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**Improving Monetary Theory in
Post-communist Countries –
Looking Back to Cantillon**

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SUMMARY. THE EXPERIENCE OF POST-COMMUNIST COUNTRIES HAS CONTRIBUTED LITTLE OR ALMOST NONE TO THE DEVELOPMENT OF MONETARY THEORY. ONE OF THE MAIN REASONS FOR THIS IS APPLICATION OF MAINSTREAM HOLISTIC MONETARY THEORY, WHICH DOES NOT CONCENTRATE ON THE MICROECONOMIC EFFECT OF MONEY. THE AUSTRIAN MONETARY SCHOOL AND ONE OF ITS PREDECESSORS, CANTILLON, IS A GOOD STARTING POINT TO NEW APPROACHES TO MONETARY THEORY. THIS ARTICLE ATTEMPTS: (I) TO EXTEND AND DEVELOP THE MICROECONOMIC ANALYSIS OF THE EFFECT OF MONEY ON INDIVIDUAL ECONOMIC AGENTS, OR THE “CANTILLON EFFECT,” BY DEFINING THE BASIC SET OF CATEGORIES OF THIS EFFECT – MONEY PATHS AND CHANNELS, MONEY NETWORKS, ARBITRAGE OF MONEY PATHS, MONEY ENTREPRENEURS, *etc.*, (II) TO LINK THE CANTILLON EFFECT WITH THE “THEORY OF REDISTRIBUTION GROUPS AND THE THEORY OF BANDITS” OF MANCUR OLSON BY ANALYZING THE STRATEGIES OF MONEY BANDITS, (III) TO SEEK A RELATIONSHIP BETWEEN THE CANTILLON EFFECT AND SOME OF DOUGLAS NORTH’S IDEAS OF INSTITUTIONAL CHANGE (NORTH EXPLAINS THE LATTER PREDOMINANTLY WITH CHANGES IN RELATIVE PRICES AND PROPERTY RIGHTS), AND (IV) TO UNDERSCORE THE ANALYTICAL POTENTIAL OF THE THEORY OF NETWORKS (AND POSSIBLY THE GRAPH THEORY) IN THE MICROECONOMICS OF MONEY.

JEL Classification: B4, E5, P2

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1. Introduction – the Transformation¹ and the Monetary Theories

Any profound change in the economic system leads to significant changes in monetary theory and in economics in general. This statement is not new and has been repeatedly emphasized. In one of his first books, *Prices and Production*, published in 1931, Friedrich Hayek states: “In the past, periods of monetary cataclysms had always been periods of great progress in the field of economics” (*Hayek, 1975, 61*).² If we follow this line of reasoning, deep changes in former socialist countries should give impetus to monetary theory or at least should raise new issues of the role of money in the economic system. However, this did not happen. Something much simpler happened. Both changes in Eastern Europe and what should have been suggested as practical action for reforms were reduced (and still are) to mechanical application of mainstream monetary theory, whether monetary theory in which discretion holds a central place or the quantity theory and the neutrality of money.³

Undoubtedly the scale of changes in former socialist economies can serve: (i) as a competition ground for different monetary theory schools, i.e. as a test of their efficiency; and (ii) as a starting point of refining both existing theoretical statements and developing new approaches to monetary theory.

In my view, one of the reasons for the lack of quality leap in the monetary theory of transforming economies (TE) is the elimination (or let’s call it disregard) of the Austrian Monetary School and its methodology in the competition of monetary theories. However, it is the Austrian School that concentrates on the microeconomic fundamentals of money and first and foremost on: (i) the demand for money at an in-

¹ The commonly used term ‘transition economy’ is infelicitous as an economy is always in transition: “It is a poor makeshift to call any age an age of transition. In the living world there is always change. Every age is an age of transition” (*Mises, 1996, p. 860*). The term ‘transforming economy,’ though facing similar problems, is more flexible. I think it is better to use the term ‘post-communist countries.’

² Schumpeter holds the same view. Hayek also notes that progress in economics has *always* been due to the proper application of subjectivist methodology.

³ Attempts at analyzing the monetary events of transition with the tools of institutional economics and the new political economy are few (apart from underscoring some institutional aspects of the monetary system). As a rule, however, these do not pay attention to the microeffects of money dynamics on different individuals and groups but rather concentrate on the macroeconomics of transition. See the reviews in *Murrell (1995)*, *Rodrik (1996)*, *Kornai (2000)* and *Roland (2001, 2002)*.

dividual level, (ii) the dynamics of relative prices as information signals, (iii) the importance of time and uncertainty in the analysis of monetary events, (iv) the channels of money impact on the economic system, (v) the relationship between money and property rights, entrepreneurship, *etc.* All these phenomena represent the bearing systemic elements of TE.

The continuation of the above citation from Hayek is eloquent. It reads like this: “This did not happen (there was no progress in monetary theory in the early 1930s – author’s note, N.N.) probably because of the change in the behaviour of most economists with regard to methodology used in economics (all accept the ‘holistic methodology’ – author’s note N.N.)” (*Hayek*, 1975, 61). As if nothing has happened since Hayek’s time when the holistic methodology was expounded. However, nowadays the lack of progress can be explained by the opposite – its preservation. Modern mainstream monetary theory provides almost no tools to understand what is happening in Eastern Europe (EE). Neither the orthodox paradigm of discretionary monetary policy nor the quantity theory can provide satisfactory explanations besides some trivial and sometimes incorrect statements like: (i) “sooner or later money supply growth will evolve in prices growth (by prices it is usually meant the general level of prices – author’s note, N.N.)”; (ii) “if the supply of money exceeds demand for it, this leads to changes in interest rates and prices”; (iii) “if money supply grows, interest rate will fall and this will stimulate growth”; (iv) inflation redistributes incomes, *etc.* In the holistic theory, channels through which money affects economic activity are aggregated, limited and extremely simplified⁴. Such aggregation of channels can describe and explain (i) neither the deep change evolving over the last decade in EE involving significant and constant processes of wealth redistribution among different newly emerging economic agents, (ii) nor the lack of substantial economic progress in these economies.

To deal with this ‘deadlock’ situation, we should focus on the *microeconomic channels of money impact in the economy*. Hence the main task of this article. To show the importance and role of money in a transition economy, I shall attempt (i) to extend and develop the

⁴ See the list of channels in Mishkin’s textbook (*Mishkin*, 2000). In my view, aggregation and schematization of channels can be explained by the need to legitimize discretionary monetary policy pursued by central bank. On the whole, these channels are mechanical in their framework and different individuals and groups of individuals, especially their interests, are not visible.

microeconomic analysis of the effect of money on different economic agents or generally called the ‘Cantillon effect’ (CE) by (ii) defining the basic set of categories of this effect – money roads and channels, money networks, arbitrage of money roads, money bandits, *etc.*, (iii) to link the Cantillon effect with the ‘theory of bandits’ of Mancur Olson by defining the main strategies of money agents, (iv) to seek a relationship between the Cantillon effect and some of Douglas North’s ideas of institutional change (North explains the latter predominantly with changes in relative prices and property rights), and (v) to underscore the analytical potential of the theory of networks and the graph theory in constructing the future microeconomics of money.

