The Masters Research Paper

Explaining Monetization with Reference to Transitional Economies[1]

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Abstract

This paper is an attempt to explain the drastic fall in monetization in transitional countries. The concept of monetization is defined, and the positive impact of monetization growth on the economy is shown. We also consider possible factors which may influence monetization with the statistical data provided to support the theoretical analysis. Finally, the theory of monetization is applied to the explanation of the arrears problem in Ukraine.

Introduction

As practice has shown, financial stabilization in a transitional economy can be achieved only through tight monetary policy and strict control over Central Bank emission. Indeed, hyperinflation, which infected many transitional countries following price liberalization, was caused mainly by lax fiscal policies and consequent fiscal disequilibrium financed by monetary expansion.[1] In Ukraine, for example, only after the Central Bank obtained full control over the money supply, that is, not allowing the government to use money emission to mitigate fiscal irresponsibility, was financial stabilization reached to a sufficient degree. However, such an achievement, some economists would claim, has caused other serious problems. Following their logic, wage arrears, inter-enterprise arrears, and low budget revenues are the consequences of the lack of money in the economy. For example, Glazyov says that the real consequences of the policy of stabilization through monetary contraction in Russia were "crisis of the system of payments in the sphere of production and worsening of the financial position of enterprises, decline in output, investment and real wage."[1] Therefore, an increase in the money supply is proposed as a mean to solve present financial problems in the economy.

A good measure of moneyness of the economy is monetization coefficient, which is defined as ratio of money to income in current prices. A low level of this coefficient may be the reason for the present financial problems in transitional economies, since this means low availability of credit resources. However, one cannot increase monetization simply by increase in money supply, since that will lead to a rise in prices. Therefore, the main purpose

[1] Price liberalization can cause only one-time increase in price level due to monetary overhang, inherited from the socialist economy. In Czechoslovakia , for example, following price liberalization in January 1991 prices rose by 34.2 per cent in the first quarter of 1991, however aftermath, quarterly price increases did not exceed 9 per cent in the same year.

of this paper is to study the importance of monetization for the economy, what are the main factors that influence it, and what actions should be implemented in order to monetize transitional economies and help them to recover.

The definition and basic concept of monetization are discussed in Section 1. Short review of literature is presented in Section 2. Section 3 gives a comparative analysis of monetization developments across different countries. Section 4 is an attempt to explain the main factors which influence monetization of the economy. Finally, Section 5 is an application of monetization theory to the understanding of inter-enterprise arrears problem in Ukraine.

1. Definition and basic concepts

A. Definition and methodology

The monetization of an economy is defined as the ratio of money to income in current prices. Intuitively, such a measure shows how much money circulates in the economy, serving the production of value added or being held as a store of value. In order to understand this coefficient better we should mention that monetization is a reverse to money velocity, the latter showing the speed with which the money circulates or number of cycles the money make during a year.

It is important to understand this link to velocity. There are a lot of studies on the latter topic and actually this study is also a study of velocity, because the analysis of monetization and velocity is equivalent to each other. However, we are interested more in monetization since such a point of view is, to our mind, more closely related to the problem of arrears in transition economies.

The above mentioned definition of monetization is rather ambiguous, as it is unclear what to consider under money and what under income. Moreover, money is a stock variable, however, income represents a flow over some period of time. Obviously, one needs to clarify these points.

First of all, it is necessary to mention that monetization can be considered much more broadly, i.e. showing how much money circulates in the economy serving the total volume of transactions. Such a point of view is debatable and there is no clear answer whether it is good or bad, so we will use the previous definition here.[2] The reason is as follows. In this analysis we assume that it is the generation of real income that determines demand for money. Such an assumption makes the analysis much simpler. Indeed, it is rather difficult to obtain full information on all transactions in the economy. The task becomes impossible for

transitional economies, with their inadequate statistical data. Secondly, it is income that many economists are interested in, making this study more compatible for future references.

Now the question arises which income concept to select. Obviously, it is better to use the concept which covers the economy's income from all possible sources. Gross National Disposable Income (GNDI) fits this criteria in a best possible way, since it includes together with income derived from domestic production, that is gross domestic production (GDP), also factor incomes from abroad and current transfers from the Rest of the World.[3] Such an income concept is not convenient enough for analysis, however. As was mentioned before, statistical data in transitional economies are far from being ideal; therefore, such a detailed index is usually impossible to get for all countries and/or for shorter periods of time (month, quarter). Also it is reasonable to assume that in transitional countries net current transfers and factor incomes are small and stable in comparison to GDP. Comparison of GDP and GNPI for Poland over the six-year period reveals no big differences between them.[1] Therefore, this is the GDP variable that we will use further in the study.

