



National
Bank of Moldova

Estimation the FX informally brought to the Republic of Moldova, and its distribution by BoP items

**UNECE Workshop on measuring informal economy for EECCA and
SEE countries**

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OUTLINE

1. Personal remittances related items

- ❖ personal remittances overview
- ❖ data sources used for the estimates
- ❖ compilation techniques applied
- ❖ the impact of the estimates on BOP accounts, including errors and omissions
- ❖ challenges in performing the estimates

2. Currency and deposits

- ❖ overview of cash cross –sectorial flows
- ❖ data sources used for the estimates
- ❖ compilation techniques applied
- ❖ the impact of the estimates on BOP accounts, including errors and omissions
- ❖ challenges in performing the estimates

3. Future plans to expand the estimates to other BOP components



Geographical Location

Population:

2.6 million

Area:

33,800 km²



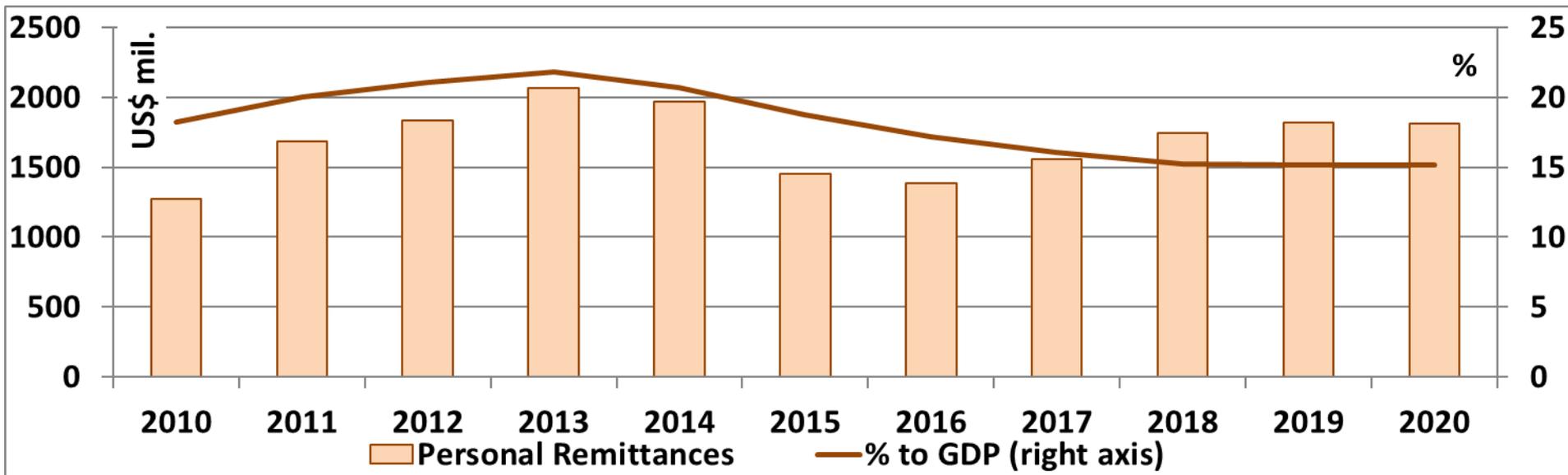
Personal remittances components for which estimates are performed

Total remittances and transfers to NPISHs: a+b+c+d+e+f					
Total remittances: a+b+c+d					
Personal remittances: a+b+c					
a. Personal transfers (part of current transfers)	b. Compensation of employees less taxes, social contributions, transport, and travel	c. Capital transfers between households	d. Social benefits	e. Current transfers to NPISHs	f. Capital transfers to NPISHs

Include informal flows

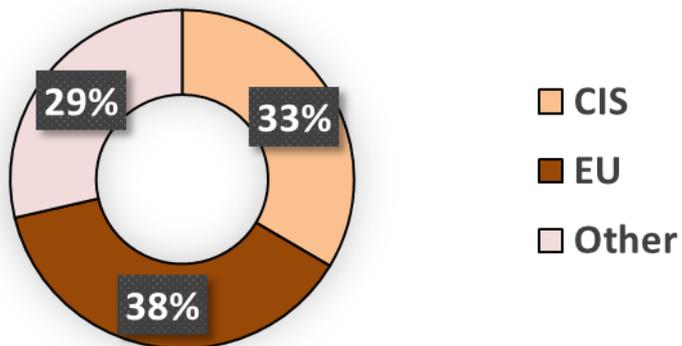
NPISH = nonprofit institution serving households.

