The virtual economy as intermediate stage in Russian transformation

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1.Introduction

Compared to socialist planning the market economy is Pareto superior. To infer from this assumption that transition from the first system to the second would lead immediately into the paradise of mass consumption turned out to be an illusion in the first years of transformation in Central and Eastern Europe. All societies concerned experienced a more or less extended transformation crisis. To explain for the fact, there are a number of plausible reasons (see, e.g. Kornai 1994).

In some countries, however, most notably in the successor states of the Soviet Union, the transformation crisis developed into a protracted depression and transformation into a functioning market economy fell by the wayside. Russian GDP growth was negative almost over the whole decade of the 1990s and GDP was at the end of the period less than 60 per cent compared to the beginning. Even if we disregard the notorious reports about corruption and other illegal practices, the Russian economy can hardly be called a market economy although it has all the formal prerequisites. Still today almost half of the transactions are carried out in kind, even part of the taxes cannot be realised in money. The degree of monetisation is correspondingly low. It is not a question of paying habits any more, but a trait of the prevailing system that deliveries simply will not be paid. By the end of the 1990s only a third of the population received their wages and pensions in time. The economic function of the transformation crisis, namely to bring about the needed structural changes in production and marketing, has up to now gained little momentum. Bottom-up privatisation, the emergence of mostly small scale new enterprise which has become the motor of Polish transformation success, is more than sluggish in Russia.

This purgatory between plan and market - of whom it is by no means clear whether it will have a purging effect - has found a systemic description in the paradigm of the virtual economy (Gaddy, Ickes 1998, 1999). The root of the system is the desire to appear more productive

than the economy really is and to keep up production and employment which does not generate value-added, a desire that was prevalent already under the old system leading to gross miscalculations of comparative productivity. Under the virtual economy, the Russian economy maintains non marketable production which then needs for its circulation other channels of realisation than the market. The phenomena which are identified with the virtual economy, above all payment in kind and payment arrears, may find alternative explanations in problems of monetisation or transaction costs. Furthermore, it may be hypothesised that the virtual economy is a viable stage on the gradualist transition path. In this stage non adapted (former) state-owned enterprises cooperate with market adapted new private or fully privatised enterprises which excludes fully developed forms of market coordination. Thus gradualists would prefer price controls, or open high inflation, or other forms of degenerated market exchange to instantaneously enforced hard budget constraints and a concomitant temporary decline in output and employment (see Brada 1993, Murrell 1993). It has to be mentioned, however, that the gradualists never put forward strategies which resembled the virtual economy.

To clarify these issues, I will use in the following a slightly modified version of Gaddy and Ickes' simple demonstration model. The purpose of the exercise is to describe the general structural transformation problem and analyse the question whether the virtual economy can be seen as a degenerated form of gradual transition. Section 2 describes the starting stage, i.e. a closed planned economy with planners sovereignty. Section 3 discusses the problem of structural change after internal and external liberalisation (although we will stick for simplicity's sake to the model of a closed economy). Section 4 introduces the virtual economy. Section 5 analyses the virtual economy as transformation strategy. A brief conclusion ends the paper.

2. The Soviet predecessor

Let us assume the Soviet economy consists of two sectors, the Ministry of gas and the Ministry of manufacturing. The former produces 100 units gas using 50 workers. The latter produces with an identical technology two goods, standard goods M and "socialist" goods MV. For 100 units output of each it needs 50 units of gas inputs and 25 workers. Total population consists of 200 people, 100 workers and 100 transfer recipients (pensioners) who receive a transfer payment (pension) of the size of the real wage (this does not conform to historical fact, but makes things easier). Within these constraints, the planner can fix production in physical units according to his preferences. The following structure is a possible outcome.

Table 1: Stage 0 (Soviet allocation) in physical units

	G	M	MV	F(C)	3
G	0	50	50		100
M	0	0	0	100	100
MV	0	0	0	100	100
L	50	25	25		100

M is distributed via the consumer goods market, i.e. it has to be bought by the workers and pensioners for money. With a price $p_M = 1$ and wages and pensions $w_L = w_P = 0.5$ the market can be cleared. MV is taken by the state and will be distributed in physical units as social consumption. The material inputs (gas) are allocated in physical units as well.