The above research program would allow not only to answer the question of why no progress was made in monetary theory based on the experience in TE but it could also suggest possible new directions for monetary theory development *in general*.

The paper is structured as follows. *Part One* defines the working concepts and presents major theoretical hypotheses. *Part Two* deals with the basic theoretical elements of a positive theory of “money roads and money networks” in the economic system. *Part Three*, from the perspective of the already stated theory of money roads and networks, presents the hypotheses of economic agents’ strategies for best positioning in money networks. In *Part Four* an attempt is made at linking money dynamics with the specifics of transition, especially property rights. This is illustrated with the Bulgarian case (1990–2000). The *Conclusion* summarizes issues that need to be addressed and directions of monetary theory development based on the hypotheses stated.

2. Theoretical Concepts

To lay the beginnings of a positive theory of ‘money paths and networks’ or ‘the microeconomics of money’ I need to define the set of categories used.

The Cantillon Effect

The Irish born banker Richard Cantillon (1680–1734) is probably the first⁵ who in his book “Essai sur la nature et du commerce en

⁵ Similar texts on the impact of money on individual economic agents could also be found in Hume’s works but on the whole his approach is rather macroeconomic. And, according to Hayek, Hume has actively used Cantillon’s book (Hayek, 1975). According to Bordo and Salerno, J. E. Cairnes first matched the Cantillon’s ideas, a century after the publications of the *Essaie* (Bordo, 1984, Salerno, 1985).

générale,” published in 1755,⁶ focuses on the complex and diverse effect that money supply change has on the state of individual economic agents depending on their position in the economic system (temporal and spatial⁷). Later, as we know, this idea of Cantillon was incorporated in the bearing body of the Austrian approach to money.⁸

Let me recall in brief Cantillon’s ideas presented mainly in Part II of his book, particularly chapters 6–8.

In his criticism of John Locke, Cantillon defines the task of examining the role of money as follows: “Locke ... has been well aware that excess of money makes everything more expensive, but he has *not sought to see how this happens*. The great difficulty of the research is to understand how and in what proportion money growth causes price rises in everything” (*Cantillon*, 1755, 212–213 – underscored by N.N.).⁹ Then: “money circulates through so many a channel that it seems *impossible* not to lose sight of it” (*Cantillon*, 1755, 213). The author questions the main postulate of the quantity theory in the following eloquent way: “From all this I conclude that doubling the quantity of money in a country does not double the prices of food and goods. *A river that flows and whirls in its bed does not run at twice as fast speed if the quantity of its waters doubles*” (*Cantillon*, 1755, 235 – underscored by N. N.).

⁶ The birth date and the year of publishing of Cantillon’s book are not clear. For details see *Murphy* (1985).

⁷ Cantillon is considered one of the founders of spatial economics (economics of location).

⁸ Hayek’s lectures, collected in his book *Prices and Production*, are directly inspired by Cantillon’s ideas of the impact of money on the economic cycle. It is not by accident that Hayek begins with a motto from Cantillon. Perhaps Hayek is one of the first to acknowledge Cantillon’s contribution to monetary theory (of course, Jevons had similar observations). Classical (in Cantillon’s tradition) statements of the impact of money on the economic system are made by Ludwig Mises (*Mises*, 1996, chapter XVII) and Murry Rothbard (*Rothbard*, 1976), as well as by other, modern representatives of the Austrian School (*White*, 1995, 1999). There were attempts to reject the originality of Austrian analysis stressing the specific effect of money on the system of relative prices and to consider that representatives of the quantity theory have taken account of this (*Humphrey*, 1984). Of course, this statement is partially true. It is true that *Fisher* (*The Purchasing Power of Money*, 1911) and *Keynes* (*Treatise of Money*, 1930) have also mentioned the effects of money injection on relative prices. However, they contented themselves by just declaring that fact, whereas in the monetary system of Mises and Rothbard the Cantillon effect is system forming and differentiating in the process of comparing the efficiency and functioning of alternative monetary systems. In my view, the Cantillon effect is ‘open’ and provides new opportunities for analysis due to the fact that *even* the Austrian School has studied it in a rather general and abstract way or it has not concentrated enough efforts on its technical improvement.

⁹ I have used a French edition with its original pagination.

One of Cantillon's fundamental ideas (although he does not formulate it explicitly) is to show the *redistribution power* that changes in money supply (in volume and structure) provoke in individual economic agents wealth. This power is materialized through movements in relative prices over time and space.¹⁰ Hence the importance he placed on the entry points through which money (money in the author's system is gold and silver, and bank money is money substitutes) enters the economy, the channels through which it flows, the position of individual groups of agents on the money path, the type of agents at entry, *etc.* Cantillon lists a sequence of entry points. He classifies them by money source, which can be summarized roughly into two groups: internal to a country and external in respect of the balance of payments.¹¹

Among *entry points* that later determine to a great extent the path of money Cantillon lists: (i) mines in which gold and silver are extracted (parallels could be made with a modern central bank), (ii) the trade balance (here Cantillon distinguishes the effect as a result of consumption of tradable and nontradable goods), (iii) incomes paid from other countries, embassies, *etc.*, (iv) external loans to entrepreneurs, individuals and the government, (v) import of money by foreigners (capital inflow in modern sense), (vi) changes in money supply as a result of violence, war or payment of reparations, *etc.*¹² Economic agents nearest to the entry points benefit most from a possible money supply growth as they buy goods at the old prices, before their rise. Thus at the beginning of the money chain money has the greatest purchasing power which diminishes over time and space. Next, of crucial importance for CE to manifest itself are (i) relative prices, (ii) demand for money by economic agents along the chain, both in terms of volume and direction (what goods and services are demanded, consumer or investment goods, *etc.*), (iii) the elasticity of supply of demanded goods and services, *etc.* As a result of the overall CE dynamics some lose and others win. In a specific case (that of higher output in gold mines), Cantillon shows that owners and workers in gold and silver

¹⁰ After injecting the new amount of money the economic system changes its structure significantly. In this line of reasoning we ask ourselves whether it is methodologically correct to compare the economic system before and after money injection.

¹¹ In Cantillon's system entry points and money paths are *natural*, inherently linked to the system of property rights. They are not artificially constructed and managed as in the regime of the discretionary central bank or even in the currency board regime (where the entry points are restricted in order to limit the sources of money as much as possible).