Personal remittances magnitude

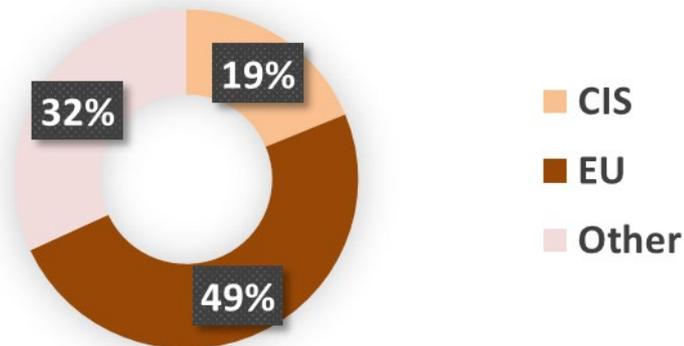


Geographical structure of personal remittances

Personal Remittances, 2018



Personal Remittances, 2020



Personal remittances: Data sources

Statistics collected by the National Bank of Moldova

- ❖ ITRS - Summary report on international banking transactions
- ❖ Money transfers from abroad to individuals (via commercial banks, money transfer operators, and postal offices)
- ❖ Foreign currency assets and liabilities of commercial banks of the Republic of Moldova - data on foreign cash holdings
- ❖ Cash deposited in/ withdrawn from the accounts of individuals with commercial banks
- ❖ Transactions made by foreign exchange offices of commercial banks
- ❖ Foreign currency sale / purchase transactions made by independent foreign exchange offices
- ❖ Foreign cash taken out from/ brought to Moldova by commercial banks

Data on key household spending categories where foreign cash is typically used, collected by other national authorities

- ❖ Transactions in real estate (Agency for Public Services)
- ❖ Average market prices of real estate (Real estate agencies)
- ❖ Number and value of cars imported by individuals (Customs declarations database)

Migration and labor force statistics

- ❖ Labor Force Survey (National Bureau of Statistics)
- ❖ Population Census (2004, 2014)
- ❖ Specially Designed Surveys (CBX-AXA, IOM)

Other data sources

- ❖ Number of residents and non-residents who crossed the border (Frontier service)
- ❖ Statistics of partner countries (e.g. Russia - money transfers, working permits)
- ❖ Economic situation in host countries

Personal remittances

Compilation techniques applied

Estimation of informal inflow to be included in remittances-related items of the BoP

<https://www.imf.org/en/Data/Statistics/informal-economy-data/Reports/Moldova-Compensation-of-employees-and-Personal-transfers>

1.

- The total value of the financial flows entering the country by all formal channels is calculated

2.

- The difference between the actual foreign currency consumption of individuals and available foreign currency from formal sources is estimated
- Adjustments for consumption pattern of households are included taking into account the evolution of other macroeconomic indicators (final consumption, savings, CPI)

3.

- The aggregation of amounts calculated in previous 2 steps, and distribution according to BoP articles

Personal remittances

Advantages of inflow estimation method

- ❖ covers all channels of money transfers (banks, MTO, post offices)
- ❖ takes into account migration and labor force statistics
- ❖ covers all formal national FX circuits involving individuals:
 - the evolution of resident individuals' deposits (new deposits in foreign cash and withdrawal of deposits)
 - the evolution of foreign cash held by commercial banks (including the export-import of foreign cash by banks)
 - the turnovers of foreign exchange offices
- ❖ takes into account FX consumption and savings of households
 - the evolution of real estate and motor car markets
 - expenditures on education, medical services, etc.
- ❖ Individuals' propensity to save and the evolution of households' consumption are also taken into account.
- ❖ it is based on comparison of the consumption and resources entered the country formally (taking into consideration the demand (uses) to adjust the supply (resources))



Personal remittances

Distribution according to BoP

1. Geographical distribution:

- ❖ The transfers by formal channels – data sources (ITRS)
- ❖ Adjustments – tendencies set by Labor Force Survey
- ❖ Aggregation by geographical areas

2. Residents / nonresidents – coefficients (shares) based on Labor Force Survey

- ❖ < 1 year – residents (net compensation of employees)
- ❖ > 1 year – nonresidents (personal transfers)