The definition of monetization coefficient tells us that we must use money which finances the flow of income in the numerator. According to the balance sheet of the banking system (see Appendix A1) the broadest definition of money (M2) performs this function. M2 equals currency in circulation and demand deposits and includes also time and savings deposits and deposits in foreign currency in the banking system. Such a money stock fully covers liabilities side of the banking system. The assets side represents allocation of financial resources in the economy, which clearly serves the production of value added. As assets and liabilities balance each other we conclude it is M2 which fits the calculation of monetization coefficient.

[1] Data are presented in **Ouanes, Abdessatar and Subhash, Thakur.** "Macroeconomic Accounting and Analysis in Transition Economies." International Monetary Fund, 1997, p.35.

It is necessary to mention that money is a stock variable, therefore it is usually available for the end of each period. From the other side, income is being created over the whole period thus being the flow variable. Therefore, direct comparison of income and monetary statistics is incorrect. This problem is especially relevant to Ukraine. The matter is that in this country there was a tendency of sharp increases in money supply at the end of the year. The reason for this was intensive financing of the harvesting season of the agricultural sector and also the habit of paying out wage bonuses for this time period. Such increases in money supply were not caused by structural changes and cannot reflect long-run tendency. In order to fight this computational problem we define monetization nominator as the average money stock over one-year time period.

B. Is monetization good or bad?

According to the definition, in a more monetized economy, more money services the flow of income. But is it good for individuals and for the country as a whole? In order to answer this question we should find out what makes people hold such a non-interest bearing asset.[1]

While consuming goods and services, an individual spends time and other resources in acquiring, handling and storing information about purchases. This information contains data about the number of transactors with whom to deal with, their location, range of prices and quality. Of course, the amount of this information and especially its quality will vary across individuals, which will result in greater uncertainty and price dispersion. However, if the community agrees on a specific good that is of given quality known to everybody and is generally acceptable in exchange for any other goods, uncertainty will decrease, which will lead to lower price dispersion and, consequently, lower transaction costs. Moreover, in

contrast to a barter economy, a generally acceptable medium of exchange will reduce the number of transactions, costs of delivering goods and cost of finding information about location of potential transactors.

The costs of acquiring, handling and storing information will also fall with usage of generally acceptable medium of exchange, through reduction of the number of relative price ratios.

One can name many more advantages of using money by an individual, but this is not the purpose of this paper to focus more on it. Therefore, we can summarize by the following:

> The use of money increases the welfare of each money user by reducing uncertainty, the length of transaction chains, and the variance of price ratios and by increasing expected wealth and time available for leisure. Whatever other services create a demand for the assets that serve as a medium of exchange, their use as a medium of exchange increases demand. Individuals find it advantageous to allocate part of their wealth to money.[4]

If money is good for individuals then it probably is good for the society. David Cass and Menahem Yaari confirm this statement using a simple consumption loan model. In particular, they conclude that introduction of money leads to efficiency. [5]

It is necessary to mention, however, that efficiency of money rises with the presence of financial intermediaries. They organize a flow of funds from those with superfluous stocks to those who have then in need. In such a way financial intermediaries promote more efficient economy.

The presence of financial intermediaries also makes money circulation more efficient over time. Assume a society that consumes less than it produces and saves the rest of output for future consumption. In the next period saved products are being used, however, simultaneously new generation in the society saves another part of output for its own future

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[1] Such a statement is not valid for components of M2. If we consider M2, it is better to say low-interest bearing asset.

consumption. Therefore, some part of output continuously is being not used productively. Financial intermediaries transfer savings from the new generation to the old thus removing the problem of continuous unproductive hoarding of some part of output.

One may question, however, the applicability of above made analysis to the transitional economies, since almost all of them suffered from hyperinflation. During the period of hyperinflation the cost of holding money increases substantially, and it may be higher than the benefits of using it. Brunner and Meltzer deny such a conclusion:

> Transactors are induced to choose transaction chains that avoid the inflation tax, even if such chains use more resources for transactions. … Transactors concentrate their search on those transaction chains that offer at least the same expected gain in wealth as existing medium of exchange. The assets that replace existing money may have higher marginal costs of acquiring information and transacting. If so, they must lower marginal holding costs than the existing money.[6]

The authors conclude that with the end of hyperinflation the economy gradually begin to use new money and new set of transactions. We cannot disagree with such a conclusion. In most countries that suffered from hyperinflation, money remained in the turnover and individuals continued accepting it, despite of high holding costs.

For these reasons, the more the economy is monetized, the more money circulates and the more individuals and the society as a whole gain from above mentioned benefits the money gives.[1] However, the most simple solution to this problem, namely plain monetary emission, has never lead to any positive results, not being supported by other comprehensive measures. On the contrary, increases in money give only the short-tern illusion of an increase in monetization. In the long-run it will result in higher inflation, which undermines public

[1] We should bear in mind that there are diminishing returns on the side of holding money, because liquid assets can be held profitably in forms other than money. However, in this paper we are dealing with transitional economies where demand for money is diminished and where significant part of transactions is performed outside the monetary sector. Therefore, what we are trying to say here is that use of money instead of barter is more efficient.

confidence in national currencies and government policies, and may drastically increase the money velocity and bring monetization down to extremely low levels. Therefore, we are interested in other, non-inflationary sources of monetization growth.

