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CASHLESS SOCIETY AND DE-DOLLARIZATION IN UKRAINE. WHAT IS MISSING FROM PRESENT DISCUSSIONS?

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ABSTRACT

The National Bank of Ukraine stepped on the track to a cashless economy aiming at reforming the financial system, improvement of the transmission mechanism, and reduction of the underground economy and corruption. A substantial part of money in the Ukrainian economy is estimated to be foreign cash in circulation. This article underlines the importance of considering it while conducting monetary policy. Negative consequences of high dollarization and proliferation of cash are emphasized. We discuss measures that are helpful in decreasing usage of cash in general and foreign cash in particular.

JEL Codes: E41, E50

Keywords: cash demand, dollarization, negative mirage, hysteresis, cashless economy

I. INTRODUCTION

"Negative mirage" was first mentioned by Professor Robert Mundell (awarded a Nobel Prize in Economic Sciences in 1999) at his lecture in the Croatian National Bank Conference in 1996, Mundell, (1997). He went on to explain that a mirage is something we see but is not there, like Fata Morgana in the deserts. Economists like to use the term "negative" so we speak about negative growth rate, not a "fall" rate. Thus, a negative mirage is something that is there, but we do not see it. He was referring to GDP in transition economies. In the early to mid-nineties, official statistics would show a deep dive in GDP in transition economies, but reality was not as bad as statistical numbers pointed to. Official statistics do not always capture all economic activity, especially in so-called transition economies, whose structure was changing too rapidly. It is worth noting that statistical omissions in economics are not limited to post-socialist economies. Recently a lot of emerging countries have "increased" their economies by a so-called rebasing of GDP. The most notable example is Nigeria, who increased its GDP by 90% in 2014.[2]

Similar phenomena, when official statistics do not account for the total of a variable, can be found in the monetary sphere as well. The effective money supply in countries is often larger than what monetary statistics captures. We refer in particular to so-called foreign cash/currency in circulation (FCC).[3] There are many countries in the world where not only local currency in circulation (LCC) is used, but FCC as well. That means the amount of effective cash is larger than captured by official statistics and comprises of both LCC and FCC. Ukraine seems to be among such counties. Why is this relevant for policy makers and the economy in general?

The first issue is the propensity of households to use and hoard cash. Rogoff (2016) advocates cash is paid insufficient attention in economic research.[4] Being aware of this, the National Bank of Ukraine (NBU) has recently launched the Cashless Economy Project.[5] This is positive and should be continued. However, discussions should not be limited to LCC only,

[1] Views expressed in this article are the only responsibility of the authors and not of institutions they work for.
[2] More detailed information is posted at the link: http://www.economist.com/news/finance-and-economics/21600734-revised-figures-show-nigeria-africas-largest-economy-step-change
[3] By FCC we mean only cash issued by foreign central banks but circulating in a country. Foreign exchange (FX) is broader and encompasses foreign exchange deposits as well (for example USD deposits in Ukrainian banks).
[4] We use the terms cash, paper currency, and currency in circulation as synonyms in this article.
[5] More detailed information is posted at the link: https://bank.gov.ua/control/en/publish/article?art_id=32495491, and https://bank.gov.ua/doccatalog/document?id=36963478

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the hryvnia, but should include FCC as well. Second is the question of dollarization.[6] Use of foreign exchange (FX) in a country has deep roots and many consequences. Unlike cash, dollarization has attracted considerable interest by researchers abroad, Mecagni et al (2015), Scheiber and Stix (2009), and in Ukraine, Perelygin (2015). A "negative mirage" like FCC is usually omitted from analysis, Zholud et al. (2016). Usually discussions on dollarization are limited to asset or liability dollarization of economic agents (households, businesses, government, etc.) that is measured by official statistics (for example households' FX deposits in banks). Third, the large use of FCC has a number of negative impacts on the economy as will be explained.

The goal of our article is to draw additional attention to economic agents using and holding FCC in a country. Without analyzing FCC more deeply, the discussion on de-dollarization, the drive to cashless economy, as well as overall macroeconomic stability, is incomplete. After discussing why FCC is a problem, we will present some estimates of FCC in Ukraine as well as give some data comparisons with other countries. The last part of our article includes conclusions and gives some policy discussions.

