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Errors and omissions in Armenia's balance of payments: possible reasons and solutions¹

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¹ This paper was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

Errors and omissions in Armenia's balance of payments: possible reasons and solutions

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For recent years balance of payments of Armenia records relatively large errors and omissions. Sometimes errors and omissions exceed current account, which leads to serious criticism by users. The nature of data collection and compilation system itself can cause some systematic errors. Central bank of Armenia collects data from many sources, and then tries to bring together pieces of "puzzle". The development of international trade and transition from basic external transactions to complex system of cross border movement of goods and capital makes more and more difficult to solve this "puzzle".

Small size of economy means that households play a strong role in external transactions, which is another source for errors. The high level of dollarization, shadow turnover of foreign exchange also bring to imbalances in balance of payments.

The paper will cover potential sources of errors in Armenia's BOP, including those coming from data compilation practices, data coverage gaps, or possible particular unrecorded transactions.

Keywords: errors and omissions, data gaps, balance of payments, trade misinvoicing, remittances.

JEL classification: C82, F39.

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Introduction

The nature of errors and omissions in balance of payments is thought to be unpreventable. Theoretically, accounting principles ensure that the BOP will be balanced, all credits should equal debits (in BPM 5 accounting principles), or credit and debit entries will be balanced with net acquisition of assets and net incurrence of liabilities. The same double entry system ensures that the balance sheet of enterprise will be “balanced”. The difference is that an accountant has access to all information necessary for compilation of balance sheet, while BOP compiler should not just build puzzle, but also find the pieces of the puzzle.

Armenia is a small open economy with population about 3 mln and GDP 11.5 bln USD. Import exceeds export about 2 times, and the major source for financing current account are remittances. The current account deficit was volatile during 2004-2017. From 2.2 % in GDP in 2004 it rose to 16.5 % in 2009 and then decreased back to 2.8 % in 2017. Generally, households play significant role in economy, which leads to several challenges in BOP statistics that we will describe further in the paper. Considerable diaspora also has a strong economic impact, which is another challenge for official statistics.

The statistics of balance of payments of Armenia started in 1994, a few years after the country gained independence. Compilation of IIP began in 1998. Initially the Statistical committee (SC) was in charge for external accounts compilation. In 2009 government of RA decided to transfer the responsibility for compiling external accounts from SC to Central bank of Armenia (CBA). CBA started to compile and publish BOP statistics from 2011 according to both BPM6 and BPM5 principles, while historical data was only on BPM5 basis. Starting from June 2014 CBA compiles and publishes statistics only on BPM6 basis. For national accounts needs there was a short parallel compilation of current account according to BPM5. The historical data revision was done up to 1994. Starting from 2004 data are compiled within “consistent” statistical framework in sense that main components are being compiled using the same methodological approaches and the same data sources.

Compilation system is based on administrative data, surveys and some estimation models. International transactions reporting system (ITRS) was never used.

SC compiles and provides data to CBA for main components of external trade. For trade in goods major data source is administrative database of State revenue committee based on custom’s declarations. Data is processed in SC using several surveys, particularly survey on CIF-FOB transformation and survey on processing services. Adjustments are made for goods acquired in transportation stations and shuttle trade. Services are compiled using different surveys, expert evaluations and models.

SC also collects data on external financial transactions of non-financial corporations, including income paid/received. SC provides data on humanitarian aid received in form of goods.

CBA has a remittance calculation model, using banking statistics on households’ international transaction and adjustments based on number of surveys. CBA also compiles data on its own transactions, government external debt and related transactions, public transfers and external transactions of financial corporations.

Generally, data on each BOP item is collected and recorded separately. Major exceptions are public transfers, some entries in insurance and pension schemes items, and some entries in cash, where double recording is used.

Errors and omissions description

For the purpose of this paper, we looked into figures of annual E&O from 2004-2017. We discuss only annual figures, though we can see that there are also some problems in quarterly data. Quarterly data may have strong impact of timing lags, which means that in annual figures most of these lags may be eliminated. Of course, there are still transactions that fall in IV quarter and I quarter of next year, so the timing lags issues may still exist in annual figures but in a lesser degree.

Nevertheless, the aim of this paper is to present a sidelong look instead of covering all aspects of Armenia's E&Os. We would prefer to focus on major reasons that could cause E&O.

Some countries have errors and omissions studies, focusing on own vision of problem rather than on unique aspects and general solution. For example the errors and omissions are explained by foreign cash assets accumulated by tourism income of Croatia (Goran Vukšić, 2009). Boris Kilibarda (2013) took into account that errors and omissions is a net indicator in BOP and can accumulate positive and negative errors.

In his dissertation Tómas Örn Kristinsson (2016) compared errors and omissions in 70 countries. He applied several statistical methods to discover whether there were trend, seasonality and randomness in historical data of errors and omissions. He also conducted a survey among BOP compilers and collected their opinions about errors and omissions.

