of an effective and appropriate international transactions reporting system (ITRS), in some countries is combined with household surveys in order to capture informal transfers (47 per cent of all countries use this method, according to the World Bank survey of Central Banks). Our approach is similar to this one, as it combines ITRS (assuming that this channel fully captures formal remittances) and Survey data to estimate the amount of informal remittances.

4. The Design and results for the remittances survey

Estimation of personal transfers in cash received through informal channels has been a significant challenge for the NBRNM. Recognizing the need for quality improvement several surveys were conducted (in 2007, 2011 and 2016[3]). Besides the main aim, to obtain additional information for estimation the informal inflows that are part of private transfers, the Survey provided answers on the channels through which the inflows come to the country, the geographical distribution, seasonality, purpose of the funds sent, its sustainability etc.

In this section we will focus on the Survey from 2016 and will present some of the main results that can be used to estimate the value of personal transfers received through informal channels i.e. in cash. The 2016 survey was conducted by an outsourcing independent agency on a sample of 1,500 households that receive remittances from abroad. Snowball technique was used to select the sample. The sample of households receiving personal transfers from abroad was selected from each of the eight regions of North Macedonia, based on their population and additional information:

- on households that receive private transfers from abroad from the household consumption survey;
- the turnover of fast money transfers operators (FMO) by regions;
- the turnover of exchange bureaus offices (FXO) by regions; and

[3] It should be noted that the Surveys are not fully consistent in terms of coverage, sample, response rates, etc. and for these reasons biases can occur.

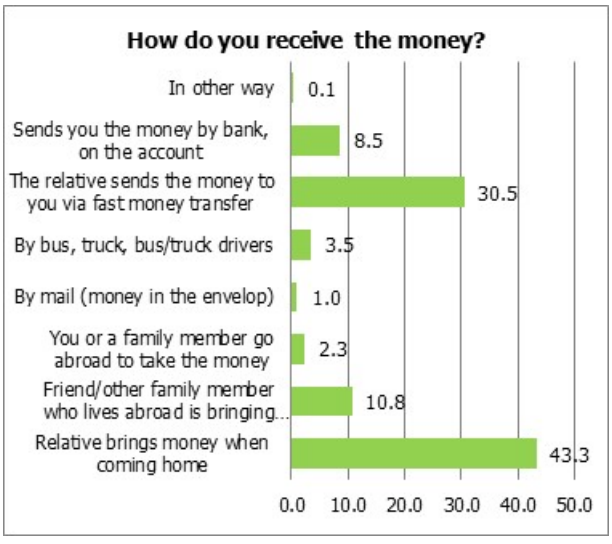
- Marriages of residents abroad and children born abroad from the State Statistical Office.

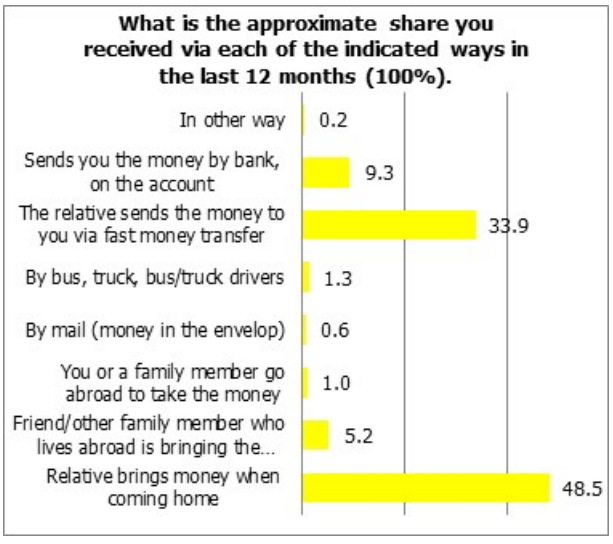
As noted before, one of the main aims of the 2016 survey was to estimate the share of the personal transfers received through informal channels, taking into account that remittances (personal transfers and compensation of employees) received through formal channels are already covered by the ITRS. In order to determine the share of formal and informal channels in the total personal transfers, we use the answer provided on the question "How do you receive the money?". From total survey respondents, 61% answered that they receive funds through informal channels. More specifically, 43.3% from the respondents answered that relatives bring them cash when they come home, 10.8% answered that a friend or other family member who lives abroad is bringing the money on behalf of the sender, 3.5% of the respondents answered that the money has been sent by bus, 2.3 of the receivers went abroad to receive the money, and 1% of the respondents receive the money by mail. Concerning formal channels, 30.5% of the survey respondents receive the money by MTOs and only 8.5% by the bank. The reason for these results (high share of remittances send "on-hand", or through informal channel) probably rest in costs for sending the money, demographic characteristics of the population receiving the money and employment status of the receivers and the senders.

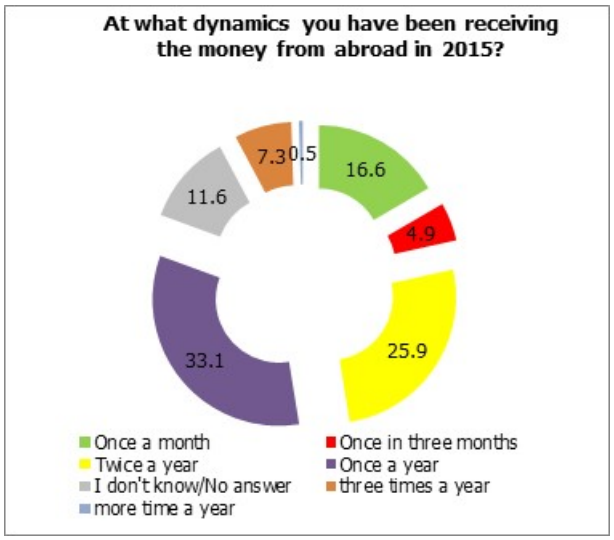
The survey results for the share of formal and informal channels were compared with the data received from ITRS (ITRS cover the data from FMOs) and verified that the responses provided were generally consistent. Furthermore, results from the 2016 survey are also consistent with the results from 2011 survey.