II. WHY IS FCC A PROBLEM?

One may think that FCC is not a serious economic problem and there is no need to focus on it. Putting political issues aside, a large amount of FCC in an economy should be taken seriously and adequately addressed by all economic policy makers.[7] True, if a banking crisis is in full blossom with currency in free fall, this might not be a priority. However, once macroeconomic stability is restored, FCC should be analyzed more thoroughly. The argument is simple. If people hold cash in their portfolios instead of bank deposits, it means that their trust in the banking system is low and/or the financial infrastructure in a country to use cashless modes of payments is inadequate. If they prefer FX to domestic currency (asset dollarization either by holding cash at home or FX deposits in a bank), it means that their trust in the domestic currency is low. The reason for this is usually due to past macroeconomic instability, i.e., high inflation and/or depreciation of the domestic currency. Economic agents try to avoid inflation tax by saving FX instead of domestic currency. Neither phenomenon is new nor restricted to Ukraine or transition economies.[8] Until relatively recently (i.e., after the Global Financial Crisis – (GFC) starting in 2008), policy makers did not pay sufficient attention to dollarization due to the following reasons:

Countries where dollarization was never a problem are typically those whose economic history is not burdened with inflationary periods, currency depreciations, and banking crises. If a small percentage of assets are held as FCC, this indeed should not be a top priority for policy makers.

Countries aspiring to join the European Union (EU) soon claimed that once they became an EU member they will introduce the euro as their currency. So, why bother with de-dollarization if the euro will soon be the official currency? Today we know better. First, EU candidate and other countries in the region might not become members in the medium-term, and second, joining the euro area is not the panacea for economic ills as it once was thought to be. The recent economic history of Greece and other euro area Mediterranean countries is proof of that.

Some countries had a "benign neglect" approach. They admitted that dollarization is there, but it probably does not do much harm and it may even have some benefits, so why bother? Even if risks were perceived, the probability of them materializing was considered low. However, a Black Swan in the form of a GFC resulting in large depreciation of currencies in some transition economies, and especially the strong appreciation of the CHF toward main currencies, means potential risks have materialized. All the negative consequences of neglecting to boost domestic currency became visible and were painful. As a reaction to this, EBRD launched its local currency initiative in May 2010.[9] In Ukraine, it was launched in July 2015.[10] However, FCC remained outside the scope of developing capital markets in local currency.

Finally, there are countries that started programs for de-dollarization, but have given up efforts due to its persistence, like the hysteresis effect, Valev (2005).

As a result of the GFC, de-dollarizing economies came into renewed focus of many researchers and an increased number of articles on de-dollarization were published, Perelygin (2015), Catao et al. (2016), Naceur et al. (2015).

[6] We will use the terms "dollarization" and "euroization" as synonims in this article.
[7] The end of October's e-declarations in Ukraine have shown (according to media) that political elites hold vast amounts of FX "under the mattress" – FCC (Aslund, 2016).
[8] When discussing other countries, we will focus mostly on transiton economies.
[9] More detailed information is posted at the link: http://www.ebrd.com/what-we-do/sectors-and-topics/local-currency-and-capital-markets.html.
[10] More detailed information is posted at the link: https://bank.gov.ua/control/en/publish/article?art_id=19486492

Dollarization aside, a high share of LCC can be a problem for the economy as well. True, cash has been around for a while since it was described to Westerners by Marco Polo in the XIV century, Rogoff (2016). But it seems that analyzing LCC is considered "old fashioned". It is much more "in" to discuss Bitcoin and block chain technologies than the economic role of cash.[11] Unlike FCC, the amount of LCC (banknotes and coins), can be computed as a "residual". We do not know where it is actually held, under a mattress or used to settle economic transactions, but we know how much is in circulation. Central banks/monetary statistics know how much banknotes are printed (and coins minted) and how much is in their vaults (and banks' vaults). The difference is "in circulation". For relatively weak currencies it is reasonable to assume that most of the amount is held in the country of origin.