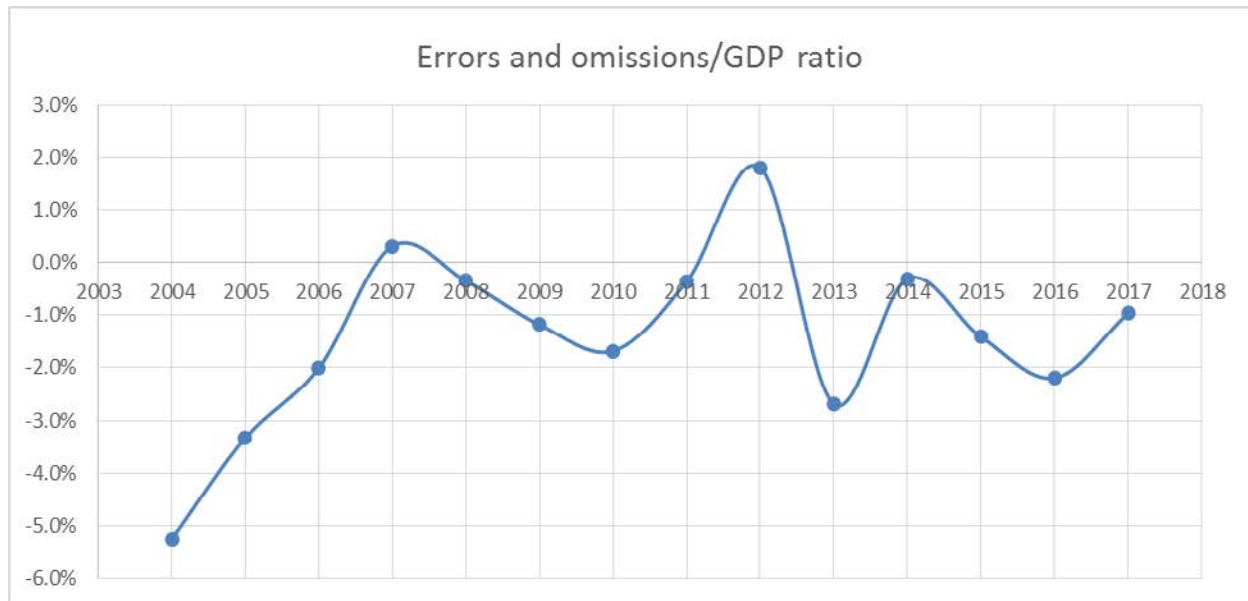
Several reasons can create errors and omissions. Timing gap, poor coverage or methodological problems can cause imbalances.

Table 1. Errors and omissions in BOP of Armenia and selected indicators

| USD mln | 2004 | 2007 | 2012 | 2017 |
|--------------------------------|-------------|-------------|-------------|-------------|
| Errors and omissions | -188 | 28 | 191 | -112 |
| Current account balance | -79 | -677 | -1,058 | -400 |
| FDI, net | 248 | 654 | 481 | 223 |
| GDP | 3,577 | 9,206 | 10,619 | 11,560 |

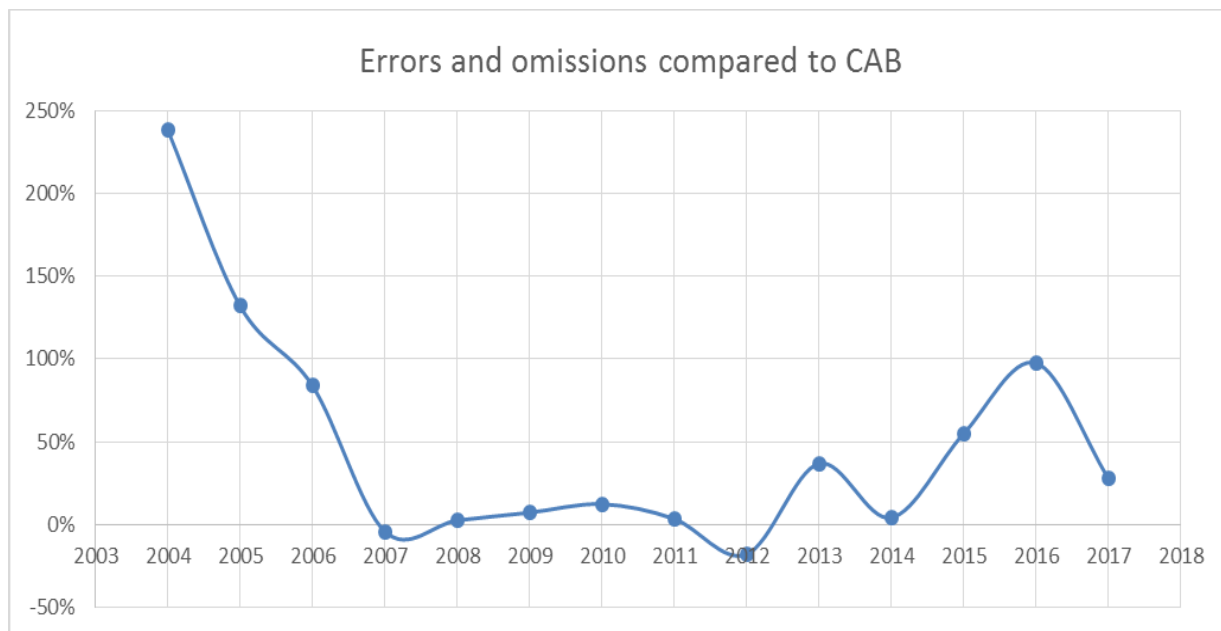
Source* Central bank of Armenia, Statistical committee of RA