¹² Bordo identifies seven entry points (Bordo, 1984).

mines benefit most, followed by related economic agents (craftsmen, farmers, *etc.*).¹³ Losers are landlords as well as those that do not participate in the money network which had received impulse from gold and silver mines (*Cantillon*, 1755, 215–217).

One of Cantillon's discoveries, which was subsequently embedded in the Austrian theory of the cycle, is the impact of money supply growth on interest rate. Cantillon is among the first to show that depending on whether money is injected in economic agents that consume, invest or lend, the effect on the interest rate is different. If money gets into the hands of households, they spent it, prices rise and this leads generally to higher interest rate. Only when money gets into the hands of moneylenders, a prototype of commercial banks, a fall in interest rates could occur. In modern monetary theory this relationship is known as the liquidity effect.

Thus, we provide a broadly general definition of the Cantillon effect in view of the purposes of our analysis.

Definition 1. Cantillon effect (CE): a theoretical statement according to which changes in the volume and structure of money supply cause differentiated, complex and difficult to analyze changes in the system of relative prices, thus bringing about differentiated and complex redistribution processes in the wealth and social status of individual economic agents and groups of agents.

The above definition of CE allows us to construct a definite set of categories. Essentially, all theoretical statements presented below attempt to extend and develop theoretically the CE.

Entry and Exit Points, Money Path and Money Network

Definition 2. Entry point of money: the place where a certain amount of money enters for the first time (or is injected in) the world of goods and services (we could speak of money creation¹⁴). This is the starting

¹³ Fernand Braudel has a different observation. He claims that in Latin America (in XV–XVII centuries) every rise of gold and silver production brings benefit in the first place and primarily to the person who invests in the mines, buys mercury *etc.*, and secondly and marginally to the owner of the mines and the miners themselves. Very often, Bordel reminds us, miners spend all money gambling (*Braudel*, 1986, ch. 2).

¹⁴ When the money is injected for the first time, the nominal money creation is identical with a real money creation, which is an exception rather than a rule. When prices go down (for various reasons) we could observe real money creation without nominal money creation.

point of the money amount as a purchasing power and the first monetary impulse. At this point the purchasing power is maximal and can be defined as 100%. Certain type and number of economic agents that get the money on hand or on bank accounts personify the entry point. To simplify analysis, by money I mean only the money that represents liabilities of the central bank (CB), not the total money supply.¹⁵ In this case the number of entry points is small and can be reduced to a finite number, for instance, through various entry points in CB liabilities: (i) entry points of commercial banks (different types of refinancing, *etc.*), (ii) entry points of the government (purchase of government securities or direct financing), (iii) entry points of commercial banks and the government arising from the balance of payments, *etc.* Within the framework of commercial bank refinancing, different types and groups of banks as well as individual banks (taken on an individual basis) can be differentiated. In the latter case we can define entry point ‘bank X,’ entry point ‘bank Y,’ *etc.*

Definition 3. Output point of money: the place where the money amount ends its path in the realm of goods and services and ultimately loses its purchasing power, i.e. its purchasing power is zero (we could speak of money destruction). In this case I am reasoning in a world of inflation, i.e. for one-way reduction of the purchasing power from 100% to 0%.¹⁶ Symmetrical (but opposite) is the reasoning in a world of deflation. When both processes are in place (inflation and deflation), the chain of reasonings becomes more complex but the basic logic does not change generally. The loss of purchasing power is not a simple linear process but a complex and non-linear one.

Furthermore, it is logical to suppose that the process of money destruction is one and the same for all currency in circulation – new and old. In contrast to entry points, exit points are numerous and it is difficult to count or classify them. But whereas the entry points are specific

¹⁵ This limitation does not change the essentials but only simplifies presentation. Actually, the theoretical approach presented in the paper applies to the remainder of the money supply that is created by the commercial banks. In real world there are entry points on behalf of commercial bank liabilities, i.e. when commercial banks make a loan to a firm. Commercial banks credit the firm’s account with the bank and the firm can begin spending it on goods and services. The abstraction of interim entry points is close to the original Cantillon’s understanding of money where bank money is seen as money substitutes. The difference is that in Cantillon’s days bank money did not have the meaning that it has today.

¹⁶ I set aside productivity dynamics, wages and other factors determining price movements.

for the different monetary systems and regimes, the exit points are more similar, if not identical for all monetary systems and regimes.

It is important to note that entry and exit points have temporal and spatial characteristics (position). This makes it possible to define money paths in terms of their spatial length and time period.

Definition 4. Money path (money chain): this is an abstract spatial distance (or abstract time period from a perspective of time)¹⁷ that money passes from its entry point to its exit point (see Chart 1).¹⁸ As time goes by and distance increases, the purchasing power of the injected money amount decreases and ceases to exist because prices of goods and services increase generally (the general price level¹⁹). The loss of purchasing power spreads over the money that is already in circulation.²⁰ The purchasing power of money is maximal at entry point (in the hands of the economic agents that got it first) because prices of goods and services remain at the level of the previous money supply volume (before injecting the additional quantity of money). Hence the logical explanation of the fight among economic agents for entry points and closer position (temporal and spatial) to entry points.²¹

Money paths and chains can be classified into *short-term* and *long-term* (in terms of time) and *short* and *long* (in terms of space²²). Generally short and short-term money paths are directed primarily to con-

¹⁷ In economics time and space are not interchangeable concepts as it is in physics.

¹⁸ So far we are not concerned with the shape of the money path. Usually it is circle-cyclical and it is also possible one and the same agents to be located many times on the money path, i.e. money could pass several times through their hands.

¹⁹ In this paper there is another simplification as well. I assume that a general price level exists. This statement is dubious because any currency unit owned by a given economic agent has its purchasing power according to the *subjective* assessment of the latter regarding its utility. In actual fact, this simplification makes reasoning clearer without blocking methodologically the path. Another assumption is the causal direction from nominal money to price, whereas the inverse causality also holds. Furthermore, there is a kind of cyclical causality. The new money enters the economic process – the prices rise (the purchasing power of all monetary signs – old and new – decreases), and this provokes acceleration of purchasing power destruction and so on.

²⁰ Here is a new line of reasoning. As old money is already allocated to particular goals according to a particular preferences set, every new injection of money is an exogenous shock for the economic agents. Their preferences are disturbed and their plans are not realized.