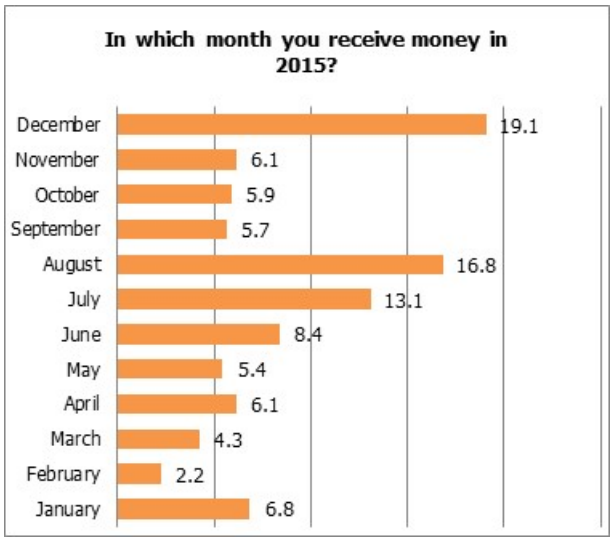
Survey results from 2016

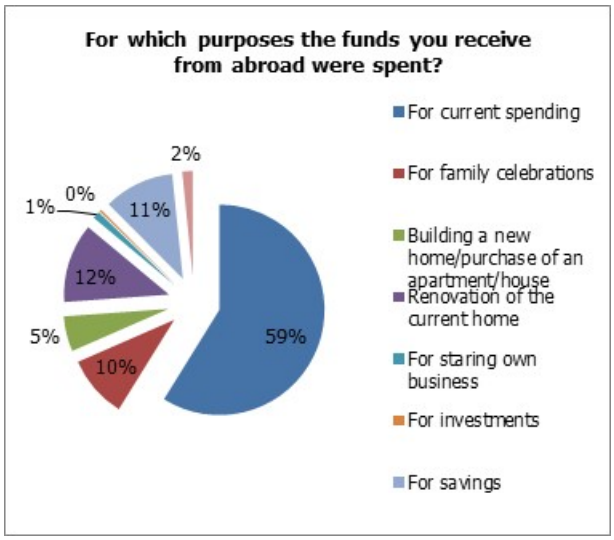
Chart 3

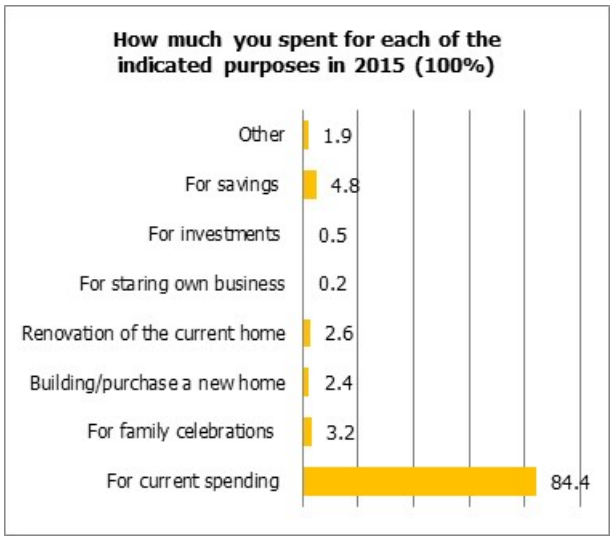


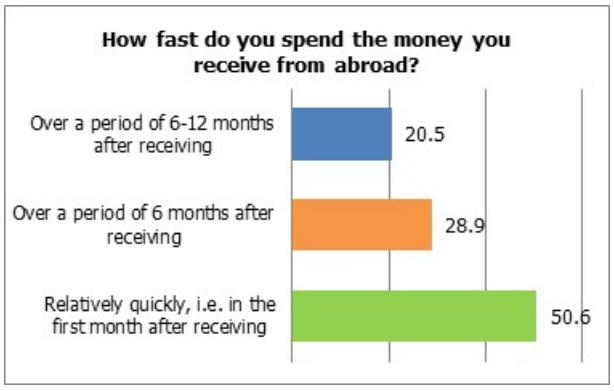


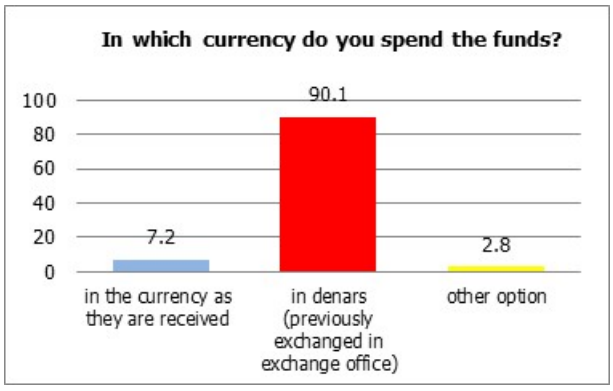












Source: NBRNM's Survey

Most of the households reported that they receive remittances once (33.1%) or twice (25.9%) a year. These responses are logical given the previous question where in the most cases relatives brings the money when they come in North Macedonia, usually once or twice a year. With respect to seasonality, larger amounts of remittances are received in July, August, and December, during the holidays when most migrants visit the country.

Analyzed for which purposes the funds received from abroad were spent, the largest part of the received funds, around 60%, is used for current spending, while 10% is spent for a family celebration. Part of the received funds, 12% of the households spent the money for the renovation of the current home, while only around 5%, are invested in real estates. Around 11% of the personal transfers are kept for savings.

Having in mind that most of the inflows are used for current spending it is not surprising that half of the households spend the money relatively quickly, i.e. in the first month after receiving. Around 30% of the households spend money over a period of 6 months after receiving. About 90% of the funds, the households spend in Macedonian denars which previously exchanged on the exchange market. A certain amount, around 7%, are kept in the currency as they are received.

The survey embeds evidence on the geographical origin of the funds, and their currency structure as well. These are also important information, which can be further utilized in the statistics in defining the geographical and currency profile of remittances.

