A Simple Four-Sector Model of Russia's "Virtual" Economy

May 1998 [Draft]

Clifford Gaddy
The Brookings Institution

Barry Ickes
Pennsylvania State University

I.   INTRODUCTION

Barter and other noncash modes of payment, massive tax and wage arrears, growing mutual indebtedness in the enterprise sector—all of this is by now so familiar a part of the Russian economy that it is inescapable. The scale of demonetization in Russia today may be unprecedented in an industrial society. The share of barter in payments among all industrial enterprises in Russia is now above 50%. Last year, 40% of all taxes paid to the Russian federal government were in nonmonetary form. The rate of nonmonetization of local and regional budgets is even higher. Nonpayment of wages and salaries is again on the rise. As of January 1, 1998, the *average* industrial worker was owed nearly two months' of back wages; in agriculture the average delay was 4.1 months. In both sectors, wage arrears have risen significantly in the first quarter.

Despite the public attention given to the problem, however, there is no sound explanation of why the noncash economy has developed to such a scale as it has in Russia. Last December an official Russian government commission, the so-called Karpov Commission, presented the findings of a year-and-a-half long study of enterprise tax and payments arrears. Its report was a detailed and frank description of the phenomenon. Among all its other virtues, the Karpov Report is to be commended for the memorable phrase it used to characterize the peculiar Russian system it was studying: it called it the "virtual economy." But even the Karpov Report failed to give a real explanation for why this phenomenon exists.[1]

The conventional wisdom seems to be that this is a situation out of control. As one typical description puts it, inter-enterprise debt and tax arrears have combined to

---

[1]Report of the Inter-Agency Balance-Sheet Commission, P. A. Karpov, chairman, Moscow, December 1997.

form a "vicious circle of bad debt, heavy borrowing and high interest rates which is choking off economic growth."[2] The implication of the article from which this quote is taken, and others like it, is that the barter-and-arrears economy is a morass that sucks in innocent victims and ultimately threatens their ruin, or at least holds them back from achieving economic success.

We argue that just the opposite is the case. The virtual economy, we believe, is a fairly well-organized system. Rather than being victims, its participants—which include not only enterprises, but also workers and governments—are largely willing players. And rather than representing a threat to them, it is the virtual economy that is their only hope for survival.

In a companion paper, we analyze the microeconomics of the typical Russian enterprise in the transition, as it chooses whether or not to restructure.[3] There, we emphasize the role of the enterprise's endowment at the beginning of transition, not only of physical and human capital, but also of "relational capital," or contacts and connections with government officials and other enterprise directors. We show that the possibility of using relational capital allows enterprises to survive without restructuring. That is, rather than engage in the difficult and costly process of developing and producing competitive, marketable products (which we call "hard goods"), enterprises may continue to produce their traditional products ("soft goods") and then barter them with other enterprises or deliver them to governments in lieu of taxes.

In this paper, we step back and begin to examine how the enterprise that produces and trades "soft goods" fits into the bigger economic system that characterizes the virtual economy. Below, we present a very simple accounting model that captures some of the most salient features of the contemporary Russian economy. The key point brought out by the model is that the virtual economy arises because of the combination of two fundamental facts: (1) a huge part of the Russian economy (especially its manufacturing sector) is value-subtracting, while (2) most participants in the economy pretend that it is not. Barter and other noncash modes of payment turn out to be the main mechanism used to sustain the pretense. The virtual economy looks large, but it is small. This is what causes all the nonpayment difficulties: there is less value produced than there are claims on it and commitments to it.

---

[2]This phrase was taken from an AFP release dated 30 April 1998, by Jon Boyle, "Reformers tighten grip on economy as Chubais takes over at UES."

[3]Clifford G. Gaddy and Barry W. Ickes, "To Restructure or Not to Restructure: Informal Activities and Enterprise Behavior in Transition," draft, May 1998.

II.   THE ACCOUNTING MODEL

1   INITIAL ASSUMPTIONS

1.1   The economy is comprised of four sectors:

- H ("HOUSEHOLDS")
- G (a value-adding industrial sector, "GAZPROM")
- M (a value-subtracting industrial sector, "MANUFACTURERS")
- B (a government sector, "BUDGETS")

1.2   *PRODUCTION:*

1.2.1   G and H each produce 100 rubles of output (gas and labor) at no cost.

1.2.2   G and H supply the gas and labor to M, which uses them to make a
              product that has a market value of 100.