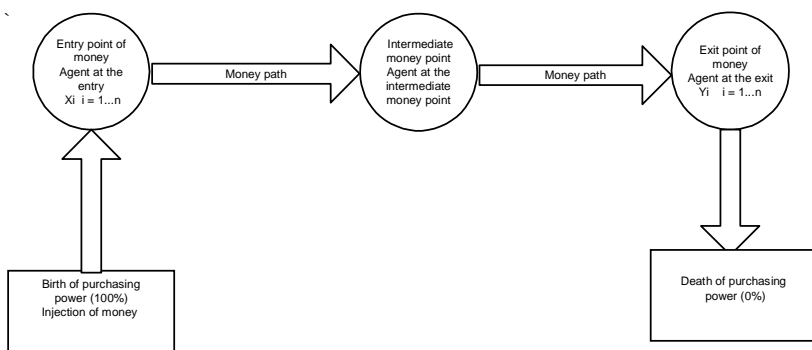
²¹ In the event periods of deflation are in place, reasoning is opposite to that in inflation. Then extension of the path of money is possible. Economic agents strive to be farther in the chain. Different individuals assess exit points subjectively.

²² It is possible for this combination to produce *four* combinations of money paths (from the perspective of time and space).

sumer goods, while long and long-term, to investment goods.²³ In the former case money rapidly loses its purchasing power whereas in the latter this process is slower.²⁴ Shortening of the path involves fast depletion of the purchasing power of a certain abstract money amount. Hyperinflation, for example, is a process of sharp shortening of money paths. This is of primary importance in attempting application analysis and especially in studying post-communist countries.

Chart 1

SIMPLIFIED (STYLIZED, ABSTRACT) MONEY PATH (MONEY CHAIN)



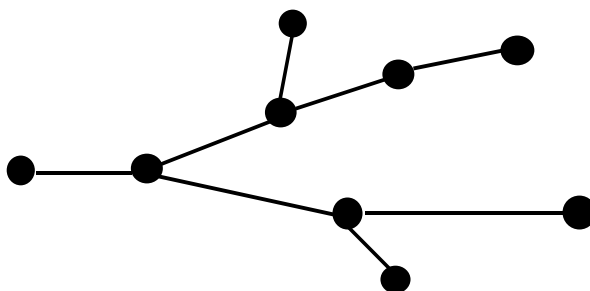
The above simplified, benchmark money path serves as a graphical illustration of the life cycle of money and its purchasing power.²⁵ Agents at entry points are designated as X, and those at output points as Y.

²³ This distinction ‘matches’ Hayek’s explanation of the cycle. Here again I make ‘tactical’ concessions to the holistic and aggregated theory. Actually, there is a multiple of consumer and investment goods, which makes analysis even more complex.

²⁴ This could be due to the particular combination of supply and demand elasticity of consumer and investment goods.

²⁵ A parallel with ‘the life cycle of property rights,’ analyzed by *Ellerman* (2000, 2002) can be made immediately. The original approach of *Ellerman* (2002), using the graph theory in the analysis of property rights and especially its transfer is extremely suitable for describing the purchasing power of money over time and space. This issue is treated briefly at the end of the paper.

MORE COMPLEX MONEY PATH (MONEY CHAIN)



Although the terms ‘money path’ and ‘money chain’ sound alike, ‘money chain’ makes it possible to focus on the characteristics of the very agents (distributed along the money path). The *money chain can be defined as*: a sequence of related economic agents situated one after the other (or/and next to the other) along the money path. For example, if bank X is at the entry point, next to it are the owners (shareholders) and managers of the bank, the bank’s employees, companies related to the bank, other banks related to the bank, other companies related to the bank, *etc.* Another example: if the Ministry of Finance (MF) is at the entry point, next come the companies related to the MF, then civil servants, *etc.* till we get to pensioners, *etc.*

In addition, money paths *have such characteristics as*: (i) *density* of the chain (the number of economic agents on it and the distance between them), (ii) *velocity of movement* of money along the path, *etc.* The analysis could be extended but we stop here.

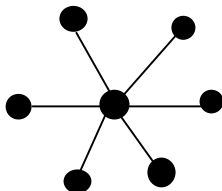
Definition 5. Money network: a set (multitude) of economic agents with specific monetary relations (direct and indirect) holding economic agents together within a certain framework (see Chart 3).²⁶ The money network could be formed around a money path leading to the emer-

²⁶ See the definition of network in sociology, *Wasserman and Faust (1994)*, *Steiner (1999)*. It is also possible to speak of a *money group*. The money group protects the interests of its participants by providing a club service – in this case a certain level of purchasing power – at the expense of the other members of society. Within the network (the group) there exists a regulated distribution and redistribution of this service. Small money groups in which there is asymmetric power are much more efficient and stable. See the research in *Olson (1982)*. Actually the higher efficiency of small groups in achieving their goals is a basic thesis in social psychology (*Moscovici, 1995*).

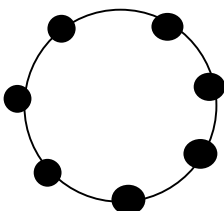
gence of branches, or a complex interweaving of money paths. In this sense, we could speak of complexity of the money path (see Chart 2).

Chart 3

SOME TYPES OF MONETARY NETWORKS



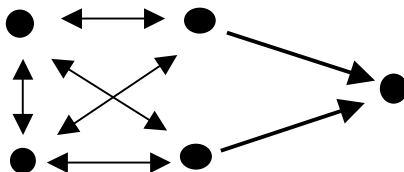
A



B



C



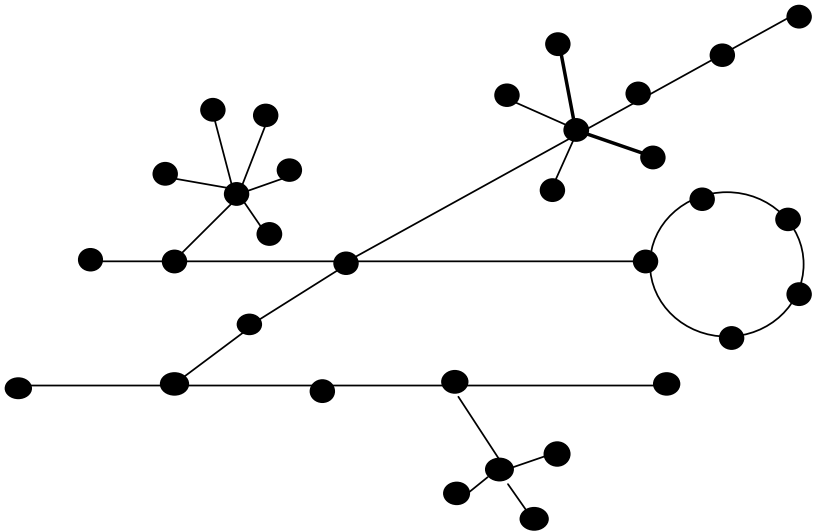
D

Every money network has structure: density, centering of agents, *etc.* Different participants in the network have different positions in this structure of relations. For example, in the first type of network (A) the agent in the center is systemic, all other agents are linked through it. In the second type of network (B) agents have identical positions, and in the third one (C) the first and last economic agents differ from the rest. The last, fourth network (D) illustrates the analytical capacity of the graph theory in the analysis of networks (arrows represent the directions of influence).