But knowing how much FCC is in a country is much more difficult. There are different methods of estimating it, Feige et al. (2002), but none seem to be very precise. For that reason, researchers are not very keen to include FCC in their models and research papers. Some may not even be aware of its relevance in the economy. Emerging and transition economies face a challenge to compute the effective money supply in their countries, including FCC. Ukraine is not alone in this club. This is a big problem, especially in Central, Eastern, and Southeastern Europe, which had its share of macroeconomic instabilities in the past, Schneider and Stix (2009). It is important to elaborate what are the possible negative consequences of FCC which combines the problems of high use of cash and dollarization:

A) A high share of cash (as compared to bank deposits) in an economy is a sign of an underdeveloped financial system and lack of trust in it. It means a low level of financial intermediation as money is not in the form of bank deposits and is not intermediated by banks. This lowers the efficiency of financial markets and the overall economy. If, besides a large amount of domestic banknotes in circulation, there is a significant amount of FCC, the problem is compounded;

B) With FCC, monetary statistics in a country are incomplete, i.e., we may be missing a large part of the effective money supply. This can have serious consequences for policy making. Economic models that use monetary data may not be accurate. If FCC is not taken into account, it may be difficult to explain inflation in a country. A good example is Oomes et al. (2005), where the FCC in Russia included into the model helped to explain relations between inflation and money demand. Furthermore, without measuring FCC holdings of different economic sectors, the balance sheet calculation can be misleading, especially for households;

C) Behavior (partially) of economic agents may differ substantially with a significant amount of FCC in the economy. For example, if a central bank wants to pursue expansionary monetary policy and increases the money supply, economic agents may expect inflation and/or devaluation and may switch to FCC, which may actually decrease demand for domestic currency. The so-called law of unintended economic consequences should not be neglected;

D) Much of monetary policy efficiency relies on the credibility of the domestic central bank. As mentioned already, the existence of FCC corresponds tightly to credibility. So, decreasing FCC should go alongside with improving credibility, though it is difficult to measure;

E) In such a case, the transmission mechanism of monetary policy may not be well understood and may be less efficient than in economies that do not have FCC;

F) If FCC is widely used, then seigniorage from banknotes will go to ECB or the Fed and not to a domestic central bank like the NBU. As usually an excess of revenues over expenditures at central banks is transferred to the Government, wide use of FCC may have negative fiscal implications;[12]

G) Linked to this is loss of tax revenue in the gray and underground economy generated by use of cash in non-registered activities. Tax avoidance (and all illegal activities) is much easier when transactions can be settled with ample FCC in an economy.[13] The biggest euro banknote is about thirty times larger in value than the largest hryvnia banknote, which means that a much large value can be put in a proverbial briefcase;[14]

[11] The importance of cash is visible in the case of India for example. In November 2016, the Government decided to withdraw (i.e., demonetize) its 500 and 1,000 banknotes. The aim is to fight black market activities. However, the measure, at least after introduction, created a lot of problems for small businesses in particular as there is no alternative. More detailed information is posted at the link: http://www.economist.com/blogs/economist-explains/2016/11/economist-explains-6
[12] For more detailed information on seigniorage, see Rogoff (2016).
[13] Rogoff (2016) devotes a large part of his book to teh use of large denomination banknotes in illegal activities.
[14] In May 2016, the ECB decided that it will not produce Euro 500 banknotes any longer, but printed ones will be valid without limitation. More detailed information is posted at the link: https://www.ecb.europa.eu/press/pr/date/2016/html/pr160504.en.html

H) In some advanced economies, a cash-prone society may undermine monetary policy. Estimates are that around 80% of transactions by volume in Germany are done in cash. In the US, around half of them, Schmidt (2016). If monetary policy operates in a “zero lower bound” environment (a situation that older generations might remember as a Keynesian liquidity trap), this becomes a problem. After the GFC, as central banks started running out of options in their “toolkit” for their expansive monetary policies (once interest rates were close to zero, measures like quantitative easing were introduced), researchers started considering using negative interest rates to stimulate economic agents to spend more and not to save. But the risk of applying negative rates to households’ deposits in banks is that they might, instead of paying to banks to keep their money there, change their portfolio composition to cash and keep it at home. If this would happen, negative interest rates would be counterproductive as a measure to stimulate aggregate demand. Therefore, some economists started advocating phasing out cash, which would decrease degrees of freedom for monetary policy in the future. Rogoff (2016) is one of the most vocal advocates of phasing out cash.