              REMARK: In other words, M is a value-subtractor.

1.3   *PAYMENTS:*

1.3.1   M contracts to pay G and H the market value of the inputs (gas and labor)
              which they supply.

1.3.2   All accounting (between enterprises and for tax purposes) is on the accrual
              basis—i.e., income and expense items are recognized as incurred,
              regardless of when they are actually paid.

1.3.3   Everyone tries to meet all obligations. No one conceals income.

1.4   *FISCAL CONSIDERATIONS:*

1.4.1   B consists, on the revenues side, of all taxes collected from the enterprise
              sector (G and M); on the expenditures side, it consists of transfers to H
              (pensions, say).

1.4.2   The only tax in the economy is a value-added tax levied at a rate of 100%.
              Specifically, there is no personal income tax on households' income.

1.4.3   B is obligated to transfer all taxes collected to H but cannot borrow.
              (Unmet budget expenditure obligations will be considered budget arrears
              to H.)

1.5   *HOUSEHOLD REQUIREMENTS*:

1.5.1   H needs a minimum of 100 in cash to survive. This is the only cash
           requirement in the system.

1.6   *CASH:*

1.6.1   The output of M can be sold for cash at any time, at its market value.

*2   THE "VIRTUAL ECONOMY", OR WHAT APPEARS TO HAPPEN
           WHEN EVERYONE PRETENDS M'S OUTPUT IS WORTH 300*

           *REMARK: To more clearly follow the transactions involved in this economy, let us
           assume that the inputs (gas and labor) are supplied to M and production occurs before
           any financial settlements are made.*

2.1   M prices its output at 300. I.e., it pretends that the value of the output,
           which in market terms is only 100, is 300. G and B accept this valuation.

           REMARK: It therefore appears, contrary to reality, that M is a value-adder.

2.2   Inputs (gas and labor) are supplied to M and production occurs before any
           financial settlements are made.

2.3   As the output (cash value of 100; priced at 300) sits at M, waiting to be
           shipped out, the following claims prevail among the sectors:

2.3.1   *HOUSEHOLD SECTOR*

2.3.1.1   Has a claim of 100 on M (for wages).
2.3.1.2   Owes nothing to B (no personal income tax) or to G.
2.3.1.3   Has a claim of 200 on B (all budgeted revenues are due to H as transfers).

2.3.2   *GAZPROM*

2.3.2.1   Has a claim of 100 on M (owed for gas).
2.3.2.2   Owes 100 to B for taxes.

2.3.3   *MANUFACTURING*

2.3.3.1   Owes 100 to H (for wages).
2.3.3.2   Owes 100 to G (for gas).
2.3.3.3   Owes 100 to B (because the pricing of M's output at 300 made it appear
            that it added value of 100).

2.3.4   *BUDGET*

2.3.4.1   Has a claim of 100 in taxes from G.
2.3.4.2   Has a claim of 100 in taxes from M.
2.3.4.3   Owes 200 to H.

            *REMARK: These are the amounts each sector expects to pay and expects to receive. We
            assume throughout that agents do try to meet their obligations and do not try to conceal
            income or otherwise deceive anyone else. Finally, remember that all that is available in
            terms of value are goods (the output of M) worth 100 in cash if sold outside the system
            (exported or domestic sales), but nominally priced at 300 for transactions between M, G,
            and B.*

3   *THE FINANCIAL SETTLEMENT STAGE IN THE VIRTUAL ECONOMY*

            REMARK: Again, to follow the settlements more clearly, we take each sector in turn.

3.1   *M'S SETTLEMENTS*:

3.1.1   M delivers one-third of its output to G in kind (nominal value: 100) as full
           payment for gas.

3.1.2   M delivers one-third of its output to B in kind (nominal value: 100) as full
           payment for its taxes.

3.1.3   M owes 100 in wages to H. But H cannot accept non-cash payments for
           wages. M therefore sells the output for cash at the market value of 33,
           which it pays to H.

3.1.4   *RESULT:*   M's accounts with G and B are balanced. M ends up with
                       wage arrears to H of 67.

3.2   *G'S SETTLEMENTS*:

3.2.1   G takes the 100 (nominal) it received from M and remits it to B as its tax
           payment in full.

3.2.2   *RESULT:*   Since G has no direct dealings with H, G's accounts are
                        balanced.