As a result of all this complex analytical configurations of money paths and networks are formed which are difficult to present graphically. If this is possible at all, it could be illustrated similarly to Chart 4.

Chart 4

A SAMPLE SET OF MONEY PATHS AND MONEY NETWORKS



Let's examine the next theoretical step – the *agents* that participate in money paths and networks.

Money Entrepreneurs, Money Bandits and Money Arbitrage

We saw that the purchasing power of money changes over time and space from 100% to 0% (in the hypothesis of a long-term increase in prices). We mentioned that changes in the purchasing power bring about changes in the wealth of economic agents distributed in money paths and networks (agents outside the network are also affected). Therefore, it is logical that economic agents, to one extent or another, should strive to transfer and move along these paths and networks (i.e. we proceed with behavioral characteristics of the agents). Thus the economic categories ‘money entrepreneur,’ ‘money bandit,’ and ‘money arbitrage’ emerge. Let’s define them.

Definition 6. Money entrepreneur: an economic agent (an individual or a group of individuals) that strives to take advantage of the difference in the purchasing power of money in space and time in order to get profit. The basic strategy of the money entrepreneur is simple – to move along money paths and networks from points and sections of lower purchasing power of money (where money buys less goods and services) to points of higher purchasing power.²⁷ Money entrepreneurs are those who strive to get richer and their action leads to constant and never ending redistribution of wealth among individuals and groups of individuals.

The above definition is very close to Kirzner’s definition of the entrepreneur. According to Kirzner: “The pure entrepreneur, on the other hand, proceeds by his alertness to discover and exploit situations in which he is able to sell for high prices that which he can buy for low prices. Pure entrepreneur profit is the difference between the two sets of prices... The discovery of a profit opportunity means the *discovery of something obtainable for nothing at all*. No investment at all is required; the free ten-dollar bill is discovered to be already within one’s grasp.” (Kirzner, 1973, 48) Similarly to Kirzner’s entrepreneur, the money entrepreneur makes use of the lack of knowledge and information asymmetry in order to profit. Likewise, similarly to Kirzner’s entrepreneur, to accomplish his action the entrepreneur of money paths does not need any start-up capital, initial own assets or initial investments.

²⁷ In a future study it will be interesting to analyze agents’ behavior as a rational or non-rational process.

The above reasoning makes it possible to proceed with defining the ‘arbitrage of money paths and networks.’

Definition 7. Arbitrage of money paths and networks: a process through which the purchasing power of money tends to equalize over time and space. This process is carried on by money entrepreneurs and could also be called ‘purchasing power arbitrage.’ Purchasing power arbitrage should be interpreted as a constant process of purchasing power balancing without ever reaching equilibrium.

Specifically, money entrepreneurs (hence money arbitrage) take action within a given defined system of property rights.²⁸ That is, they do not violate it but use the differences in its structure. Also, they observe the principle of voluntary contracts (defined by Hume and later permanently embedded in the Austrian view of property rights). However, there are other groups of economic players for which the above principles do not apply. These are money bandits.

The term ‘bandit’ is associated mostly with its traditional meaning in everyday language to refer to violations of the system of rights in a country (thefts, robberies, *etc.*). Mancur Olson is one of the first economists that attempted to introduce this term in economics (1995, 2000), assigning it theoretical meaning.²⁹

Definition 8. Money bandit: an economic agent (an individual or a group of individuals) that strives to halt or accelerate (or hinder) movement of the purchasing power of money in space and time in order to maximize his wealth and reputation in the system. The money bandit stops and blocks particular money points and paths.³⁰ He does so by violating and manipulating the property rights system (creating fictive property rights), stopping and changing the flow of information on the purchasing power of money, *etc.* Thus he obstructs the normal (i.e. efficient) redistribution of wealth among economic agents.

Money bandits use as a means to their ends *the political system and the democratic procedure*. There is a great number of political levers –

²⁸ Property rights are closely related to money movements and changes in purchasing power. It is not possible to transfer efficiently purchasing power of money over space and time without voluntary and efficient transfer of property rights.

²⁹ Interestingly, the problems of post-communist countries are at the root of Olson’s attempt at improving his theory of bandits (*Olson, 2000*). The term ‘bandit’ is a logical continuation of the term ‘interested group’ which Olson had introduced long before.

³⁰ In line with the above reasoning, it is possible that the money bandit himself would determine the points through which money is injected by capturing the money supply. In this sense, money supply is endogenous since it depends on interested groups.

part of these are formal and legally framed (i.e. property rights are observed), while another part (and maybe a more significant one) is not formalized (corruption, *etc.*). Money bandits both break rules and do not observe the system of property rights and *create themselves formal rules or deformalize them*. The term ‘deformalization of rules’³¹ is an original contribution of the Russian economist Vadim Radaev, studying the economy of post-communist Russia (*Radaev, 2001*). According to Radaev, deformalization of rules (i.e. their transformation into informal norms of behavior) is a result of the institutional compromise when a ritual (ostensible) observance of the rules is in place and they, in turn, are used to conceal complex and hidden informal strategies.

Next, if we make use of Olson’s classification, bandits are two types – stationary and roving. In our case, *stationary bandits* are those who maximize their monopolistic rent in the long run (intertemporally) trying to stay as long as possible in a given money position in a given money network.³² These bandits are capable of having elements of money entrepreneurship. They operate within the framework of a well-defined system of property rights. They know that by leaving purchasing power to the rest they could increase their rent as funds will be allocated for investment and growth. Stationary bandits have interest in that the purchasing power of money should not decrease too fast; they even have interest in that it should stay relatively stable.³³

On the other hand, *roving bandits* strive to maximize their rent as quickly as possible by leaving their money position (they even disappear as agents) effecting as much purchasing power as possible (spending the money immediately after they get it – or even before they get it). In this case, they aim at leaving as little as possible to the other members of society. All this, of course, is possible by violating the system of property rights. Moreover, this type of bandits is capable of creating temporary property rights in order to legalize their consumption and afterwards these rights are modified. This was and still is large-scale practice in Russia and Eastern Europe.³⁴

³¹ A process opposite to the procedure proposed by Hernando De Sotro for formalization of informal norms.

³² The behavior of this kind of bandits could be explained by the conception of ‘rent seeking.’

³³ Analyzing the state (organized stationary bandit), Olson also notes that it is interested in maintaining stable money (*Olson, 2000, 25–26*).

³⁴ It can be assumed that in most cases stationary bandits are part of bigger groups while roving bandits are represented in small groups. This is so because (as we mentioned) small groups are more successful in achieving their goals, especially short-term ones.