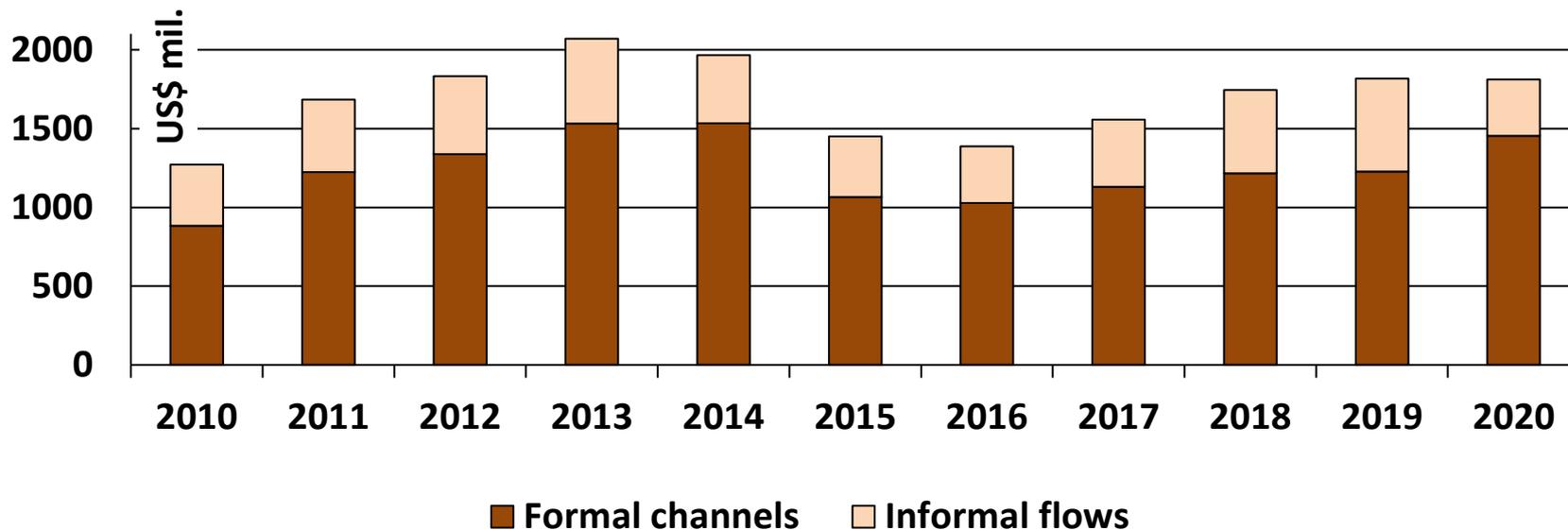
3. Gross compensation of employees:

- ❖ taxes, social contributions – 5%
- ❖ transport and travel – 12%

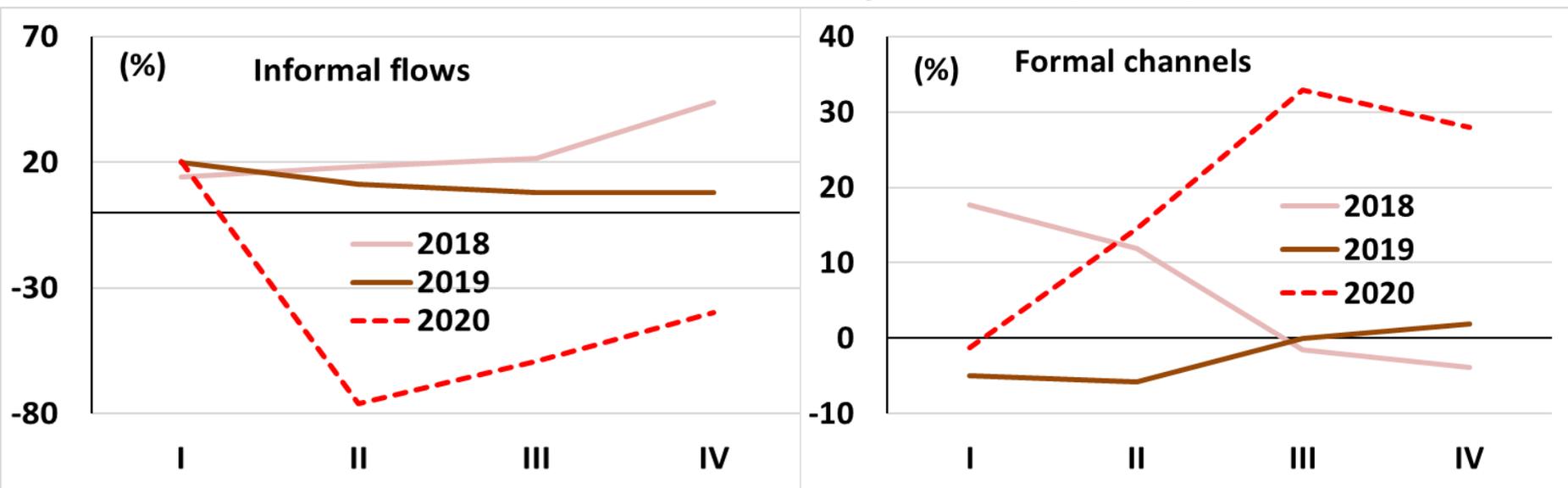
4. Personal remittances: **personal transfers + net compensation of employees + capital transfers between households**