In this system, money is needed only for the consumer goods market: wages and pensions are paid in money with which the population buys consumer goods M; we have free consumer choice, but no consumers' sovereignty. Consumer goods trade delivers its money receipts with the state bank which allocates the necessary quantities of money to the firms and the pension system to be paid out as wages and pensions. This is the circular flow of consumer money related to nominal prices of M and nominal wages. The interrelation of firms and the social consumption delivery system does not, in principle, need any money. In fact, there are no independent firms but only local units of the fully integrated state economy. For purposes of calculation and of control money may, however, be helpful. The corresponding circular flow of producer money need not be related to the the flow of consumer money as far as nominal prices are concerned and it remains, in fact, virtual since it takes place only on the accounts of the state bank. Producer money has a purely accounting function, it does not serve as means of exchange nor as stock of value. The Soviet firm may be compared to a profit center within a capitalist corporation. If it produces, due to the accounting prices, a planned loss, there is no

difficulty of cross-subsidising. For Table 2 we assume all accounting prices $p_G = p_{MV} = 1$. To close the system, the ministries (or their firms) will realize accounting profits P that are due to the nominal accounting prices and tell nothing about the economic viability of the firms.

Table 2: Stage 0 (Soviet allocation) in value terms

	G	M	MV	F(C)	3
G	0	50	50	0	100
M	0	0	0	100	100
MV	0	0	0	100	100
L	25	12.5	12.5		50
P	75	37.5	37.5		150
3	100	100	100	200	

In a fully integrated stationary model these profits P are centralised by the state. The budget distributes 50 value units (let us call them rubles R) in money to the pensioners and the equivalent of 100 R MV in kind as social consumption to the population.

3. Transformation: The introduction of a market economy

Transformation from plan to market entails the introduction of a market economy, a coordination mechanism that relies upon competition between independant economic units. So the ministries or sectors of the economy of the model will turn into independent firms. We now have Gazprom G, the producer of gas, M the producer of standard consumer goods, and MV the producer of "socialist" consumer goods[2]. Prices and foreign trade are liberalised. Consequently world market prices are prevailing which we assume to be $p_G = p_M = 1$ and $p_{MV} = 0.5$. In fact, it does not play a role whether the respective commodities have been distributed under the old system as social consumption or as consumer goods. What is important is that p_{MV}, i.e. the willingness of the consumer to pay for MV goods, does not cover their production costs. This is, for instance, the case of the notorious *Trabant*, the East-German mass car, which was under socialism a highly esteemed product, recovering most probably its production costs, but which after opening up of the markets was utterly

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[2] L. Balcerowicz (1995: 156) called purely socialist output "that part of the total output which could be maintained, if at all, only under a socialist economic order and the related existence of the CMEA". We should be careful not to call it virtual output as some scholars do (e.g. Götz 2000: 14). For under the prevailing system of planners' preferences it represents value-added. The socialist economy does not know virtual output, only a virtual circular money flow.

uncompetitive and could have been sold, if at all, for a price which never would have regained its production costs.[3]

The *Trabant* was no isolated instance, but rather the rule. The index of producer prices of East German manufacturing dropped after the opening-up of the markets from May to August 1990 from 98.4 to 48.8. It then depended of the cost structure who was able to survive this price decline and who was not. Akerlof et al. (1991) have tried to find out by a model calculation which, in this case, was influenced by special conditions of German reunification. According to their estimate, however, only 14 out of 116 *Kombinate* with 8 per cent of total employment would have been able in October 1990 to cover variable average costs by market receipts.

In other transformation countries the situation was not as dramatic as that, since it was possible to adapt to the world market by exchange rate policy and since there was a downward flexibility of real wages. Nevertheless the input-output model calculations of Hare and Hughes (1991) made up for Czechoslovakia, Poland, and Hungary and the period 1987-9 are quite illustrative. Using world market prices, a number of manufacturing sectors showed a negative value-added and many more were unable to fully cover their labour costs. The latter was the case in Czechoslovakia for 15, in Hungary for 9,and in Poland for 26 out of 33 manufacturing sectors.