5. Simulation

In this section we provide for a simple simulation[4], where the results of the survey are used to identify the amount of remittances which come through informal channels. The estimated informal remittances should be reallocated from the net cash inflows (other transfers) to "personal transfers". The simulations include assessment only on the credit side. The method we use is carried out in two steps. The first one is improving the data on remittances received through formal channel by using alternative source. Namely, the ITRS data included in the BOP are on a net basis (foreign currency bought minus foreign currency sold). As we need data on gross amounts to estimate the value of unrecorded credit and debit transactions we include data that are collected from direct reporting of the MTOs (for regulatory purposes) collected on a gross basis. We should mention that the two sources provide net values that are quite similar, however we treat this as a direct and more comprehensive source and we believe that its use will provide slight improvement in the overall current account balance. In the second step we apply shares derived from the previous surveys on remittances i.e. the percentage of remittances that is received

[4] Simulations presented in this paper are only illustrations on the impact of adding additional sources and do not represent definitive calculations that will be included in official statistics.

through formal channel. The weights, combined with expert judgment are applied to the amount of remittances received through formal channel (ITRS) to obtain the total amount of remittances received. The remittances received in cash (informal channel) will be derived as a residual (the rest to 100 percent).

We conduct two approaches for setting the weights. In the first approach, for estimation of the formal channels, different coefficients for different years were applied. As previously stated, the available data for formal remittances and assumption for the share of official channels in the total amount of remittances are the starting point for the estimation and serve as a base for residual calculation of the informal remittances.

Coefficient applied for formal channels

In percent of total remittances Table 1

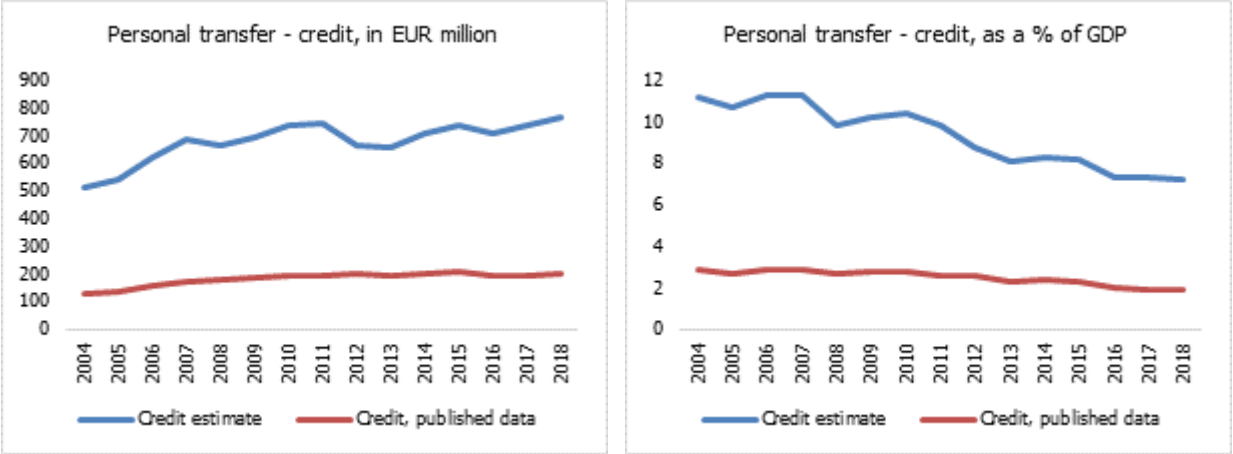
Survey (year)	Period for which the appropriate surveys coefficient is applied	Coefficient applied for formal channels (Scenario 1)	Coefficient applied for formal channels (Scenario 2)
2002	2003-2007	27%	27%
2007	2008-2011	32%	27%
2011	2012-2016	37%	27%
2016	2017-2019	40%	27%

Sources: Dzaferi Survey (2002), NBRNM Surveys and expert judgment (2007, 2011, 2016)

The results of the survey indicate that the weights increase over time, i.e. the share of the remittances sent through official channels increases over time from 27% in 2004 to 40% in 2018. Second, these estimations show significant undervaluation of the amounts recorded under personal transfers, or remittances that should be reported in BOP statistics including the inflows through the informal channel. The difference between published and estimated value of personal transfers is significant and in nominal terms is in an interval from Euro 383 million in 2004 to Euro 570 million in 2018. In relative terms (as percent of GDP) the personal transfers on average in the analysed period should be higher by 7 p.p..

Personal transfers, credit estimates using varying coefficients

Chart 4

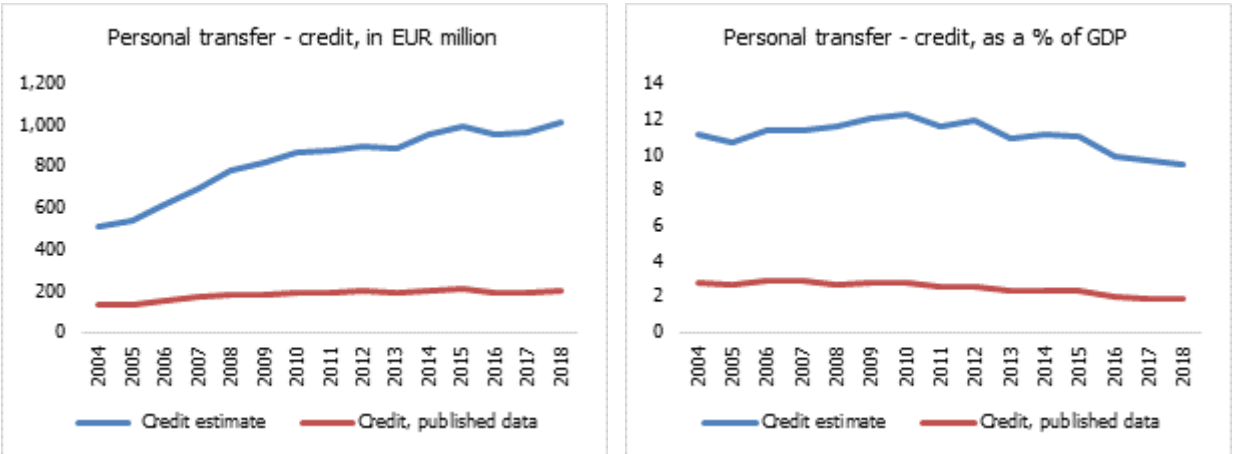


Source: NBRNM, BOP statistics.