3.3   *B'S SETTLEMENTS*:

3.3.1   B has now received 100 (nominal) in goods from M and 100 (nominal) in
            goods from G. Together, these have a cash value of 67, which B realizes
            and transfers to H.

3.3.2   *RESULT:*   B's accounts with M and G are balanced. But B owes H 133.

3.4   *H'S SETTLEMENTS*:

3.4.1   H has received 100 in all (33 from M, 67 from B).

3.4.2   *RESULT:*   H is still owed 67 by M and owed 33 by B in budget transfers.

4   *RESULTS AND COMMENTS*

4.1   H has received a total of 100, which was assumed to be its minimal
            survival requirement. The system can thus start again for another round.

            REMARKS:

            1.   *The minimum survival requirement is arbitrary. It determines the "cash
                  constraint" for the system." We could set the household survival requirement
                  higher, and assume that the household earns some cash outside the system, for
                  instance. Or we could allow outside earnings to lower the cash requirement inside
                  the system. This would be an implicit contract between M and H to allow outside
                  earnings on job time, for example.*

            2.   *In this variant, it is only the total received by H that matters. This implicitly
                  assumes that the household sector will reallocate amounts received in the form of
                  wages and pensions to ensure survival of all members of H.*

            3.   *A complicating condition would be to allow B to choose to fulfill part of its
                  expenditure obligations in the form of in-kind transfers. It would then pass on
                  some of M's output in natural form to H as budget spending (say, as hospital
                  linens or subway construction...). This would complicate matters, since H could
                  not easily reallocate those transfers within H.*

4.2   This system works because of three key conditions:

4.2.1   First, G pumps value-added into the system.

            REMARK: The rest of the system just redistributes G's 100, ultimately to H.

4.2.2   Second, both G and B accept M's pretense that its output is worth 300
            rather than 100.

            *REMARK: This means that they underwrite M's pretense that it is a value-adding
            operation.*

4.2.3   Third, there has to be a buyer outside the system who supplies cash by
            buying M's output at the market price.

            *REMARK: That is, system is not self-contained. Although it is itself nonmarket (or anti-
            market), it requires the existence of a market with which it can interact.*

5   *THE UNDERLYING REAL ECONOMY: NO ONE PRETENDS THAT
            M'S OUTPUT IS WORTH MORE THAN 100*

            *REMARK: This section compares the apparent outcome of the virtual economy to what is
            really happening beneath the pretense. All that is necessary is to assume that no one,
            including M, pretends that M's output is worth anything other than the 100 it actually is
            worth.*

5.1   M would report a loss of 100 instead of a profit of 100. It therefore would
            have no tax obligation.

5.2   With sales revenue of only 100, M could not pay both G (to whom it owes
            100 for gas) and H (to whom it owes wages of 100). It would have to
            apportion the 100 it does have between them.

5.2.1   Assume it pays equal shares to each, that is, 50 to H and 50 to G.

5.2.2   M thus has wage arrears of 50 to H and inter-enterprise arrears of 50 to
            G.

            *REMARK: These arrears numbers are arbitrary. However M's payments are
            apportioned, the sum of payments will equal 100, as will the sum of the arrears.*

5.3   G remits to B the 50 it receives from M. Since on a accrual basis G owes
            B a total of 100 in VAT, this leaves G with tax arrears of 50.

5.4   B's only revenues are what it receives from G, since M has no value
           added.

5.4.1   B transfers to H the 50 it received from G.

5.4.2   B still has budget arrears of 50

5.5   H survives because it receives 100 (50 from M and 50 from B).

           *REMARK: These proportions could be changed, depending in how M initially allots
           fulfillment of its obligations to G and H. Again, H always receives 100. Whatever M pays
           to G will eventually be passed on, via B, to H.*

6   COMPARATIVE MACRO INDICATORS, VIRTUAL AND REAL:

           *REMARK: This section compares how it appears that the economy is performing in the
           virtual economy regime with how it is actually performing according to the underlying
           reality.*

**TABLE 1. COMPARISON BETWEEN THE VIRTUAL ECONOMY
AND THE UNDERLYING REAL PROCESS**

	VIRTUAL	REAL
Total sales	400	200
Total profits	200	0
Profit rate	50%	0%
Total value-added (GDP)	300	100
Industrial output	400	200
Wages		
Accrued	100	100
Actual	33	50
Budget		
Revenues: Planned	200	100
Actual	67	50
Spending: Planned	200	100
Actual	67	50
Total household income		
Accrued	300	200
Actual	100	100
Arrears		
Wage	67	50
Inter-enterprise	none	50
Budget	133	50
Tax	none	50
TOTAL ARREARS	200	200

6.1   Comments on the macro indicators [see Table 1]:

6.1.1   *"PERFORMANCE"*: On nearly all counts, the VIRTUAL economy's aggregate performance indicators (sales, profits, GDP, output) are going to look better than the REAL variant's.