Here again we should pay tribute to Cantillon who is maybe the first to see the relationship between money movement and corruption. Criticizing John Law's³⁵ financial pyramid, he writes: "Then there is no doubt that the Bank in collaboration with the Minister is capable of increasing and maintaining the government debt and decreasing domestic interest rates, for the Minister's pleasure, and this is done discretely in order to repay the government debt. *But such manipulations opening a room for accumulating great wealth are rarely undertaken for the single benefit of the state and those who participate in such actions are corrupted as a whole*" (Cantillon, 1755, 323 – underscored by N. N.).³⁶

Of course, here we do not refer to *abstract types of agents*, as real life combinations are much more complex. For example, it is possible (and is often the case) for a particular economic agent to be simultaneously money entrepreneur and money bandit (to one extent or another in respect of different agents, *etc.*) Also, it is common practice for an economic agent to start as roving bandit and turn into stationary, and vice versa. It is possible to have other types of classifications of money bandits. One such classification is that of formal and informal bandits. Actions of formal bandits are transparent and predictable while those of informal bandits are veiled in secrecy and lack transparency.

In the theory of money paths and networks every agent has his own strategy (the lack of it can also be viewed as strategy). Closely related to the processes of money arbitrage and money banditism are economic agents' operating strategies in terms of money paths and networks. So I proceed with this.

3. Monetary Strategies of Economic Agents – Hypotheses

Examination of some stylized strategies enables us to continue constructing a theory of the microeconomic impact of money on the economic system. Basic functional and behavioral hypotheses are presented below:

Strategy 1 (basic strategy): Every economic agent strives to position himself in money paths and networks in such a way as to maximize the

³⁵ Interestingly, Richard Cantillon himself benefited from John Law's pyramid, leaving it at the moment he anticipated its dissolution. Then isn't he the modern Joseph Stiglitz?

³⁶ This citation has often attracted the attention of Richard Cantillon's researchers, see Robbins (1998, 89), Thornton (1999, 26).

purchasing power of the amount of money in his possession.³⁷ If this is a money entrepreneur, he would strive to do it within the property rights granted, and if this is a money bandit – to violate the property rights or change them in his favor (through the mechanisms of the democratic procedure).

The basic strategy can be reduced to a number of operating strategies. I will list only two of them (it is impossible to be exhaustive here).

Strategy 2: Economic agents strive to be closer to entry points and farther from exit ones (in the event of price rises).³⁸ They strive to be the first to receive the money and be closer to the one that puts them into circulation for the first time.

There is fight for place in the money path. Economic agents strive to move in the money network or move other agents by pushing them back. Pushing back particular agents is done through: (i) blocking their money paths, (ii) extending their money paths (making them longer and/or longer-term), (iii) creating artificial paths for ‘siphoning off’ purchasing power, (iv) deforming and manipulating *information* on the purchasing power of money, *etc.*

Strategy 3: Movement along the chain (if we assume, that it is possible to be rationalized) is subject to the following rule – the costs of movement (along the paths and in the networks) should be less than the profit from the higher purchasing power obtained after the transfer. The usual problem in such a trade-off (costs – benefits) is that costs can be predicted to a large extent, while profits cannot (at least because the purchasing power may not move in the expected *ex ante* way).³⁹

It should be taken into account that economic agents have *diverse characteristics* (propensity to risk, different preferences, resource endowments, levers of power, *etc.*). This diversity makes it possible to formulate different monetary strategies and behavior. Logically those that have greater propensity to risk strive to short and short-term chains.

³⁷ It is possible to reduce winners and losers from movement in the purchasing power of money to creditors and debtors. The fight between creditors and debtors could be instrumental in explaining the institutional change of the monetary regime (*Nenovsky and Rizopoulos, 2002*).

³⁸ In this case we suppose that individual rationality of economic agents could provoke inflation (‘heard behavior’). But in reality we should assume that (i) agents have different time preferences (for a short or long chain) which lead to (ii) movement of the real interest rates.

³⁹ We could question the ability of different agents to realize their positions along the chains and networks (in spatial and time coordinates).

Particularly important for individual behavior and strategies is the *completeness of knowledge and expectations* of the purchasing power of money and their and other agents' positions in the money path. Expectations, in turn, are a function of the information available to economic agents.

Next, it is evident that there is a direct inverse relationship between the risk level and uncertainty in a country and the length and duration of money paths. Post-communist countries are an illustration of the above statement of the shortening of paths at increasing risk and uncertainty.

In this line of reasoning it is possible to define the *institutional change of the monetary regime* as a result of the fight of economic agents and groups for redistribution of the purchasing power of money. The institutional change may be seen as a transition from one configuration of money paths and networks to another. This, in the majority of cases, happens after a period of *money crises* (for example, hyperinflation, banking crisis). It could be assumed that institutional changes are consecutive cyclical movements of purchasing power – from long and long-term paths to short and short-term, and vice versa. Such understanding of the institutional change in the light of the microeconomics of money is an addition to Douglas North's view on the institutional change as a consequence of the changes in relative prices. Combining the CE (the impact of money on relative prices) with North's approach (institutional change as a change in the network of relative prices) helps understand how money movement can provoke institutional change.

Could the theoretical statements proposed explain some of the processes in EE and Russia? In my opinion, using CE could help explain why EE countries are developing so slowly (or at least not at the expected pace) and not in the desired direction.

4. An Illustration – the Bulgarian Transition

In the light of the theory expounded, two events in post-communist countries are noteworthy. *On the one hand*, deep processes of property and wealth redistribution are in place, combined with monetary and financial crises. This happens in a setting of complex interaction between formal and informal monetary relations. This setting may be defined as 'systematically' bandit. *On the other hand*, the leading conventional monetary theory (and mainstream economics on the whole) faces dif-

difficulties in explaining what is happening. At best, its explanations carry little cognitive value. What of it if we state, for example, that in accumulating losses a deficit is formed which sooner or later leads to money supply growth and ultimately to inflation and hyperinflation? The real question is who has interest in this process and what is the mechanism through which the interests of the groups and individuals concerned materialize?

There is voluminous literature describing or trying to explain developments in post-communist countries. I will not make an overview. Nor will I try to build empirical indicators of the theoretical hypotheses expounded in this paper. This is a task for another study. I will only highlight some illustrations of the theory expounded. I will restrict to: (i) the privatization process (and changes in property rights in general) and (ii) the transition from a monobank to a modern banking system (within which the CB pursues active discretionary monetary policy). I will illustrate this with examples from Bulgaria, a country reckoned to be close to the communist economy benchmark.