Despite all the difficulties in estimating circulation and the stock of foreign cash within the borders of a specific country, taking into account its presumable range and dynamics should help a lot. Therefore, we draw attention to the issue of dollarization, and FCC in particular, and we discuss ways of estimating FCC.

III. FOREIGN CURRENCY IN CIRCULATION IN UKRAINE AND OTHER COUNTRIES

In European economies that have a currency substitution problem, the two mostly used substitute currencies are US dollars and the euro. They are valued for their stability and tradability (network effect). Chinese Renminbi or Japanese Yen may be stable currencies, but not of much use in Europe as banknotes since nobody holds them. So, how big is the use of the euro and dollar outside their territories?

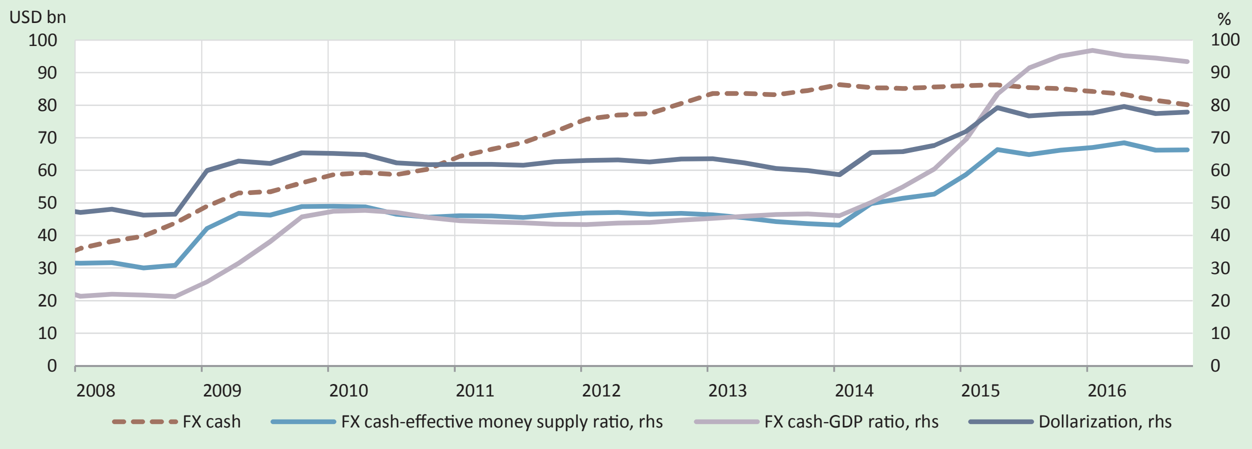
The total value of euro cash in circulation is somewhat larger than one trillion euros. It is estimated that 20-25% of banknotes by value are held outside the euro area, so only ¾ of the total circulate within the euro area. But, how much is in Ukraine, how much in Romania, or even outside Europe can only be guessed. For the US, the total value of paper currency in circulation (outside vaults) is about USD 1.4 trillion. When it comes to estimates of currency held outside US, they vary between 50% and 70% of the total amount. As more recent estimates are focusing on the lower bound, Rogoff (2016), it means that at least USD 700 billion is held outside US. There is even less certainty about how much of this is used by Mexican drug cartels, Russian citizens, or some Asian countries as USD is more global than the euro. One could say the dollar is a globally recognized brand.

Research on FCC is not plentiful. The most comprehensive and systematic work on FCC in Europe is done by the Austrian Central Bank, Scheiber et al. (2009), in their systematic OeNB Euro Survey for eleven countries of Central and South East Europe since 2007. Specifically, it supplies micro data comparable between countries and social groups that give insights into the determinants of euroization. As no systematic surveys are done in Ukraine, estimates can end up with very different results (magnitude of order of several multiples). Below we will try to show some estimates of FCC indicators in Ukraine compared to other countries.

Flows of FX cash from the BoP are our starting point in analyzing the dynamics of dollarization in Ukraine. They are estimated as net cash imported by Ukrainian banks and net cash exports by firms and households, including informal trade, tourism, and cash imported by migrants. Expert estimates are used in assessing informal trade. Volumes of FX cash exported by travelers are calculated as a difference between estimated expenses of tourists and payments made through the banking system. The amount of cash imported by migrants is calculated as a portion of the total sum of remittances that came into Ukraine from migrants through banks and international payment systems. The stock of FX cash is assumed to be accumulated since 1995. Though the approach is often thought to underestimate outflows of cash, results can be considered as the upper bound of estimated FX cash.