Errors and omissions in BOP of Armenia are presumed to be huge. However, they are not too big compared to GDP. They are very volatile, for example if in 2012 BOP recorded 191 mln USD positive errors and omission, in 2013 it recoded 299 mln USD negative errors and omissions. In 2004-2017 BOP statistics recorded -1,426 mln USD cumulative errors and omissions, mainly with negative sign (14 times), and only 2 times with positive sign.



Source* Central bank of Armenia, Statistical committee of RA

Nevertheless compared to Current account balance they are quite sizable and as a result users expressed their concerns about this for several times. Taking into account that CAB is very important performance indicator it is important to understand whether imbalances come from current account or financial transactions sides.



Source* Central bank of Armenia

These imbalances were discussed with different purposes by various users for several times. In case of statisticians the size of difference between CAB and errors was pointed out with the aim to make several changes to data compilation system. At the same time there were also divergent interpretations of errors and omissions by other organizations. For example, an NGO called Global integrity finance treated negative errors and omissions as illicit financial outflow (at the same time a relevant question raises why it did not consider positive Errors and omissions as illicit inflow).

As the major part of errors and omissions is negative, it looks logical to look for uncovered or miscalculated "outflow" or overestimated "inflow". Even though E&O is a net figure, and there also might be uncovered credit transactions, the overall negative sign indicates that there are even larger debits missed out from official statistics.

Coverage problems

Last part of term "errors and omissions" refers to simplest explanation of large imbalances. Poor coverage or absence of data might cause large imbalances. The most obvious and problematic issues in BOP statistics are households external transactions and investments abroad. As it was mentioned before, individuals play strong role in Armenian economy. Control over companies usually belongs to an individual or a group of individuals rather than to holding corporations. This is also true for some part of foreign direct investment enterprises controlled by individuals from Armenian diaspora. There are many publications in mass media about investments of rich individuals abroad, some of them were even reflected in BOP data after several procedures to insure accuracy of the information. However, the media publications cannot cover all transactions and it is impossible to rely only on publications to compile statistics.

On the other hand, not only very rich individuals invest abroad. Another case is investing in real estate abroad. There are also many investments in real estate abroad that are poorly covered. In 2010-2017 in average more than 500 mln USD were transferred abroad annually by individuals for commercial purposes. These transactions are too large compared to import by households. It contains transactions in purpose of acquiring real estate, establishing business or transfer of financial means. It is very difficult to collect detailed data on such transactions and they may cause imbalances in external accounts statistics.

The problem of poor coverage of investments in real estate and in small and medium business projects exists not only in outward FDI statistics but also in inward FDI statistics. These investments are made due to large diaspora. The peak of investments of diaspora is considered to fall in 2006-2008, when the construction was growing rapidly. If we look at E&O, we will see that one of positive peaks falls in 2007, which can be result of large investments in real assets that were not covered properly in BOP statistics. Nevertheless, we should mention that at the same time outflow of individuals' transfers recorded its maximal values during these years (2006-2008), which gives strong evidence that the problem of outward investments was compensated by problem of inward investments. This is an example of how netting hides the real coverage issues.

Data quality problems

Quality of data collected for BOP compilation purposes is one of the reasons that can create non-systematic errors. Financial sector's external transactions seem to be covered properly. CBA collects many reporting forms, including detailed balance sheet from commercial banks, credit companies and other financial corporations. There are cross checks between different reporting forms. Banking supervision also checks the data periodically so the quality of data on financial sector is high. Central bank's own transactions and government external debt transactions are covered duly as well. Public transfers are one of few items in BOP that is recorded using double entry system, so they cannot be a source of errors and omissions.