Personal remittances structure

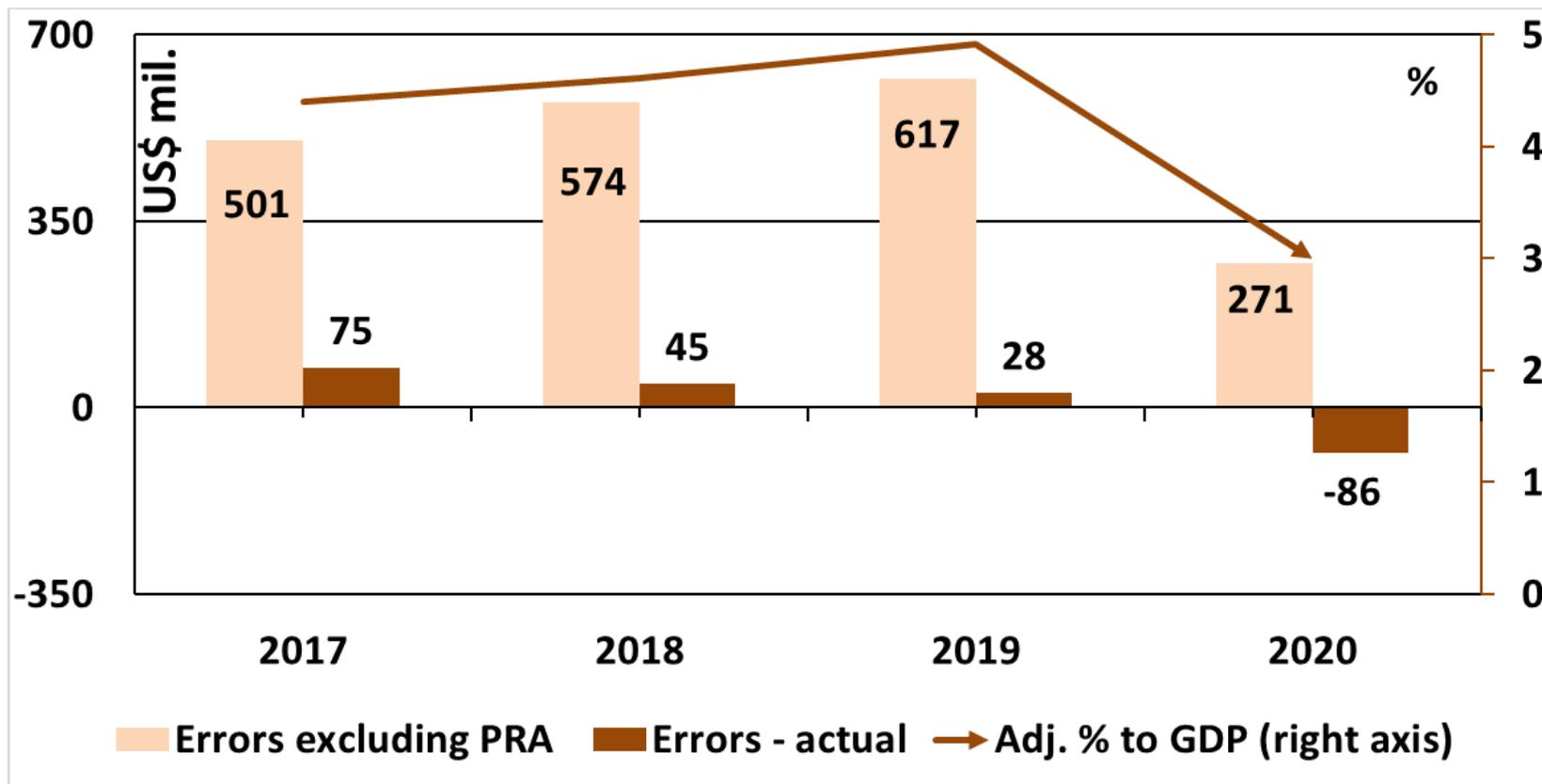


Personal remittances growth (YOY)



Personal remittances

Informal inflow impact on BoP



Personal remittances

Challenges in performing the estimates

- ❖ The model relies on many assumptions. Individuals' behavior may change over time, that is why empirical verification of assumptions is important and requires periodical appropriate surveys to be conducted; however, specialized surveys are conducted very rarely.
- ❖ No comprehensive and reliable counterpart data are available. Moldova's official statistics and implicitly BoP and remittances statistics do not include a part of territory called Transnistria, which is not under the control of Moldovan authorities. Partner countries' statistics include the whole territory, that is why data are not comparable.
- ❖ The geographical distribution of cash received via informal channels remains a challenge.
- ❖ The model estimates the total inflow of remittances from the perspective of demand (spending) - based approach and the informal inflow of remittances is derived as a residual, therefore it is impossible to distinguish between flows coming from informal or illegal activities.
- ❖ Due to development of IT technologies (especially payment methods) and distance employment is necessary develop data-sources and estimations methods to cover these individuals (e.g. compensation of NR employees working from their countries)