In the second approach, a coefficient of 27% for all of the years was applied. By using constant share we assume that the weight of the formal channel in the total amount of remittances has not changed through the years, which is probably less realistic scenario. By this approach we assume higher level of the cash remittances – in nominal terms they reach Euro 1,010 million in 2018. As percent of GDP, the estimated personal transfers are on average around 11% in the analysed period.

Personal transfers, credit estimates using constant coefficient

Chart 5



Source: NBRNM, BOP statistics.

The simulation presented above, reveals quite different role and importance of the remittances in the economy, in comparison to what the official data suggest. It illustrates the importance of having an estimate of the origin of cross – border flows,

for proper diagnostics and policy calibration. Yet, even after the estimates of the informal remittances, there is a necessity to address the rest of the cash net – inflows that could be attributed to capital account, the informal trade or the confidence effect. Hence, besides the estimation of personal transfers, other challenges arise in the period ahead. Capital transfers received in cash are still not estimated. The survey results showed that around 10% of the received remittances are invested in real estate. The appropriate amount should be deducted from other current transfers and reclassified to the capital account of the nongovernment sector. With respect to the current account, the survey results could be used for estimation of the unrecorded salaries received from non-residents thus improving the data on compensation of employees, even though this is not a significant component of the Balance of payments. Furthermore, part of the inflows and outflows arise from the tourism activities, which is in line with the tourism statistics. This flows will affect the credit and debit side of the travel services. The high turnover on the foreign exchange market could imply an underestimation of the export of goods and services. Some countries already make adjustments to include any goods where there is a change of ownership not recorded in customs data such as shuttle trade. Appropriate method to estimate the values of unrecorded goods and services based on the incorporation of additional data sources and assumptions is a challenge as well.

6. Conclusion

The aim of the paper was to illustrate the importance of the foreign currency cash flows underlying cross – border activities in the Macedonian economy and the need for proper identification of their origin. This implies a need for devising alternative data sources in the external statistics for proper capturing and allocation of these flows within the balance of payments statistics.

In the paper we have opted for depicting one of the steps, which is using survey data to estimate the amount of remittances coming into the economy through informal channels. The simulation, using combined survey and ITRS data, reveals much larger amount compared to the data in the official statistics. It demonstrates the need for combining different data sources and employing estimates, when the flows are connected with informal activities, or informal channels.

In the forthcoming period, efforts are needed to validate the results, and to proceed with estimates on the flows related to informal trade and the confidence effect in the economy. It will require cross – checking of different sources, and estimations methods as well. The whole process will allow for a more precise coverage in the statistics, but also a clearer picture on the sources of the flows in the balance of payments and their sustainability.

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Annex tables

Secondary income - estimates using varying coefficients

Table 2

as a % of GDP, estimated data

BPM6 Concept	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Secondary income	14.0	16.6	17.8	16.3	14.3	17.1	19.3	20.3	22.0	19.4	19.0	18.0	16.9	17.5	17.5
Credit	15.0	17.5	18.7	17.7	15.2	17.9	20.2	21.2	23.0	20.4	20.1	19.0	18.0	18.8	18.8
Debit	1.0	0.9	0.9	1.3	0.9	0.9	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.3	1.3
1. General government	1.2	1.1	1.1	0.4	0.7	0.5	0.4	1.0	0.8	0.9	1.3	0.6	0.9	1.1	1.0
Credit	1.3	1.2	1.2	1.0	0.9	0.6	0.5	1.1	0.9	1.0	1.4	0.8	1.1	1.4	1.3
Debit	0.1	0.2	0.1	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2
2. Financial corporations, nonfinancial corporations, households, and NPISHs	12.8	15.6	16.7	15.9	13.6	16.5	18.9	19.3	21.2	18.5	17.8	17.4	16.0	16.4	16.5
Credit	13.7	16.3	17.5	16.7	14.3	17.3	19.7	20.1	22.1	19.3	18.6	18.2	16.9	17.4	17.5
Debit	0.9	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.9	1.0	1.0
2.1. Personal transfers	10.9	10.5	11.1	11.1	9.6	10.0	10.2	9.6	8.6	7.9	8.1	8.0	7.2	7.1	7.0
2.1. Personal transfers - published	2.6	2.5	2.6	2.6	2.4	2.5	2.6	2.4	2.4	2.2	2.2	2.1	1.8	1.7	1.7
Credit	11.2	10.7	11.3	11.3	9.9	10.3	10.4	9.8	8.8	8.1	8.3	8.2	7.3	7.3	7.2
Credit - published	2.8	2.7	2.9	2.9	2.7	2.8	2.8	2.6	2.6	2.3	2.4	2.3	2.0	1.9	1.9
Debit	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Of which: Workers' remittances	10.9	10.5	11.1	11.1	9.6	10.0	10.2	9.6	8.6	7.9	8.1	8.0	7.2	7.1	7.0
Credit	11.2	10.7	11.3	11.3	9.9	10.3	10.4	9.8	8.8	8.1	8.3	8.2	7.3	7.3	7.2
Debit	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
2.2. Other current transfers	1.9	5.1	5.6	4.9	4.0	6.5	8.7	9.7	12.6	10.6	9.6	9.4	8.8	9.2	9.4
2.2. Other current transfers - published	9.8	13.3	14.1	13.5	11.3	13.6	16.1	16.3	18.2	15.9	15.1	14.7	13.6	14.1	14.2
Credit	2.5	5.6	6.1	5.3	4.4	7.1	9.3	10.2	13.3	11.3	10.4	10.0	9.6	10.1	10.3
Credit - published	10.4	13.8	14.6	13.9	11.7	14.2	16.7	16.9	18.8	16.5	15.8	15.4	14.3	14.9	15.1
Of which: Cash exchange, net	-0.4	2.7	3.5	2.8	2.0	4.1	6.4	7.3	10.1	8.3	7.4	6.7	6.2	6.9	7.2
Of which: Cash exchange, net - published	7.6	10.9	11.9	11.4	9.3	11.2	13.8	14.0	15.7	13.6	12.8	12.1	11.0	11.8	11.9
Debit	0.6	0.5	0.5	0.5	0.4	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9