This implies that even after adapting exchange rates and real wages there is a high probability of some manufacturing firms remaining to produce "purely socialist goods" which they cannot realise in the market at cost-covering prices. The normal reaction to such a situation is closing down the respective MV production and extending M production. Transformation from plan to market implies such a structural change. This process corresponds to Schumpeter's creative destruction. Contrary to Schumpeter's business cycle, in which creative destruction is an integrated process triggered by new men with new ideas trying to lure productive capacities

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[3] Gaddy and Ickes (1998, 1999) know only one M-sector that is identical with our MV-sector. p_{MV} covers exactly the costs of material inputs. So it is not quite correct to speak of value destruction which, for them, is the main characteristic of the virtual economy. Virtual value-added is created by overpricing, i.e. the introduction of an accounting price $p'_{MV} > p_{MV}$ which could not be realised in the market. The concepts value creation and value destruction may be somewhat misleading in this context, since they contain normative connotations. The original model of Gaddy and Ickes with only one value-creating sector G, where value originates from nature without the help of labour, and a value- and labour-consuming sector M may be interpreted as a physiocratic model. For the problem of transformation it is only important that the market price p_{MV} does not cover production costs inclusive labour costs and a normal profit (or taxes etc.), that is given production and intended realisation are incongruent.

from outdated production firms, in transformation the two steps are not inseparable: destruction is the immediate consequence of liberalisation,creation the eventual result of entrepreneurial activity which is by no means a sure event.

The first step of transformation, destruction, occurs more or less automatically under full liberalisation. The MV sector is closed down, 25 workers will be dismissed. Consequently, the corresponding demand for intermediate inputs, 50 units G, disappears, too, and the G sector is shrinking by 50 per cent - another 25 workers will be dismissed.[4] The quantity system of this first step is represented in table 3.

Table 3: Stage 1 (immediate market allocation) in kind

	G	M	F(C)	3
G	0	50		50
M	0	0	100	100
L	25	25		50

Assuming $p_G = p_M = 1$ and $w_L = w_R = 0.5$ unchanged, both sectors will show profits that have to be entirely taxed away by the state in order to be able to pay the incomes of the transfer recipients whose group has been increased by 50 unemployed.

Table 4: Stage 1 (immediate market allocation) in value terms

	G	M	F(C)	3
G	0	50		50
M	0	0	100	100
L	12,5	12,5		25
P	37,5	37,5		75
3	50	100	100	

Under competitive market allocation all transactions are geared by the market price mechanism requiring full monetisation and stable money. Hence the virtual circular flow of producer money has to be converted into real money or the real circular flow of (consumer)

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[4] Evidently, in an open economy 50 units reduced internal demand for gas could be substituted by extending export deliveries thus keeping up full capacity utilisation. This is true for gas in particular, not for intermediate inputs in general which the G sector is representing in this model.

money has to be extended to include inter-firm transactions, in our case the 50 R exchange between the G and M sectors. Assuming the velocity of circulation of real money unchanged, the supply of money will have to be increased if the price level should remain more or less constant. The banking sector has a definite task in transformation: monetisation and stabilisation.

The second step of transformation, creation, consists in the M sector taking over the released MV capacities and producing new marketable goods. The purely socialist goods will be substituted by marketable goods or loss making production lines by profitable ones. The secret of this restructuring is entrepreneurship. It is usually assumed that the necessary achievements will be stimulated by a change in property rights, i.e. by privatisation. Since all goods will now be distributed via the market, nominal wages and pensions have to be increased: $w_L = w_R = 1$. In a stationary state government has again to tax away all profits in order to pay out the pensions to the group of transfer income recipients which is reduced to its normal size of 100^5. Evidently, under the given assumptions the supply of money has to be increased further.

Table 5: Stage 2 (final market allocation) in value units

	G	M	F(C)	3
G	0	100		100
M	0	0	200	200
L	50	50		100
P	50	50		100
3	100	200	200	

Let us briefly summarise what happens during the transition from stage 0 to stage 1. Employment goes down by 50 per cent - a typical feature of the transformation crisis. What about GDP? Depending upon the accounting method we arrive at different results. Calculating in end year's prices ($p_M = 1$, $p_{MV} = 0.5$) GDP falls by a third from 150 R to 100 R. Calculating in starting year's prices ($p_M = 1$, $p_{MV} = 1$) GDP drops by 50 per cent from 200 R to 100 R. Hence the transition period does not allow for a meaningful statement about economic growth, since price changes will not be gradual, but radical. The usual statements about reaching again the production level of the last pre-reform year are pretty meaningless. The German Statistical Administration, for very good reasons, does not publish national income figures for the transition from plan to market.