Currency and deposits

Net acquisition of financial assets-Other sectors

Overview

<https://www.imf.org/en/Data/Statistics/informal-economy-data/Reports/Moldova-Net-Purchases-of-Foreign-Currency-in-Cash>

In Moldova, *net purchases of foreign cash* from individuals by resident banks and currency exchange offices **constantly and largely exceed net remittances** (from all channels, including informal), which suggests that individuals own and sell more foreign cash than they receive from abroad in the current period and they keep this resources on accounts abroad and via informal channels move them into the country when need.

The sources of the cash are **not covered completely** by the official statistics. The actual situation in the country with **high dollarization/eurozation** of economies and biggest transactions of individuals (motor car and real estate, education and health care, travel..) in FX or linked on it, the issue of **reflecting, the inflows in BoP and the source in IIP, informal cash has undeniable importance**.

The **size of this phenomenon is on average of 27% of all inflows in BOP Financial account**. **Necessity to adjust the flows** on Currency and deposits-Net acquisition of financial assets-Other sectors by **estimating the excess** of net amounts **of foreign cash** sold by individuals to banks against estimates of total net remittances during reporting period as a decrease in CD of OS abroad.

Currency and deposits

Net acquisition of financial assets-Other sectors

Data sources used for the estimates

- ❖ Information on demand and supply of foreign exchange in the forex market / monthly
- ❖ The NBM's activity on the interbank market /monthly
- ❖ The evolution of DTC FX assets and liabilities and Official Reserves assets and other foreign currency assets /monthly
- ❖ Information about the deposits in national and foreign currencies of commercial banks, on their own behalf and on the behalf of their customers / monthly
- ❖ Remittances statistics, produced within International Accounts Statistics Division by BP Compilation Unit, the calculations in the model of informal remittances in cash estimations / quarterly
- ❖ Research on the exchange rate behavior in Moldova, 2017, the Economic Research Department, NBM (in frame of witch also the FX flows were analyzed and same estimates of postponed consumption were made), other relevant researches / ocasionaly
- ❖ BIS statistics of deposits of Moldova's residents in banks abroad

Currency and deposits

Net acquisition of financial assets-Other sectors

Compilation techniques applied (1)

I. A comparison is made between the [net supply of foreign cash](#) and [net remittances](#) in the same period. Two situations are possible:

net supply of foreign cash >
net remittances

- It is assumed that the extra cash sold by individuals comes from savings hold abroad made from remittances received in the past or from other unknown sources . The difference is recorded on the Ct side as a decrease in *other sectors' currency and deposits* assets and as an increase in *currency and deposits of deposit-taking corporations* on the Dt side.

net supply of foreign cash <
net remittances

- This reflects growth in households' assets in the form of FX hold abroad as a result of saving and represents potential postponed consumption. The difference is recorded as an increase in *other sectors' currency and deposit* assets on the Dt side (with the Ct entry in *remittances*).

Currency and deposits

Net acquisition of financial assets-Other sectors

Compilation techniques applied (2)

II. The evolutions of deposits within bank's sector(DTC) is analyzed. Several clearly identified situations are possible : **group 1 (intra-bank flows)**

	Commercial banks, national currency	Commercial banks, foreign currency	Natural persons, national currency	Natural persons, foreign currency	Economic entities, national currency	Economic entities, foreign currency	Interpretation
1	↑	↓	↓	↑	↓	↑	intra-bank flows, no inflow of FX into the DTC sector
2	↓	↑	↑	↓	↑	↓	intra-bank flows, no outflow of FX from DTC sector

- 1. Deposits** of individuals or economic entities **in foreign currency increase as a result of the conversion (bank-customers)**, accompanied by a simultaneous reverse net dynamics of deposits in national currency. In this case, there are no cross-sector flows if the converted amounts are deposited with commercial banks (row 1 in the table above), **not BoP**;
- 2. Deposits** of individuals or economic agents **in foreign currency decrease as a result of the conversion (bank-customers)**, accompanied by a simultaneous reverse net dynamics of deposits in national currency. In this case, there are no cross-sector flows if the converted amounts are deposited with commercial banks (row 2 in the table above), **not BoP**;



Currency and deposits

Net acquisition of financial assets-Other sector

Compilation techniques applied (3)