6.1.2   *BUDGET*: The planned budget in the REAL variant is only half the size that it is in the VIRTUAL variant.

> *REMARK: What does that mean? It means that (nominal) pensions are cut by 50%. It does not matter that in reality nothing changes and that in fact the government fulfills its promises better in the REAL variant. It is the pretense that counts. The perception will be: "You cut pensions in half!"*

6.1.3   *ARREARS:* The arrears picture will depend on the decision by M of how to allocate payments between H and G.

> *REMARKS:*
>
> 1.   *It was assumed above that H nd G each received half of the cash value of M's product. In the general case, let the proportion used for H's wage payments be "w." Then G will receive "100-w". Final household income is always 100 (since that is still the total product that can be allocated). The wage arrears will be offset by budget arrears, since what is paid to G (and passed through B to H) could always be paid directly to H in wages.*
>
> 2.   *The greater the share of M's product paid directly to H in wages, the greater the amount of TOTAL arrears and the greater the number sectors that have arrears of one kind or the other. This is evident from the following table.*

TABLE 2.   VARIATION IN ARREARS DEPENDING ON M'S ALLOCATION OF WAGE VERSUS GAS PAYMENTS

	VIRTUAL	REAL			
		General	**w=0**	**w=50**	**w=100**
Total sales	400	200	200	200	200
Total profits	200	0	0	0	0
Profit rate	50%	0%	0%	0%	0%
Total value-added (GDP	300	100	100	100	100
Industrial output	400	200	200	200	200
Wages					
Accrued	100	100	100	100	100
Actual	33	**w**	**0**	**50**	**100**
Budget					
Revenues: Planned	200	100	100	100	100
Actual	67	**100-w**	**100**	**50**	**0**
Spending: Planned	200	100	100	100	100
Actual	67	**100-w**	**100**	**50**	**0**
Total household income					
Accrued	300	200	200	200	200
Actual	100	100	100	100	100
Arrears					
Wage	67	**100-w**	**100**	**50**	**0**
Inter-enterprise	none	**w**	**0**	**50**	**100**
Budget	133	**w**	**0**	**50**	**100**

Tax	none	w	0	50	100
TOTAL ARREARS	200	100+2w	100	200	300

> 3.   *In the VIRTUAL variant, arrears problems exist between M and H ("wage arrears") and between B and H ("pension arrears"). In the worst REAL variant, there are now two qualitatively new kinds of arrears problems between G and M ("inter-enterprise arrears") and between G and B ("tax arrears").*

> 4.   *As a variant, we could allow G to be earning some cash outside the system by exports and somehow not have a 100% tax rate on those earnings—i.e., it would end up with some after-tax cash profits. Maybe this would be the side-payment required to have G participate in the whole system. In the VIRTUAL regime, G would be justified in keeping that cash since it is, after all, not in arrears on any taxes due from its sales of gas to M. In the REAL variant, G is in arrears, and the government might be under pressure to lay claim to some of the cash.*

6.1.4   *VALUE-ADDED:* Finally, of course, the VIRTUAL economy masks the non-viability of M. In the VIRTUAL economy, M appears to add value of 100. In the REAL variant, M is a clear loss-maker.

> *REMARK: Therefore, any attempt to shift from the pretend VIRTUAL world to the honest REAL world would be very unpopular. It would mean slashing pensions, irritating Gazprom by branding it as a tax delinquent and demanding more taxes from it, and threatening the bankruptcy of the manufacturing enterprise and complete loss of jobs and wages for the population.*

7   *WHY DO THE SECTORS PARTICIPATE IN THE SYSTEM?*

> *REMARK: The comparison between the VIRTUAL and REAL variants shows the incentives for the sectors to continue to hide the underlying reality once they are in this system. But the question is, why be in it at all?*

7.1   *MANUFACTURERS' REASONS*

M's motives are the most obvious. If it were not in this system, it would likely be out of business altogether. It is a value-subtracting enterprise. The director presumably gains utility from his position. He will prefer to stay in an enterprise that everyone pretends is successful than to concede failure (even if he might then "loot and leave.")