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[5] If we leave wages and pensions unchanged $w_L = w_R = 0.5$, there will be positive profits after taxes that in a stationary state will have to be consumed by the new capitalists.

The population is able to buy the same amount of private consumption goods M, however, it is deprived of social consumption MV. Real income corresponds to GDP in this stationary closed model. Although the people are not willing to pay a cost covering price for MV, the loss is sadly felt. Hence the widespread complaints in transition countries about commercialisation and social decay under capitalism. Correspondingly, the transition from stage 1 to stage 2 yields either a recovery of the initial level, at starting year's prices, or a 33 per cent growth over the intial year, at end year's prices.

4. The virtual economy

The virtual economy is the result of an attempt to introduce the market and simultaneously preserve planned allocation, i.e. an attempt to circumvent the transformational crisis. This implies that the economy remains, in fact, in stage 0, but is trying to transact via the market. In principle, world market prices prevail[6]. The market price $p_{MV} = 0.5$, as said. The accounting price $p'_{MV} = 1$ cannot be realised in the market, i.e. in impersonal annonymous exchange relations. The MV sector exhibits zero value-added[7].

How can a sector with non-marketable production be sustained in a market context? There are a number of possibilities - all degenerating the market economy - of which only some can be discussed here. The most simple way is the traditional one: the state is buying up the produce of sector MV at the accounting price and distributing it in the form of social consumption. Sector MV gets real money to pay for its expenses, not only labour as in stage 0, but also material inputs and taxes (we do not show the adapted scheme). This solution is feasible as far as unprofitable hospitals, schools, and military items are concerned. For normal manufacturing produce (remember the *Trabant*) it will hardly work and it has its limits in the public acceptance and in the efficiency of the tax system. Of course, the state can fall back on printing the money needed for its expenditures with the concomitant inflationary effects.

If the state does not buy the MV produce, the sector will not have any money receipts and can pay for its inputs and taxes only in kind. This is the natural solution to the realisation problem, since input markets become at the same time output markets, a normal property of barter

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[6] This is, of course, a model assumption. In the discussion of the virtual economy it leads to some confusion. For neither is the assumption compelling for Russia as a large country, nor is it in all cases empirically corroborated - there are numerous examples of prices deviating from the world market.

[7] This statement, too, has led to some confusion, since substantial value concepts and national accounting value concepts got mixed up and, in addition, the latter were not always consistently applied (see Gaddy, Ickes 1999, Woodruff 1999, and Götz 2000; see also fn. 2 above.

trade. Table 6 differs insignificantly from Table 2, only the subscripts m and k indicate payments in money and in kind, and if all goods are virtually to be distributed via the market, nominal wages and pensions have to be increased by 100 per cent and profits be reduced correspondingly[8]. For instance, Gazprom G receives money only from sector M for its deliveries, while it is paid by sector MV in kind. Hence G can pay its workers in money, but will deduct taxes also in kind, most probably in unwanted MV goods. Clearly, in an integrated system all firms will be involved in barter even those which produce marketable products.

Table 6: Stage 1* (virtual market allocation) in value units

	G	M	MV	F(C)	3
G	0	50_m	50_k		100
M	0	0	0	100_m	100
MV	0	0	0	100_k	100
L	50_m	25_m	25_k		100
P	50_k	25_m	25_k		150
3	100	100	100	200	

This system is is a virtual market economy in more than one sense. First, it is pretended that all goods are exchanged via the market and nominal wages are adapted correspondingly. However, free consumer choice in the market is reduced by payment in kind. In fact, free choice is limited, as in stage 0, to the M goods. Secondly, only part of the production is caused directly by consumers' sovereignty taking into account opportunity costs. The accounting price p'_{MV} is a virtual market price inasmuch it is accepted by all parties involved. However, by definition the people are unwilling to pay this price in the market. So it will become very difficult to construct a case of citizens' sovereignty that enables, for instance, the state to set such a price and transact at it. We conclude that there is a problem how rational economic subjects can sustain such a system. We will have to come back to that question. And thirdly, the system pretends to create values which are none in the sense of national accounting at market prices[9].

In place of barter, virtual market allocation can be realised by payment arrears. Any mixture of the two is possible as well. We may assume, for instance, that Gazprom and the state accept

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[8] Table 2 would show the same figures, if social consumption were to be distributed via the market which for ideological reasons was not taken into consideration.