III. The amplitude of changes in deposits is analyzed and compared for different groups of customers, **the group 2 (inter-customers flows)**:

entities	Commercial banks, national currency	Commercial banks, foreign currency	Natural persons, national currency	Natural persons, foreign currency	Economic entities, national currency	Economic entities, foreign currency	Interpretation
3	Insign. change	Insign.change	↓	↑	↑	↓	intra-customers flows, no inflow of FX into the DTC from OS
4	Insign.change	Insign.change	↑	↓	↓	↑	intra-customers flows, no outflow of FX from DTC to OS

3. **Deposits** of individuals *in foreign currency increase* (decrease in national currency) as a **result of the conversion (between customers – individuals/ec. entities)**, accompanied by a simultaneous opposite net dynamics of deposits of economic entities in foreign currency and in national currency. In this case, when **deposits of banks also do not change significantly** (or the change is explained by flows with the central bank) there are no cross-sector flows (row 3 in the table above), **not BoP**;

4. **Deposits** of individuals *in foreign currency decrease* (increase in national currency) as a **result of the conversion (between customers – individuals/ec. entities)**, accompanied by a simultaneous opposite net dynamics of deposits of economic entities in foreign currency and in national currency. In this case, when **deposits of banks also do not change significantly** (or the change is explained by flows with the central bank) there are no cross-sector flows (row 4 in the table above), **not BoP**;



Currency and deposits

Net acquisition of financial assets-Other sectors

Compilation techniques applied (4)

IV. The change in the deposits of individuals is compared with the difference between the net supply of foreign cash and net remittances for the following situations : **Group 3 (inflow/outflow from/to individuals with banks)**

	Commercial banks, national currency	Commercial banks, foreign currency	Natural persons, national currency	Natural persons, foreign currency	Economic entities, national currency	Economic entities, foreign currency	Interpretation
5	↓	↓	↓	↓	↓	↓	outflow of FX from banks to other sectors
6	↑	↑	↑	↑	↑	↑	inflow of FX to banks from other sectors

5. **Deposits of individuals decrease** (both in FX and in national currency) as well as of economic agents, **accompanied by a net decrease in commercial banks' deposits** in FX and in national currency (bigger than with CB), which indicate an outflow from banks to other sectors (row 5), BoP, **debit Currency and Deposits(NAFA +) – Other sectors**;

6. **Deposits of individuals increase** (both in FX and in national currency) as well as of economic agents, **accompanied by a net increase in commercial banks' deposits** in FX and in national currency (bigger than with CB), which indicate an inflow from banks to other sectors (row 6), BoP, **credit Currency and Deposits (NAFA -) – Other sectors**

Currency and deposits

Net acquisition of financial assets-Other sectors Compilation techniques applied (5)

V. After the analysis of the current situation in deposits (for the quarter of compilation) and classifying the evolution of deposits to mainly one of three groups presented, ***only for the cases of the group 3 (rows 5 and 6) the adjustment could be done.***

The size of adjustment is determined by the difference between the net supply of foreign cash and net remittances in comparison with the change in the deposits of individuals, excluding the changes caused by the withdrawals or opening deposits with cash.

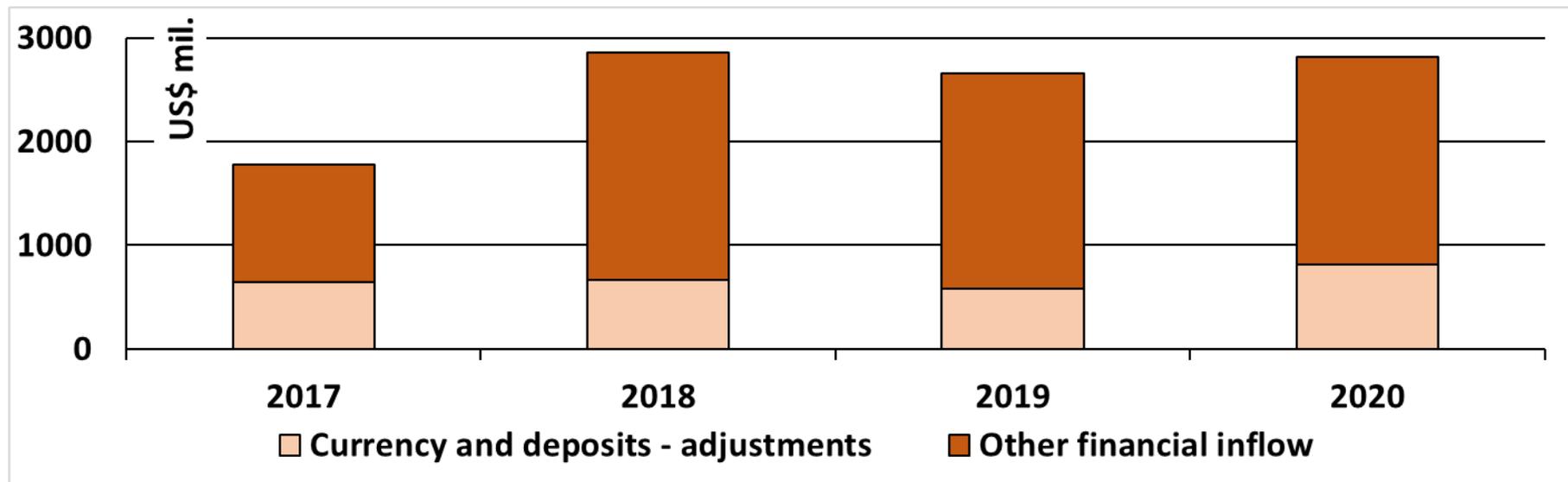
VI. The adjustments for positions in the International investment position for currency and deposits are also operated, aimed to ***consolidate the stock*** for other sectors. The value of adjustment is assumed to be equal as a half of the informal cash inflow during the current period, estimated in the model on personal remittances.