Sources: NBRNM

Secondary income - estimates using constant coefficient

Table 3

as a % of GDP, estimated data

BPM6 Concept	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Secondary income	14.0	16.6	17.8	16.3	14.3	17.1	19.3	20.3	22.0	19.4	19.0	18.0	16.9	17.5	17.5
Credit	15.0	17.5	18.7	17.7	15.2	17.9	20.2	21.2	23.0	20.4	20.1	19.0	18.0	18.8	18.8
Debit	1.0	0.9	0.9	1.3	0.9	0.9	0.9	0.8	0.9	0.9	1.0	1.0	1.0	1.3	1.3
1. General government	1.2	1.1	1.1	0.4	0.7	0.5	0.4	1.0	0.8	0.9	1.3	0.6	0.9	1.1	1.0
Credit	1.3	1.2	1.2	1.0	0.9	0.6	0.5	1.1	0.9	1.0	1.4	0.8	1.1	1.4	1.3
Debit	0.1	0.2	0.1	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2
2. Financial corporations, nonfinancial corporations, households, and NPISHs	12.8	15.6	16.7	15.9	13.6	16.5	18.9	19.3	21.2	18.5	17.8	17.4	16.0	16.4	16.5
Credit	13.7	16.3	17.5	16.7	14.3	17.3	19.7	20.1	22.1	19.3	18.6	18.2	16.9	17.4	17.5
Debit	0.9	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.9	1.0	1.0
2.1. Personal transfers	10.9	10.5	11.1	11.1	11.3	11.8	12.0	11.4	11.7	10.7	11.0	10.8	9.7	9.4	9.3
2.1. Personal transfers - published	2.6	2.5	2.6	2.6	2.4	2.5	2.6	2.4	2.4	2.2	2.2	2.1	1.8	1.7	1.7
Credit	11.2	10.7	11.3	11.3	11.6	12.1	12.2	11.6	11.9	10.9	11.1	11.0	9.9	9.6	9.4
Credit - published	2.8	2.7	2.9	2.9	2.7	2.8	2.8	2.6	2.6	2.3	2.4	2.3	2.0	1.9	1.9
Debit	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
Of which: Workers' remittances	10.9	10.5	11.1	11.1	11.3	11.8	12.0	11.4	11.7	10.7	11.0	10.8	9.7	9.4	9.3
Credit	11.2	10.7	11.3	11.3	11.6	12.1	12.2	11.6	11.9	10.9	11.1	11.0	9.9	9.6	9.4
Debit	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1
2.2. Other current transfers	1.9	5.1	5.6	4.9	2.3	4.7	6.8	7.9	9.5	7.8	6.8	6.5	6.3	6.9	7.2
2.2. Other current transfers - published	9.8	13.3	14.1	13.5	11.3	13.6	16.1	16.3	18.2	15.9	15.1	14.7	13.6	14.1	14.2
Credit	2.5	5.6	6.1	5.3	2.7	5.3	7.5	8.5	10.2	8.4	7.5	7.2	7.0	7.8	8.1
Credit - published	10.4	13.8	14.6	13.9	11.7	14.2	16.7	16.9	18.8	16.5	15.8	15.4	14.3	14.9	15.1
Of which: Cash exchange, net	-0.4	2.7	3.5	2.8	0.3	2.3	4.5	5.6	7.0	5.5	4.5	3.9	3.7	4.6	4.9
Of which: Cash exchange, net - published	7.6	10.9	11.9	11.4	9.3	11.2	13.8	14.0	15.7	13.6	12.8	12.1	11.0	11.8	11.9
Debit	0.6	0.5	0.5	0.5	0.4	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9

Sources: NBRNM

NATIONAL BANK OF THE
REPUBLIC OF NORTH MACEDONIA

Empowering External Statistic - How to deal with blurred data sources?

Ana Mitreska, Sultanija Bojcheva-Terzijan, Dejan Stankov, Boban Neshkovikj

Work in progress

National Bank of the Republic of North Macedonia
IFC Conference on external statistics
Lisbon, Portugal
February 2020

Outline

- Introduction
- Stylized facts
- Survey results
- Simulations
- Conclusion

Introduction

Aim: Dealing with “traditional challenges” posed by cross-border flows, aside the ones driven by globalization and digitalization

Focus: Country specific experience – the Macedonian case, an effort to capture the effect of informal remittances, using combined method of data compiling, survey results and expert judgment.

Simulations: work in progress, illustrate the impact in the compilation of private transfers in the BOP

Policymaking: well ordered external statistics is pivotal for a small economy, with tight trade and financial integration with the rest of a world - crucial tool for scrutinizing the sources of strengths and vulnerabilities

Stylized facts (1)