It is a historic fact that at the end of 1996 and the beginning of 1997 *Bulgaria's* monetary system collapsed: national money practically stopped performing its functions and inflation soared at 240% in February 1997, almost one third of the banking system failed and a currency board was introduced as a consequence of this.⁴⁰ The crisis (which in conventional reasoning can be referred to as twin crisis, for details see *Berlemann and al.*, 2002), was the outcome of deep processes of redistribution of wealth and property rights after 1990. This could not have happened without the active participation of the banking system and CB. During 1990–1996 there was fierce fight for entry points of money and forward position in money chains and networks. Fierceness was determined (i) by the inevitable price liberalization at the beginning of transition, which accelerated the processes of losing purchasing power and (ii) by the privatization of public (state-owned) property. The end point of the above dynamics was sharp shortening of money paths.

Among the basic *entry points* (in terms of balance of payments and CB) subject to fight we distinguish: (i) injecting money through the

⁴⁰ For details on the specifics of the Bulgarian transition, the 1996–1997 crisis and peculiarities of the currency board introduced see *Balyozov* (1999), *Dobrinsky* (2000), *Vutcheva* (2001), *Minassian* (2002), *Nenovsky and Hristov* (2002), *Nenovsky and Rizopoulos* (2002) and *Berlemann and al.* (2002).

Ministry of Finance which shifted the money in a given sequence to budget organizations, state-owned firms, persons related to them, *etc.*,⁴¹ (ii) injecting money through commercial banks which channeled it in a given sequence to firms and persons related to these banks, *etc.*, (iii) injecting money through the balance of payments (borrowing money from international financial institution, private creditors, *etc.*, revenue from exports), which were consecutively channeled to different economic groups and individuals, hence to groups and individuals related to them, and so on and so forth. A more precise detailing is possible. For instance, within the entry point of the banking system there was fierce fight among individual commercial banks to get financing from the CB (mostly unsecured). In this case the entry point of the banking system may be viewed as a multitude of individual entry points.

Let's consider the *banking system*⁴² (bear in mind that the present-day banking system *is fractional*). A number of short money paths were created as roving bandits built money chains through which the injected money was immediately spent on *consumer luxury goods*. In everyday language these paths were called 'schemes of bank siphoning off.' There were cases when banks and financial institutions were registered only for the purpose of making a loan to a firm related to the owner of the bank. Subsequently he received refinancing from the CB and ultimately ran out of the country with the money or spent it on luxury goods. Siphoning off was also associated with participation in privatization of an unprecedented scale consistent with the nature of communist ownership (see *Chavdarova*, 2002). Particularly interesting were 'mass privatization' methods whereby a great number of channels for the profiting of particular groups and individuals were created.⁴³

⁴¹ It should be noted that pensioners, teachers and public doctors have always been among the last in the chain, i.e. they received least purchasing power. This was particularly ostensible in the periods of high rates of inflation.

⁴² *Caporale and al.* (2001) make an overview of the evolution of the Bulgarian banking system.

⁴³ Different types of financial pyramids emerged. They spread on a large scale in Albania and Romania as well. The notion 'mass privatization' which is widely spread is strictly speaking nonsense. The privatization process is by definition a process where some individuals deprive other individuals of ownership's possession (Georgi Kirov suggested this detail to me). In the light of our analysis it could be mentioned that the mass privatization tried to make the monetary chains longer. In reality these chains were occupied by different kinds of bandits, who made them shorter and inflationary. It is also true that there were cases when after making chains shorter, some of these bandits converted from roving to stationary ones (and tried consecutively to get longer chains).

In the case when a roving bandit leaves the country, he takes the ‘siphoned off’ money in foreign currency out of the country thereby depreciating the lev. On the whole, this leads to the same result as if the money were spent in the country. In taking the money out of the country (*de facto* capital outflow) a price increase (i.e. loss of purchasing power) is effected not through higher demand for goods but through higher demand for foreign currency. Banker flights from Bulgaria became massive practice at the end of 1996, as it was reported in the press,⁴⁴ and fancy villas (grotesquely huge and inconvenient) still loom in the outskirts of Sofia.⁴⁵

Injecting money into particular banks did not go without the participation of CB representatives (there are still pending legal suits against some of them). Injection took a variety of forms: unsecured refinancing, preferential credit terms, subjective licensing, different schemes of recapitalization, purchase of bankrupt banks against token payment⁴⁶ *etc.* Siphoning off was done by *small groups* of interested persons who redistributed actively the purchasing power, monopolizing all entry points and shortening the money paths.⁴⁷

There were ‘technical tricks’ for redistribution. An ostensibly insignificant observation proves telling in this respect. In the periods of rapid price rises the CB paid salaries to its employees *weekly* (moreover there was a period of interest accrual on the salaries) whereas pensioners received their pensions with great delay. The situation of workers in a number of state-owned enterprises was similar. Obviously, inflation led to a significant CE and hence to great redistribution of purchasing power among different individuals and groups. Some individuals and interested groups pushed back other individuals and inter-

⁴⁴ Although documents on roving bandits are available, they cover only part of the cases and are mostly in the press. On the whole, attempts at analytical explanation are few. See the exceptions in *Chavdarova* (2002), *Koford* (2000), *Koford and Tschogel* (1999) and *Nenovsky and Rizopoulos* (2002).

⁴⁵ It is interesting to note that roving bandits could and can be identified at first sight. Generally these are stout individuals with bellies and not very intelligent looks. Their appearances are a result of excessive eating and unhealthy life. They spend a lot of their time in restaurants and pubs (i.e. sitting).

⁴⁶ For instance, Agrobusinessbank and CB Yambol were bought by the BNB for the mere sum of BGN 1. This price could be viewed later as the price of all assets and liabilities of the bank, and not of the bank itself. And it was BNB’s obligation to pay back the deposits that melted during the hyperinflation in the amount before the crisis. Thus, the loses were socialized through a new money injection.

⁴⁷ *Chavdarova* (2002) makes an overview of the networks of personal relationships which have a long-standing tradition and special importance in Bulgarian history.

ested groups in the money path depending on their ability to impact the administrative and political system.

Money injected through the *state budget* exhibited similar dynamics. In this case tax preferences were given instead of credit ones, combined with tax siphoning off, customs preferences and customs siphoning off,⁴⁸ *etc.* The same reasoning applies to the *balance of payments*. Grants and loans initially went into the hands of particular economic groups. Depending on whether these groups utilized immediately the entire sum or left something to the others, it is possible to differentiate between roving and stationary bandits.⁴⁹

The end point in the logic of shortening of money paths was a rapid price rise culminating into hyperinflation and a collapse of the purchasing power of the lev in late 1996 and early 1997. In practice, this illustrates the basic hypothesis of Olson of the role of groups in economic development. If we adapt it to our theory, it can be argued that there exists a certain cyclical pattern when different interested groups shorten money paths thereby reducing the efficiency of the economy. This, in turn, inhibits domestic growth and wealth, intensifying the fight for wealth among the groups, shortening money paths, *etc.* The crisis is a logical outcome of this cyclical pattern. But even in the crisis period itself, the fight for redistribution does not stop. Actually, at that time it was most fierce and crucial (*Nenovsky and Rizopoulos, 2002*).