7.2   *HOUSEHOLDS' REASONS*

H is not being fully compensated for the labor it supplies to M. It might therefore appear that it is supplying net value-added to the system (like G). Why does it then participate? But remember that it is also receiving payments from B. In total, it is being compensated for the labor it supplies to the system. If the system were to break down, H would be unemployed. Unless H believes it can be employed outside the system (in the "new" economy), it will remain in the system.

REMARKS:

1.   *H can be induced to remain in the system by giving it the possibility of earning cash or otherwise sustaining itself through activity not directly connected to the system (e.g., street vending, production of food in family garden plots, etc.). This in effect reduces the minimum amount of cash that has to be supplied to H from within the system.*

2.   *In the real world H consists of individual agents who are heterogeneous with respect to (1) productivity (i.e., potential wages) outside the system, and (2) preferences for cash earnings versus noncash components (job security, paternalistic benefits, social identity) of what can be thought of as a hedonic wage "bundle." Self-selection will occur. "Cash-lovers" and high-productivity members of H will leave the system. Those who remain will require less cash.*

7.3   *GAZPROM'S REASONS*

G is the net supplier of value-added to the system. And yet, it would be no better off outside the system if we assume that in any case it would have to pay VAT at a rate of 100% if it exported the 100 rubles worth of gas that it now supplies to M.

8   *"A TAX CRACKDOWN": THE GOVERNMENT REFUSES TO ACCEPT THE OVERPRICING OF M'S OUTPUT*

REMARK: This section examines a "tax crackdown" by the government, i.e., a campaign to try and secure more cash to the budget. This turns out to be an intermediate variant between the VIRTUAL variant first described and the underlying REAL process. In the end it would likely be perceived as worse than both.

To see this, assume now the government decides it does not want to continue to accept tax offsets/barter payments.

8.1   M continues to price its output at 300 and G accepts that price.

8.1.1   M therefore delivers one-third of its output (nominal value 100) to G.

8.2   As in the original scheme, M pays H the cash value of one-third of its output, i.e. 33. M's arrears to H are 67.

8.3   B now refuses to accept G's and M's offer to each remit 100 (nominal value) worth of M's output as tax payments. B demands that they remit their taxes in cash.

8.4   M still has a tax obligation of 100, since it continues to price its output at 300. It remits 33 in cash and has tax arrears of 67.

8.5   G will also remit 33 in cash and have tax arrears of 67.

8.6   In the end, the tax crackdown variant will be the same as the REAL variant except that in addition to all the aforementioned problems, *M, too, will have a tax arrears problem*. In other words, this is worse in this respect than the REAL variant.

REMARKS:

1.   *The wage arrears are the same (67). The cash value to the budget is the same (67). The budget arrears to H are the same (133). And yet the total tax arrears are four times as large as in the original Virtual Economy scenario (133 instead of 33). This despite the fact that the point of the tax crackdown was to get more money to the budget!*

2.   *Of course, the likely outcome is that M will be pressed to pay less to either G or H, or both, in order to have more cash to deliver to B. This means either increased wage arrears, or increased debts to G on the part of M, or both. This is precisely what has happened in the first quarter of 1998.*

3.   *If G is earning additional cash on the side ("outside the system"), the government's demand that G pay more cash will be tantamount to changing the rules for G's participation in the system: it will be the same as raising the net contribution that G makes. This could be accomplished, but presumably only if the government had a credible threat of punishment or retaliation if G failed to go along (for instance, dispossessing the current owners, whether through "nationalization" or "privatization").*

4.   *Of course, the idea with the crackdown may be that by forcing G and M to pay cash to the budget, this will force G in turn to refuse to accept the inflated price of M's output—i.e., to impose the full REAL variant. If so, that would have even worse political consequences, including the possible bankruptcy of M. To avoid this consequence, G only has to tolerate M's arrears (possibly by borrowing money outside the system; see Appendix).*

III. EVIDENCE FOR THE REAL-LIFE VERSION OF THE VIRTUAL ECONOMY

REMARK: Evidence relevant to the assumptions and conclusions of the stylized model:

1.   *"Gazprom supports the entire economy"*

The CEO of one of the major power companies in Russia, Mosenergo, Nestor Serebryannikov, confirmed in this quote that Gazprom keeps delivering value added, while the rest just subtracts it.:

> "The main income in the country comes from the resource-extracting industries, the production and sale of gas and oil. Gazprom is the salvation of the government and the creditor of the rest of industry, including the energy production sector." [*Ekonomika i zhizn*', Moscow edition, no. 15 (April) 1998, p. 12.]