2. Review of the literature

The problem of monetization is not widely studied directly. Primarily, this is explained by the novelty of the problem. Central and Eastern European countries have moved into transition only several years ago, and it is mainly these countries which have incurred biggest declines in monetization.

Ghosh has studied stabilization processes in transition economies and came to the conclusion that the decline in monetization is the consequence of seignorage policies of the governments.[7] He has found that money demand in transition economies is highly elastic with respect to the rate of inflation; therefore this is hyperinflation that eroded real money balances. Ghosh states also that monetization is an asymmetric phenomenon: it declines rapidly with high inflation, however, when inflation is low it increases gradually.

If Ghosh looked at the countries where monetization was still declining or had only stabilized, Laumas studied the developing country with growing monetization.[8] Although, the primary aim of this was to test the stability of money demand, he makes some conclusions which are relevant to our topic. Laumas says that in the short run increase in nominal money may lead to higher monetization, assuming prices are not completely flexible. However, in the long-run he names interest rates and uncertainty concerning the value of money as determining monetization.

Recall that monetization is the inverse to velocity of money and the latter has been paid substantial attention by scholars. The most comprehensive study on this topic was made by Selden in his “Monetary Velocity in the United States”.[9] This paper gives a good review

of conceptual problems with defining and measuring velocity. However, the primary aim of his work is to examine how money velocity behaved in the United States and what caused it to behave in such a manner. Selden emphasizes the costs of holding money as a primary determinant of velocity's behavior.

De Broeck et al have pursued the most comprehensive study of velocity developments during high inflation and stabilization in countries in transition. [10] Incorporating a simple monetary model of the exchange rate and using econometric techniques, the behavior of real money balances during inflation stabilization is examined. The authors make predictions about possible re-monetization and outline the main factors that may influence this: inflation stabilization, capital inflows and structural reforms in the financial sector.

Some scholars (Baskai[11], Juschenko[12]), aside from monetary factors, underline the performance of the real sector as a determinant of monetization. They claim that various distortions (like subsidies, wage limits, administration limits) lead to the creation of output but not value. Consequently, the distribution of products is difficult, which results in lower turnover of assets, more non-monetary transactions and lower demand for real money balances.

3. Monetization developments: an overview

A comparative study of monetization developments across countries and over time may provide a good introduction to a more in-depth understanding of the problem. The data for this purpose are taken from the article prepared by the Institute of Economic Analysis, Russia and published in *Voprosy Ekonomiky.*[13] The construction of this data set completely fits to the requirements set above.

Before looking at the data we should say that there is no benchmark monetization level to which all countries should strive to achieve. The levels of monetization should be different reflecting a specific conditions of each individual country, namely, technological, economic and social environments. Therefore, it will be wrong to compare the monetization of Peru, for example, with the monetization of Switzerland or Japan. In order to avoid this problem we have divided the countries into four groups, each of them representing the set of countries with similar levels of development, financial infrastructures, growth conditions (see Appendix A2).

The first thing that the data reveals is that monetization differs significantly across the countries and over time. The fact that developed countries usually have higher monetization levels than countries from other groups tells us that high stability of economic and political environments and strong confidence in national currencies has a positive impact on monetization. Those countries, namely transitional and developing, which are characterized by instability and weak local currencies due to recent inflationary experience, have much lower monetization levels.

It is necessary to mention that monetization levels differ across countries of the same group. For example, one may point out the very high monetization of Switzerland, Great Britain, Luxembourg and Malta. These countries have big financial centers, with the most developed financial infrastructure in the world. High levels of monetization reflect strong confidence in domestic financial markets and attractiveness of striking monetary deals there.

The group of Asian countries (Japan, Hong-Kong, Taiwan, i.e. countries with well developed financial infrastructure), also have higher monetization levels in comparison with other countries in this group. It is interesting to note, however, that Asian countries on average have higher monetization levels than the countries in other groups. One possible explanation of this might be a high savings rate. For example, China, a developing country,

has a high inflation rate, is not characterized by high political and economic stability, but has one of the highest monetization levels in the world. In comparison with other countries, China's savings rate is much higher.

In the group of transitional economies, monetization developments are rather similar across countries and over time. Two periods should be distinguished here: the period before the stabilization program was implemented and after. Under the stabilization program we understand the set of measures to bring the inflation down. We have included data on inflation in Appendix A2 for the group of transitional countries, in order to see the implementation of the stabilization program.

Before the stabilization program was implemented, the decrease in monetization has been much more bigger in the former Soviet Union countries than in Eastern European countries. At the same time, in some countries stabilization program did not increase monetization level much. For example, Azerbajdzan, Armenia, Georgia still have very low monetized economies. It is necessary to mention also that those countries which had implemented a stabilization program early and supported it with other reforms (privatization, restructuring, liberalization of foreign trade) have achieved rather high monetization levels. Almost all Eastern European countries have a monetization level higher than 30 %, and in Czech Republic this coefficient amounts to 79.4%. On the contrary, in the countries with lagged implementation of stabilization program and slowness in structural reforms monetization levels do not exceed 20%. For example, in Russia and Ukraine monetization for 1995 equals 12.3% and 9.5% respectively.