On the other hand, non-financial corporations' external accounts statistics has large space to be improved. One of major problems with the non-financial corporations' reporting is reflection of dividends and interests accrued or paid in reporting forms. The reporting form requires to show the accrued interests during the reporting period as well as the interests accrued and not paid at the end of the reporting period. The same is required in case of dividends declared, as well as declared and not paid. After comparison of data with

other sources available including officially published financial statements of some enterprises CBA found considerable empty data in reporting forms. Later, CBA got the response that there is misunderstanding of term “declared” which respondents did not want to show because the dividends were paid on the previous year results and did not belong to the period covered by the report. In case of interest payments, the problem was that many of the enterprises attracted loans on favorable terms with rare interest payments, so they do not see the necessity of accruing interest every quarter.

Not going further into details we should state, that there are problems in data collected from non financial corporations, that may lead to non-systematics errors and omissions.

Correlation

Within the framework of this paper we also tried to check whether there is a correlation between different items in BOP and E&O. For that purpose we used SPSS Statistics software. Several items in BOP were found that are correlated with the E&O. However, some of them are examples of spurious correlation. For instance we have found out that the reinvested earnings are correlated with errors and omissions, while we know that they cannot cause imbalances as each transaction in current account is recorded in financial account at the same value. There are also some other correlations between errors and omissions and several items in BOP, but the amounts in these items are very small to explain even small part of E&O. For example, there is a strong correlation between E&O and portfolio investments of other deposit-taking corporations in debt securities, while the largest value recorded for the years analyzed does not exceed 6 mln USD. The same situation is with net issuance of liabilities of other sectors.

We have found a correlation between loans attracted by other depository corporations and E&O. We do not consider such possibility for the reason that was discussed earlier. The quality and the coverage of data provided by financial corporations is very high. It does not seem feasible that banks finance transactions are not covered and are source of E&O.

The same situation is with the loans liabilities of other sectors. It is difficult to explain why there is correlation between these two data series. Non-financial companies’ external financing usually is translated through commercial banks or import of equipment. A small portion may go to services. There might be an assumption that these investments do not come to Armenia, but are kept in form of foreign assets. It is very hard to believe that the major part of such liabilities was formed to finance corporations’ foreign activities. Some of enterprises financed externally are large mining companies and we have caught out corresponding import of special equipment and growth of mining sector.

The last but most important correlation was found between E&O and foreign exchange cash and deposits held abroad by other sector. Correlation between two indicators is 0.73, significant at level 0.01 (actual value is 0.003). This case will be examined below in a separate chapter.

Table 2. Correlation between errors and omissions and several BOP items

| | Reinvested earnings, credit* | Reinvestment of earnings, assets* | Currency and deposits, Other sectors, NAFA** | Loans, ODC, NIL, long term* | Loans, Other sectors, NIL, long term * | Other accounts receivable/payable, Other * |
|----------------------------|------------------------------|-----------------------------------|--|-----------------------------|--|--|
| Pearson Correlation | -0.537 | -0.537 | 0.738 | 0.565 | -0.561 | 0.564 |
| Sig. (2-tailed) | 0.048 | 0.048 | 0.003 | 0.035 | 0.037 | 0.036 |
| N | 14 | 14 | 14 | 14 | 14 | 14 |

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Special cases

We looked into several cases that can have an impact on E&O in Armenian balance of payments statistics. The selection of topics is based on possible concerns about quality of selected items that have been discussed between BOP compilers and data users.

Trade misinvoicing

External trade can be a single source that explains all errors and omissions. Import according to BOP was above 3 bln USD in average for 2004, and export was 1.3 bln for the same period. Thus, only 5 % variation in both indicators can cause proportionate imbalances. Therefore, the case of external trade should not be ignored.

As we discuss cases explaining negative E&O, we should examine underestimation of import and overestimation of export.

Import valuation is one of most discussed issues in economy. On the one hand, there are a lot of informal opinions and blames that import is underestimated. We will use here the term "kitchen" analysts, which is very popular Soviet time expression in Russian language to describe a discussion about something serious by people who are not even close to the topic. So "kitchen" analysts say, that there is at least part of import that is not registered or registered at lower value. The other "kitchen" analysts supported by business community tell that the import is overestimated, because customs authority is pressing on importers to collect more taxes. The same applies for import implemented by individuals. Anyway, we cannot evaluate these gossips. However, recent publications in mass media about liberating policy in custom were about using invoice price in custom declarations instead of control price, which would decrease costs for business (which means that invoice prices are lower than control prices). Taking into account that custom authorities often value import by control prices (when custom thinks that the control price is more reliable than invoice price), this can support the hypothesis that the import is not underestimated.

Discussions on export valuation is not as hot as for import. It is limited by the opinion of different economists and experts. The problem with overestimating export may be supported by the fact that a company receives back VAT paid for production or purchase of goods that it exports. At the same time Ministry of finance checks VAT refund with the VAT paid in its databases, which means that simple overestimating export invoice does not mean refund of certain amount. Therefore, we cannot bring any serious argument for overestimating invoices for export.