2.   *"The value-subtracting manufacturing sector overprices its output."*

Commodity output used for the purpose of tax offsets is typically overpriced by a factor of two. Barter goods used in transactions between enterprises are overpriced by a factor of 2-2.5. Promissory notes (veksels) may have a nominal value up to five times the cash value. [Source: the Karpov Report]

3.   *"Gazprom accepts payment in kind from the value-subtracting sector"*

"Gazprom's head of the Department for Planning and Economics, Rishat Gafarov, ... said that only seven to eight percent of customers in Russia paid in cash. ... Gazprom told a recent analysts' meeting in London that in the first quarter this year, six percent of debts were paid in cash. This compared with just two percent in the same quarter last year." [Reuters/Sebastian Alison, April 30, 1998]

4.   *"Governments accept in-kind payment of taxes"*

Evidence on this point could fill volumes.

- In 1995 and 1996, 24% of all federal taxes were paid in non-monetary form; in 1997 the non-monetary share was 41%.

- The 210 giant industrial enterprises studied by the Karpov Commission paid on average only 11% of their federal taxes in monetary form.

- In 1997, cash accounted for less than 40% of federal tax payments from 12 regions. These regions include some of Russia's biggest taxpayers and are some of the most heavily industrialized regions (i.e., the homes of large paternalistic enterprises): Nizhny Novgord, Perm, Sverdlovsk, and Kemerovo, for example. [*Ekonomika i zhizn'*, no. 5, 1998, p. 3]

- For a sample of 39 regions (of Russia's total 89), the average share of nonmonetary tax revenues in 1996 was 60% to regional (oblast, kray, and republican) budgets and 43% to local (district and city) budgets. [OECD Economic Surveys, *Russian Federation 1997*, Paris, 1997, p. 181.]

5.   *"Governments transfer to households some of the barter goods received to the budget."*

Again, the evidence is overwhelming. Here are a couple of particularly egregious cases.

- "The Chelyabinsk subway story"

    CHELYABINSK BUILDS NEW SUBWAY SYSTEM. Chelyabinsk Oblast Governor Petr Sumin on 23 March declared the construction of a subway system in the city of Chelyabinsk to be one of the most important construction projects in the region. Four underground shafts have been completed and construction is under way at the sites of all five "first tier" stations. The project is being financed by the tax debt of construction companies to the federal, oblast, and local budgets. [This report is from the "Russian Regional Report," RRR-Internet Edition (02 April 1998)]

    Comment:

    The Chelyabinsk subway story is a good illustration of how public policy priorities become shaped by the rather fortuitous existence of tax obligations by certain companies. In this case, construction companies in Chelyabinsk were deeply in arrears on their taxes to the local and to the federal government. At the same time, the federal government owed Chelyabinsk funds but was late with disbursement. The local government was more or less forced to accept the construction companies' offer of a big construction project in lieu of the debts, while the federal government canceled the companies' tax arrears in lieu of the federal contribution to Chelyabinsk. The end result is a subway. It does not matter if the city and oblast have more pressing needs. When goods are delivered in kind as tax offsets, it's a seller's market.

- "The Samara toxic chemicals story"

    "Last year, the Employment Committee of [the Republic of] Mari-El was supposed to receive subsidies [*dotatsii*] of five billion rubles from the federal [unemployment compensation] fund. At the same time, the Russian Ministry of Labor permitted Samara oblast, which is a donor region, not to pay its federal share to the Russian Federation State Unemployment Fund in money, but instead to deliver to Mari-El for that same amount goods which had been received from organizations [enterprises] that had debts to the unemployment Fund.[...]

    "However, goods worth only 2.4 billion rubles arrived in Yoshkar-Ola [the capital of Mari-El]. Moreover, for all their skills, the locals were able to make use of only one-third of those. The rest, to put it mildly, were not in huge demand among the unemployed in Mari-El. You would think someone might have figured that out back in Samara before they were loaded and shipped out. One [such useless] item being offered as a subsidy to Mari-El, for instance, was 10 tonnes of toxic chemicals [*yadokhimikaty*] from the Middle Volga

Chemicals Plant that they claimed were worth almost 400 million rubles [$80,000]." [Ivan Dakhov [auditor of the Audit Chamber], "Za vnebyudzhetnymi fondami," *Ekonomika i zhizn'*, 16 (April) 1998, p. 8.)