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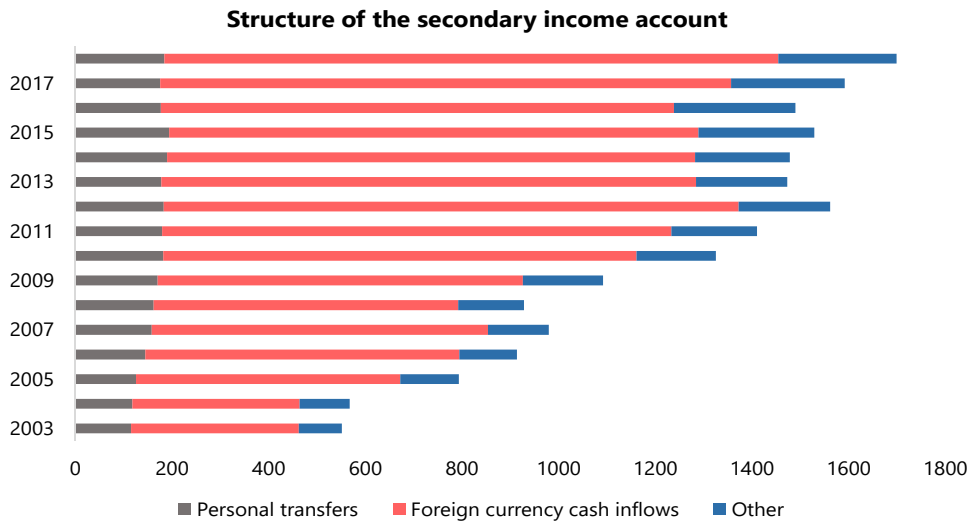
- Sizeable amount of foreign currency cash net – inflows, as part of the current account balance
- Main data source are banks - all transactions routed through the banking system are recorded
- Through the ITRS banks provide data on personal transfers and embed information from the MTOs.
- Data on fx cash with the households and exchange offices net-inflows are to a large extent recorded as “other current transfers - foreign currency cash flows”

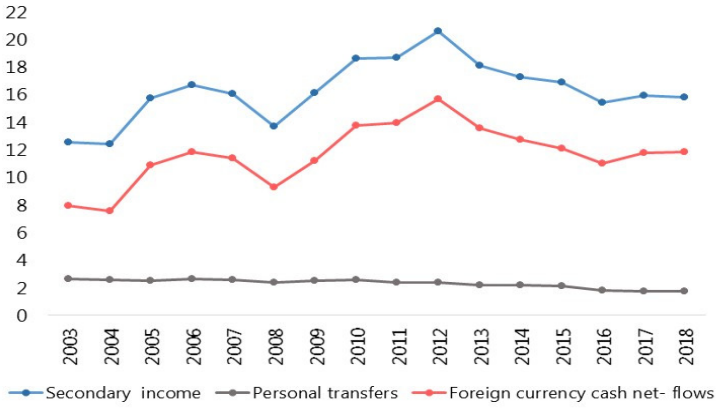


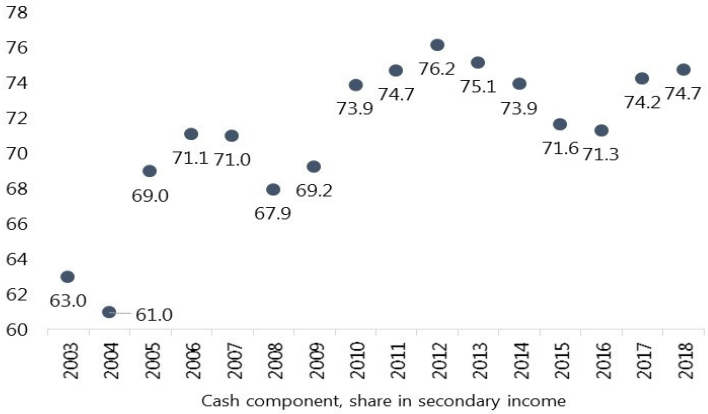
- FX cash flow data capture part of the informal remittances monetised in the economy, impact of confidence effect (fx currency “under the mattresses”) and presence of informal economy

Stylized facts (2)

NATIONAL BANK OF THE REPUBLIC OF NORTH MACEDONIA

- FX cash flows predominant component of the secondary income, on average 12% of GDP for the 2013-2018 period
- Personal transfers on average 2% of GDP for the same period
- Given the size and the importance of the inflows, the identification and allocation of these inflows in the appropriate BOP position is of a crucial statistical, as well policy relevance
- Alternative approach is used to identify the scope of informal remittances by combining ITRS compilation system with results from the household surveys





2016 Remittances Survey

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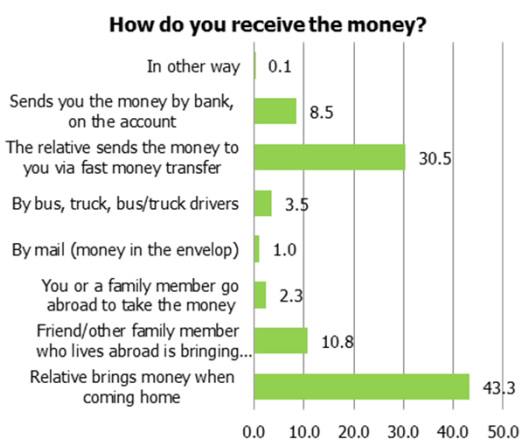
The 2016 survey: conducted by an outsourcing independent agency on a sample of 1,500 households that receive remittances from abroad

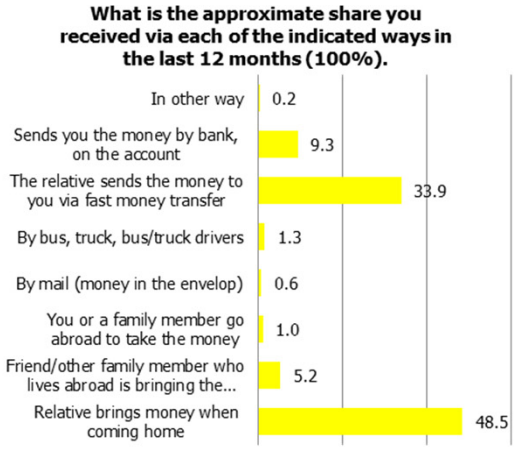
- The sample selected from eight regions of North Macedonia, based on their population and cross data from the household consumption survey, turnover of money transfers operators (MTO) by regions, the turnover of exchange bureaus offices (FXO) by regions etc.
- Survey provides answers on the channels through which the inflows come to the country, the geographical distribution, seasonality, purpose of the funds sent, its sustainability etc.
- Main results used to estimate the value of personal transfers received through informal channels i.e. in cash

