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**The Other Fuel: Quasi-Fiscal Policy in Russia's
Economic Fluctuation, 1992-2004**

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Abstract

The conjunction of oil and Russia's economic recovery in 1999-2004 links many themes. On September 16, 1998, the Central Bank of Russia mandated repatriation of 50 percent of foreign exchange revenues. On December 31, 1998, it raised the mandated repatriation rate to 75 percent. This rule affected primarily fuels and metals exports. In the next several years, world oil prices started to climb. The Central Bank of Russia subsequently reduced the mandated repatriation rate from 50 to 30 to 25 percent of foreign exchange revenues. Rising oil prices both incited this reduction and compensated for it. Russia's economy shifted from the great contraction in 1992-98 to a partial recovery in 1999-2004. Tables 1 and 2 provide the background data.

This chapter explains these developments¹. It views Russia's economy as a new economic system which evolved from central planning after liberalization and privatization in 1992 and adapted to the policy shift in September-December 1998. We explore how, under this system, mandated repatriation of export revenues inadvertently became a quasi-fiscal policy, i.e. how it increased tax remittance and reduced subsidy extraction, which, in turn, shifted the economy from contraction to recovery. Oil and other tradeables, primarily natural resources, are important. Without their massive export, the issue of mandated repatriation of foreign exchange revenues would have been irrelevant. Oil on its own, however, was not the crucial factor.

Many observers, including the IMF, attribute Russia's recovery to rising world oil prices. Figure 1 documents the heterogeneous economic performance of the six major petroleum-exporting countries around the world in 1992-2004. In Russia and across countries, it is uncorrelated with oil price fluctuations. Figure 2 illustrates how economic recovery synchronized in Russia, Ukraine, Kazakhstan, and other former Soviet states, both net oil exporters (Russia, Kazakhstan, Azerbaijan) and importers (Ukraine, Belarus, Moldova). The oil factor was neither necessary (viz., Ukraine) nor sufficient (viz., Venezuela) for economic recovery and growth in the early 2000s. The oil connection abstracted from the economic system and policy shifts is specious.

Russia's economic recovery raises a more fundamental, and incendiary, issue than oil. Figure 3 illustrates it. In Russia and similar post-central plan economies, liberalization and privatization coincided with the great economic contraction in 1992-98. Partial de-liberalization and de-privatization in Russia, starting with mandated repatriation of export

¹An extended version is available on-line at <http://www.russiaeconomy.org/predation/pdf/pendulum.pdf>

revenues, coincided with economic recovery in 1999-2004. The principal idea of this chapter is that the impact of economic freedom is ambivalent. It depends on the economic system. The freedom to create new wealth it is eminently productive. However, the freedom for firms and some individuals to redistribute to themselves income from the government, other firms, and other households, suppresses productive incentives and economic growth. Government restriction of such freedom, e.g., in China or in Russia after 1998, fosters economic performance.

Socialism from Below: Third Party Billing

To start with a quick frame of reference, one can view Russia's economy in the 1990s as third party billing. X sells products to Y and charges Z. This operation is familiar on the sectoral scale in U.S. health care services and higher education. Health care providers charge insurance companies or the government. State colleges charge student tuition to the state government. Buyers receive products for free and don't economize on quantity and prices. Sellers can overcharge for their products when the third party pays. This incentive structure is responsible for rapidly rising health care costs and tuition. After the abolition of central planning, a novel system of third party billing evolved in Russia. It was national in scope and runs from below. Enterprises bill the government and the public.

Aggregate third party billing

Figure 4 and box 1 join forces on the next pages to explore step-by-step how this novel system had adapted and how it operates. In essence, enterprise X sells goods and services to enterprises Y and Z, receives some payments, and implicitly charges the unpaid balances to the government. Enterprise Y sells goods and services to enterprises Z and X, receives some payments, and implicitly charges the unpaid balances to the government. Enterprise Z sells goods and services to X and Y and to retailers, receives some payments, and implicitly charges the unpaid balances to the government. Circularly, all enterprises except retailers, various services, and outliers charge the government. In practice, enterprises X, Y, and Z issue invoices to buyers and receive payments over time. As in the universal practice of trade credit, sales and their invoices precede payments. In accounting terms, the balances of the amounts invoiced net of payments constitute the outstanding balances of accounts receivables, or simply receivables. In most economies, the outstanding balances of receivables are paid by buyers. In Russia and similar countries, enterprises charge these balances to the government and the public at large, take the subsidy, and then pay each other. Enterprises Z, Y, and X take

the subsidy and pay X, Y, and Z with public funds. This unique subsidy is taken, not given, charged, not solicited.

The monthly data in figure 4 cover the period 1992-97 and truncate in 1998, for both presentation and substantive reasons. This was the period of the unfettered operation of aggregate third party billing, before enterprise freedom to charge the government was restricted. Herewith a brief preview. When invoices outgrow payments, enterprises amass the balances of receivables. Enterprise income winds up to a great extent in receivables instead of cash. For many enterprises, receivables exceed net income. Enterprises increase payables, i.e. do not pay bills, lest their net cash flow turn negative. Tax arrears supplement payment arrears, especially for industries where receivables exceed payables. Enterprises appropriate taxes withheld from workers and collected from consumers, which they do not remit to the government. The government cannot enforce full tax remittance when enterprise bank accounts are drawn down. Tax non-remittance on a national scale rules out government crackdown, seizing assets, or bankruptcy for it will wipe out the tax base. The government is forced to monetize tax remittance and enterprise payments (even if the government monetizes its budget deficit, itself due to tax non-remittance, the money is fungible). The banks transmit monetization through credit for payments, roll over and expand this credit.

Figure 4 highlights a regular empirical match between receivables and the subsidy they enforce. It shows how over time the outstanding balances of enterprise receivables match the sum of (1) tax non-remittance and (2) monetization multiplied through the banking system (approximated as the domestic money balances M2). These are the two principal channels of the subsidy wrung from the government. They sum up into a self-enforceable subsidy. The simple point of figure 4 is that the government and, ultimately, the public are forced to pay the enterprise bill.

The difference of aggregate third party billing

The national scale, across industries and enterprises, shifts third party billing towards the government and the public (households, consumers) as the ultimate payers. In the supply chain over the stages of processing, every enterprise is both buyer and seller of products, and most enterprises, except retailers, various services, etc., issue invoices. The national scale aggregates third party billing and enables the entire enterprise network to charge the

government and the public at large (households and consumers) for its outstanding receivables.²

This marks the basic difference between sectoral and aggregate third party billing. The former is voluntary and contractual. The latter forges a symbiotic bond in which enterprises take the initiative and the government is forced to pay. This feature is unique and extreme. Aggregate third party billing charges from enterprises to the government, that is from below to above (in economic terms, it is endogenous). The subsidy is taken by the enterprise network from below, not given by the government from above. Ironically, this system represents a traditional socialist economy in reverse, as if central planning flipped topsy turvy. Box 2 depicts this evolution.³

Central planning integrated a national assembly line. Individual enterprises acted as the floor shops on the assembly line of forced production under government output quotas. This was a veritable nation-enterprise. This system necessitated aggregate third party paying. Whenever enterprise Y under-produced output or overspent inputs, lost income, run into a negative net cash flow problem, and missed the due date to pay its bills to enterprise X, the government financed enterprise Y to enable it to make payments to X. The government then punished enterprise Y for failing central plan output and input quotas. This financing of payment arrears (dubbed in the literature as the soft budget constraint) represented an automatic credit line. It served the government to enforce an uninterrupted flow of output, forced exchange, and forced delivery on the vertical assembly line from X to Y and to enforce performance of Y. Third party paying was from above, from the government to enterprises (in economic terms, exogenous). It was the government means to enforce forced production/exchange/delivery under central planning. It was thus a unique forced subsidy

²Third party billing on the national scale is unique and extreme. It aggregates (1) various sectoral cases of third party billing and (2) cross-sectoral subsidies between enterprises and industries through the mechanism of trade credit. The latter between individual sectors redistributes income from sellers to buyers without billing the government. See Robert A. Schwartz and David K. Whitcomb, "Implicit Transfers in the Extension of Trade Credit," in Kenneth E. Boulding and Thomas F. Wilson, eds., *Redistribution Through the Financial System: The Grant Economics of Money and Credit* (New York: Praeger Publishers, 1978), pp. 191-208. Aggregate third party billing, wherein the government is the third party, extends cross-sectoral subsidies to total industry cross-sectoral operations. This creates the national scale of income redistribution from the government to the enterprise network.

³The next two paragraphs summarize our book in <http://www.russianeconomy.org/predation/pdf/chapter2.pdf> and <http://www.russianeconomy.org/predation/pdf/ch4add.pdf>

from the government. Like in making foie gras, it was the force-feeding of immediate production units in order to increase output quotas.⁴

Abolition of central planning could come in various ways. The government could phase-out the inherited nation-enterprise by phasing-in the new-entrant market sector and thus shrinking the share of the old state sector in GDP. China chose this strategy bypassing liberalization and privatization of the preexisting state sector. Russia opted for liberalization of transactions and privatization of preexisting enterprises. This strategy subsumed the abolition of central planning. Inadvertently, it enabled the inherited assembly line of enterprises to evolve into a subsidy-extracting network. Individual enterprises (more precisely, their owners and managers) were free to join the subsidy network or survive and possibly perish without.

The enterprise network adapted aggregate third-party paying into aggregate third-party billing. This amounted to socialist devolution of fiscal and monetary authority from the government to the enterprise network. Aggregate third party billing empowers the network to enforce its own subsidy from the government and the public. In effect, the enterprise network collects a tax from the public. This subsidy and this tax is one and the same, to wit, the tax subsidy. It represents the parallel taxation of the public by the enterprise network. One can call this new economic system Enterprise Network Socialism.⁵

How a mechanism operates often tells why it exists and how it came into existence. The evolution from central planning to Enterprise Network Socialism resulted from the fact that the inherited national assembly line, not scattered sectors or enterprises, can enforce third party billing from below. This enables us to analyze what evolved historically as an adaptive

⁴This treatment of the soft budget constraint under central planning is opposite to the standard literature which views the government as the benevolent and weak-willed dictator unable to commit himself to not subsidizing enterprises. See Janos Kornai, Eric Maskin, and Gerald Roland, "Understanding the Soft Budget Constraint," *Journal of Economic Literature* 41, no. 4 (December 2003): 1095-1136. This view begs the question how would he keep forced production. The standard view fits individual and sectoral bailouts in Western and developing economies, a species systemically different from central planning. It is incompatible with economy-wide third party paying to enforce production quotas.

⁵A quick taxonomic distinction. Aggregate third party billing (1) is collective, all-encompassing, not of sectoral special interests; (2) entails a subsidy taken from below, not given from above; endogenous, not exogenous; (3) works automatically, not through the political process; and (4) subsidy extraction is cost-free to enterprises, does not involve spending resources of time, effort, and money. On each of these four counts aggregate third party billing is opposite to what the literature calls rent-seeking. Also, the above point (2) indicates that aggregate third party billing charges from below, endogenously, and is thus opposite to what the literature calls the soft budget constraint, which is operationally third party paying. The latter can be total under central planning or sectoral in many other economies (e.g., bailouts), but it streams from above, is exogenous in all cases. These are the taxonomic systemic differences between aggregate third party billing under Enterprise Network Socialism and various other species of socialism (income redistribution). Ignoring these systemic differences leads to wrong diagnoses which beget wrong policies.

operation of learning by doing. The next pages follow box 1 and figure 4 in laying out this operation step-by-step.

Facts: Fiscal Expectations, Surcharged Prices, and the Self-Enforceable Subsidy

Step 1 Surcharge

Step 1 is the easiest for enterprises to undertake and the hardest for observers to see and to explicate. It reveals itself through a chain of empirical observations. They compare the operation of accounts receivable in the U.S. and Russia. To eliminate the influence of inflation, several diagrams of figure 5 deflate nominal receivables and plot real receivables in inflation-adjusted values.⁶

Observation 1. Separation

The first observation may seem to be blase and trivial. Figure 5 contrasts two patterns of trade credit, in the U.S. and Russia. To define these patterns, figure 5 juxtaposes the annual indices of nominal or real receivables in 1991-2004 and the annual indices of real GDP.⁷ Figures 5.1 and 5.2 compare the indices of nominal receivables in current rubles or dollars in the U.S. and Russia against GDP growth. Figures 5.3 and 5.4 offer a sharper picture with real receivables in inflation-adjusted dollars or rubles on the same backdrop of GDP growth.⁸

Receivables in the U.S. exhibit a cyclical pattern with short lags. Both nominal (figure 5.1) and real (figure 5.3) receivables increase during the years of economic growth and decline during recessions and their aftermath.

In Russia in 1991-2004, receivables display an idiosyncratic pattern. Both nominal and real receivables in Russia in figures 5.2 and 5.4 show the absence of any regular relationship with real output, with productive economic activity. Nominal receivables increased massively during the great contraction of 1992-1998 and continued to increase moderately in 1999-2004. These increases correspond closely to increases in the annual price indices in figure 6. This leaves real receivables vis-a-vis real economic activity in figure 5.4. **The indices of real receivables lack any relationship with the indices of real GDP.** Real receivables saw

⁶The Consumer Price Index (CPI) is used as the deflator due to lack of other reliable indices for Russia.