The same opinion about import and export have local business unions and some NGOs. For example Global Integrity Finance, an NGO mentioned above, made several calculations based on IMF's Direction of trade statistics database and concluded that the data for import is overvalued.

We made the same comparison using DOTS database. Difference between Armenia's import (adjusted for FOB price) and partner countries' export is always positive, which means that according to DOTS database Armenia's import is not underestimated.

For the export the difference between national and partners' data is always positive, which means that there might be some overestimation. Of course, we should not mix together all differences, because each country has its own story. For Iran, for example, the major item of export is electricity, which is exchanged for natural gas, and we are sure that the figures are correct and cannot create misbalances. Several countries

with major differences are main destinations of mining products export. We incline to the view that there is trade misclassification issues between countries rather than mining sector overvalues its export figures. We have not recorded any dividends in mining sector in 2014-2017, which means that companies do not look for opportunities to optimize their tax payments transferring their profit from Armenia.

Nevertheless, the differences between national data of export and partners' data should be further investigated.

Table 3. Foreign trade of Armenia and partner country data

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Import from Armenia¹ | 829 | 1,124 | 1,236 | 1,335 | 1,485 | 1,416 | 1,847 | 2,125 |
| Export from Armenia² | 1,041 | 1,334 | 1,428 | 1,480 | 1,519 | 1,487 | 1,797 | 2,243 |
| Difference between national and partner country data³ | 311 | 345 | 341 | 306 | 212 | 241 | 173 | 373 |
| Export to Armenia¹ | 2,244 | 2,512 | 3,053 | 3,277 | 3,400 | 2,639 | 2,453 | 3,130 |
| Import of Armenia² | 3,749 | 4,145 | 4,265 | 4,477 | 4,402 | 3,254 | 3,227 | 4,183 |
| Difference between national and partner country data⁴ | 1,055 | 1,135 | 700 | 663 | 473 | 224 | 387 | 551 |

Source: IMF Direction of trade statistics database

1 partner country data, 2 national data, 3 Difference was calculated taking into account CIF-FOB adjustment for partner country data, 4 Difference was calculated taking into account CIF-FOB adjustment for national data

Remittances overestimation case

Remittances are the other major component in BOP of Armenia. Calculation is based on a complex model, which uses individuals' transfers through commercial banks, surveys of households, seasonal workers, individuals receiving remittances in commercial banks, expert judgments. One of key elements of calculation model is adjustment of remittances received through informal channels. The ratios are calculated based on household survey results. Household surveys are conducted every 3-5 years. Usage of out of date ratios may cause some imbalances. We made several calculations to see how the increase or decrease of informal ratio could theoretically change E&O.

Table 4. Effect of changing informal channels ratio on errors and omissions

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|----------------------------------|-------------|------------|------------|-------------|------------|-------------|-------------|-------------|
| Informal channels -5 p.p. | -59 | 76 | 308 | -185 | 72 | -72 | -160 | -32 |
| Informal channels -2 p.p. | -105 | 21 | 250 | -252 | 9 | -117 | -202 | -79 |
| Actual size | <i>-156</i> | <i>-37</i> | <i>191</i> | <i>-299</i> | <i>-36</i> | <i>-149</i> | <i>-232</i> | <i>-112</i> |
| Informal channels +2 p.p. | -171 | -59 | 166 | -349 | -84 | -183 | -263 | -147 |
| Informal channels +5 p.p. | -226 | -124 | 98 | -429 | -160 | -237 | -314 | -203 |

There is a clear picture that diminishment of ratio for informal channels decreases negative errors and omissions. We should state that as the reduction of the ratio of informal channels decrease the inflow of remittances, it improves the misbalance. However, it cannot be a proof that there are miscalculations in this item. Each reduction of credits in current account automatically improves the E&Os. So this exercise should be considered as just an *additional* argument to conduct more surveys and use more precise calculations, as each p.p. may seriously increase or decrease E&Os.

Foreign cash holdings

As it was mentioned above, there is a strong correlation between E&O and foreign currency and deposits of other sectors. It consists of two parts. For the deposits held abroad in BOP statistics the data from BIS locational statistics is used. The second part represents household holdings of foreign exchange cash.

Data on foreign exchange cash held by households comes from remittance model and uses a lot of expert judgments. If we eliminate foreign exchange cash completely from calculations, we will get the following picture:

Table 5. Errors and omissions with and without foreign exchange cash holdings estimations

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---------------|------|------|------|------|------|------|------|------|
| Actual Size | -156 | -37 | 191 | -299 | -36 | -149 | -232 | -112 |
| Adjusted size | -187 | -69 | 102 | -321 | 40 | -18 | -86 | -41 |

If we look at complete table in appendix, we can see that elimination of FX cash improves E&O in seven cases and worsens in other seven cases. If we look "closer" we can see that it improves continuously during last three years and become worse during 2008-2009 years, when the calculation model was established. This can mean that the model worked for previous years, but it needs to be adjusted to reflect new realities.