[9] Of course, national accounting is everywhere full of such examples. The virtual economy in Russia differs only by its size and by the fields of production where it shows up.

payment in kind, while the population does not. This implies that the workers in the MV sector receive instead of a wage only a wage promise and pensioners likewise a promise for 75 per cent of their pensions (the transactions in the third quadrant of Table 6 subscribed k). Unpaid wages and pensions are a form of forced saving. The corresponding investment will show up as a change in inventories of MV goods, for 25 R in the MV sector itself and for 75 R in the hands of the state. It is worth noting that money incomes and M consumption is not any more equally distributed among workers and pensioners despite nominally equal wages and pensions. Most probably this will result in different real incomes. Workers in the G and M sectors are paid in money, workers in the MV sector in kind or in wage promises, pensioners are paid for 25 per cent of their income in money and for the rest in kind or pension promises. M goods can be obtained in the market only for money. So it becomes probable that secondary markets for MV goods will emerge whose prices will deviate significantly from the accounting prices making the real income of the MV workers and the pensioners fall. Comparing stage 1* and stage 2, it is clear that the needed quantity of money is smaller in the first case than in the second.

The incidence of barter in itself is no indication of a virtual economy. There are many situations in which economic subjects prefer barter to money exchange, most of them are normal market situations. The notorious countertrade of CMEA countries with the west, for instance, was due to the inability or unwillingness of these countries to establish own marketing activities for trade flows which were not meant to be regular ones. In such a situation, it may be rational to accept lower effective prices for barter transactions than to face the transaction costs of direct marketing. The distinctive feature of virtual economy barter trade may be seen in the fact, that barter accounting prices are higher than regular money prices which is irrational from the point of view of transaction costs. We have to be very careful to distinguish this case from a similar one where barter accounting prices are higher than money prices: in the case of repressed inflation, i.e. upward inflexible prices and excessive demand, goods have to be rationed or, by introducing barter, implicit prices have to be raised. We come to the conclusion that the test for the existence of a virtual economy are barter accounting prices higher than money prices when there are no price controls in the market.

All phenomena mentioned in this section can be found in the Russian economy of the last decade: barter, tax and wage payments in kind, payment arrears, especially also wage and pension payment arrears, monetary financing of government expenditures, continuation of old production lines, and sluggish structural change. And, most importantly, it is said that implicit barter prices are higher than money prices in the market. Tax offsets tend to overvalue the goods delivered to the state. In short, the non-monetary payment devices are a form of subsidy to non restructured firms (IMF 2000: 98-9). In the same period Russian GDP dropped by

almost 50 per cent. As a transformation strategy the virtual economy apparently was unsuccessful. It has to be seen, however, in what sense it could have been meant a transformation strategy.

5. The virtual economy as transformation strategy

In order to explain all these phenomena by the system of the virtual economy, we need a plausible foundation for its existence and stability. For while the starting system, the planned economy, may be the result of political force, the dictatorship of the proletariat, we would need in this case rational decisions of all participants assuming Russia to be some kind of a democracy and its economy to be some kind of a market economy. This does not exclude the possibility that old forms of organisation and old behavioural habits persist in the new system. It only requires that they are explicitely or implicitely accepted as conducive to welfare. So we have the question what makes the population, what makes the state and Gazprom accept virtual payment,either in kind or in promises, and what makes the managers of the MV sector continue producing "purely socialist goods"? Alternatively, other explanations of the ascertained phenomena have to be tested.

Such an alternative explanation could be insufficient monetisation. If there is a shortage of money, barter and credit can be viable solutions. It could be hypothesized that $p'_{MV} = p_{MV}$, i.e. that the accounting price is, in fact, a market price, but realisation in the market against money payment is impossible due to a shortage of money. The occurance of money shortage depends, among others, on payment habits and payment systems. It is known that the Russian public is not used to deposit money and that well-functioning payment systems had to be developed from scratch the old mono-bank being more the financial administration of the Soviet Union Inc. than a bank. Shortage of money, however, is a rather rare phenomenon, since price level and velocity of circulation can adapt to any quantity of money. It may, however, happen occasionally in the context of hyperinflation. During hyperinflation the real quantity of money decreases and the velocity of circulation increases. At the same time a smooth supply of nominal money is needed, which at the speed of the German hyperinflation of the 1920s, for instance, was a veritable logistic problem. If there is an increased demand for money, because of increased monetisation and rapid inflation, and neither the supply of nominal money, in all the regions of the country, nor the velocity of money circulation, because of distance and payment habits such as the use of cash only, can adapt appropriately, then a shortage of money may occur. In addition, if in hyperinflation the velocity of circulation remains low, money transactions will imply a considerable loss of value providing a second motive for barter trade.