In general monetization developments in transitional economies can be summarized in the following way. At the beginning of the stabilization program, monetization tends to decline. After some period of time re-monetization occurs, but only gradually, and does not reach the level which was before. This means that the monetization process is asymmetric:

high inflation brings it down to low levels, but monetization do not increase to previous levels after the low inflation is reached.

4. Theory of monetization

The most convenient way to derive the theory of monetization is to use the standard theory of demand for money, which can be found in most textbooks.[14] Its major conclusion is that demand for real money balances depends on real income (Y), cost of holding money (I), and other variables (X):

$$\frac{M^d}{P} = f(Y, I, X). \qquad (1)$$

To see that the factors which influence money demand will also have an impact on monetization, multiply equation (1) by $\frac{1}{Y}$. Taking into account that money demand equals money supply in equilibrium, therefore replacing M for M^d, we obtain :

$$\frac{M}{PY} = \frac{1}{Y} f(Y, I, X). \qquad (2)$$

This is a very general conclusion, and it is unclear what to understand under X. Therefore, let us consider the factors and their impact on monetization more in details.

It seems reasonable to assume that monetization will be influenced by the cost of holding money. Any individual faces the following alternative choices. His wealth held in form of money, can be converted into tangible assets (goods), can be spent on equity or can be lent with the purpose earning a fixed income.[15] The only possible measure of the cost of holding money here is the interest rate and some measure of return on equity.

The interest rate should have a negative impact on monetization. Individuals, holding money, will face a high opportunity cost with rising interest rates on bonds or other assets

and will change their preferences towards them. Consequently, individuals will demand less money, and monetization will fall.

The impact of interest rates on money or lending preferences are elaborated in a more sophisticated way by Keynes.[16] In particular, Keynes assumed that interest rates fluctuate around some normal level. If they rise above it, individuals expect them to fall, and consequently, they expect bond prices to rise. In such a case there will be capital gains and if interest rate changes are big, such capital gains might outweigh fixed return on bonds, and individuals will turn their preferences towards bond holdings. Therefore, high interest rates through expectations of their decline will have a negative impact on money demand, and, hence, on monetization.

The question here arises which interest rate to chose. If the impact of the interest rate on bonds on monetization is clear, an impact of interest rates on deposits and on credits is ambiguous. If we recall, under money in monetization coefficient we mean M2 definition, and monetization coefficient includes in itself not only cash but also quasi-money (time and savings deposits), which earn interest. Therefore, any increase in the interest rate on deposits will increase the demand for quasi-money and, hence, demand for real money balances. In the same manner, an increase in the interest rate on credits will increase the supply of money from the banks, since this means more profitable lending for them. In general, the return on money should have a positive impact on M2 volume.

This may not be the case in transitional economies. In these countries we observe large swings in interest rates. According to the Fisher equation, the nominal interest rate equals the real interest rate plus expectations about the future rate of inflation. Therefore, an increase in interest rate on deposits means that agents' inflationary expectations have increased (assuming constant real interest rate). Inflation decreases the value of money,

making holding it unprofitable. Therefore, with rising interest rates the demand for M2 will fall, and, consequently, we will observe a fall in monetization.

In the case of interest rates on credit, large increase in the former makes lending difficult for, at least, two reasons: 1) clients are unwilling to borrow since the price of borrowing has increased significantly;[1] 2) banks are unwilling to lend due to adverse selection problem. Therefore, an increase in interest rates may decrease banks' supply of money, with the result of decrease in monetization.

It is clear now that it does not matter which interest rate to choose. In any case the result is a negative impact on monetization.

Real world observations confirm this conclusion. On the graph in Appendix A3 we have plotted lending interest rates for several transitional countries. We see that for such countries like Ukraine and Russia where interest rates are very high we observe at the same time low monetization levels (lower than 20%). However, in countries like Czech Republic and Poland, where interest rates are comparatively low, we observe much higher monetization levels (in these countries the monetization level exceeds 20%).

It is interesting to note that in the case of Poland, where in 1990 interest rates were very high (504.2%), we observe also the lowest monetization level (23.5%) for the period 1990-1995. However, when in 1991 interest rates have fallen and remained at the level below 100% up to year 1996, we observe an increase in monetization during the same period. The same is true for Kazakstan. In year 1995 when interest rates have fallen steadily to 48%, we observe also a growth in monetization.