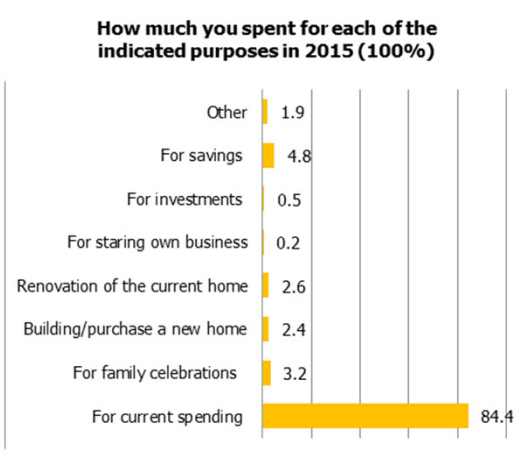
Survey Results

NATIONAL BANK OF THE REPUBLIC OF NORTH MACEDONIA

- Main question “How do you receive the money?”
- 61% of the respondents receive funds through informal channels, mainly relatives bring cash when they come home
- Concerning formal channels, 30.5% of the survey respondents receive the money by MTOs and only 8.5% by the bank
- Reasons for high share of remittances send “on-hand” rest in costs for sending the money, demographic characteristics of the population receiving the money and employment status of the receivers and the senders



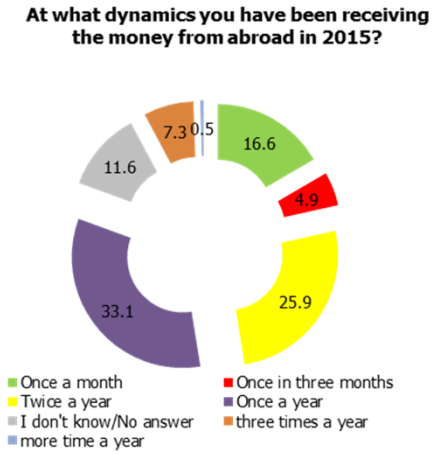


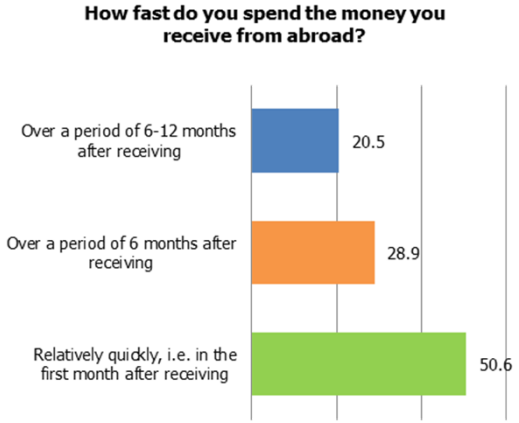


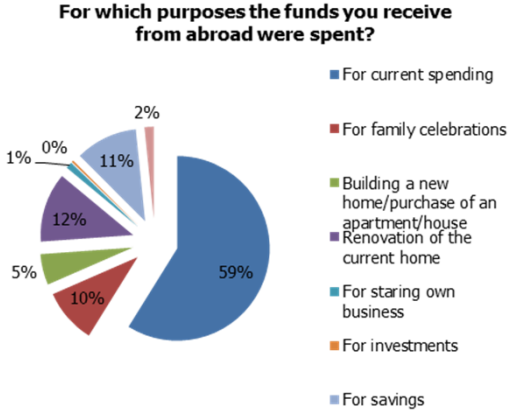
Survey Results

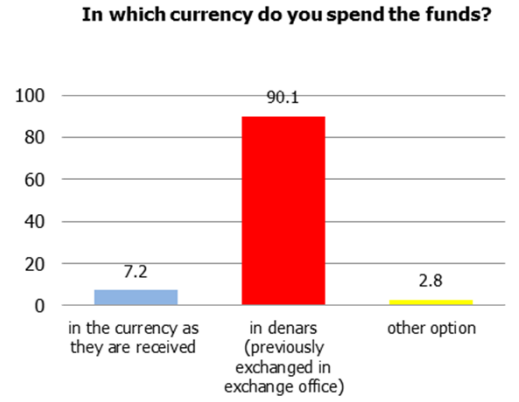
NATIONAL BANK OF THE REPUBLIC OF NORTH MACEDONIA

- Most of the households reported that they receive remittances once (33.1%) or twice (25.9%) a year
- Largest part of the received funds, around 60%, is used for current spending, while 10% is spent for a family celebration - much less for investment purposes
- Households spend the money relatively quickly, i.e. in the first month after receiving. Around 30% of the households spend money over a period of 6 months after receiving.
- About 90% of the funds, the households spend in Macedonian denars. A certain amount, around 7%, are kept in the currency as they are received.









Simulation

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- Estimated informal remittances should be reallocated from the net cash inflows (other transfers) to “personal transfers”. The simulations include assessment only on the credit side.
- The method is carried out in two steps:
  - **The first step**: to improve data on remittances received through formal channel by using alternative source - including data collected from direct reporting of the MTOs (for regulatory purposes) collected on a gross basis.
  - **Second step:** weights derived from the surveys on remittances i.e. the percentage of remittances that is received through formal channel are used. They are applied to the amount of remittances received through formal channel (ITRS) to obtain the total amount of remittances received. The remittances received in cash (informal channel) are residual (the rest to 100 percent).
    - Two alternatives: varying and constant weights over time

Simulation

- Coefficients applied for formal channels
- Weights increase over time, i.e. the share of the remittances sent through official channels increases over time from 27% in 2004 to 40% in 2018
- Undervaluation of the amounts recorded under personal transfers that should be reported in BOP statistics including the inflows through the informal channel

Coefficient applied for formal channels

In percent of total remittances — Table 1

Survey (year)	Period for which the appropriate surveys coefficient is applied	Coefficient applied for formal channels (Scenario 1)	Coefficient applied for formal channels (Scenario 2)
2002	2003-2007	27%	27%
2007	2008-2011	32%	27%
2011	2012-2016	37%	27%
2016	2017-2019	40%	27%