Both hypotheses have been put forward. Makarov and Klejner (1999) state that high inflation in the wake of the liberalisation shock has eroded the share of circulating capital in the firms' total capital. Thus liquidity shortage made necessary the barterisation of transactions. The conclusion is not compelling. For it is quite normal for firms in a situation of hyperinflation to minimize their circulating capital which is one of the causes of the increasing velocity of circulation. Polterovich (1998) holds that transaction costs of barter, contrary to standard theory, may have been lower than those of money exchange in the early Russian reform situation. Given the inertia and the insecurity of the payments system and the low level of legal enforcement of payment promises (bills of exchange, promissory notes, etc.), it may indeed have been the case. As said, in itself the incidence of barter is no proof of a virtual economy. The empirical findings of Guriev and Ickes (reported in Berglöf, Vaitilingam n.d.: 45-6) support the hypothesis that non-monetary payments are used to perpetuate old structures:

- "The emergence of specialized intermediaries and the survival of Soviet industrial links could add up to a 'lock-in' effect which helps to perpetuate barter".
- "Barter is higher in enterprises whose directors resist restructuring".
- "Enterprises ... that keep excess labour even when their output is falling have a greater share of barter".

Looking briefly at Russian monetary statistics, we find that contrary to expectations the quantity of money has not increased significantly over the transformation period as it did, for instance, in Poland. The EBRD publishes data for the extended money supply M2. Regrettably, there are no Russian data for 1991-3, the period of high inflation. To calculate real money supply, an appropriate price index representative for consumption and production transactions is needed. For Table 7 we have taken the average of the consumer price index and the producer price index.

Table 7: Real money supply, GDP growth and share of non monetary payments in industry in Russia and Poland, 1991-99

Russia

	1991	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*
M2 real	n.a.	n.a.	1.00	0.94	0.84	0.89	1.06	0.82	0.78
growth M2				-6.0	-10.6	5.9	19.1	-22.6	-4.9
growth GDP				-12.7	-4.1	-3.5	0.8	-4.6	3.2
non-mon. payments	n.a.	n.a.	9	17	22	35	42	51	40

Poland

	1991	1992	1993	1994	1995	1996	1997	1998	1999
M2 real	1.00	1.19	1.18	1.28	1.43	1.61	1.87	2.20	2.41
growth M2		19.0	-0.1	8.5	11.7	12.6	14.0	17.6	9.5
growth GDP		2.6	3.8	5.2	7.0	6.1	6.9	4.8	4.1

Source: EBRD 2000: 197, 205; Russian Economic Barometer (15 april 2000); own calculations.

The figures on non-monetary payments in Russia must be taken just as an indication of the phenomenon for several reasons. There are other statements of the fact: R. Grinberg (2000: 92), for instance, holds that in the beginning of 1999 more than 75 per cent of all commercial transactions took place without the use of money. And secondly there is a fundamental statistical problem: if 50 or 75 per cent of all transactions are not intermediated by money in a more or less competitive market, there will be no market prices at which to calculate the value of transactions and GDP neither. Makarov and Klejner (1999) correctly state that barterisation leads to bilateralism and individualisation of pricing[10]. The statistical difficulties of national accounting must be immense.

While in Poland the share of real money in GDP increased continuously over the whole period from 35.8 per cent in 1992 to 43.1 per cent in 1999, it dropped in Russia from 16.7 per cent in 1994 to 13.4 per cent in 1999. Assuming that the payment systems in Poland function more smoothly than in Russia and that the velocity of circulation is higher, monetisation of the Russian economy in transformation is really poor and the hypothesis of a shortage of money looks rather suggestive. However, a shortage of money over such a long period of time is not very plausible[11]. Why should the supply of money be so unresponsive to demand for almost a decade? We rather see in poor monetisation a demand phenomenon and discard the shortage of money hypothesis. And this brings us back to the virtual economy.