The interest rate will have an influence on monetization only in case we observe comparatively low inflation in the country. In case of hyperinflation the rate of depreciation

[1] In Ukraine when low inflation was achieved inflationary expectations still remained, making nominal interest rates very high. At the same time low actual inflation makes borrowing very costly.

in the value of money outweighs the interest rate as a cost of holding money, and it is the inflation rate that plays here the main role in determining agents' demand for money. Cagan confirms this conclusion, saying that "changes in real cash balances in hyperinflation result from variations in the expected rate of change in prices."[17]

In case of increasing prices, the real value of money deteriorates, and if the speed of price increase is rather high, the benefits of holding money become negligible in comparison with the quick loss in their value. In such a case there will be a change in preferences towards assets which tend to sustain their value, for example, goods. Therefore, inflation will reduce the demand for cash balances, and, hence, monetization will fall.

It is necessary to mention here that we are talking about the negative impact of hyperinflation on monetization. Those countries which are characterized by low inflation usually have high monetization levels. To see this take for example any developed country. Low inflation rates do not deteriorate monetization in these countries because loss in value of money is negligible in comparison with the benefits of using them.

Turning to the transition countries, it is very likely that hyperinflation was the primary reason of sharp decline in monetization. High inflation rates made holding very costly which resulted in higher turnover of cash and switch to non-monetary transactions. Tight relationship between high inflation rates and monetization is also apparent from appendix A2, where monetization dynamics in transition countries is compared with changes in inflation rates.

These findings are supported empirically. Ghosh has estimated simple monetization function, and he found that in transitional countries money demand is highly inflation elastic. Ghosh has found also that monetization of the economy will be growing as long as inflation is less than 6 % .[18]

The relationship between high inflation and monetization is true not only for transition countries, but also for developed countries. In Israel during the period of 1970-1985, which was characterized by high inflation rates, monetization was declining steadily. The primary reason for this was erosion of the function of the national currency as a medium of exchange and store of value caused mainly by inflation.[19] At the same time increase in demand for money occurred only when the public was assured of credibility of stabilization program in 1985. Beginning with this year, we observe increasing monetization in Israel.

The same is true for Iceland, where comparatively high inflation rates in the 80's caused low monetization levels, which only in the 90's began to converge to the levels which are attributed to low-inflation countries.

It seems reasonable to expect, with inflation calming down, gradually growing monetization. In such a case, with significantly lower costs, economic agents should switch back to money, benefiting from the gains it gives. Unfortunately, such an argument is not supported by statistical data. One of the conclusions of the previous section was that after stabilization is achieved monetization in transition countries never reached the level which was in pre-inflationary period. The same phenomenon was observed in Israel.[20] Moreover, in some countries, namely in Latvia, Lithuania, Ukraine, and Hungary, when low inflation was achieved monetization did not start to grow or was still declining.

Therefore, the impact of inflation on monetization is asymmetric: high inflation reduces monetization badly, however, with low inflation, monetization does not reach the previous level. One may name the following reasons for this. As Ghosh points out "faced with high inflation households and enterprises will find ways to conserve on money holdings. In effect they will have the incentive to discover new "technologies" for operating with lower money holdings. Once inflation falls, there may be little reasons to revert to previous habits unless the "shoe leather' cost are particularly high."[21]

There is another reason why monetization cannot reach its pre-inflationary level. The matter is that in most transition countries during the last years of socialism, high monetization levels were caused by the existence of monetary overhang, which in turn was caused by forced saving of the population due to excess money supply with sticky prices. Therefore, these monetization levels were artificial and there are no reasons to believe that transition countries should return to them quickly.

The final reason of slow monetization developments after the end of hyperinflation is the possible development of institutional and technological changes in the financial sector. During the socialist era, there was no financial sector from the market point of view. Taking into account that significant quality changes in this sphere cannot occur in hyperinflation periods, we might expect them to occur after that, which will result in slow monetization developments.

Another important factor which will affect monetization is real income. According to the definition, any increase in this variable will decrease monetization since real income is in the denominator of the coefficient. However, this will happen only in the very short-run. Recall that with individual's growing wealth demand for assets will increase, and we may consider money as one of such assets. It is reasonable to suggest that an individual would like to store some part of his increased wealth for, as Keynes named it, precautionary motives. As money performs the function of store of value, the demand for money will increase with growing income.

At the same time, an increase in income means increase in the volume of transactions in the economy. Hence, economic agents will demand more money to serve these transactions. Again we will observe higher demand for money and increase in monetization.

It seems that real income should be the primary factor determining monetization due to the direct relationship between these two variables. Therefore, it is reasonable to say that

sharp declines in monetization in transition countries are mainly due to huge output contraction. However, in recent years when many transition countries have stabilized and some of them even observed real output growth, still we do not observe increase in monetization.

The problem here is that the positive impact of real income on monetization will occur only in case of a positive income elasticity in the money demand function. In transition countries, such an elasticity may be very low and it is necessary to consider why.