Of course there is also other explanation. The cash and deposits data also includes transactions from locational banking statistics of BIS. The data of BIS is broken down by countries using the citizenship of the depositor and not the residency criteria. It can also cause imbalance, because many Armenians can have deposits in the reporting countries, without being the residents of our country any more in statistical concept.

FDI assets

The fact of foreign investments of Armenian residents abroad is widely discussed. There are many publications in mass media about acquisition of real estate or investment in business projects. The term "widely discussed" means, of course, that there is not any official confirmation of such investments. The only proof is large amount of transfers of individuals abroad through banking system. Even if we take into account the import value by individuals (average annual amount is 150 mIn USD) the value of transfers of individuals abroad through banking sector is too high. We can assume that some portion of these flows might be invested in businesses or real estate acquisition.

One of the best options of getting information on this issue is available source for partner country FDI is IMF's CDIS database. We compared outward investments data for 2016 (latest available data). The difference between national and partner country stock data was about 150 mIn USD. This is very low level, even if we assume that the counterparty data is entirely reliable.

Table 6. Outward FDI

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|-----------------------------|------|------|------|------|------|------|------|------|
| National data | 77 | 83 | 119 | 169 | 154 | 215 | 228 | 150 |
| Partner country data | 202 | 199 | 273 | 363 | 276 | 209 | 141 | 299 |

Source: IMF CDIS database

The issue of valuation of foreign assets is sometimes complicated because of double citizenship opportunity for Armenian residents. In case they acquire real estate or make an investment abroad using their foreign passport, it will make almost impossible to track the transactions.

Conclusion

We examined several cases to show where large potential white spots in BOP statistics may be. As BOP compilers, we understand that there may be also situation, where many small imbalances can be real reason of errors and omissions. Nevertheless, FX cash movements, remittances and outward investments seem to explain notional part of errors and omissions.

The more challenging question is what can be done to test hypothesis and improve the quality of statistics. One of contradictory solutions could be an introduction of International transactions reporting (ITRS) system in Armenia. The best international experience on which we rely is inclined to move from ITRS to direct reporting systems. However, countries, that moved from ITRS used the system for many years, they have high level of reporting culture. They also have transmission period when made it possible to compare the data from ITRS statistics and direct reporting. In Armenia there are several arguments to support of using ITRS as a *supplementary* source of information at least for some period.

First, ITRS system covers individuals' transactions, which otherwise can be covered quite poorly. It is doubtful that wealthy individuals may wish to answer to surveys referring to their international transactions. Even more, many transactions of individuals do not form their own financial assets but may result in foreign assets of their relatives, remaining de facto their own assets.

Second, ITRS system may be a tool for cross checking with non-financial corporations' reports. It may dramatically reduce the risk of missing large transactions. This may be too optimistic notion, but our viewpoint is that ITRS can help to catch all transactions through banking sector.

ITRS may also be very helpful to update register of companies with foreign investments.

However, ITRS cannot cover all questionable areas. Most challenging areas are those involving household transactions. In case of remittances, surveys and inclusion of new data sources may solve some part of problem. For other transactions it is unrealistic to collect data. For example, foreign investment of households will be difficult to cover. Some transactions may be caught by ITRS system, but still it will be difficult to cover transactions. Additional data sources, partner countries' and international organizations' data may help to reduce some portion of imbalances.

Nevertheless, there will remain significant part of transactions by households that will not be possible to cover. Compilers and users should get used to the fact that errors and omissions will remain in BOP statistics.

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Errors and omissions with and without foreign exchange cash holdings estimations

| | Actual Size | Adjusted size |
|-------------|--------------------|----------------------|
| 2004 | -188 | -152 |
| 2005 | -163 | -131 |
| 2006 | -128 | -164 |
| 2007 | 28 | -2 |
| 2008 | -41 | -218 |
| 2009 | -102 | -138 |
| 2010 | -156 | -187 |
| 2011 | -37 | -69 |
| 2012 | 191 | 102 |
| 2013 | -299 | -321 |
| 2014 | -36 | 40 |
| 2015 | -149 | -18 |
| 2016 | -232 | -86 |
| 2017 | -112 | -41 |