The crucial difference between stage 0 and stage 1 is employment. If the MV workers cannot be paid for the production of virtual commodities in virtual goods or wage promises, they have to be released. This would be the "normal" process. In Russia employment at virtual wages is

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[10] Of course, theoretically a barter economy can have as perfect competition as a money economy. However, a low degree of transparence, comparatively high costs of arbitrage, and, in the Russian case, a high degree of industrial concentration will enhance the possibilities of price discrimination.

[11] The fact that there are foreign currencies circulating in Russia with an estimated value of 80 billion US $ (*Frankfurter Allgemeine Zeitung* 29 March 2001) is not contradicting the statement of low monetisation. For it may safely be assumed that these currencies will for the greater part be subject to Gresham's law and be hoarded.

to be preferred to unemployment. Apart from shadow activities within the firm, this has to do with social security. Under the Soviet system, social security provisions were organised for the greater part by the firm. In transformation, these provisions and, in addition, unemployment benefits have to be organised independently to free the firms from their social obligations. This transition has not been thoroughly carried out yet, in Russia. Workers therefore are well advised to stick to their firms. In addition, workers may be willing to accept purely socialist goods as payment because these are material goods and they succumb to a value illusion. As the old Soviet pun has it: we pretend to work and they pretend to pay us. And then there is the hope of all that being only a transitory stage.

Hope for better and fear of unemployment will also motivate the managers of the MV sector. As long as the system is generally accepted, they remain in business. And as long as they remain in business, they can pursue their main occupations - rent seeking and asset stripping (Aslund 1999). Such is also the hypothesis of Makarov and Klejner (1999) who hold that after the necessary introduction of barter (see above) the system is sustained by rent seeking interests of firm managers. This may explain the empirical finding of Guriev and Ickes (reported in Berglöf, Vaitilingam n.d.) that barter seems to be an enterprise strategy being used also by firms that have sufficient liquidity at their disposal to pay bills in money. However, such liquid reserves from money incomes must be very low, if the share of barterisation is as high as reported. Gazprom, for instance, will accept payments in kind as long as they may be used for tax payments or taxes can be avoided[12]. Government is legitimated by full employment. The sucker in this system are the workers and, above all, the pensioners. Their only threatening potential consists in law suits for non payment[13] and in public protest flaring up now and then. It is soothed by occasionally paying out overdues in money obtained from the central bank with the concommitant inflationary effect.

The emergence of the virtual economy can thus be explained by rational short-term considerations of all participants (except the pensioners). Its medium-term continuation is due to stabilizing interests, for instance of managers, and to the fact that everyone rightly expects radical reform to be prone to deteriorate his or her immediate situation. The underlying theory is one of institutional choice with multiple equilibria and path dependency. For the phenomenon of barter it has been formulated aptly by Polterovich (1998): barter, having lower

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[12] Russian value-added tax is collected on the basis of receipts, not on the basis of calculated value-added.

[13] In 1997 "the number of lawsuits filed by employees who were not paid their wages had increased by a factor of 13 since 1994" (Friebel reported in Berglöf, Vaitilingam n.d.: 40). Just in 1996-7 the number of cases brought before the courts increased by roughly 900 000, most of them labour cases.

transaction costs than money exchange, emerged in the early transformation phase as rational strategy of managers and it was perpetuated consequently by four mechanisms which result in path dependency or an institutional trap - the effect of coordination or critical mass of those who accept the rules, a learning effect which lowers the costs of the institution, a linking effect which enhances the rules by other formal or informal institutions old or new, and the culture of inertia which impedes a change of behaviour.