⁷The data are available on the web site of the Russian State Committee on Statistics at http://www.gks.ru/bgd/free/b01_19/Main.htm and http://www.gks.ru/bgd/free/B01_19/IsWPrx.dll/Stg/d000/i000330r.htm and <http://www.statrus.info/catalog/edition.jsp?id=1821&uid=22>, and on the web site of the Central Bank of Russia at http://www.cbr.ru/statistics/credit_statistics/. Tables 1 and 2 offer annual summaries.

⁸Only figure 5 and the discussion around it alternate nominal and real receivables. The rest of the figures, tables, and discussion employ nominal receivables in current rubles or dollars. The qualifier 'nominal' is dropped for brevity except in figure 5 and the surrounding discussion.

increases during the years of the great contraction of 1992-98 except 1993 and 1998 and declined or held unchanged during the years of the recovery of 1999-2004 except 2004. The pattern that arises here is detachment of real receivables from economic activity. Output declines and recovers but real receivables exhibit no participation in or reaction to production and sales. Trade credit and productive activity walk their own separate paths as if they operate on different planes of existence, detached from each other. Russia exhibits a unique pattern of separation of trade credit from production and sales.

Observation 2. Alignments

The path of real receivables in Russia in figure 5.4 is not only detached from output but, with the exception of the years 1991 and 1996, nearly stagnant. The year 1991 was before liberalization and the year 1996 is an evidential outlier, possibly a statistical error due to major changes in measuring the CPI in 1996.⁹ Clipping the 1996 data from the path of real receivables charts a trend through 1992-2004 spanning the gap of 1996. All fluctuations in 1992-1995 and 1997-2004 are minor, random, and cancel each other over time. The index of real receivables actually hovered around unity and was stable within a narrow range. **The indices of real receivables are nearly invariant to GDP decline or growth. Real receivables in Russia seem to align with the index equal to unity, which implies zero growth of real receivables over time.**

Figure 6 displays the complementary part of this relationship during the same period 1992-2004. It shows that the separation pattern in Russia closely relates, indeed matches on the annual basis, the path of nominal receivables with the price index. Minor annual fluctuations which deviate from this match move randomly. A closer match of the two indices smooths over time and forms a continuous relationship. This continuous relationship is consistent with the indices of real receivables hovering around unity and converging towards it. **Tautologically, if the index of real receivables hovers around unity, the index of nominal receivables must align with the price index.**

In the U.S., the index of real receivables aligns with that of real GDP (e.g., both increased by 2.9 percent per annum in 1990-2004 and about 3.2 percent per annum during

⁹See Moscow Institute of Electronics and Mathematics, Laboratory of Econometric Studies, V. Zhikharev et. al., "How to Measure Living Standards," at http://www.rau.ru/observer/N05_99/5_15.htmhttp://www.rau.ru/observer/N05_99/5_15.HTM). If their estimate is correct, the price index in 1996 was understated by 1.5 times and the index of real receivables is overstated in figure 5.4 by the same 1.5 times. Then the spike of 1996 in figure 5.4 is an error.

1955-2004). The index of nominal receivables aligns with that of nominal GDP. There is no regular relationship between nominal receivables and the price indices.

Box 3 in the top matrix summarizes the contrasting alignments over time. Under the cyclical pattern of trade credit in the U.S., growth of real receivables aligns with growth of real output. Tautologically, growth of nominal receivables aligns with growth of nominal output. Under the separation pattern in Russia, real receivables stagnate within a stable narrow range and growth of nominal receivables aligns with price increases.

Observation 3. Invoicing

The next observation is mechanical. Receivables are balances of invoices net of payments. **It is price increases in invoices in excess of payments that make up these balances in Russia and make nominal receivables grow in alignment with the price index.**

Box 3 explores this mechanical connection. It is depicted in the lower half of Box 3 and its side bars. It shifts focus from receivables to invoices as the source of empirical alignments. It is what is **in** invoices when they exceed payments and make up an increase in the outstanding balances of nominal receivables. **It can be output growth in current prices under the cyclical pattern in the U.S. Or it can be price increases per se under the separation pattern in Russia.** This decomposition makes both patterns mechanically consistent in the same mold.

Under the separation pattern in Russia, the mechanics transpire in nominal terms. New invoices raise prices and exceed past invoices valued at the previous price level. Price increases make up the excess of new invoices over payments on past invoices. When spending grows (the government never failed to print money) and payments increase, enterprises raise prices higher so that new invoices exceed payments on past invoices almost continuously. **Over time, in the overlapping flows of invoices and payments, invoices not only exceed but continuously outgrow payments by price increases.** This is the underlying mechanical meaning of the empirical observation in figure 6 that the outstanding balances of nominal receivables grow at the rate of price increases. In short, all price excesses are in invoices.

Observation 4. Collection

What strategies of U.S. firms and Russian enterprises stand behind their invoicing mechanics? One strategy makes possible the growth alignment of real receivables with real output in the U.S.. The other strategy, in Russia, makes possible the alignment of the indices of nominal receivables with the price index (which holds real receivables nearly stable). These strategies are summarized in the left and right side bars in Box 3. They compare how and when (and hence why) invoices exceed payments by output growth in the U.S. and by price increases in Russia.

Firms in the market economy strive to optimize their cash flow. This operation includes managing accounts receivable, that is, collecting payments and gearing invoices to payments collection. The average collection period is one of the major signs of the viability of the firm and a key indicator of its market valuation and credit worthiness. In the U.S., the average collection period decreased from 29 days in 1990 to 27 days in 1992-1994, rising steadily with GDP growth to 37 days in 2000, and then gradually shortening to 31 days in 2003 and going up to 32 days in 2004. This is consistent with the pattern which *Encyclopedia Britannica* cites to typify trade credit in market economies.¹⁰ This is indeed the strategy of cash flow optimization: short collection periods, stability of payments collection, a narrow range, and a cyclical pattern.

It literally pays to optimize the average collection period. Simpler yet, the firm cannot survive on income on the accrual basis alone. It is not sustainable. In brief, if its buyers do not pay their bills for a lengthy period (payments are in arrears), while the firm duly pays its bills within the due period, its net cash flow may run negative. When net cash flow is persistently negative, firms may face bankruptcy and no one would lend to them, or no one would lend them and firms may face bankruptcy, whichever sequence unravels. Most firms issue invoices in a cyclical pattern in order to receive payments within the due period and thus hold a manageable balance of receivables from the cash flow standpoint. Sellers make invoices exceed payments and increase the balance of receivables in alignment with output growth. They do not raise prices to make invoices exceed payments and expand the balances of receivables.

¹⁰*Encyclopedia Britannica* in the article “Business Finance,” section “Accounts Receivable,” summarizes that the ratio of receivables to sales in U.S. manufacturing ranges between 8 and 12 percent, yielding the average collection period of approximately one month (around 36.5 days, to be exact).

In Russia, the average collection period more than doubled from 24 days in 1991 to 51 days in 1992, shortened to 45-46 days in 1994-95 only to lengthen to 63 days in 1996, 66 days in 1997, and to a whopping 104 days in 1998. Then a reversal, down to 69 days in 1999 and 54 days in 2000 and gradually to 44 days in 2003 and 40 days in 2004.

If the average collection period is lengthy and fluctuates separately from output, enterprises maximize nominal receivables subject to how much subsidy they expect to enforce in lieu of payments. They make invoices exceed payments to that end by price increases which amass the balance of receivables. It is this practice that undergirds the alignment of receivables and price indices in figure 6. It also indicates that the causation in figure 6 goes from growth of receivables (indeed from invoices) to price indices, not vice versa.

The mechanism of this subsidy extraction was introduced on pages 00-00 and in figure 4. Figure 4 demonstrates how during the period from 1992 to 1998 the outstanding balances of receivables matched over time the sum of various subsidy channels, such as tax non-remittance and monetization multiplied through the banking system. This mechanism became more complicated in 1999-2004, but the pattern remained within, of which later. The next steps through Box 1 and its accompanying figures explore and document the mechanism of this subsidy extraction in detail.

Observation 5. Indexation

The final observation of step 1 is straightforward, if unconventional. Box 3 summarizes it at the bottom. Optimization of cash flow in the U.S. implies that firms index invoices to payments and through them to spending in the economy (that is, to the combined changes in the money supply and the velocity of its circulation). In the process, output and prices increase or decrease in one or another combination between them in the cyclical pattern. This indexation to payments and ultimately to spending does not let invoices exceed payments by separate price increases. That would expand the balance of receivables and undermine cash flow optimization. This is not sustainable. Firms could not survive thus.

In Russia, enterprises maximize nominal receivables by making invoices outgrow payments via price increases. This implies that, as they increase prices to make up the balances of nominal receivables, enterprises index invoices not to payments and hence not to spending. They index invoices to fiscal targets - how much subsidy enterprises expect to enforce. They learn by doing, by trial and error, as described earlier (see pages 00-00 above),

and learn continuously over time, what these fiscal targets are. Those who learn survive and socialize the experience on the national scale. This is the collective survival of the fittest.

Ultimately, enterprises index invoices to fiscal expectations. In this pattern, price increases are detached from spending. Excess of invoices over payments, which is made up of price increases, is detached from spending. Fiscal expectations bypass current spending (money times velocity and their combined changes) and generate inflationary expectations directly¹¹, through price increases in invoices in outgrowth of payments. These are self-fulfilling inflationary expectations. They materialize in the outstanding balances of receivables.

The simplest way to describe this procedure is to view price increases in invoices as a price surcharge added to the prior price listed in past invoices. This is a third party surcharge, to be billed to the government and the public at large (households, consumers) in pursuit of the subsidy. One more inference which may seem outlandish but, on reflection, fits. Since this subsidy is collected (see figure 4 again), the price surcharge in invoices constitutes a special tax levied by enterprises on the government and, eventually, on consumers and households. It acts like a quasi-value-added tax on sales over the stages of processing. It is quasi and not genuine value-added tax in the national income accounting sense because this tax is additive on enterprise fiscal expectations, not multiplicative at a preset rate. Hence it applies equally to output with the positive and the negative value-added. Which makes this unique tax from below (the endogenous tax) especially distortionary for, on top of income redistribution, it finances and perpetuates value subtraction.

Step 2. The payment jam

¹¹A burgeoning literature inaugurates a new wave, which its practitioners call “the fiscal theory of the price level.” It is possible that the Russian experience may fit as a special case with its own systemic particulars (the subsidy from below) and mechanics (trade credit). Only specialists in this innovative, sophisticated, and extremely technical (not to say inscrutable) field can adjudicate if their approach is what explains the Russian case. The present authors believe so, but a true test would require substantial modeling and econometric analysis, beyond the scope of this chapter. Of a large body of literature, one can list only a few references here. Thomas J. Sargent and Neil Wallace, “Some Unpleasant Monetarist Arithmetic,” *Federal Reserve Bank of Minneapolis Quarterly Review* 5, no. 3 (Fall 1981): 1-17; Kiminori Matsuyama, “Endogenous Price Fluctuations in an Optimizing Model of a Monetary Economy,” *Econometrica* 59, no. 6 (November 1991): 1617-1631; Eric M. Leeper, “Equilibria Under Active and Passive Monetary and Fiscal Policies,” *Journal of Monetary Economics* 27, no. 1 (February 1991): 129-147; Michael Woodford, “Price Level Determinacy Without Control of a Monetary Aggregate,” *Carnegie-Rochester Conference Series on Public Policy* 43 (December 1995): 1-46; Joydeep Bhattacharya and Joseph H. Haslag, “Monetary Policy Arithmetic: Some Recent Contributions,” Federal Reserve Bank of Dallas, *Economic and Financial Review* (Third Quarter 1999): 26-36; Charles T. Carlstrom and Timothy S. Fuerst, “The Fiscal Theory of the Price Level,” Federal Reserve Bank of Cleveland, *Economic Review* 36, no. 1 (Quarter I, 2000): 22-32; Lawrence J. Christiano and Terry J. Fitzgerald, “Understanding the Fiscal Theory of the Price Level,” Federal Reserve Bank of Cleveland, *Economic Review* 36, no. 2 (Quarter II, 2000): 3-38; John Cochrane, “Money as Stock: Price Level Determination with No Money Demand,” National Bureau of Economic Research, *NBER Working Paper* no. 7498 (January 2000).

Mechanically, there are four potential responses to the problem of negative net cash flow: reduce receivables, obtain outside financing, increase trade payables, and increase tax payables. Reducing receivables by factoring them can help occasionally, not continuously. Obtaining outside financing, such as borrowing and/or issuing equity, is not forthcoming when cash earnings are persistently negative.

One can increase trade payables. Initially, negative net cash flow does not halt operations because the business can draw on the money balances in the bank and dispose of other assets. After cash balances and other assets are run down, bills cannot be paid in full within the due period. Payables fall into arrears. Thus this business does automatically increase trade payables when its net cash flow turns negative. This happens by default. Unpaid bills automatically increase the outstanding balance of payables. Payment arrears (increased trade payables) turn net cash flow non-negative. Increasing trade payables helps trade debtors in the short run. This practice can last as long as trade creditors can and will sustain aging and accumulation of their own receivables. Their own flow of receivables may exceed net income and net cash flow may turn negative. If and when trade creditors call in the debts owed them, bankruptcy arrives.