Main advantages of estimation method

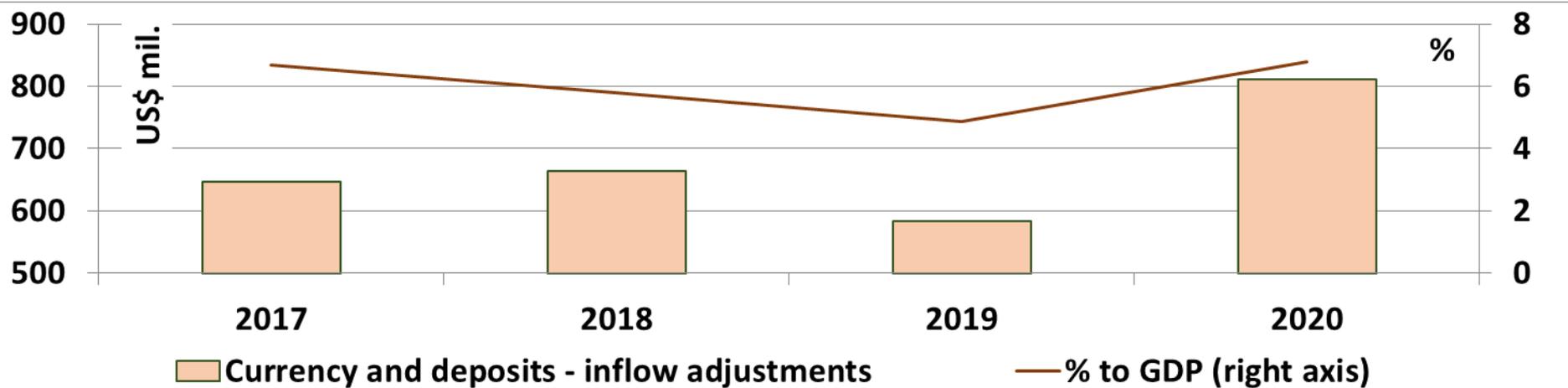
- ❖ ***All formal and estimated cash flows*** are taking into consideration during the concluding on the necessity and size of the adjustment.
- ❖ The double accounting is unless probable due of ***using a most prudent approach.***
- ❖ A complex ***method of integrating the estimations of flows with consolidation/modification in positions*** is applied.
- ❖ The cross-checking of estimated data magnitude (for flows and positions) generally with the estimates of informal economy share in GDP formation and relevant BIS statistics.