Comment:

The inferred value of the goods received from Samara was at the most 0.8 instead of 5.0 billion rubles. Even that was probably an exaggeration. In short, essentially worthless output from Samara was being shipped hundreds of miles back up the Volga River to be dumped upon the Unemployment Office in Mari-El. Factories down in Samara not only were being allowed to discharge their obligations to the Unemployment Fund by delivering junk, but they could also chalk up that much more in "increased industrial output" and GDP for their native oblast.

6.   *"The tax crackdown (cash collection) results in an increase in wage arrears"*

When the government launches a "tax crackdown" and forces enterprises to use cash for tax payments, it predictably results in bigger wage arrears:

Mikhail Shmakov, the head of Russia's Federation of Independent Trade Unions is calling for an article in the Civil Code that would obligate enterprises to pay their wages before taxes. Vadim Borisov, the director of the Institute for Comparative Labor Relations Research in Moscow, an organization that is helping the unions in their campaign to eliminate wage arrears, said "the government's recent efforts to squeeze more taxes out of industrial enterprises to pay public sector workers was only worsening the problem of private sector wage arrears..... 'Industrial enterprises are paying taxes before wages, they are moving more of their accounts into the shadow economy, and they are increasing the use of barter. All these tendencies are continuing the demonetization of the economy,' he said." [*Financial Times*, 9 April 1998, p. 2]

7.   *"Gazprom can relieve pressure on the manufacturing sector by borrowing money outside the system"*

AFP release May 5, 1998: "Russian gas giant Gazprom is to press ahead with a bond issue this month worth some one billion dollars as part of a borrowing programme needed to make up for customers' unpaid debts, ITAR-TASS reported. ... Further unsecured and convertible bond issues will follow this year to increase the company's 1998 borrowing to two billion dollars, [Gazprom chairman Rem] Vyakhirev said."

"Last week, Deutsche Bank announced it would lead a syndicated loan to Gazprom worth 230 million dollars."

Comment:

The government squeezes Gazprom to pay cash taxes so it (the government) doesn't have to borrow so much on the bond markets. Also, so that Gazprom will squeeze its own customers to pay in cash, etc. But Gazprom turns around and mortgages future gas exports by borrowing cash, thus refusing to tighten the cash constraint for the enterprises. The result: no change at all! Gazprom borrows to keep the cash constraint eased instead of the government.

APPENDIX: **Highlights of the Karpov Commission Report**

Karpov Commission Report

Presented: December 1997

- Examined books of 210 industrial enterprises 1996--FH 1997

- Biggest enterprises -- biggest taxpayers -- biggest delinquents

- 3.4 million employees

  - average 16,000 employees each

  - together, account for > 20% of industrial labor force

"Virtual" Prices

(From the Karpov Commission Report)

"The Berezovskiy Coal Mine No. 1 ... earned 551 billion rubles in the first half of 1997. Of those revenues, 335 billion were in veksels, 215 billion in barter goods, and only 1 (one) billion in cash . ...

"The veksels ... issued by Sibir'energo ... can be sold for cash at an 80% discount and can be sold for Siberian-produced goods at a discount of 54%.

Virtual to Real
Implied conversion rates

	Type of ruble	Cash value	
1	VEKSEL ruble =	**0.20**	cash rubles
1	BARTER ruble =	**0.40**	cash rubles
1	OFFSET ruble =	**0.50**	cash rubles

These exchange rates mean that the Coal Mine's sales actually had a cash value of 154 billion—only 28% of the 551 billion it reported!

"Virtual" Sales by Enterprises
Share of Barter and Other Non-Cash Payments

Source	Year	Percent NON-CASH
REB (Aukutsionek)	1997	45%
Hendley et al. 1997	1996	40%
Karpov Commission	1996 - FH 1997	73%

"Virtual" Tax Payments

	Paid in CASH	Paid in NON-CASH	NOT paid
All taxpayers -- 1996	55%	18%	27%
All taxpayers -- 1997	40%	28%	31%
Karpov enterprises -- 1996, FH 1997	8%	71%	21%