Figure 1 shows the amount of FCC estimated to be in Ukraine together with main dollarization indicators of the Ukrainian economy. Against the background of weak financial market and a fixed exchange rate, the Ukrainian economy has accumulated huge amounts of FX cash. Net FX cash inflows were positive until 2014, reflecting the attitude towards FX and lack of trust in the banking system. The recent loss of part of Ukraine’s territory, alongside a real income decrease, has led to a switch in the trend. Further macroeconomic stabilization in Ukraine should lead to continuation of the FCC decline tendency.

Figure 1. Dollarization indicators of the Ukrainian economy

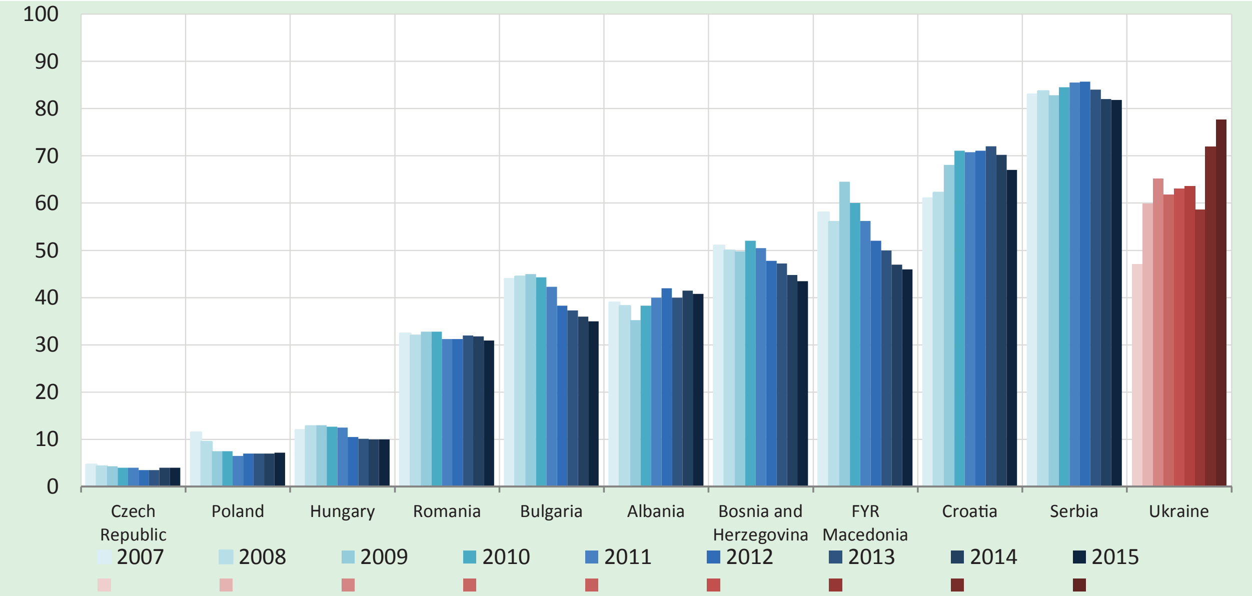


Source: NBU estimates

We can see that the FX cash to effective money supply in Ukraine is about half of it. It is proof that we need to focus additional attention on it in monetary policy.[15] The share of FX to GDP has increased dramatically in Ukraine. This can be explained not just by an increase in the absolute amount of FX estimated in Ukraine, but due to the economic crisis and fall in GDP after 2014, as well as significant depreciation of the UAH against the USD.

Based on estimates that we have for FCC, it turns out that the dollarization index for Ukraine is high and has increased since 2014, which is understandable keeping in mind the significant negative shocks the Ukrainian economy went through. For illustrative purposes, we compared two methodologies. For Ukraine, the estimates are done on basis of the BoP approach mentioned earlier, while other data is taken from the OeNB survey.[16] We are aware that we are comparing "apples and oranges," but the aim is only to have an indication of how high euroization has taken place in Ukraine.