Foreign trade of Armenia and partner country data

| | Import from Armenia | Export from Armenia | Difference between national and partner country data | Export to Armenia | Import from Armenia | Difference between national and partner country data |
|-------------|----------------------------|----------------------------|---|--------------------------|----------------------------|---|
| 2004 | 619 | 724 | 180 | 1,162 | 1,348 | 24 |
| 2005 | 994 | 976 | 102 | 1,372 | 1,801 | 213 |
| 2006 | 890 | 984 | 201 | 1,658 | 2,191 | 270 |
| 2007 | 1,134 | 1,152 | 155 | 2,320 | 3,268 | 556 |
| 2008 | 969 | 1,057 | 204 | 2,813 | 4,426 | 1,082 |
| 2009 | 622 | 698 | 151 | 1,941 | 3,304 | 967 |
| 2010 | 829 | 1,041 | 311 | 2,244 | 3,749 | 1,055 |
| 2011 | 1,124 | 1,334 | 345 | 2,512 | 4,145 | 1,135 |
| 2012 | 1,236 | 1,428 | 341 | 3,053 | 4,265 | 700 |
| 2013 | 1,335 | 1,480 | 306 | 3,277 | 4,477 | 663 |
| 2014 | 1,485 | 1,519 | 212 | 3,400 | 4,402 | 473 |
| 2015 | 1,416 | 1,487 | 241 | 2,639 | 3,254 | 224 |
| 2016 | 1,847 | 1,797 | 173 | 2,453 | 3,227 | 387 |
| 2017 | 2,125 | 2,243 | 373 | 3,130 | 4,183 | 551 |



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BOP compilation practices in Armenia

- BoP compilation
 - From mid-1990s to 2011 National statistical service
 - From 2011 to present Central bank of Armenia
 - BPM6 methodology implemented from 2011
- Compilation system based on different sources. ITRS has never been used.
- Individuals' transactions play significant role in economic relations.



Errors and omissions origin

- Double entry system theoretically insures “zero” balance of BoP
 - It would work only if a single source is used, i.e. closed ITRS system
 - Requires recording each transaction twice, while in practice major part of entries are collected separately
- Practically most items in BoP of Armenia are collected separately.