Finally, one can increase taxes payable. The business can stop or delay paying corporate income or profit tax. For quick cash, it can stop or delay remitting payroll and income taxes withheld from workers and value-added or sales taxes collected from consumers. This is illegal. If the government can enforce tax remittance and tax payments, it will, and this business will be no more.

The chain reaction

One man's receivables are another man's payables. Money is fungible. These two basic propositions explicate that maximization of receivables (subject to the expected subsidy) in Russia was the source of the amassment of trade payables and that tax arrears supplemented payment arrears. As noted earlier, the average collection period expanded from 24 days in 1991 to 51 days in 1992, shortened to 45-46 days in 1994-95 only to lengthen to 63 days in 1996, 66 days in 1997, and to a 104 days in 1998. It reversed to 69 days in 1999 and 54 days in 2000 and gradually decreased to 44 days in 2003 and 40 days in 2004. Since 1992, accounts receivables became and remained past due, or aged. Their counterpart is payment arrears. Days payable outstanding measure the average payment period (or non-payment period, as it were) the same way as the average collection period measures the unpaid length of receivables. Days payables outstanding doubled from 17 days in 1991 to 36 days in 1992,

increased gradually to 55 days in 1996 and 61 days in 1997, and leaped to 102 days in 1998. A downward reversal started slowly afterwards, 72 days in 1999 and 56 days in 2000 and gradually shortened to 45 days in 2003, and 40 days in 2004. Since 1992, payables were in arrears.

Receivables amassed due to surcharged invoices generate payables that fall into arrears. It follows from the above discussion that maximization of receivables increases payables on two intertwined counts.

1. First, when receivables amass among sellers, trade payables amass among buyers. Aged receivables generate payment arrears.

2. Second, sellers themselves delay payments and thus increase payables and turn them into arrears to compensate for cash shortfalls when receivables take up the bulk of their net income.

A critical mass of payment arrears and aged receivables creates a payment jam. This is a situation on the brink of cessation of operating activities.¹² A marginal increase in payment arrears improves the cash flow position of buyers but worsens the cash flow position of sellers to the point where their net cash flow runs down to zero.¹³ They, in turn, have to increase their payment arrears to stay afloat. But this worsens the net cash flow position of their respective sellers and runs it down to zero. One can extend this exercise in rounds through the flow of funds until operating activities of some clusters of enterprises cease. This is a chain reaction. There is a recourse. Enterprises can maximize tax arrears, tax non-remittance.

Step 3. Third party payables

One can think of trade payables as second party payables. Most enterprises except retailers, various services, etc., are both sellers of output and buyers of inputs. In the flow of funds over the stages of processing, sectoral increases in payment arrears unleash a chain reaction of cash flow shortfalls. Tax arrears, in contrast, can be viewed as third party payables. They harm the cash flow position of the government, reduce revenues and increase the budget deficit, which, in turn, delays government procurement payments, ages receivables of government suppliers, and hurts their cash flow position. But the government can sell

¹²A detailed discussion is in Michael S. Bernstam and Alvin Rabushka, *From Predation to Prosperity*, chapter 1, "The Other Government," at <http://www.russianeconomy.org/predation/pdf/chapter1.pdf>.

¹³This situation especially affects net creditor industries such as fuel energy, electric power, engineering (machine building), construction, and transportation, but export revenues mitigate it for the crude oil and natural gas industries.

bonds and/or print money to finance its budget deficits. Tax non-remittance and expected monetization not only offer enterprises a supplemental strategy of improving their cash flow position. They also constitute a pure subsidy. This is why enterprises which maximize profit in cash terms must maximize tax non-remittance.

Other third party payables include payroll arrears. Enterprise owners and managers treat them similarly to tax arrears but accumulate them to a lesser extent, if they want to maintain their core labor force. By the end of 1998, payroll arrears constituted 3 percent of GDP, a significant income transfer from workers to enterprise owners and managers.¹⁴

Tax non-remittance is separate from tax evasion. It adds to tax evasion. Tax non-remittance is explicit and recorded. Enterprises withhold payroll and income taxes from workers and collect value-added and sales taxes from consumers. After that, enterprises impound part of this tax collection. In addition, they impound and do not remit their corporate income or profit tax which is also collected from households - consumers, workers, and shareholders. In short, tax non-remittance is explicit confiscation of the tax base.

Table 3 documents that the outstanding balances of tax arrears in Russia rose from 0.6 percent of GDP in 1992 to 18 percent of GDP in 1998 and then reversed and declined to 2.2 percent of GDP in 2004. The outstanding balances of taxes payable in the U.S. ranged between one and 1.5 percent of GDP.

Figure 7, panel 1 plots the relationship between tax non-remittance (the balances of tax payables, tax arrears) and the outstanding balances of receivables. This relationship is direct, strongly correlated, and consistently proportional. This panel does not prove that amassment of receivables causes tax non-remittance. Correlation is not a causality. But no proof of a one-directional causality is necessary. On the contrary, the relationship between the balances of aged receivables and tax arrears form a feedback loop as depicted in arrow 2 and the sequence of arrows 8 and 1 in the flow chart in figure 4. Enterprises maximize receivables subject to expected subsidy (fiscal expectations), while tax non-remittance is part of this expected subsidy in the data plotted in figure 4. An increase in tax non-remittance raises subsidy expectations and stimulates surcharged invoices (arrow 8 in the flow chart in figure 5) which

¹⁴We list managers on par with owners because, in Russia, state-owned enterprises did not remit profits or dividends to the government and, in terms of accrual of net income, qualified as private property of managers. One can also add state managers such as ministers of nuclear energy, rail roads, etc. State enterprises also partially qualified as private property of managers in terms of exclusive control of the disposal value of net assets (equity). The existence of assets stripping of state enterprises effectively disqualifies the government as the owner. From this perspective, privatization of productive assets in Russia in the 1990s was nearly universal.

build up aged receivables (arrow 1 there). In turn, amassment and aging of receivables render net cash flow negative without an automatic increase in trade payables and supplemental maximization of tax non-remittance (arrow 2 in the same flow chart). Figure 7, panel 1 offers evidence for these relationships in both directions and for the entire feedback loop.

Under the payment jam, on the margin, the government cannot enforce tax remittance in full. All fiscal instruments are blunted. (It took the Central Bank of Russia to invent a sharp one in late 1998 and reverse the situation, but of this in due course). Of the possible menu of enforcements, one can think of fines and penalties, sequestration of enterprise money balances in the bank, lien and seizure of assets, placing in receivership, forced bankruptcy, prosecution of owners and managers, and any other legal or fiscal recourse. During 1992-98, especially in 1996-98 when tax non-remittance exacerbated, the government tried, or at least tried to apply, all of these measures. They temporarily improved tax remittance by individually targeted enterprises, for a few months, but had all failed over time. On the national scale, under the payment jam, when enterprise X had to remit more taxes, it had to simultaneously reduce payments to enterprise Y, which then reduced its own remittance, netting little, if anything, for the government enforcement effort.

Not that the government did not try. Not that it was soft or weak-willed. Rather, it was impotent. Piling up fines and penalties could not induce payments when, as table 3 shows, tax arrears in 1992-98 were growing unabated anyway. The data in table 3 suggest why sequestration of enterprise money balances in the banks was not workable. Tax arrears were outgrowing enterprise money balances rapidly in 1992-98. Since 1996, the sequestration option evaporated altogether when tax arrears significantly exceeded enterprise money balances.

Lien and assets seizure, placement in receivership, forced bankruptcy, change of ownership, changing the form of ownership, prosecution of owners and managers, etc., are overlapping measures. In practice these measures meant renationalization. Apart from political constraints,¹⁵ renationalization of enterprises and replacement of managers could not enforce tax remittance without changing incentives throughout the economic system. This implies no change without preventing surcharged invoices and accumulation of receivables.

¹⁵The government whose claim to existence was liberalization and privatization, could not renationalize enterprises and remain in power. Moreover, tax non-remittance was similar among enterprises which were de jure state-owned fully or partially (e.g., in oil, natural gas, electric power, and other industries) and also among profit-making government agencies (nuclear energy, railroads, etc.). Renationalization of state-owned enterprises is absurd even under the Russian economic system. In sum, the government could not seize assets because it either already owned them, had slated them for privatization, or just privatized them.

Both privately owned enterprises and those owned de jure by the government acted in the identical mode within the same network. Different ownership, different owners, and different managers could not change the underlying systemic incentives. They indeed did not when the government made such changes from time to time in various industries.

Overall, under the payment jam, on the margin, any fiscal crackdown could improve tax remittance in specific sectors in the short run but jeopardize the flow of payments across the economy and the tax base in the long run. A major attempt to enforce tax remittance would have substituted additional payment arrears for tax arrears. A spillover effect through the flows of funds across industries would have brought down the net cash flow positions of net creditor enterprises and industries. This would have halted economic activity and wiped out the tax base.

The government options were between partial tax remittance by enterprises and the loss of the tax base. The options of the enterprise network were between partial tax remittance to the government (that is, maximization of receivables and the subsidy subject to fiscal constraints) and unpredictable consequences otherwise. Both the government and enterprises chose partial tax remittance. They were continuously engaged in the game of chicken over the **extent** of tax remittance, not over its completeness. As a rule, the government blinked.

This symbiotic arrangement worked for both until it engendered the great default of August 1998. The situation reversed in late 1998 after the Central Bank mandated repatriation and domestic sales of foreign exchange revenues. This reduction of capital outflow rapidly increased enterprise money balances (see table 3). This, in turn, enabled the government to enforce more tax remittance in 1999-2000 in the flow sense, slow down the buildup of tax payables, and even reverse the trend and draw down the outstanding balances of tax arrears since 2001. This time, the enterprises blinked, first specific exporters, then the export sector at large, and, eventually, the entire enterprise network.

Step 4. Third party debt transfer

A revenue shortfall due to tax non-remittance created additional budget deficit which needed financing. All other sources of budget deficit being equal and another source of financing, monetization, being also equal, the government had to issue bonds to finance this additional budget deficit. That is, the government had to securitize tax non-remittance. The monthly data demonstrate that the balances of tax non-remittance and government bonds issued from January 1995 to the default of August 1998 roughly converged.

Tax non-remittance is a pure subsidy. It is a transfer of income from workers and consumers to enterprise owners and managers. In the flows of funds, it is also a transfer of income from the government as the recipient of tax revenues, to the enterprise network. It is a subsidy because it would have been the same amount if all taxes were remitted and the equivalent outlay given to enterprises. The only difference with the latter case is that the subsidy via tax non-remittance is taken, not given. This subsidy is forced onto the government in the symbiotic arrangement discussed above. The government was then forced to securitize the tax non-remittance subsidy. Enterprise arrears were billed to the government via tax non-remittance and then charged to bond-holders when the government defaulted. This is a two-stage third party debt transfer.

Step 5. Forced monetization

A striking feature of panel 2 of figure 7, which also shows in figure 4, is that tax non-remittance and the money stock M2 were long-term complements and short-term substitutes in 1992-99. They grew in tandem at the same long-term rate and at different short-term rates. In 1992-95, money grew faster than tax non-remittance. In 1996-98, at a time of rapid bond financing of budget deficits, tax non-remittance grew faster than money. Since late 1999, money growth accelerated again relative to that of tax non-remittance. The semi-concave, semi-convex curve in panel 2 of figure 7 fits the close correlation between the balances of tax arrears and money balances on identical scales. To wit, **they grew together ruble for ruble smoothed over time in the long run, substituting for each other ruble for ruble in the short run**, as if they were fungible in the fiscal pool.

Arrows 4 and 5 in the flow chart in figure 4 capture their long-term and short-term feedback loop. It is not surprising that the government monetized budget deficits created, among other sources, by tax non-remittance - hence the plus sign from non-remittance to money. It is also not surprising that monetization dissipated the payment jam and reduced tax non-remittance in the short run - hence the minus sign from money to tax non-remittance. Also, bond receipts roughly matched tax non-remittance, which looked like their financed budget shortfalls from tax non-remittance. Why this double coincidence between money growth and tax non-remittance and between bonds and tax non-remittance?

There is no double indemnity. The government does not finance the fiscal cost of tax non-remittance twice, by issuing bonds and money. Recall the short-term trade-offs between money growth and that of tax non-remittance in panel 2 of figure 7. When the money supply increased more, tax non-remittance increased less, and vice versa. One suggestion reconciles

all the above observations. Under the payment jam, on the margin, **a ruble of bonds financed a ruble of tax non-remittance and a ruble of money growth financed a ruble of tax remittance**. The subsidy via tax non-remittance and the combined subsidy via tax non-remittance and financing additional tax remittance are the same. If one counts, as the practice of Western economies suggests, the entire money stock as implicit government debt, the debt created by both options is also the same.

To recapitulate, tax non-remittance forces bond financing of the resulting budget deficits. It forces government debt and leads to a default. The government is interested to delay this eventuality. It enforces tax remittance as much as it can under the payment jam. When this fails, the government monetizes tax remittance. **That is, the government pays enterprises to remit taxes they impounded**. In other words, the government subsidizes the amounts that would have become tax non-remittance but has thus become tax remittance. There is a ruble for ruble trade-off evidenced in the data in figure 7, panel 2 and other figures. This secondary subsidy via monetization is forced onto the government by the first subsidy via tax non-remittance.