Magnitude of currency and deposits adjustments

(1) Financial account – inflow

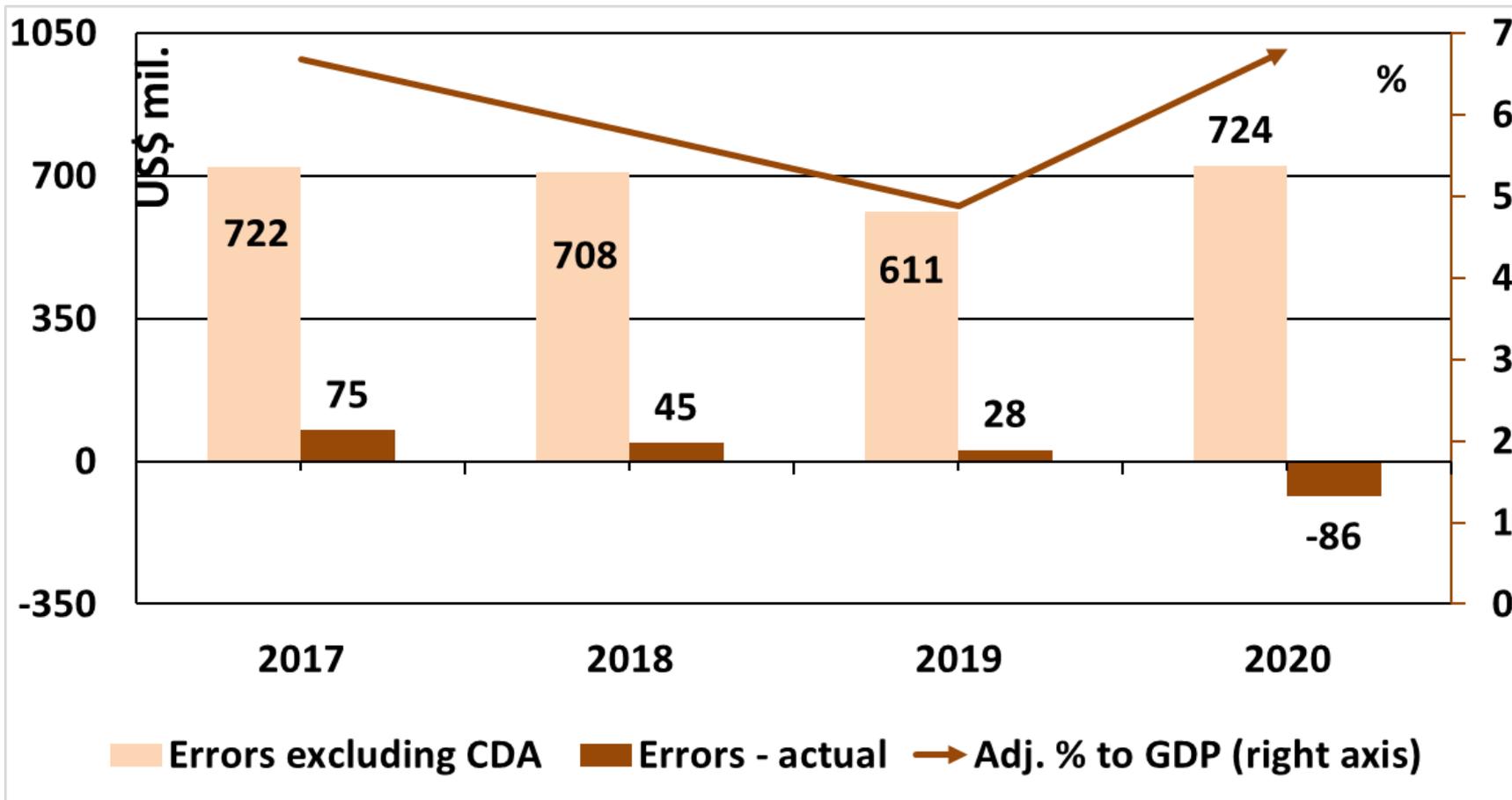


(2) GDP



Currency and deposits adjustments

Impact on BoP



Currency and deposits

Net acquisition of financial assets-Other sectors

Challenges in performing the estimates

1. The discrepancy during reporting period between the net supply of foreign cash from individuals to banks and net remittances received ***might partly arise from possible issues with the estimation of net remittances or with the estimation of other BOP items*** (underestimations or overestimations for the current period).
2. This ***time of establishing transactions*** could be with in different period as the contra-entry, this inconsistency in time of recording could pertain to the current period, or be cumulated historically, or more probably, both.
3. ***The economic origin of estimated informal entries*** from abroad of FX in cash can ***have a mixed nature***, postponed consumption or offsetting records of current period's transactions not reflected in BoP (in Current Account or Financial Account).
4. Additionally, within the amounts estimated, it is ***impossible to distinguish between flows coming from informal, underground or illegal activities***, because this supply-based approach estimates the total.



Future plans to expand the estimates to other BOP components

1. To correlate/improve the existing estimates and estimations technique on informal/non-observed economy in IA with those applied in NA
2. To extend the estimations on goods and services, in order to find the sources of FX inflows – use other countries estimates for Moldova (informal exports of tobacco, alcoholic beverages, prostitution, IT related services...)
3. To analyze the possibility to improve the DI and PI assets estimations and income inflow from them, as one of possible sources of cash inflow into the country.
4. To use available data, as the WB and BIS databases, for enhancing/completing/or even replace partly the estimations of stocks and flows for OS CD abroad, and CDIS and CPIS datasets for DI and PI assets estimates.
5. To collaborate more active with the Research department and encourage them to made more often researchers on informal economy, FX in pockets (in cash), consumption in FX. To analyze the related international researches and papers for similar country situations.



Thank you!

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