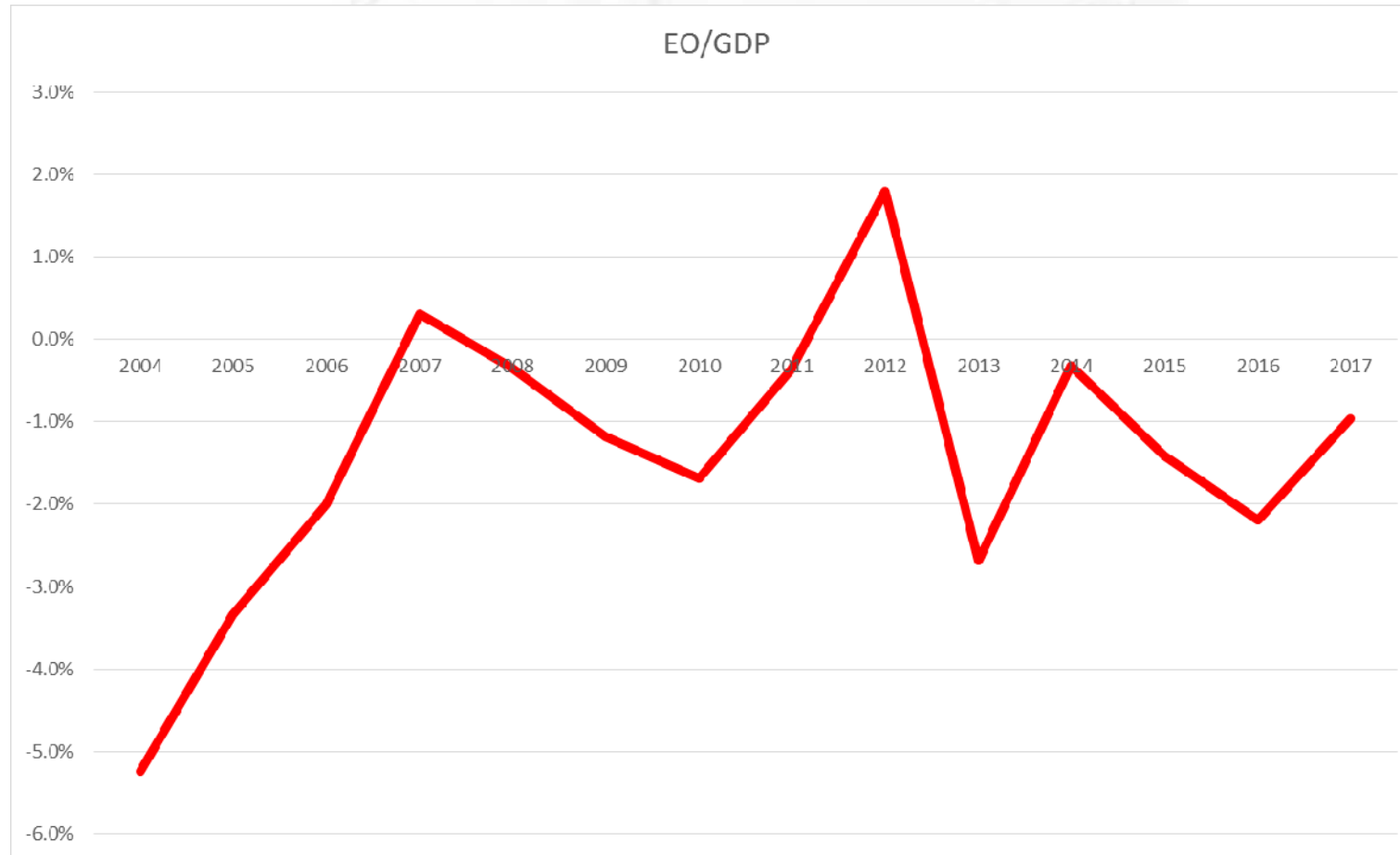


Errors and omissions: general overview

- Very volatile, without any pattern (but generally negative)
- Total 1,422 mln USD for 2002-2017
 - 3 times positive (223 mln), 13 times negative (-1,645 mln)
 - Significant compared to CAB (up to 238 % in 2004)



Errors and omissions: share in GDP



Errors and omissions: Possible reasons

- Trade misinvoicing
- Tourism
- Remittances
- Dividends
- Investments abroad
- Investments in real estate assets
- Foreign currency cash
- International cooperation with NPISH



BOP problems: coverage and quality

- Quality of data received from nonfinancial corporations
 - Dividends (significant revisions)
 - Data on loans and other foreign assets
- Outward FDIs
 - Investments of wealthy individuals abroad cannot be covered properly
- Foreign commercial transactions of households
 - More than 500 mln USD average in 2010-2017



Correlation

- Significant false correlations between some items of BOP and E&O
 - Reinvested earnings (can't be a source of errors by definition)
 - Portfolio investments of ODC, other sectors other liabilities (very small amounts)
- Strong correlation between E&O and Currency and deposits assets of other sectors
- Other sectors net incurrence of liabilities of loans (false?)
 - There might be a supposition that loans were not factually received by any available method (bank account, import or cash) but are kept outside.



Trade misinvoicing case

- Over invoicing of export and under invoicing of import can result in continuous negative E&O
 - Some analysis state the opposite trend
 - Local expert opinion is more or less the same
- DOTS data shows
 - National import data is always bigger than partner data
 - National export data is volatile compared to partner data



Remittances overestimates case

- Currently an estimated ratio is used
 - Ratio is derived from household survey
- Changing the ratio by 2 or 5 percent brought significant changes to EO

| mIn USD | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|-------------|------------|------------|-------------|------------|-------------|-------------|-------------|
| Cash +5 p.p. | -59 | 76 | 308 | -185 | 72 | -72 | -160 | -32 |
| Cash +2 p.p. | -105 | 21 | 250 | -252 | 9 | -117 | -202 | -79 |
| Actual size | -156 | -37 | 191 | -299 | -36 | -149 | -232 | -112 |
| Cash -2 p.p. | -171 | -59 | 166 | -349 | -84 | -183 | -263 | -147 |
| Cash -5 p.p. | -226 | -124 | 98 | -429 | -160 | -237 | -314 | -203 |



Cash inappropriate calculation

- Cash and deposits data is compiled using of two components
 - BIS data on foreign deposits held in BIS countries
 - Cash calculation model depending from remittance data
- Strong correlation with errors and omissions
- Eliminating cash estimates significantly decrease errors and omissions

| mIn USD | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|----------------------|------|------|------|------|------|------|------|------|
| Actual Size | -156 | -37 | 191 | -299 | -36 | -149 | -232 | -112 |
| Adjusted size | -187 | -69 | 102 | -321 | 40 | -18 | -86 | -41 |



FDI and other outward investment case

- About 150 mln USD difference in stock data of CDIS with partner countries' data
- Large amount of unknown 'commercial transactions' of individuals (compared to individuals external trade data)
- Very difficult to estimate due to residency criteria problem (large diaspora and double citizenship)



General conclusions

- Remittances, FX cash and outward investment can explain notional part of systematic errors and omissions
- Nevertheless there are some other large transactions uncovered that can result in both negative and positive Errors and omission in BoP



What can be done

- Continuous efforts to improve remittances statistics
- Efforts to improve FX cash movement statistics
- Cooperation with other compilers to improve outward FDI statistics (major projects)
- Improving non financial corporations external transactions statistics

Introduction of ITRS will create a strong source for covering major part of missing transactions through commercial banks.



What can't be done

- As a permanent problem it is impossible to handle with the significant role of households in economy
 - Financial transactions of households
 - Full coverage of foreign exchange cash held by households and resident “entrepreneurs”
 - Residency criteria problem of household