Figure 2. Euroization index of select European countries and the dollarization index of Ukraine, %



Source: OeNB, NBU estimates

[15] The effective money supply is measured as aggregate M3 extended by estimated FCC.
[16] More detailed information is posted at the link: https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/Main-Results/Asset-Euroization.html

Determinants of euroization vary between countries and are highly correlated with the efficiency of past economic governance. Such factors as lack of trust in banks, memories of past banking crises, weak tax enforcement, and underground economic activity are mentioned as the main drivers of both cash preferences and FX demand, Stix (2009). Hikes of the dollarization index of Ukraine are associated with significant devaluations/depreciations of the hryvnia. But even before the GFC, it seemed to be high compared to other developing countries. Although the same factors could reign expanding sympathy to cash, including FCC, researchers conducting studies like the OeNB could help better understand the "negative mirage" of FCC.

IV. CONCLUSIONS AND POLICY DISCUSSION

A) It is important to understand that high usage of FCC in a country is a problem for monetary and economic policy. One should explicitly address it to decrease the costs to the economy and mitigate risks stemming from it. Causes of large use of FCC are deeply rooted, usually in past macro-instabilities. Unfortunately, Ukraine had it all: banking crises, a history of inflation, devaluation and depreciation have repeatedly occurred since independence. The first step in restoring trust in the domestic currency and banking system should be a return to macroeconomic stability. The NBU has done a great job in the last two-plus years by significantly lowering inflation and cleaning up the banking system while upgrading banking regulation and transforming its supervision function into a modern risk-based one. However, this is necessary but not a sufficient condition to resolve or significantly decrease FCC. The main reason for this is the so-called hysteresis effect, Valev (2005).

B) A long term strategy to address FCC in a country is needed. Besides continuation of macroeconomic stability (credibility takes a long time to be build), the first step should be to develop a deeper understanding of the amounts of FCC in the economy and the reasons why households keep it. This could be done by using surveys similar to the ones done by the OeNB.[17] Specific questions as to why people hold cash: LCC and FCC in particular in Ukraine should be included to better understand the motives of Ukrainians. The composition of assets is not only driven by economic motivation but has its causes in social conventions, culture, and simply past behavioral practices. Stix (2011) is an excellent starting point for such surveys. It is only with a better understanding of the amounts of FCC and reasons why economic agents prefer cash to deposits (and foreign to domestic currency) that effective measures can be designed.

Before surveys are conducted, researchers in Ukraine could simply look at their own experiences to comprehend the relevance of FCC in the economy. This can be combined with official statistics on asset and liability dollarization and existing estimates. One could ask oneself questions like: How much FCC do I hold at home? This helps assess the relevance of FCC as a store of value. Is it customary to pay rent, or even buy an apartment, car, or other valuables, in FX? What about smaller transactions like restaurants or other services, can they be settled in euros or dollars? Why are there so many exchange offices in the center of Kyiv even outside of peak tourist season? This can help assess the relevance of FCC as a medium of exchange. How do I express prices of rent for an apartment, in local currency or in dollars? This assesses the relevance of FCC as a unit of account. If answers to those questions are positive, it means that FX has "taken over" all three main functions of money versus the domestic currency.

C) Once macroeconomic stability is reasonably achieved and a better understanding of the role and magnitude of FCC in the economy is understood, policy makers should consider a set of micro-economic regulatory measures that decrease use of cash in general and use of FCC in particular. They have to be aware it is going to be an uphill and complex battle. Restrictive measures can be counterproductive or have unintended consequences. However, some well thought measures could help in the process and we briefly discuss some of them:

- Continue increasing the credibility of the domestic currency (macro stability as mentioned is a primary factor).
- Limiting the amount of cash to settle transactions. A lot of advanced economies do it, like France and Italy. Some big economies do not have such limits, like Germany and Austria.[18] The main motivation is usually anti-money laundering and financing of terrorism. Limiting the amount of cash for a transaction is reasonable, especially if combined with developing a financial infrastructure. In some economies, like Sweden and Finland, merchants are not obliged to take cash. A counter argument is that if one limits domestic cash transactions, agents will move to FCC. But this cannot hold for legal transactions.
- Developing a financial infrastructure for cashless transactions on the whole territory of a country. The lack of bank and ATM/POS networks in a country are often stressed as one of the main reasons for the use of cash (tax avoidance aside).
- Financial literacy is important. Educating the population about the individual and social benefits of a cashless (or at least cash-lite) society that uses local currency, should be done continuously in popular and accessible ways. Similarly, the FX risks need to be elaborated as well.