Step 6. Credit transmission, extension, and rollover

Banks transmit, extend, and roll over credit to enterprises on the basis of the monetary base created by the Central Bank during monetization of tax remittance. Banks multiply monetization of tax remittance through re-intermediation between enterprises. Credit is issued for payments, not for investment. This proposition was covered and documented at length in the addendum to Chapter 4 of our book *From Predation to Prosperity*, “Fixing China’s Banks, not Russia’s.”¹⁶ When inflation is high **and** nominal interest rates are low, and hence real interest rates are highly negative, credit rollover and extension represent a pure subsidy.

Step 7. Aggregate third party billing pays

Various trade-offs between tax non-remittance and monetization of tax remittance, followed by credit rollover and extension, wind up in the self-enforceable subsidy. Tax non-remittance and monetization multiplied through the banking system sum up to the outstanding balance of receivables. Figure 4 demonstrated a close match in 1992-98 between enterprise subsidy claims through surcharged invoices, embodied in the balances of receivables, and the subsidy they force from the government through tax non-remittance and monetization.

¹⁶<http://www.russianeconomy.org/predation/pdf/ch4add.pdf>

Continuous short-term trade-offs between tax non-remittance and the money balances in the game of chicken between the government and enterprises (see again figure 7, panel 2) make the subsidy self-enforceable. Fiscal expectations to which enterprises index invoices in pursuit of the subsidy become self-fulfilling. At the same time, long-term complementarity between tax non-remittance and the monetary aggregate as subsidy components makes the subsidy self-reinforcing over time until the policy reversal downgrades it.

This self-enforceable subsidy can be called the tax subsidy not only because it finances tax remittance and the fiscal costs of tax non-remittance. Also, when enterprises surcharge invoices they levy a tax over the stages of processing. The price surcharge in invoices which ends up in the balances of receivables is ultimately a tax on consumers and households. On top of that, it is the taxpayers who bear the cost of the subsidy through inflation and fiscal defaults. By forcing government subsidy, the enterprise network ultimately taxes the public at large.

Figures 8 and 9 break out of the 1992-98 time frame and extend the same relationship through the entire period of 1992-2004. Figure 8 uses the linear scale and figure 9 the logarithmic scale. The linear scale enables us to show tax non-remittance and the monetary aggregate M2 as interacting components of the subsidy. But because of high inflation in the early 1990s, the linear scale makes the data before 1994 invisible. The logarithmic scale demonstrates that the postulated relationship held since the beginning of 1992.

Tax non-remittance slowed down in 2000-2001 and started to decline steadily in absolute terms since October 2001. The new policy initiated by the Central Bank which we mentioned earlier and will attend to shortly started to take effect. The subsidy has declined substantially in 2002-2004. In the spirit of figures 4, 8, and 9, one can estimate the claim on the subsidy as the ratio of the annual flows of receivables to GDP. This is not an actual subsidy which may be collected with a short lag but an annual claim on this subsidy. Table 2 estimates that the subsidy claim (and hence the subsequent subsidy) constituted 21.8 percent of GDP in 1992, gradually declined to 13.1 percent of GDP in 1996 and 5.3 percent in 1997, and then increased to 19.8 percent of GDP in 1998. Its gradual decline began from 5.5 percent of GDP in 1999 to 2.1 percent in 2002 and 2003. The claim increased to 2.8 percent in 2004 but this upturn may represent a short-term fluctuation.

Step 8. The circuit of aggregate third party billing

Step 8 is identical to step 1. Invoices outgrow payments and fall into the balances of aged receivables when enterprises surcharge invoices. They add a third party surcharge to the price, subject to fiscal expectations, and bill the government. Surcharged invoices carry a network tax on consumers and households. Now it is more evident why. The subsidy is self-enforceable under the payment jam created by aged receivables and payment arrears.

Fiscal expectations are self-fulfilling. The feedback from the subsidy to enterprise invoicing activity validates surcharged invoicing activity and stimulates more of it. It stimulates maximization of receivables subject to fiscal expectations.

Arrows 7 and 8 in the flow chart in figure 4 depict the feedbacks from the subsidy components, tax non-remittance and monetization, to surcharged invoices. Panels 1 and 3 of figure 7 test empirical evidence for these feedbacks. Bivariate regressions can indicate causation running either and both ways. The flow of causation from receivables to tax non-remittance and monetization (multiplied by credit transmission) was discussed above. Now, this is a test of **fiscal expectations** stemming from the eventual subsidy to maximization of receivables.

A strong correlation between the balances of receivables and tax arrears in panel 1 was discussed earlier. Panel 3 regresses the monthly balances of receivables in 1992-mid-1999 against the monetary aggregate M2, the second major component of the subsidy. It shows a strong positive relationship between the balances of receivables and the money balances. This implies that a mechanical short-term effect, that monetization and credit would dissipate payment arrears and aged receivables, is totally overwhelmed by subsidy expectations. Panel 3 demonstrates a strong incentive for the subsidy-extracting strategy of the enterprise network. Panel 1 offers the same finding on the side of the tax non-remittance channel of the subsidy.

This discussion has come full circle. It is convenient to incorporate the fiscal circuit in the flow chart in figure 4 into a general mechanism of Enterprise Network Socialism. This mechanism in Box 4 connects the fiscal circuit of aggregate third party billing with its impact on real output (GDP) and with policy reversals in 1999-2004. The arrows numbered in blue, from 1 to 11, represent the fiscal circuit augmented by the policy forces of 1999-2004. The arrows numbered from 1 to 8 encompass the self-contained and circular system of aggregate third party billing. They retrace the eight steps summarized in Box 1. Arrows 9 to 11 add the policy reversal in 1999-2004, to which the discussion turns below. The arrows numbered in

brown, from 1 to 7, incorporate a simplified transmission to real output. Plus and minus signs on the side of the arrows indicate positive and negative relationships between variables.

In the beginning, enterprises maximize receivables subject to the expected subsidy. They index invoices with price surcharges to fiscal expectations. Invoices outgrow payments and - arrow 1, the plus sign - their balances end up in aged receivables. This creates the payment jam and may render net cash flow negative and halt operations across the economy. Under the payment jam - arrow 2, the plus sign - enterprises endeavor non-remittance of taxes withheld from workers and collected from consumers. The government engages in the game of chicken to enforce tax remittance and - arrow 3, the plus sign - has to securitize tax non-remittance, issue bonds. To minimize and limit tax non-remittance and delay the default of on the ever-growing debt the government is forced to monetize additional tax remittance (arrow 4, the plus sign, from tax non-remittance to the money supply and arrow 5, the minus sign, from the money supply to tax non-remittance). Monetization multiplied and transmitted through the banking system to enterprises - arrow 6, the minus sign - dissipates payment arrears and aged receivables in the short run. In the long run, both monetization - arrow 7, the plus sign - and tax non-remittance - arrow 8, the plus sign - as the complementary embodiment of fulfilled fiscal expectations, stimulate surcharged invoices and maximization of receivables.

The entire system of aggregate third party billing sketched in Box 4 is circular, self-enforceable, and self-reinforcing. It had met its match in the policy introduced by the Central Bank of Russia in September-December 1998.

The Reversal of Powers and the Fall of the Freedom to Charge

This is a story of an accident of history with systemic consequences. It is a story of how a peripheral policy of the Central Bank, control of capital outflows aimed at accumulation of foreign exchange reserves, hit the fiscal feedback loop at the core.

In late 1998, the Central Bank of Russia mandated repatriation and domestic sale of foreign exchange revenues. Its principal objective was to accumulate foreign exchange reserves. The Russian government needed them desperately. By a sheer extraneous coincidence, interest and principal payments on the external debt of the Russian government came due in September 1998 and thereafter. This debt was rescheduled several times over seven years and the day of reckoning had arrived. The moment could not have been worse. On August 17, 1998, Russia defaulted on its domestic, ruble-denominated bonds and

devalued its currency. Less than a month later, a bankrupt and illiquid government had to purchase billions of dollars with devalued rubles. It could not, and there were several technical defaults on external debt service. The government appealed to the Central Bank as the lender of last resort **of foreign exchange**. The Central Bank extended the government a foreign exchange loan in the amount of \$6.7 billion in exchange for a dollar-denominated Russian bond. This nearly depleted the foreign exchange reserves of the Central Bank and rendered its net international reserves (net of IMF loans) negative.¹⁷ More payments on external debt were coming due and the Central Bank could expect more borrowing from the government.

Rapid, indeed swift, accumulation of foreign exchange reserves had become the top priority of the Central Bank. On September 16, 1998, it enacted a seemingly minor and innocuous, procedural regulatory adjustment¹⁸ which might have changed the course of recent Russian history. There was a long-standing regulation, with the legal force of a bylaw, that Russian enterprises were obligated to sell 50 percent of their export revenues in foreign exchange for rubles at the market exchange rate. This foreign exchange could be sold through the Russian banking system. On September 16, 1998, the Central Bank issued a legally binding instruction that this mandated sale of 50 percent of foreign exchange revenues had to be conducted solely through the designated currency exchanges. These were the Moscow Inter-Bank Currency Exchange and seven regional exchanges. Sales through the banking system and inter-bank sales of foreign exchange revenues were halted completely.

What's the difference? To put it simply, from September 16, 1998, foreign exchange revenues of Russian enterprises had to be sold **inside** Russia. Foreign exchange had to be brought and wired to Russia to be sold. The new rule meant **mandated repatriation** of foreign exchange revenues, indeed forced repatriation and forced exchange of export revenues. This was an imposition of capital controls on the outflow side of the capital account.

Before September 16, 1998, foreign exchange revenues of Russian enterprises could be sold outside of Russia through correspondent accounts of various Russian banks abroad. They could be sold to subsidiaries of exporters themselves. Exporters could repurchase dollars at

¹⁷For the balance sheet and discussion, see our "How Big Are Russia's Foreign Exchange Reserves?" at <http://www.russianeconomy.org/comments/091100.pdf> .

¹⁸The legal and institutional part of the story is reconstructed by bits and pieces from various Central Bank instructions and explanations circulated by Russian financial organizations. For a succinct account by one of them see <http://www.vergen.ru/archive/docs/full/1999/02/cb1102.html> .

the cost of a banking transaction fee and deposit dollars abroad. They sold for rubles, but rubles did not enter their bank accounts in Russia. The preexisting rule mandated 50 percent sale of foreign exchange revenues, not 50 percent repatriation and deposit of ruble-denominated proceeds in enterprise accounts with Russian banks. The preexisting rule could not address capital outflow. Most importantly, while foreign exchange revenues of Russian exporters, either sold to subsidiaries or repurchased, were deposited abroad, their money balances with Russian banks remained at low levels. Enterprises could amass billions of dollars abroad and continue tax non-remittance in Russia. The government could not enforce tax remittance and had to monetize it due to low money balances of enterprises and the payment jam.

What was the true rate of foreign exchange sales before September 16, 1998, when the mandated rate was 50 percent of export revenues? It could have been zero except when exporting enterprises needed rubles to reduce payroll arrears and pay wages. The instruction of September 16, 1998, raised it from nearly zero to 25 or 30 percent initially, when enforcement was incomplete, to close to 50 percent when enforcement strengthened. The Central Bank actually enforced its rule strictly by matching foreign trade accounts with physical volume and world prices against resulting repatriation and sale of foreign exchange. From September 16, 1998, the new rule was in place. Dollars and other foreign exchange came to Russia, were sold for rubles, and rubles stayed in Russia. They entered enterprise bank accounts and suddenly raised enterprise money balances and enabled the government to enforce tax payments.

This was not an aim or an intention of the Central Bank. It did not intend to run fiscal policy, to become the fiscal authority in lieu of the Finance Ministry. All that the Central Bank wanted was to bring dollars to Russia so that it could purchase them for reserves accumulation. To that end, the Central Bank issued the second instruction on October 1, 1998. Foreign exchange revenues had to be sold first at special trade sessions of the Moscow Inter-Bank Currency Exchange. This gave the Central Bank the right of first refusal at those sales. At the same time, it tightened enforcement of mandated repatriation. Finally, on December 31, 1998, the Central Bank raised the rate of mandated repatriation of foreign exchange revenues to 75 percent of receipts. Later on, this rate was reduced from 75 to 50 to 30 to 25 percent as the terms of trade for Russian exports improved, especially with the rise of world

oil prices.¹⁹⁰ Over the course of 1999-2004, the Central Bank fulfilled its objective and increased its foreign exchange reserves from almost zero to \$125 billion (and to about \$150 billion by September 2005). But the unintended fiscal consequences and real economic effects on output went much beyond that. The Central Bank printed rubles when it purchased foreign exchange reserves, that is, expanded the monetary base. Three implications followed in turn:

(1) Enterprise money balances in bank accounts expanded. This reduced the balances of payables and receivables, thereby dissipating the payment jam. This process continued through the flow of funds across enterprises and industries, reversing the chain reaction of payment arrears and aging of receivables.

(2) **Enterprise export earnings started to monetize tax remittances.** The government could enforce tax remittance. The balances of tax arrears slowed down in 1999-2001 and declined significantly since October 2001. Figure 8 and table 3 document this trend in detail. This implies that the flow of tax non-remittance started to decline since 1999, that is, tax remittance increased, and since October 2001 enterprises started to pay off past tax arrears. Government fiscal accounts reversed from deficits to surpluses.

(3) The link between monetization and the tax subsidy was weakened. Expansion of the monetary base was, to a significant extent, no longer a subsidy. It did not stimulate maximization of receivables.