Hyperinflation proved a convenient tool for purchasing power redistribution. One of the channels for this was the devaluation of the *domestic debt* whose component in national currency terms was almost completely devalued and holders of lev-denominated debt were decapitalized (see Table 1). As a whole, holders of lev-denominated debt had low capacity for pressure (among them was a great number of pensioners who held small amounts of government securities). Some of the big debt holders were state-owned banks and state-owned enterprises. In this configuration the issuer and the buyer of securities was one and the same agent – the government. Again, Cantillon’s insight could be rediscovered. As we pointed out, Cantillon links public debt

⁴⁸ Customs siphoning off logically turned the customs into a focus of the fight among different lobbies. In 2002 the government decided to mandate the collection of customs duties to a foreign company, the English Crown Agents. In the course of discussions the government announced that in the former government’s term a special bank (or financial scheme) was set up to facilitate movement of money siphoned off through the customs.

⁴⁹ Till the present day there are pending suits for appropriation and rechanneling of foreign aids and loans.

devaluation with the profiting of certain economic groups and individuals.

Table 1

**GOVERNMENT AND GOVERNMENT GUARANTEED DEBT
DYNAMICS (1991–2000)**

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Domestic debt/GDP	13	19	37	52	39	60	16	14	13	7
Foreign debt/GDP	168	127	109	129*	73	243**	91**	72	78	74

* Foreign debt restructuring in 1994 needs to be taken into account.

** Lev devaluation (changes in the exchange rate) needs to be taken into account.

Source: BNB, Fiscal Services. The currency board was introduced in July 1997. The table shows foreign and domestic debt dynamics. A sharp fall in domestic debt after the hyperinflation period is evident.

The introduction of the Currency Board⁵⁰ in July 1997 could be seen as an institutional monetary change producing new allocation of forces of different individuals and interested groups in purchasing power redistribution (for details see *Nenovsky and Rizopoulos, 2002*).

Bulgaria is just one illustration. Any other post-communist country has its specific examples.⁵¹ *Russia* is particularly interesting, where redistribution processes were (and still are) large-scale and where the CE takes numerous and various forms. Suffice it to mention such phenomena and events in Russia's most recent history as: (i) the large scale siphoning off of state enterprises through mass privatization methods and the emergence of the so-called oligarchs, (ii) total tax evasion through one-day firms (*odnodnevki*),⁵² (iii) information on stealing nearly an entire IMF tranche, (iv) foreign debt management by the CB of Russia through a private firm linked to some employees of the bank, and (v) such a development as the Russian crisis of 1998, when the government practically stopped payments on domestic debt, *etc.*⁵³

⁵⁰ See *Ho* (2001) concerning the general description of CB functioning.

⁵¹ See the analysis of the hyperinflation in Yugoslavia at the end of the eighties and the beginning of the nineties in *Petrovic and al.* (1999), *Petrovic and Vujosevic* (2000).

⁵² See *Yakovlev* (2001), *Radaev* (2001).

⁵³ For details see *Vavilov* (2001) and *Chapman and Mulino* (2001).

5. Discussion – Directions for Future Studies

In this paper I tried to present the basic analytical elements of the theory of money paths and networks, which I summarized as CE. In turn, the theory of money paths and networks could be viewed as part (or supplementary element) of the theory of money (mainly in its microeconomic aspect⁵⁴). In addition, I tried to highlight that the CE set of tools provides better analytical possibility for explaining what is happening in post-communist countries. Researchers of Eastern Europe transition would benefit from incorporating CE in their analyses.

In the course of constructing this theory a number of new problems and unresolved issues emerged, outlining directions for reasoning and future research. The tasks can be grouped into three categories: (i) theoretical improvement, (ii) formalizing and quantifying the theory, and (iii) empirical testing.

Firstly, in a *positive (explanatory) theoretical perspective* it is necessary to develop and refine the set of categories and to make theoretical hypotheses more precise. For instance, a more profound analysis of entry points of money should be considered in order to find a way to distinguish between end – and – entry points (from the viewpoint of the central bank) and interim – and – entry points (on the part of the commercial bank granting a loan). Also, the importance of expectations and information for individual optimization of monetary path, *etc.* needs to be studied. A specific analysis of groups and networks participating in the process of purchasing power redistribution is necessary.⁵⁵ Focus should be placed on the interests of the groups, the structure of the networks (e.g. to what extent the type of network affects purchasing power volatility), *etc.* In this sense, research of monetary groups and networks by using the set of tools of the political economy and institutional economics might be considered.⁵⁶

⁵⁴ In my view, the monetary theory is uniform and microeconomic in nature. However, this does not mean that the quantity theory or some other holistic monetary theories have no cognitive value *at all*. In a specific context (e.g. centralized supply of money) they have certain marginal utility. Let's recall Hayek's statement that the quantity theory is 'wrong' but the worst disaster that could meet us is to stop to believe in its validity.

⁵⁵ The way in which the new monetary injection affects the 'old' money in circulation, as well as how the new money changes agents' behavior and agents' configuration in the network are issues of particular interest.

⁵⁶ In our earlier study we made an attempt at focusing on the fight between creditors and debtors, which in turn explains the dynamics of the institutional change of the monetary regime (*Nenovsky and Rizopoulos, 2002*).

Next, at a more specific level it is necessary to see how CE acts not only under the conditions of a hypothetical trend of inflation but also in deflation and in a combination of inflation and deflation (a cyclical pattern often observed in Eastern Europe). In a *normative theoretical perspective*, it is necessary to answer a number of questions. For instance, how to ‘organize’ economic activity in order to create conditions for extending the monetary paths and for most efficient distribution of purchasing power? Is it necessary and is it possible to restrict the activity of monetary groups and especially that of monetary bandits and how to do this? Could the state undertake this task or is it at the root of deformation of monetary paths and networks? Where is the boundary between ethics and efficiency?

Secondly, it is possible to make an attempt at *formalizing* and *quantifying* the theoretical statements presented. In my opinion, the graph theory provides good possibility for this. As we mentioned, David Ellerman uses this approach successfully in his theory of property rights (*Ellerman, 2002*).

Thirdly, a system of empirical indicators needs to be constructed, which should allow (insofar as this is possible) checking the theoretical hypotheses stated. As we know, both institutional economics and the new political economy experience some difficulties in empirically testing their theories (*Alston and al., 1996*). Experience in post-communist countries provides an excellent ground to check the theory of money paths and networks, which in turn would provide the opportunity to include new elements in the theory of money as a whole.

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