If the virtual economy or its corresponding phenomena like barter trade and payment arrears have gained a critical mass, they can become a kind of (bad) equilibrium. Such a development can be observed also in other contexts of Russian economic life, for instance the disregard of legality and legal instruments which formally do exist (see Lavigne 1999: 180). Short-termism, lack of transformation consensus, and especially a weak government make it difficult to accept the short-term transformation costs in order to reap the long-term benefits. The virtual economy as coordination mechanism between the plan and the market begs the question of its systemic properties. The "critical mass" of planning is provided by the planners' authority, the critical mass of the market by sufficient anonymous competition among all participants. If the coordination devices of the virtual economy reach a critical mass, they become an established coordination mechanism. It is said (by Polterovich 1998 and Makarov and Klejner 1999) that such an institutionalisation of the barter economy has taken place in the second half of the 1990s - laws, tax regulations, and other institutions have been adapted to the non-monetary payment phenomena. Clearly, also money will conform to such a situation: the price level P will adapt to the money supply M and the turnover of goods in the money circuit T_{mon}. It would be wrong, however, to conclude that a shortage of money has become an institutional phenomenon (Makarov and Klejner 1999), because the firms' liquidity does not suffice to cover all transactions. For there is no excess demand for money. The transition from institutionalised barter to money exchange will need additional real money, of course. In a situation of two digit inflation rates this should not pose any serious problems.

The virtual character of the institutionalised non-monetary economy seems to derive only from reference to market coordination, i.e. another system: what does not add to value under market conditions, is virtual in the virtual economy even if it is accepted practice. We have seen that overpricing, an implicit barter price higher than the money price in the market, is the crucial test for the virtual character. We conclude that the virtual economy is a delicate intermediate state in which an economy can be trapped. People who are paid with promises will testify to their being aware of these being no real income.

Finally, there can be made an argument for the virtual economy as gradual transition strategy. Comparing it to the alternative quasi-market solution of temporary subsidies reveals, however,

its serious shortcomings also in this respect. Let us again assume that p_{MV} = 0.5, i.e. its products are positively valued in the market, but the market price is not cost covering. Government decides to subsidize MV wages to prevent bancruptcy of the relevant firms and to give them time for restructuring. The subsidies are covered by a reduction of real pension payments (i.e. w_R = 0.5; a reduction of real wages in general would do as well). This gives Table 8.

Table 8: Stage 1** (market allocation with state subsidies) in value units

	G	M	MV	F(C)	3
G	0	50	50		100
M	0	0	0	100	100
MV	0	0	0	50	50
L	50	25	25		100
P	50	25	-25		50
3	100	100	50	150	

The solution is attractive because it implies a transformational crisis (reduction in real pensions) with full employment. Wage subsidies were the solution that Akerlof et al. (1991) proposed for the transformation of East-German industry. There is only one big "if" connected with it - if the MV sector succeeds in internally restructuring itself. This was strongly doubted in the case of East-Germany, we would doubt it *a fortiori* for the case of Russia. Equivalent to wage subsidies is price differentiation. If Gazprom asked half the price from the MV sector, the effect would be the same. According to Woodruff (1999) this is actually happening in Russia: Gazprom is taking over government functions and can carry out such structural policies more effectively than the weak state. However, even with reduced prices Gazprom is paid partly in kind or not at all. Wage and pension arrears and tax payments in kind are still the order of the day. So, the virtual economy remains the Russian approach. Compared to the quasi-market solution of gradual transition it has the great disadvantage of not fully monetising the economy and of practicing non-market conform behaviour. Its transformational potential must be estimated rather low.

6. Conclusion

The question whether subsidizing non-competitive sectors or firms in transformation from plan to market is to be preferred to immediately closing them down was heatedly discussed in the early transition period. In the first case, there is a danger that subsidized firms do not put all efforts in restructuring and that the status quo will persist. In the second case, there is a danger of massive capacity destruction and mass unemployment without an immediate supply reaction because of lacking entrepreneurial initiative. In East Germany the second reform path was

chosen - admittedly under special conditions -, it turned out to be a stony path, but not entirely unsuccessful. In Russia the first path was followed implementing a mixture of virtual economy and quasi-market economy. 10 years of economic decline bear poor testimony of this policy.

Our initial question whether the virtual economy can be seen as a viable transition strategy has to be answered in the negative. Neither theoretically nor practically it contains features allowing for the expectation that it will lead ultimately to a fully operative market economy. It is clearly inferior to all alternatives. This begs the questions how it did come about and why it can persist for a longer period of time. Our tentative answer is the political inability to radically break with the past and a very short-sighted aspiration to avoid immediate loss which is supported by the lack of cushioning mechanisms, i.e. by a weak state in general. Partial transformation has opened the space for a multiple equilibria decision situation and the path into a transition trap. Once the phenomena of the virtual economy have gained systemic status, that is to say have gained a critical mass, it will become very difficult to get rid of them again.

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