These effects reduced the actual tax subsidy and fiscal expectations. Accumulation of receivables slowed down, surcharged invoicing slowed down, inflationary expectations subsided. Real money balances started to recover and real output followed suit.

The top row and blue arrows 9 to 11 in Box 4, “The Mechanism of Enterprise Network Socialism,” incorporate these effects into the prior framework. They show a new loop through which the reversal of policy shifted the outcomes. Figure 10 presents the data to explore the new developments and reversed relationships. It extends bivariate regressions in figure 7 from 1992-mid-1999 to the entire period 1992-2004.

¹⁹It follows that no level of and no increase in world oil prices would have mattered if effective repatriation of foreign exchange revenues was zero. At the same time, the effect of mandated repatriation of foreign exchange revenues was strong already in 1999 even though an increase in world oil prices was modest. This effect strengthened in 2001 and 2002—the balances of tax non-remittance started to decline, see figure 8—even though world oil prices declined (see figure 1). These considerations are consistent with the data in figures 1 and 2 which led us to conclude on page 00 that the connection between world oil prices and Russian economic recovery in 1999-2004 is specious if one abstracts from the economic system and policy.

Panels 1 to 3 show that all principal bivariate relationships reversed from positive to negative some time after 1999. Their curves are non-monotonic concave and decreasing.

In panel 1, the balances of tax non-remittance and receivables were positively related before 1999 and some time thereafter, they slowed down together soon after 1999, and tax arrears started to decline thereafter (in October 2001, says figure 8), their relationship with receivables turned negative. The relationship between tax non-remittance and monetization also turned from positive to negative some time after 1999 in panel 2 of figure 10. The quadratic regression in panel 2 implies that monetization started to work to dissipate tax non-remittance. This suggests that forced repatriation of foreign exchange earnings indeed started to monetize tax remittance.

The relationship between the money balances and the balances of receivables in panel 3 of figure 10 became ambiguous. Notice in panel 3 of figure 10 as well as in figure 8 that both the money balances (obviously) and the balances of receivables (not necessarily obviously) continued to grow in 1999-2004. But the growth of receivables slowed down significantly relative to money growth. Monetization does not significantly stimulate amassment of receivables any more and may even discourage it in the future.

Judging from the data in figures 6 and 10, a symbiotic relationship between the enterprise network and the government remains in place, but the positions of power have reversed. The Central Bank snatched fiscal power from the enterprise network. In effect, it started to run fiscal policy and delegated its execution, tax remittance, to the government. The latter started to reinforce its executive capacity to enforce tax remittance by additional crackdowns on the enterprise network, including partial and exemplary deprivatization and renationalization. The Central Bank also started to run an independent monetary policy - independent, that is, from the enterprise network. This was a major reversal of powers. The enterprise network continues to maximize the tax subsidy, subject to fiscal expectations, but its power to do so significantly diminished. It was no longer as free to charge the government and the public at large in 1999-2004 as it was in 1992-98.

Output Suppression and Recovery

Recall figure 6 and call figure 11 to the witness stand. They reveal what happens to the supply side in the world of aggregate third party billing. Incentives are mixed. They combine maximization of real profit from production and maximization of redistributed income, specifically maximization of the tax subsidy from surcharged invoicing.

Given technological possibilities and existing capacity, production is bolstered by real profit, real spending, that is, mechanically, real money balances times their velocity of circulation. But real money balances are not independent (exogenous) under Enterprise Network Socialism. Maximization of the tax subsidy operates through maximization of nominal receivables, subject to fiscal expectations. Figure 6 displays how growth of nominal receivables (the balances of invoices in excess of payments) aligns with price increases. Surcharged invoices automatically increase the price level. Fiscal expectations materialize as self-fulfilling inflationary expectations bypassing monetary policy. They contract real money balances. The converse is also true. When fiscal expectations are lowered by aggressive government policy of subsidy cutting (i.e., suppressing enterprise freedom to charge, enforcing tax remittance), real money balances can grow.

One can view the index of the ratio of money balances M2 to receivables in figure 11, as well as in figure 12, as a proxy for the index of real money balances. This proxy curve of the index of money balances to receivables in figure 11 shows the pendulum of real money balances on the downward path from 1991 through 1998 and on the upward path from 1998 through 2004. This pendulum corresponds to contraction of real money balances in 1992-98 when receivables outgrew nominal money balances and to recovery of real money balances in 1999-2004 when the course reversed and nominal money balances outgrew receivables.

The movement of this proxy curve of the index of real money balances in figure 11 matches closely the index of real output (GDP) in 1992-2004 starting in 1991 as the benchmark 100 for both indices. Contraction of real money balances in 1992-98 matches the contraction path of real GDP during that period. Recovery of real money balances in 1999-2004 matches closely partial economic recovery since 1999. Minor annual fluctuations of real GDP upward and downward in 1996-98 also match annual movements of real money balances.

A uniform empirical relationship holds consistently for both contraction and recovery. Then the outstanding balances of receivables outgrow nominal money balances, the economy contracts. When nominal money balances outgrow the balances of receivables, the economy recovers. **It is important, in our view, that this is a uniform and unified empirical regularity, with a unified mechanical and systemic explanation behind it.** Nothing is left to ad hoc reasoning. Notice, however, that nothing in the discussion above suggests that this relationship should hold for economic growth beyond recovery from a great contraction under

aggregate third party billing. Indeed, the above mechanics and systemic dissection are idiosyncratic and specific to the unique system of Enterprise Network Socialism.

Figure 11 and all prior discussion focused on the impact of subsidy maximization by surcharged invoicing on the real money balances. For simplicity, we abstracted from the independent impact of velocity of money circulation on overall spending in 1992-2004. There were already too many complicated variables to consider and to plot, and velocity (the inverse of the money demand) is one of the most difficult analytical issues which only specialists in that field can handle. But it is, in fact, real spending (money times its velocity), not just real money balances, that is approximated empirically in figure 11. In fact, another figure, figure 12, separates real money balances and shows in full their collapse from 1991 to 1992 from which they never recovered throughout the period 1992-2004.

Only figure 12 relays the meaning and the scope of the explosion of subsidy and inflationary expectations immediately after liberalization of January 1992 and shows how this brought down the real money balances in 1992 to about one-fifth of their level in 1991. Figure 12 plots the same data as figure 1 plus adds the year 1990 for reference. The difference is that figure 12 uses the same full scale for both indices of real GDP and the ratio of money to receivables and does not truncate the scale for the latter index. Figure 11 truncated the index of the ratio of M2 to receivables between 1991 and 1992 and truncated the latter's scale accordingly. By doing so, figure 11 in effect imitated a nearly fourfold increase in the velocity of money circulation in 1992 which did not let real GDP collapse by almost 80 percent on par with the real money balances. Such a rapid increase in money velocity often accompanies episodes of high inflation when the real value of money balances depreciates and money holders reduce their money demand accordingly. Thus figure 11 implicitly incorporates changes in velocity and compares the index of real GDP with a proxy for the index of real spending.

The left side of box 4 summarizes the above discussed relationships between surcharged invoices, the price index, nominal money balances, the velocity, nominal spending, real spending, and, ultimately, real output. It incorporates this transmission mechanism with other mechanics of subsidy extraction under Enterprise Network Socialism.

The Ambivalence of Liberalization and Privatization

Russia's experience in 1992-2004 offers a quick reality check. It is the confluence of figures 6 and figure 11. Figure 11 relates the pendulum of Russia's GDP in 1992-2004 to the

index of the ratio of money balances to receivables. Figure 6 relates the index of receivables and the price index. Since the index of receivables merely embodies price surcharges in the balances of invoices in excess of payments, which makes the two indices match, the index of the ratio of money balances to receivables in figure 11 acquires real-life meaning. It stands for the real money balances deflated by the price increases in excess invoicing, in pursuit of the subsidy. Fiscal expectations of the subsidy generate self-fulfilling inflationary expectations, namely surcharged invoices. They materialize in the outstanding balances of receivables in figure 6, whence they are transplanted as the denominator in the index of the money balances to receivables in figure 11.

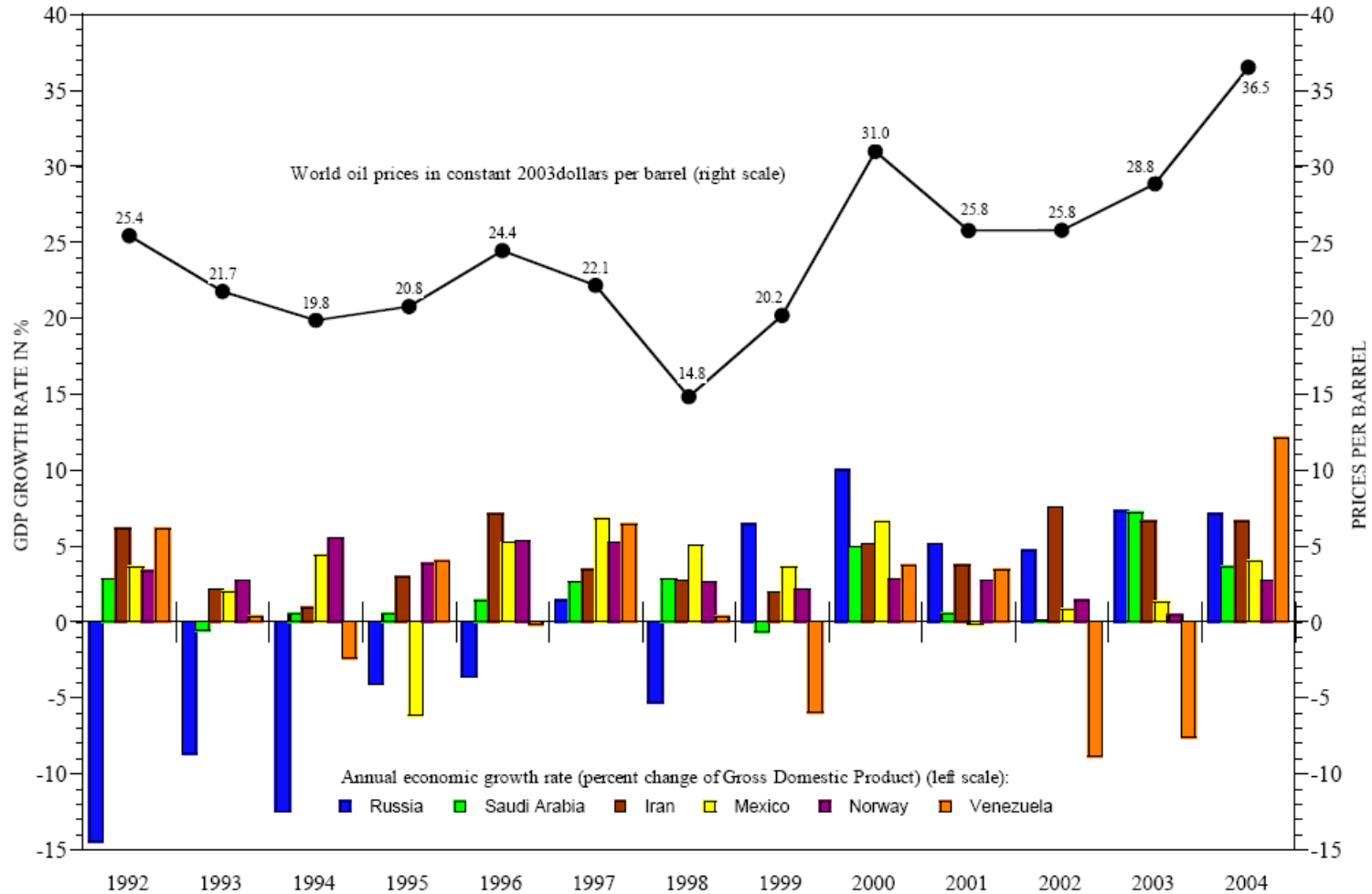
Figure 11 relays how these inflationary expectations embodied in receivables interact with nominal spending (the money supply times the velocity of money circulation). They outgrow nominal spending and contract real money balances in 1992-98. When fiscal (and hence inflationary) expectations subside in 1999-2004 and the index of receivables decelerates, nominal spending outgrows receivables. Real money balances recovered in 1999-2004. When the real money balances contracted in 1992-98, real output (GDP) contracted in alignment. When the real money balances recovered in 1999-2004, real output (GDP) recovered in alignment, given the idle supply capacity after the great contraction and improved incentives. Less subsidy extraction, less socialism, more production.

Socialism from below, Enterprise Network Socialism, is just as ubiquitous and near-universal as socialism from above, central planning. Decontrolled transactions and privatized assets are not necessarily market prices and market assets. Freedom from government restriction is not necessarily freedom from income redistribution. Free socialism is still socialism, and free near-total socialism which redistributes the bulk of GDP is still near-total socialism. Socialism from below can be just as much socialism as from above. Freedom to charge is merely socialist devolution.

The Russian experience in 1992-2004 opens a new perspective on liberalization and privatization. Their peak in the 1990s coincided with the great contraction of GDP and their partial rollback in 1999-2004 coincided with partial economic recovery. The national assembly line inherited from central planning thwarted the expected positive effects of liberalization and privatization. This discussion suggests that liberalization and privatization are ambivalent. They can decrease efficiency as well as increase it. Government restriction is also ambivalent. It can increase or decrease efficiency. In Russia after September 1998,

government restrictions reduced the freedom of enterprises to charge third parties and hence fostered efficiency and production.