For the sake of better understanding, recall that income, under the expenditure approach to determining GDP, consists of the following elements: consumption of the government and non-government sectors, gross investment (fixed capital formation and changes in inventories), and foreign balance.[22] However, the functions money performs which were described before are relevant for business and household sectors only. It is hard to believe that the central government sector, while increasing its consumption will demand more money for transactions and precautionary motives. Therefore, any increase in income with a simultaneous increase in government sector consumption will not change the demand for money.

In appendix A4 we have plotted government expenditure share in GDP for several transition countries. What we observe there is the rapid growth of government sector in Russia, Estonia and Ukraine. At the same time, in Poland government expenditures have declined over the period 1990-1995, and in Hungary for the year 1995 they did not change in comparison with the year 1990. We should say again that in Hungary and in Poland monetization is higher than in the above mentioned FSU countries.

The growth of government expenditures as a factor explaining monetization should be treated cautiously. The fact is that in most developed countries where monetization coefficients are very high we observe high proportion of government consumption in the

structure of GDP. On average it fluctuates at the level of 20%. However, these countries are characterized by high infrastructure development which is financed mainly by the government. Government expenditures on infrastructure definitely have a positive impact on monetization, since they facilitate business activity growth which in turn results in higher demand for money.

In transitional countries, government expenditures are usually not productive. Firstly, the part of government expenditures which is spent on capital investment is decreasing. For example, in Ukraine in 1995 it constituted 6.47% of GDP; however, in 1996 it amounted only to 2.34%.[23]

Even if we are talking about government expenditures on infrastructure, still our claim is that they are not productive. In Ukraine, for example, we observe rapid growth of incompleted construction. In 1993 it constituted 0.25% of GDP, but in 1996 it has risen to 7.03% (see Appendix A5). Clearly, these objects do not facilitate the development of business activity and we cannot expect monetization growth in such conditions. Therefore, while considering government expenditures as a factor explaining monetization, we should consider also how they were spent.

Another component of GDP which to our mind may hamper monetization developments in transition countries is changes in inventories.

Under inventories we understand raw materials, goods in process, unsold goods and finished goods. At first glance, an increase in inventories means that the enterprise becomes more liquid since it is able to sell off these inventories in order to pay debts. At the same time growth in inventories may not be desirable. This will mean that the enterprise is investing its most liquid assets in form of cash into less liquid inventories which it may not be able to sell for anything at all. Moreover, growth in inventories at the enterprise means that something is wrong with the distribution of finished goods or supply of raw materials.

What are the reasons of growth in inventories on the macroeconomic level? Some may claim that in the country where real GDP per capita is declining there may be lack of demand, and consequently growth in inventories, since it will be difficult for enterprises to sell production. However, in such a case enterprises will react by contacting output and inventories. Moreover, we will observe declining prices. In Ukraine, prices were rising. In 1993 CPI index increased by 4743.9% and only by 1996 did inflation decline to 80% per year.[24] These figures tell us that money supply was considerably higher than the money demand and in such a case it is strange to observe growing inventories. However, we do, and the only reason is that enterprises were producing goods which were not demanded by consumers due to either higher prices than, for example, import substitutes, due to bad quality, or due to inappropriate product mix.

One cannot observe growing monetization in such conditions. If enterprises continue to produce goods which are not demanded, any increase in money supply will result in rising prices. Therefore, growth in inventories is a sign that monetization will not increase.

Referring to the statistical data, it is necessary to say that in Ukraine the inventories as a percentage of GDP reached 11% in the years 1993-1994. The same happened in Russia. Only recently have the positive signs of decrease in inventories appeared. It is necessary to mention that in other countries this ratio usually does not exceed 4%, and in Croatia, Hungary, Poland and Czech Republic we observe decrease in inventories over the economy.[25]

In concluding our discussion of factors which determine monetization of the economy, we should mention also that an important role plays here the development of the financial system as a whole and the policy conducted by the Central Bank.

During the central planning period, allocation of financial resources was left to various government structures and not to market forces. With the movement to market

relations, there is no need of strong government intervention and supervision of the banking sector other than a firm hand by the Central Bank and close supervision to ensure the soundness of banks. Therefore, the creation of a new institutional structure and financial markets is required. Moreover, a new relationship between the private and the financial sectors should be developed in order to perform management and control over the economy.

It seems reasonable to suggest that with the strong banking sector and developed financial markets we would expect growing monetization. The reason is that financial intermediation allows channeling of funds from agents who have them in surplus to agents who have profitable investment opportunities. Money, instead of sitting idle, would circulate in the banking sector and through multiple deposit creation will increase the money stock. Such an increase in money stock should not be inflationary, since multiple deposit creation will be stopped through Central Bank control if there is no further demand for credit resources.

Monetization will be higher also in the countries where the savings rate is high. In such a case some part of money stock will not be used for circulation, and monetary authorities will tend to increase the money stock in order to keep money necessary for transactions constant.

Even with a high savings rate within the economy, a strong financial sector is essential since it will allow to connect business and household sectors with the financial intermediaries. In such a case, savings will circulate within the banking system, leading to multiple deposit creation and increase in money stock.