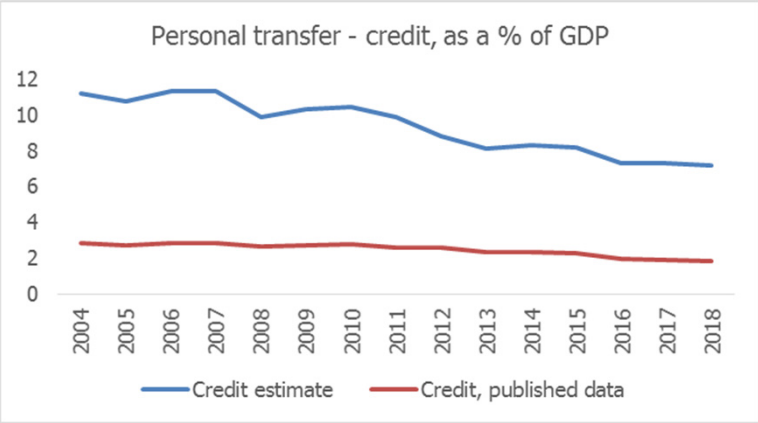
Sources: Dzaferi Survey (2002), NBRNM Surveys and expert judgment (2007, 2011, 2016)

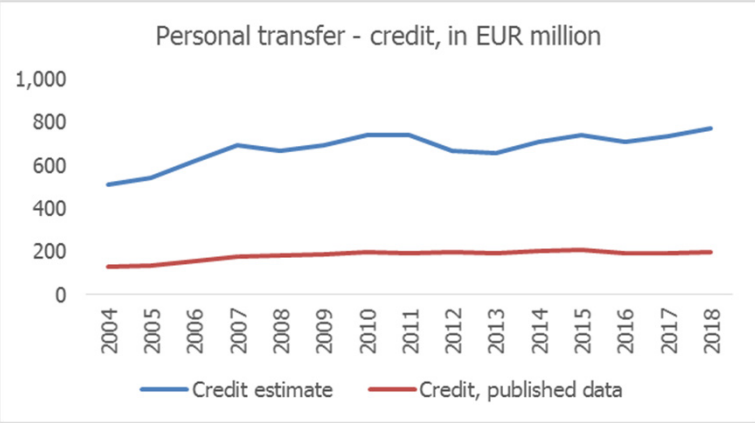
Simulation

NATIONAL BANK OF THE REPUBLIC OF NORTH MACEDONIA

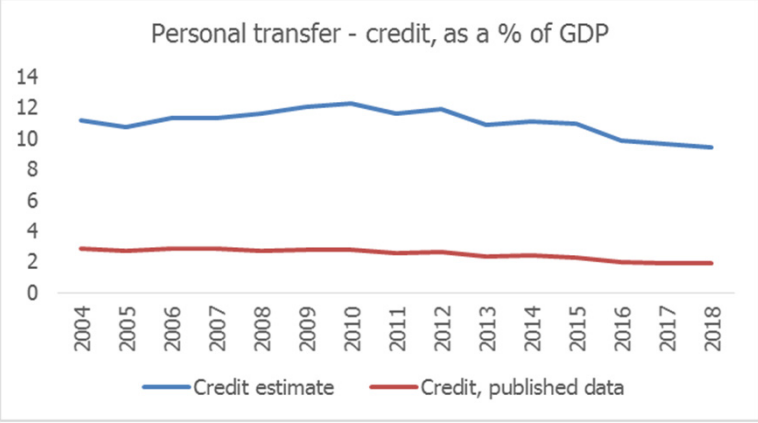
- Difference between published and estimated value of personal transfers - in nominal terms in interval from Euro 383 million in 2004 to Euro 570 million in 2018, or by 7 p.p. higher as percent of GDP, in relative terms

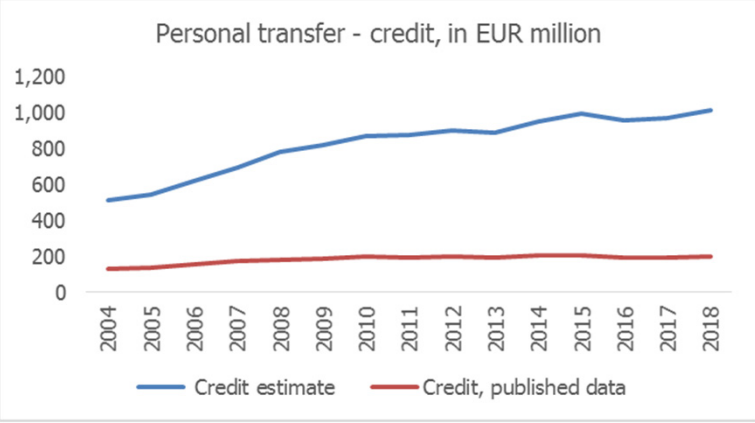
- Scenario 1





- Scenario 2





Further steps

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- Work in progress
- Necessity to address the rest of the cash net – inflows that could be attributed to capital account, the informal trade or the confidence effect.
- Capital transfers received in cash still not estimated. The survey results show that around 10% of the received remittances are invested in real estate.
- Survey results could be used for estimation of the unrecorded salaries received from non-residents thus improving the data on compensation of employees (not a significant component of the BOP).
- Part of the inflows and outflows arise from tourism activities that affect the credit and debit side of the travel services.
- High turnover on the foreign exchange market could imply an underestimation of the export of goods and services. Appropriate method to estimate the values of unrecorded goods and services (grey economy effect) based on the incorporation of additional data sources and assumptions is challenge as well.

Conclusion

- Importance of the foreign currency cash flows underlying cross – border activities in the Macedonian economy and need for proper identification of their origin
- Best illustrated by using Survey data to estimate the amount of remittances coming into the economy through informal channels
- Clear need for combining different data sources and employing estimates in official statistics, especially when the flows are connected with informal activities, or informal channels.
- Further efforts needed to validate the results, and to proceed with estimates on the flows related to informal trade and the confidence effect in the economy.
- However, the whole process will allow for a more precise coverage in the statistics, as well as a clearer picture on the sources of the flows in the balance of payments and their sustainability.

Thank you for your attention