FIGURE 1
 THE SPECIOUS OIL CONNECTION: ECONOMIC PERFORMANCE OF THE SIX GREATEST OIL-EXPORTING COUNTRIES VS.
 WORLD OIL PRICES, 1992-2004



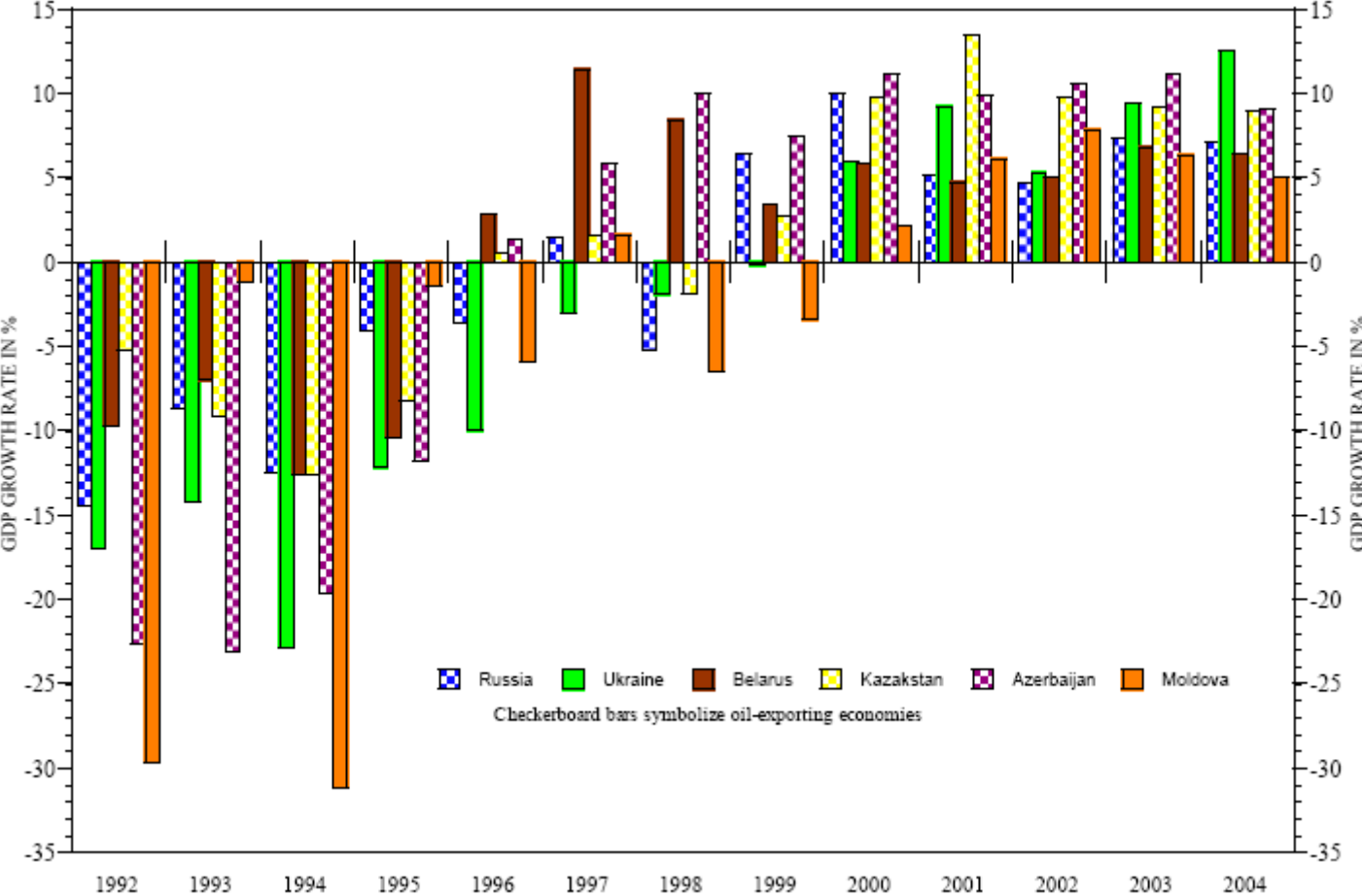
Note: The data for 2004 are provisional

Sources:

GDP growth rates: All countries except Russia: The IMF, *World Economic Outlook*, October 2000 (for 1992-1995) and October 2004 (for 1996-2004); Russia: Table 1

World oil prices in constant 2003 dollars: British Petroleum, at <http://www.bp.com/sectiongenericarticle.do?categoryId=2012411&contentId=2018340>

FIGURE 2
THE SPECIOUS OIL CONNECTION: ECONOMIC PERFORMANCE OF OIL-EXPORTING AND OIL-IMPORTING COUNTRIES, RUSSIA AND OTHER STATES OF THE CIS, 1992-2004

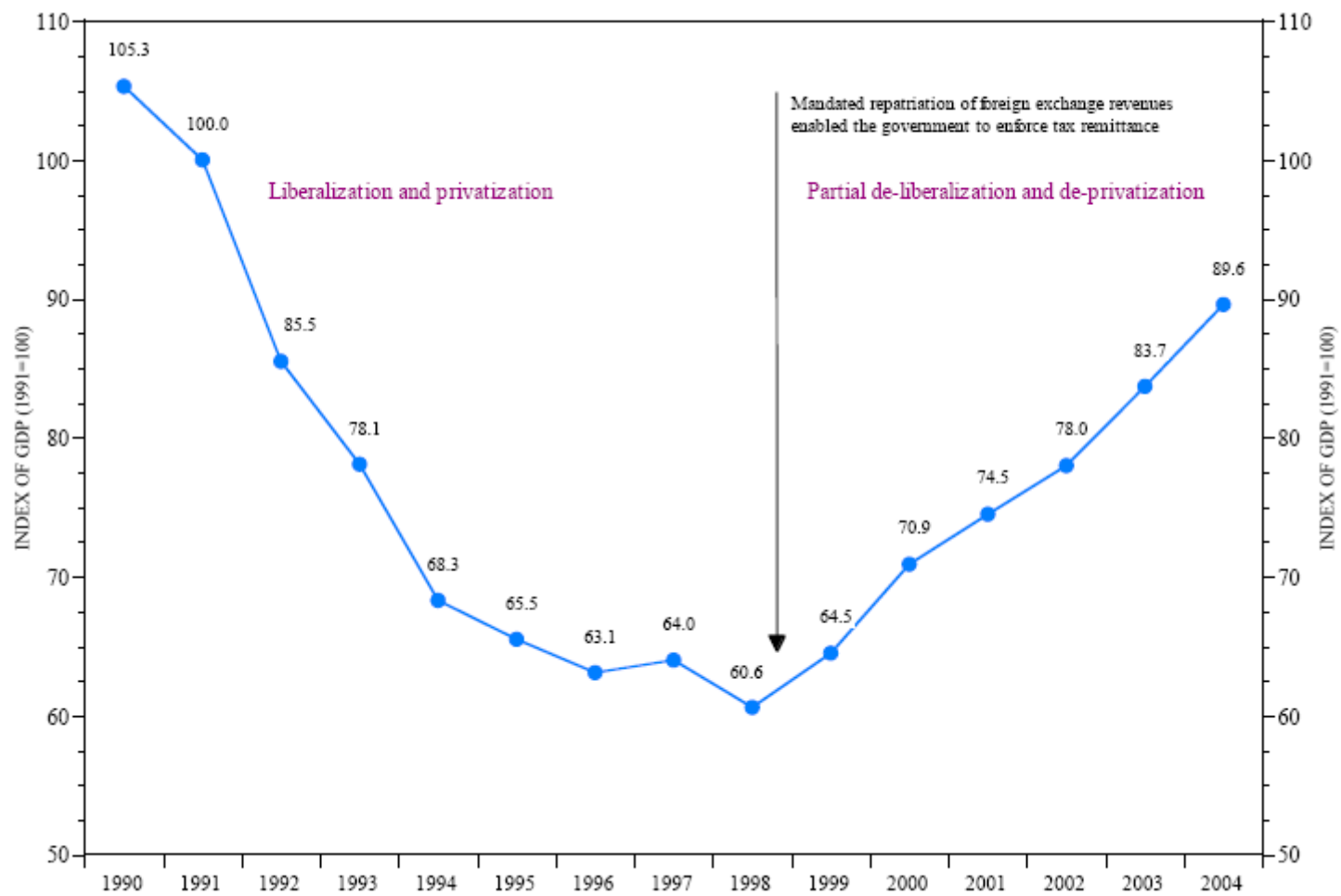


Note: The data for 2004 are provisional

Sources:

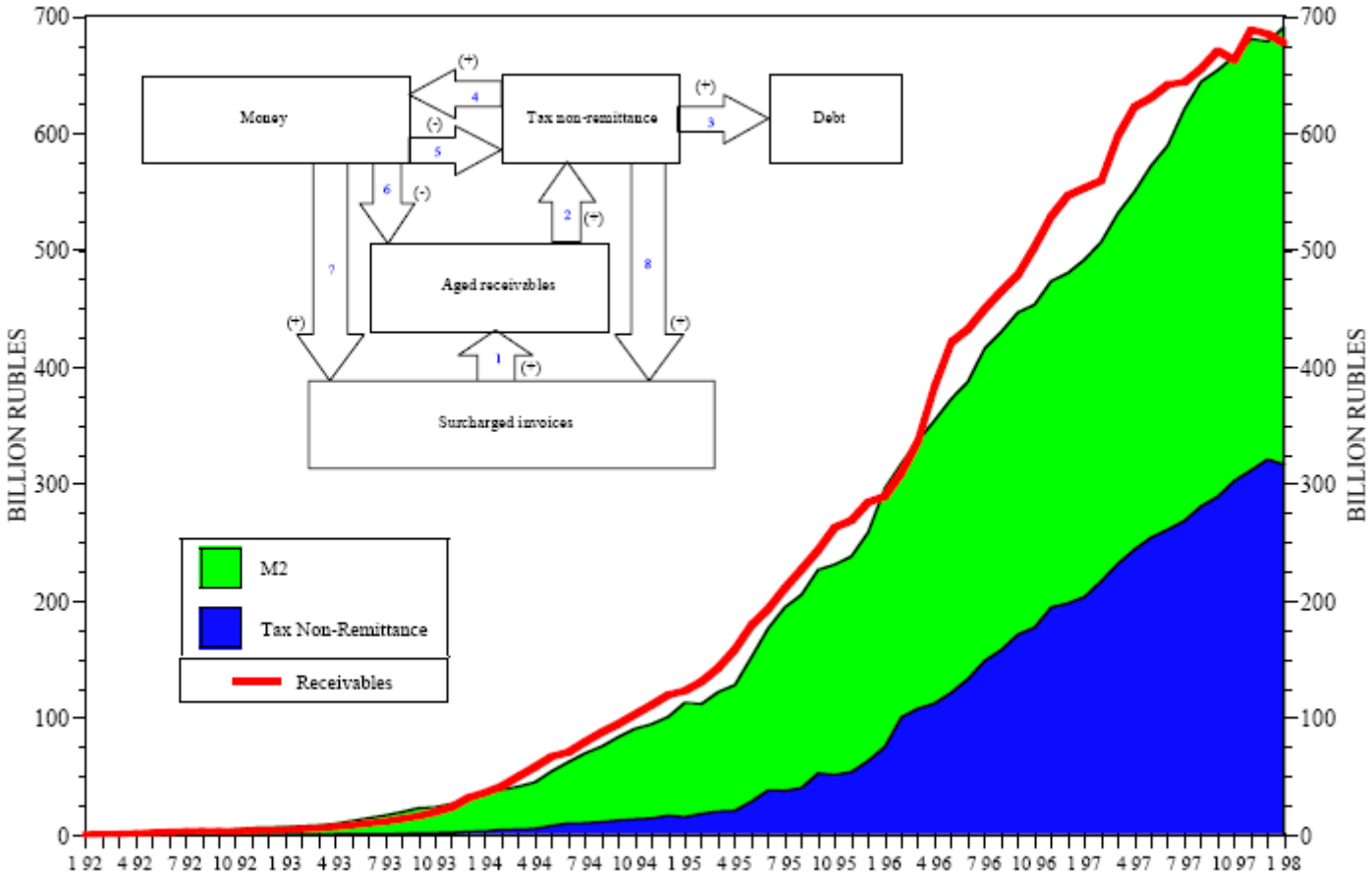
GDP growth rates: All countries except Russia: The IMF, *World Economic Outlook*, October 2000 (for 1992-1995) and October 2004 (for 1996-2004); Russia: Table 1