Unfortunately, transitional economies have very weak financial sectors due to objective reasons. Firstly, too little time has passed in order for the financial sector to become mature. Secondly, it inherited problems from the central planning economies and many banks need restructuring. Finally, in some countries government intervention still exists

and it is usual to influence the banking sector through administrative methods. Such a situation makes the financial sector very unpopular among economic agents within the economy and it hampers the flow of funds there.

The graph in Appendix A6 plots the currency to deposits ratio for several transition countries. Such a graph reveals agents' preferences towards cash or towards working with the banking sector. First of all it necessary to mention that in developed countries, this ratio is less than 1. However, on the graph we see that only in Poland and in Hungary C/D ratio is less than 1, and for FSU countries it is much higher.

It is necessary to mention that an important role in creating trust towards the national financial system plays Central Bank independence. Lewarne defines this as "the ability of the monetary authority to conduct policy without interference by the fiscal authority so as to achieve its own objectives such as controlling inflation or the level of growth in output."[26]

Transitional countries have already suffered from hyperinflation, which has significantly diminished money demand there. We have already mentioned that inflation has a negative impact on monetization; therefore, independent Central Bank will have a positive impact on agents' expectations about inflation rate, and hence, monetization will be higher. There are several studies which deal with independence of monetary authorities in transitional countries. For example, Siklos main conclusion is that in Hungary and Poland Central Bank appears to act fairly independently of political influence.[27]

Lewarne studies Central Bank independence in four FSU countries: Russia, Belarus, Kazakstan and Uzbekistan. In his dissertation he analyses legislation on the Central Bank in these countries and tries to find out whether it fits to the criteria which Lewarne sets as those which characterize independence of the monetary authority. His conclusion is that in none of them is the Central Bank politically independent. The same conclusion is made for Central Bank economic independence.

It is difficult to compare results from these two studies since the authors used different methodologies. However, we should mention here that monetization level in Hungary and Poland is much higher than in above mentioned FSU countries (see Appendix A2). This roughly confirms our hypothesis of the influence of Central Bank independence on monetization.

To conclude on this section, let us summarize the main factors which to our mind will have an impact on monetization. Our analysis has shown that the main factors which decreased monetization in transitional economies are high cost of holding money, i.e. high interest rates and hyperinflation. Real income should be another factor which will affect monetization due to the direct relationship between these two variables. However, in transitional economies income elasticity in money demand function might have decreased due to increased share of government consumption and inventories in GDP. Therefore, in many transitional countries, despite real output stabilization, we still do not observe growth in monetization. Finally, we introduce the development of the financial system as a whole, the policy conducted by the Central Bank and savings rate as a factors which will also influence monetization.

5. Payment arrears problem in Ukraine

One of the most serious problems which has been facing Ukraine since the very beginning of the transitional period is payment arrears. Such a problem arises when enterprises stop paying each other, which eventually results in chain accumulation of inter-enterprise arrears when enterprises which are not paid by their clients are unable to pay their suppliers. Clearly, such a situation leads to substitution of money necessary for transactions for inter-enterprise arrears; this lowers the monetization of the economy. The purpose of this

section is to analyze the reasons of this phenomena in the light of the monetization theory we described above.

Inter-enterprise arrears have been growing continuously since the very beginning of Ukrainian independence. If in 1992 accounts payable amounted to 19 mln. Hrn, then by November 1997 they have rose to 99847 mln. Hrn[28]. In real terms this means a three-fold increase. It is necessary to mention that inter-enterprise arrears have grown significantly only recently. Up to the year 1995, they were even declining. However, in 1995 arrears have increased by 72% in comparison with the previous year, and in 1996 by 94%, all in real terms.

Recall that monetization shows how much money serves current GDP. Low levels of this coefficient means that agents in the country have strong preferences towards substituting away from currency and towards using non-monetary transactions, one of which is payment arrears. We have already discussed what causes monetization to fall; therefore, here we will try to apply above stated arguments to the understanding of payments arrears problem.

At first glance if a business finds that its average bank balance is so low that its payments often fall in arrears, it can decide to hold a higher average bank balance. However, there might be some cases when this business will be unable to increase its average cash holdings.

Every resource in a market economy has its price, and if this price for an economic agent is too high, this resource becomes inaccessible. The price of money is the interest rate. Therefore, if a firm's profitability rate is lower than the interest rate, such a firm may be unable to borrow .

In the table in Appendix A7 we show real interest rates in Ukraine. In 1993-1995 they were continuously negative, which made credit resources for enterprises virtually

costless. However, recently the situation has changed dramatically – real interest rates became positive and increased significantly. For most legal businesses, a profitability rate of 44% is unattainable, which means inaccessibility of credit resources for them.