[17] More detailed information is posted at the link: https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/Main-Results/Asset-Euroization.html and Scheiber and Stix (2009).
[18] More detailed information is posted at the link: http://www.europe-consommateurs.eu/fileadmin/user_upload/euconsommateurs/PDFs/PDF_EN/Limit_for_cash_payments_in_EU.pdf.

In conclusion, we all know that believing a mirage in the desert can be very dangerous. In spite of the fact that we see it, lifesaving water is not there. Similarly, when a “negative mirage” exists in the economy and we do not pay sufficient attention to it, it can lead to serious problems. While a mirage is a natural phenomenon and not much can be done about it, a “negative mirage” is a human error and should be corrected in the best way possible.

References

▪ Aslund A. (2016). Why the Revelation of Officials' Cash, Cars, and a Church Will Change Ukraine for Good. Available at: http://www.atlanticcouncil.org/blogs/ukrainealert/why-the-revelation-of-officials-cash-cars-and-churches-will-change-ukraine-for-good

▪ Asset euroization: results of OeNB Euro Survey. Available at: https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/Main-Results/Asset-Euroization.html

▪ Catão Luis A.V., Terrones Marco E. (2016). Financial De-Dollarization: A Global Perspective and the Peruvian Experience. Working Paper, No. 16-97, IMF. Available at: https://www.imf.org/external/pubs/ft/wp/2016/wp1697.pdf

▪ Feige E., Faulend M., Sonje V., Sosic V. (2002). Currency Substitution, Unofficial Dollarization and Estimates of Foreign Currency Held Abroad: The Case of Croatia, in: M. I. Blejer and M. Skreb (editors): Financial Policies in Emerging Markets, MIT Press, pp. 217-250.

▪ Mecagni M., Maino R. (2015). Dollarization in Sub-Saharan Africa: Experience and Lessons. International Monetary Fund, Washington D.C.

▪ Mundell R. (1997). The Great Contractions in Transition Economies, in: M. I. Blejer and M. Skreb (editors): Macroeconomic Stabilization in Transition Economies, Cambridge University Press, pp. 73-98. https://doi.org/10.1017/CBO9780511572012.004

▪ Naceur S.B., Hosny A., Hajdian G. (2015). How to De-Dollarize Financial Systems in the Caucasus and Central Asia? Working Paper, No. 15-203, IMF.

▪ Oomes N., Ohnsorge F. (2005). Money Demand and Inflation in Dollarized Economies: The Case of Russia. Working Paper, No. 05-44, IMF.

▪ Perelygin Y. (2015). De-Dollarization of a Dollarized Economy. Available at: http://voxukraine.org/2015/10/28/de-dollarization-of-a-dollarized-economy/

▪ Rogoff K. (2016). The Curse of Cash. Princeton University Press (Kindle). https://doi.org/10.1515/9781400883219

▪ Scheiber T., Stix H. (2009). Euroization in Central, Eastern and Southeastern Europe – New Evidence on Its Extent and some Evidence On Its Causes. Working Paper, No. 159, Oesterreriche Nationalbank.

▪ Schmidt T. (2016). Cash payments more popular in Germany than in other countries. Research Brief Deutche Bundesbank, 1st edition.

▪ Step Change (2014). The Economist. Available at: http://www.economist.com/news/finance-and-economics/21600734-revised-figures-show-nigeria-africas-largest-economy-step-change

▪ Stix H. (2013). Why Do People Save in Cash? Distrust, Memories of Banking Crises, Weak Institutions and Dollarization. Journal of Banking & Finance, Vol. 37, pp. 4087-4106.

▪ Valev N. (2005). The Hysteresis of Currency Substitution: Currency Risk vs. Network Externalities. Georgia State University.

▪ Zholud O., Piontkivska I. (2016). The Circulation of US Dollars and the Black Market in Foreign Exchange in Ukraine. Available at: https://voxukraine.org/2016/10/20/the-circulation-of-us-dollars-and-the-black-market-in-foreign-exchange-in-ukraine/