FIGURE 3
INDEX OF REAL GROSS DOMESTIC PRODUCT (GDP) (1991=100), RUSSIA, 1990-2004



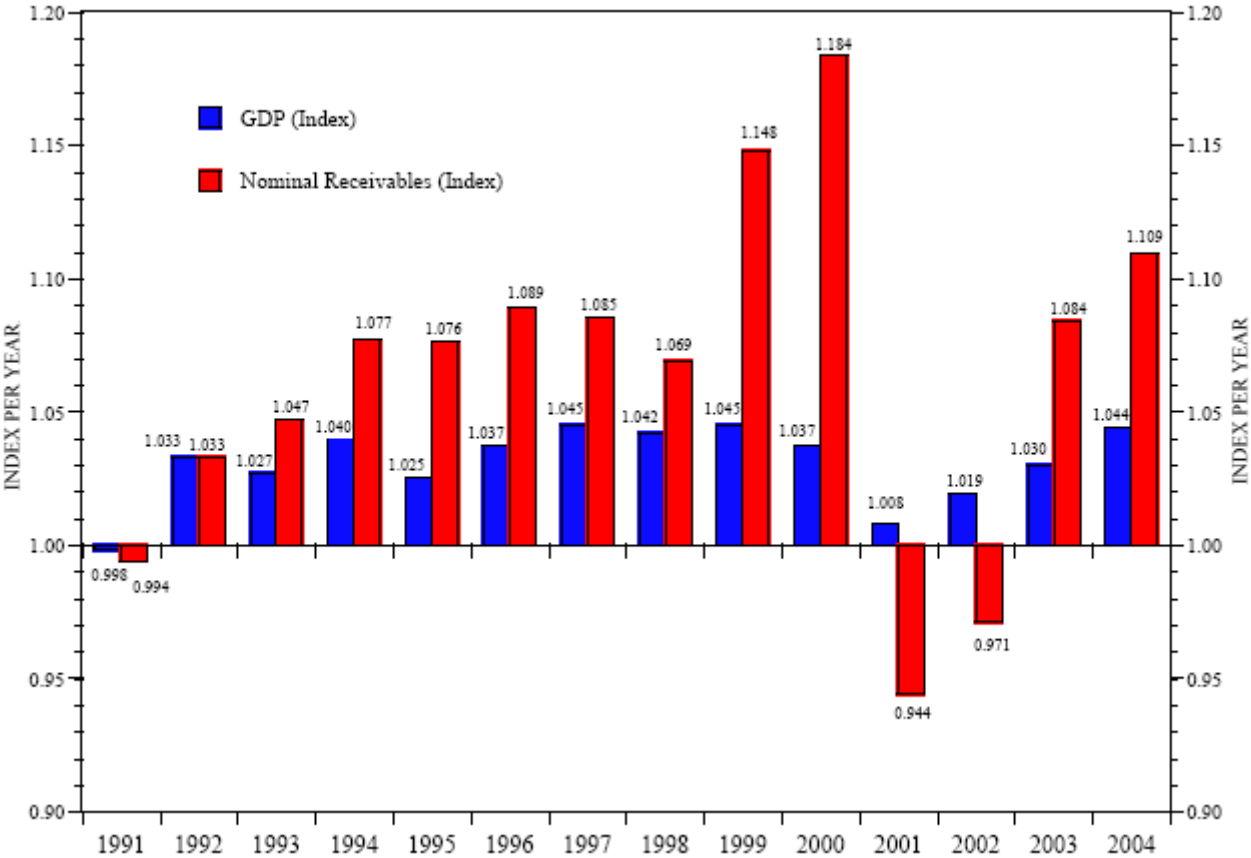
Source: Russian State Committee on Statistics, various releases
The data are reproduced in table 1

FIGURE 4
 THE GOVERNMENT AND THE PUBLIC ARE FORCED TO PAY THE ENTERPRISE BILL:
 RUSSIA, 1992-1997



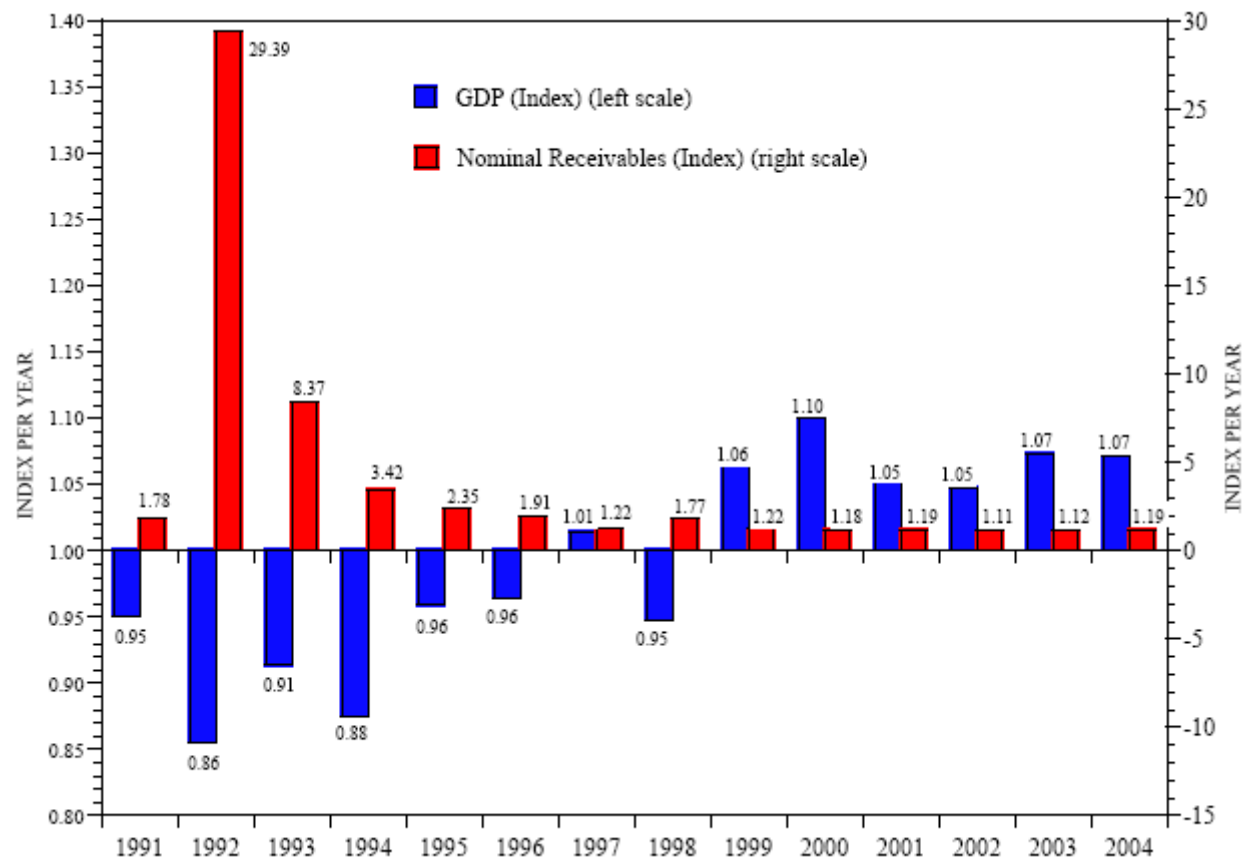
Note: All data are denominated in billion 1998 nominal rubles.
 Sources: Receivables and tax non-remittance: Russian State Committee on Statistics.
 Money: Central Bank of Russia.

FIGURE 5.1
INDICES OF GDP AND NOMINAL RECEIVABLES: U.S., 1991-2004



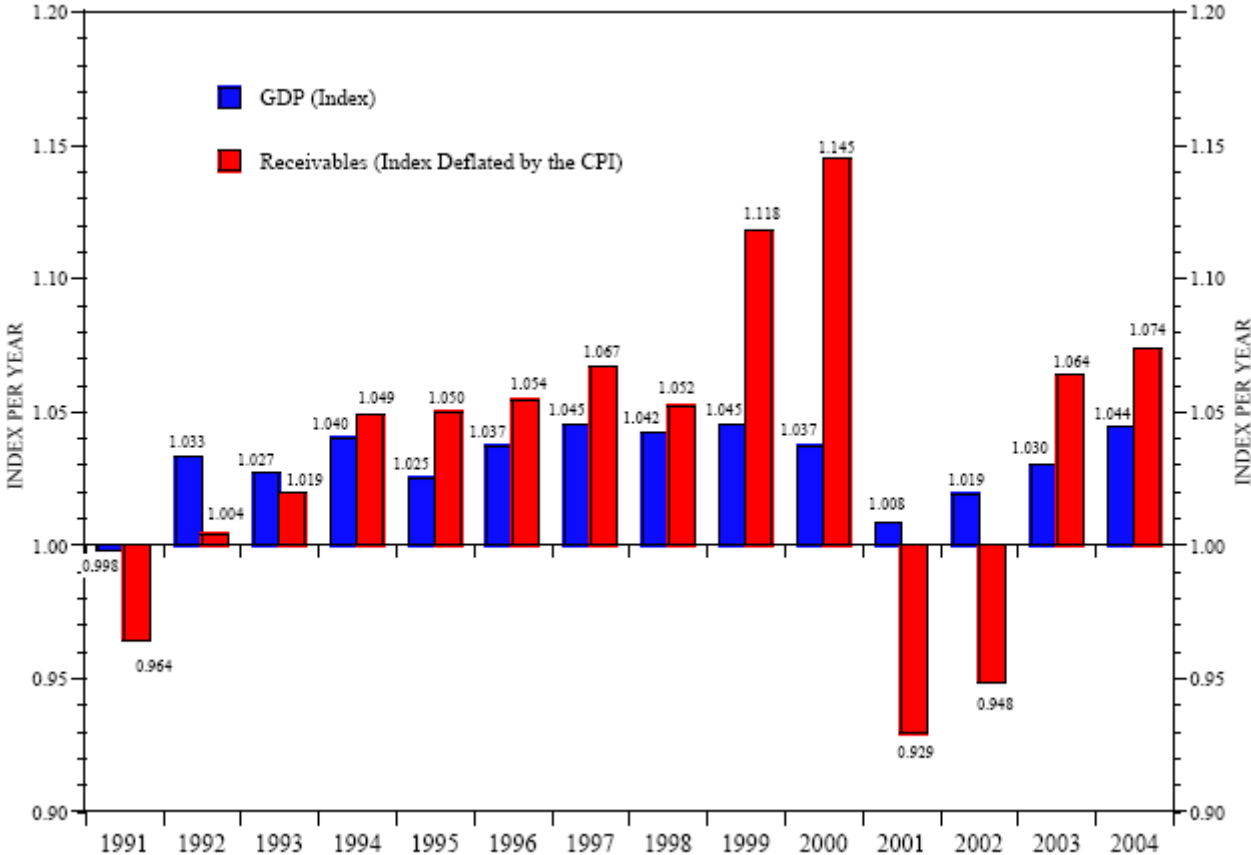
.Sources: Gross Domestic P roduct: U.S. Department of Commerce, Bureau of Economic Analysis, at <http://www.bea.gov/bea/dn/home/gdp.htm>
 Receivables: Board of Governors of the Federal Reserve System, The Flow of Funds Accounts of the United States, Table L.101, at <http://www.federalreserve.gov/releases/z1/Current/data.htm>

FIGURE 5.2
INDICES OF GDP AND NOMINAL RECEIVABLES: RUSSIA, 1991-2004



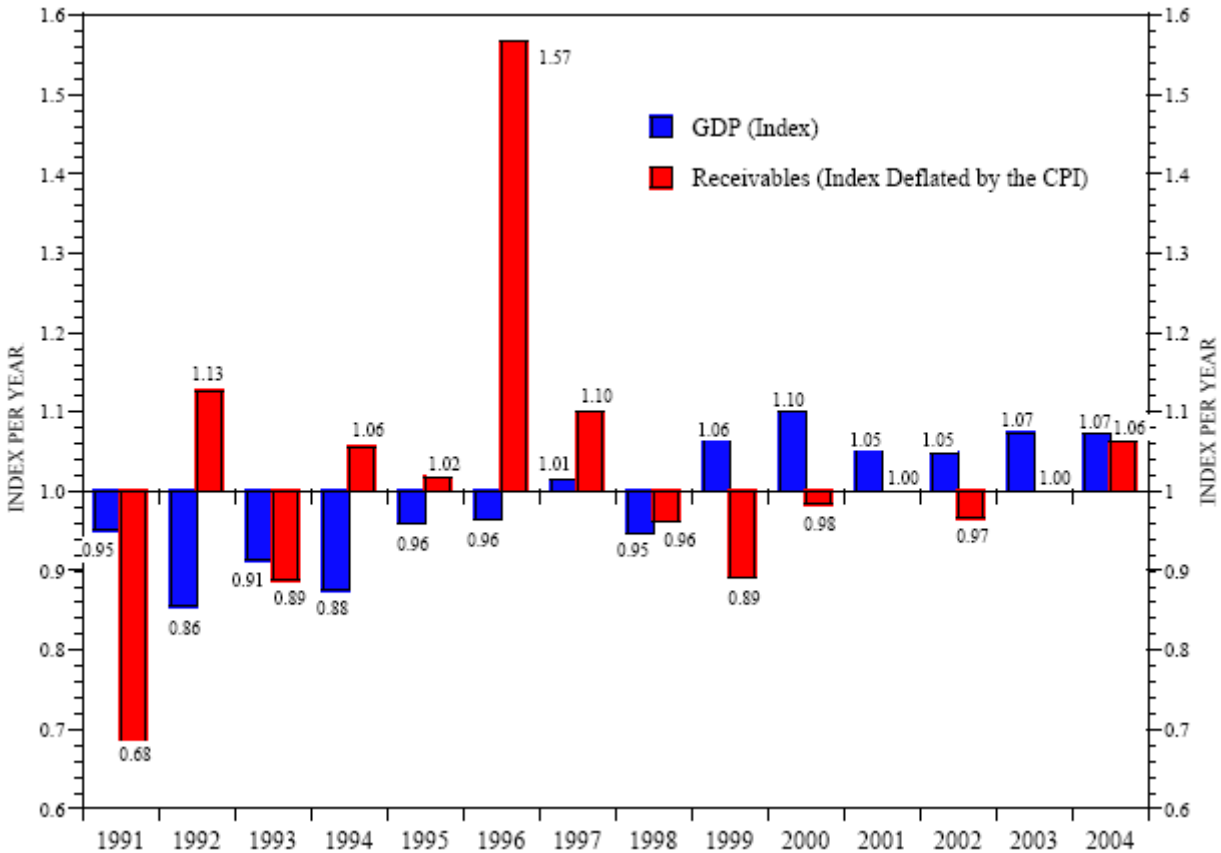
Source: Russian State Committee on Statistics