What are the reasons of such high real interest rates in Ukraine? One may name many of them and it is not the purpose of this paper to focus much on that. However, one of the most significant reasons to our mind is the extremely high return on government bonds. In most countries this rate does not exceed 15%, whereas in Ukraine it amounts to 50 % now. This arises because the Central Bank is not financing the government deficit, and other savings can be obtained only by bidding up interest rates. However, such a situation increases interest rates in other sectors of the financial system, namely in the lending sector due to high opportunity cost of lending. Moreover, in the lending sector interest rates are even higher in order to cover higher risk.

In 1997, 67% of the budget deficit were financed by government bonds. In nominal terms this means 4151 mln. Hrn.[29] At the same time M2 money stock at the end of 1997 was 11576 mln. Hrn. Comparison of these two figures tells us that in 1997 35.8% of money stock in the economy had to be attracted out of circulation to be invested in bonds. This is a jolt, even though the government will quickly put the money back into the economy to finance its spending. This tells us that not only high interest rates on government bonds drive interest rates in other sectors up, but they also take a significant portion of saving away from business sector.

Ukrainian reality shows that during the period of 1993-1997 enterprises were lacking cash resources. To see this, let us look at the aggregated over the economy balance sheets of Ukrainian enterprises. Recall that net working capital is defined as a difference between current assets and current liabilities. From the one side, it shows that that the enterprise with positive net working capital has liquidity since it can sell off its current assets

to cover its current liabilities. From the other side, continuous increase in net working capital means that assets turnover of the enterprise slows down which lowers effectiveness of assets utilization.

What we observe in Ukraine is a continuous growth of net working capital (see Appendix A8). If at the beginning of 1993 it amounted to 10.8 mln. Hrn, then by 1997 it rose to 18 105 mln. Hrn. What we are interested in is the share of cash in net working capital. At the beginning of 1994, it was 15.7%, but by 1997 it decreased to 8.4%. This means that the increase in net working capital was realized to a higher extent through an increase in inventories and accounts receivable than through an increase in cash.

We have already showed rapid growth of accounts payable and of inventories over the Ukrainian economy. This means that enterprises were investing their financial resources into assets which appeared to be illiquid. High interest rates closed the source of cash renewal and enterprises were forced to use accounts payable as a source of financing, which eventually resulted in arrears accumulation.

As a conclusion we should say that an important factor which facilitates accumulation of inter-enterprise arrears is the absence of effective bankruptcy law. Although such a bankruptcy law has existed in Ukraine since 1992, this legislation has been widely criticized as flawed and never utilized.

The economic sense of a bankruptcy procedure is to treat an enterprise as an investment of factors of production, and these factors should be at the enterprise's disposal only as long as it is able to cover costs of using such factors. Once the enterprise fails to do this, resources should be moved to more productive economic agents.

Absence of effective bankruptcy legislation has resulted in accumulation of credit resources with ineffective users, transformation of these resources into illiquid inventories,

and consequently inability to pay back debts. Throughout the national economy, it has lead to accumulation of arrears between the economic agents.

Conclusion

Monetization of the economy, defined as a ratio of broad money aggregate to annualized GDP in current prices, is a reverse function of money velocity and it shows how much money circulate in the economy. Higher monetization has a positive impact on the economy. In general, introduction of money increases welfare of each economic agent due to reduction in uncertainty and transaction costs. Therefore, in comparison to a barter economy, higher monetization leads to higher efficiency. Higher monetization also means availability of credit resources which leads to higher investment, and higher degree of economic stability, since possible internal or external monetary shocks are more easily dissipated. Eventually, this will have a positive impact on GDP growth.

Unfortunately, in transitional economies financial stabilization did not bring increase in monetization level. At the same time the most simple solution to this problem, namely, plain monetary emission, has never lead to any positive results since it will result in higher inflation. Therefore, the main purpose of this paper is to find non-inflationary sources of monetization growth.

The theoretical part of the paper reveals factors which influence monetization. The interest rate should have a negative impact on monetization, and this conclusion holds whatever interest rate we choose. Overview of monetization developments across countries told us that the inflation rate has an important impact on monetization since in such a case the benefits of holding money become negligible in comparison with quick loss in their value. Therefore, there will be change in agents' preferences towards assets other than money. Moreover, the impact of inflation on monetization is asymmetric: high inflation reduces

monetization badly, however, with low inflation monetization do not reach the previous level.

Another important factor which affects monetization is real income. However, reality shows that although transitional countries have stabilized and some of them even observe real output growth, still we do not observe growth in monetization. The main reason of this is that in transitional economies income elasticity in money demand function is very low. This occurred due to two reasons: increase of government expenditure share in GDP and increased growth in inventories.

Finally, we name high savings rate and overall development of the financial system which should positively affect monetization.

In the last part of this paper we have made an attempt to apply our monetization theory to the understanding of the payment arrears problem in Ukraine. Our main conclusion is the following. During the period of transition Ukrainian enterprises were investing their financial resources into assets which appeared to be illiquid. At the same time they were unable to renew their net working capital with cash due to high interest rates. Therefore, enterprises have chosen accounts payable as a source of financing which eventually has resulted in arrears accumulation.

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