FIGURE 5.3
INDICES OF GDP AND REAL RECEIVABLES (DEFLATED BY THE CPI): U.S., 1991-2004



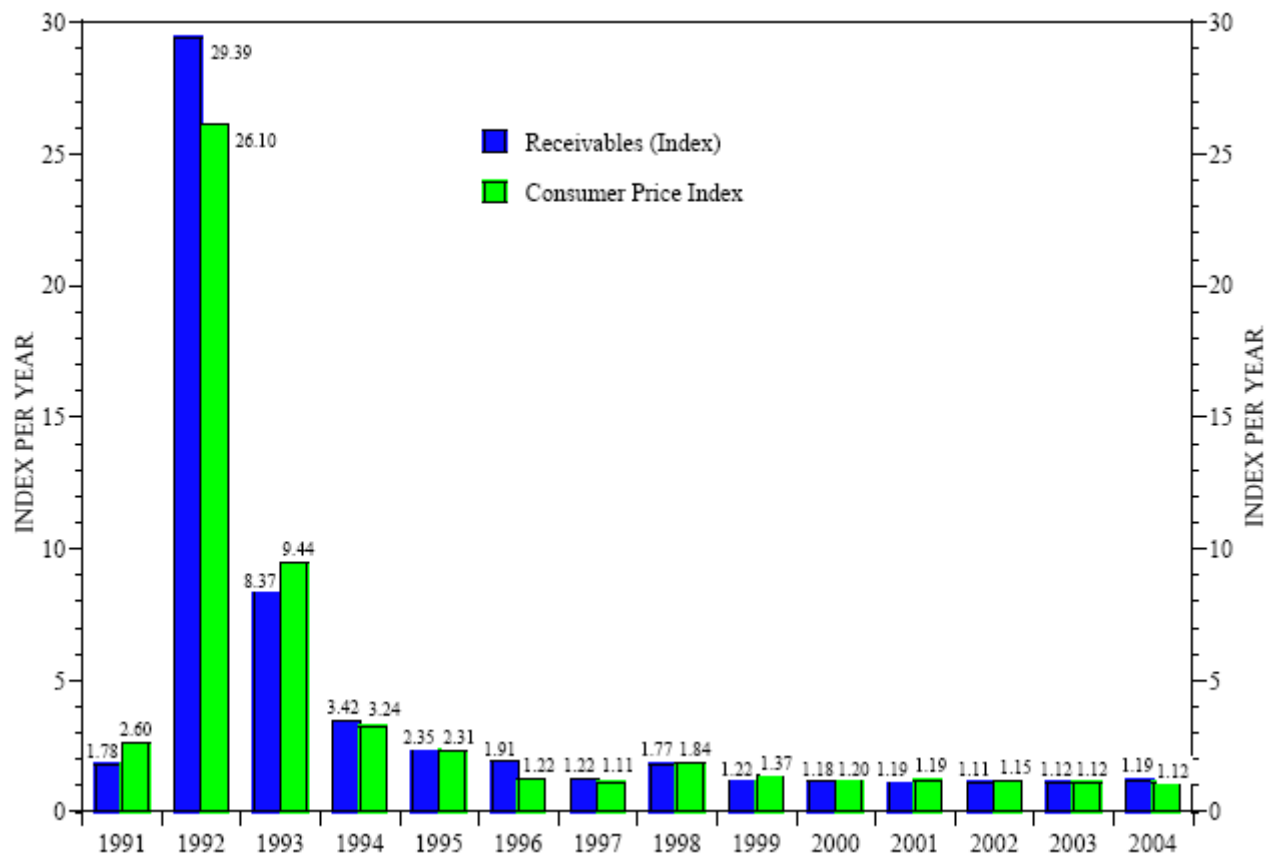
.Sources: Gross Domestic P roduct: U.S. Department of Commerce, Bureau of Economic Analysis, at <http://www.bea.gov/bea/dn/home/gdp.htm>
 Receivables: Board of Governors of the Federal Reserve System, The Flow of Funds Accounts of the United States, Table L.101, at <http://www.federalreserve.gov/releases/z1/Current/data.htm>
 Consumer Price Index (CPI): U.S.Department of Labor, Bureau of Labor Statistics, at <ftp://ftp.bls.gov/pub/special.requests/cpi/cpi.txt>

FIGURE 5.4
INDICES OF GDP AND REAL RECEIVABLES (DEFLATED BY THE CPI): RUSSIA, 1991-2004



Source: Russian State Committee on Statistics

FIGURE 6
RECEIVABLES GROW WITH THE PRICE INDEX:
RECEIVABLES AND CONSUMER PRICES, ANNUAL INDICES, RUSSIA, 1991-2004

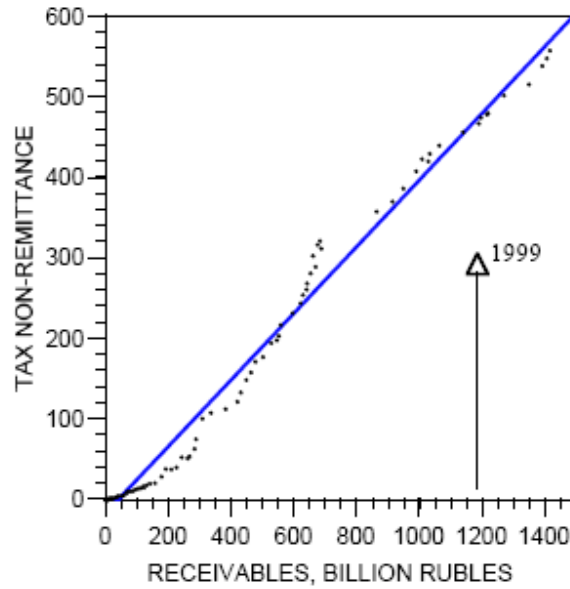


Note: The index fraction of the price index over unity is the inflation rate.
 Source: Russian State Committee on Statistics

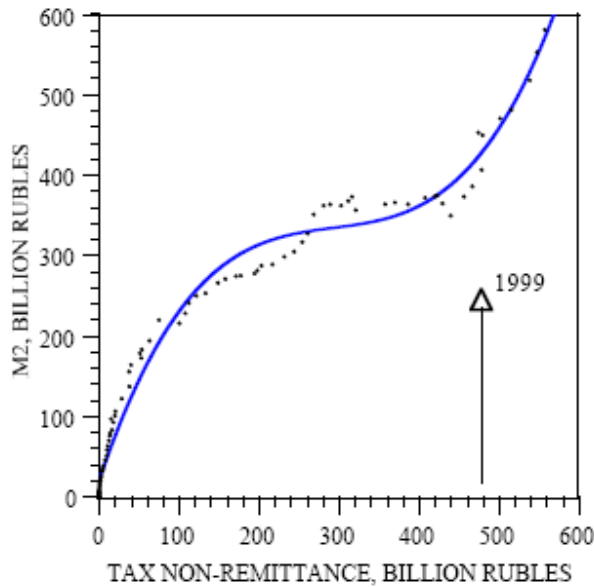
FIGURE 7

PANELS 1-3. TAX NON-REMITTANCE, MONEY STOCK, AND RECEIVABLES, IN BILLION RUBLES, MONTHLY DATA, RUSSIA, 1992--MID-1999

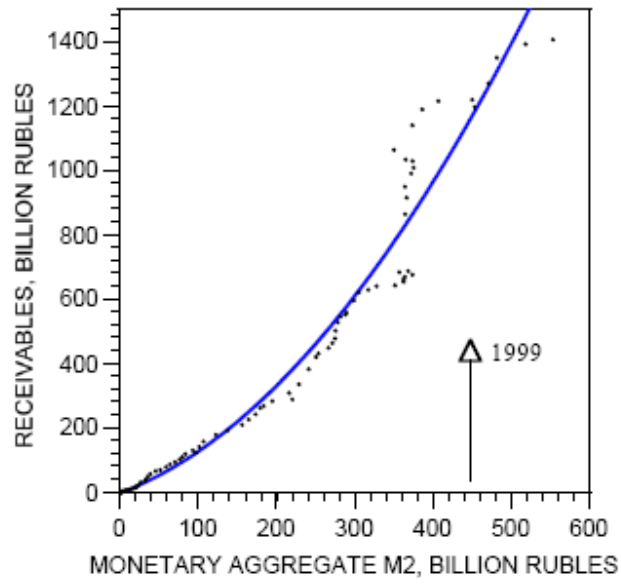
Panel 1. Tax Non-Remittance against Receivables, 1992--mid-1999



Panel 2. Money Stock against Tax Non-Remittance, 1992--mid-1999

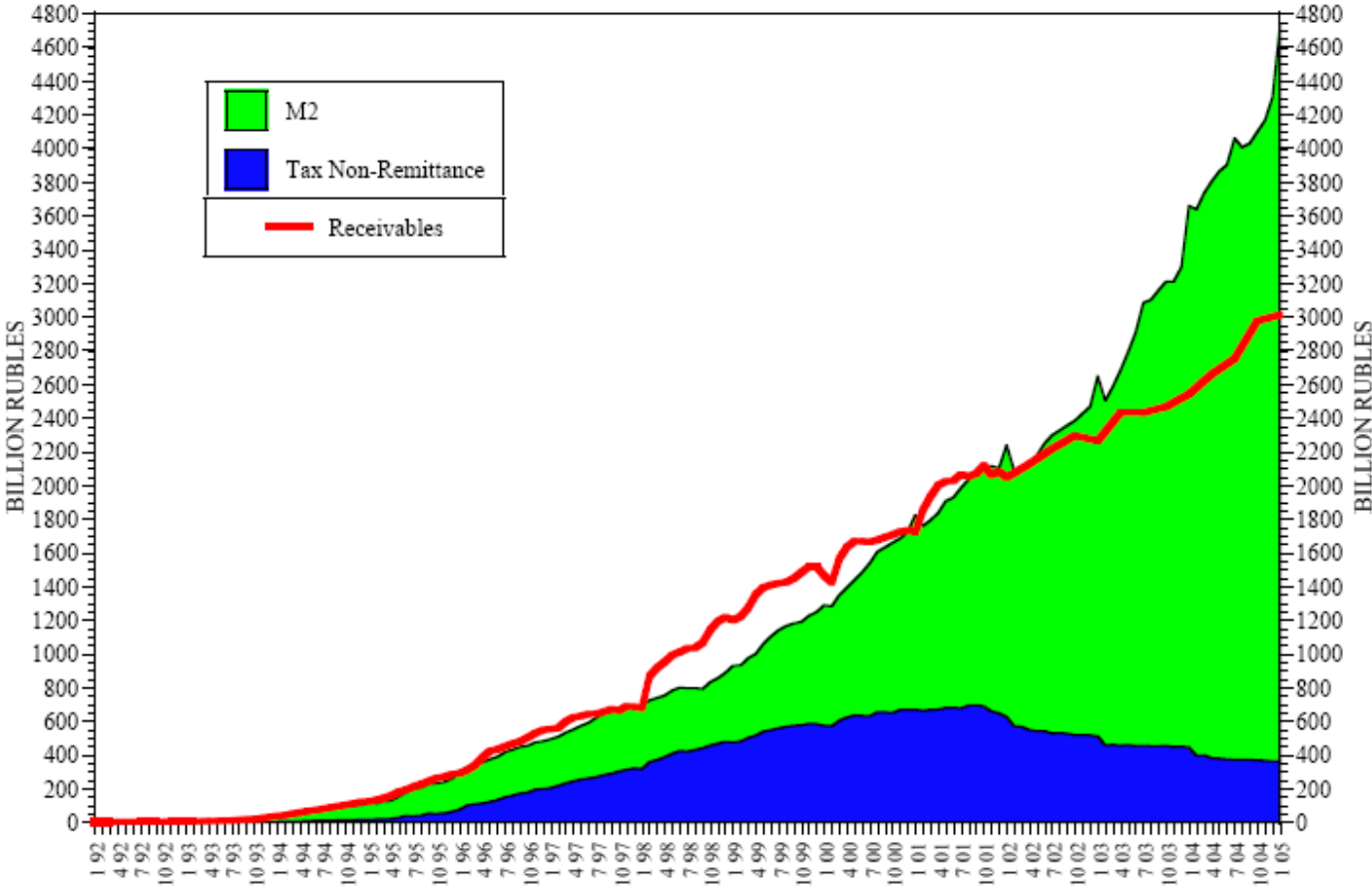


Panel 3. Receivables against the Money Stock, 1992--mid-1999



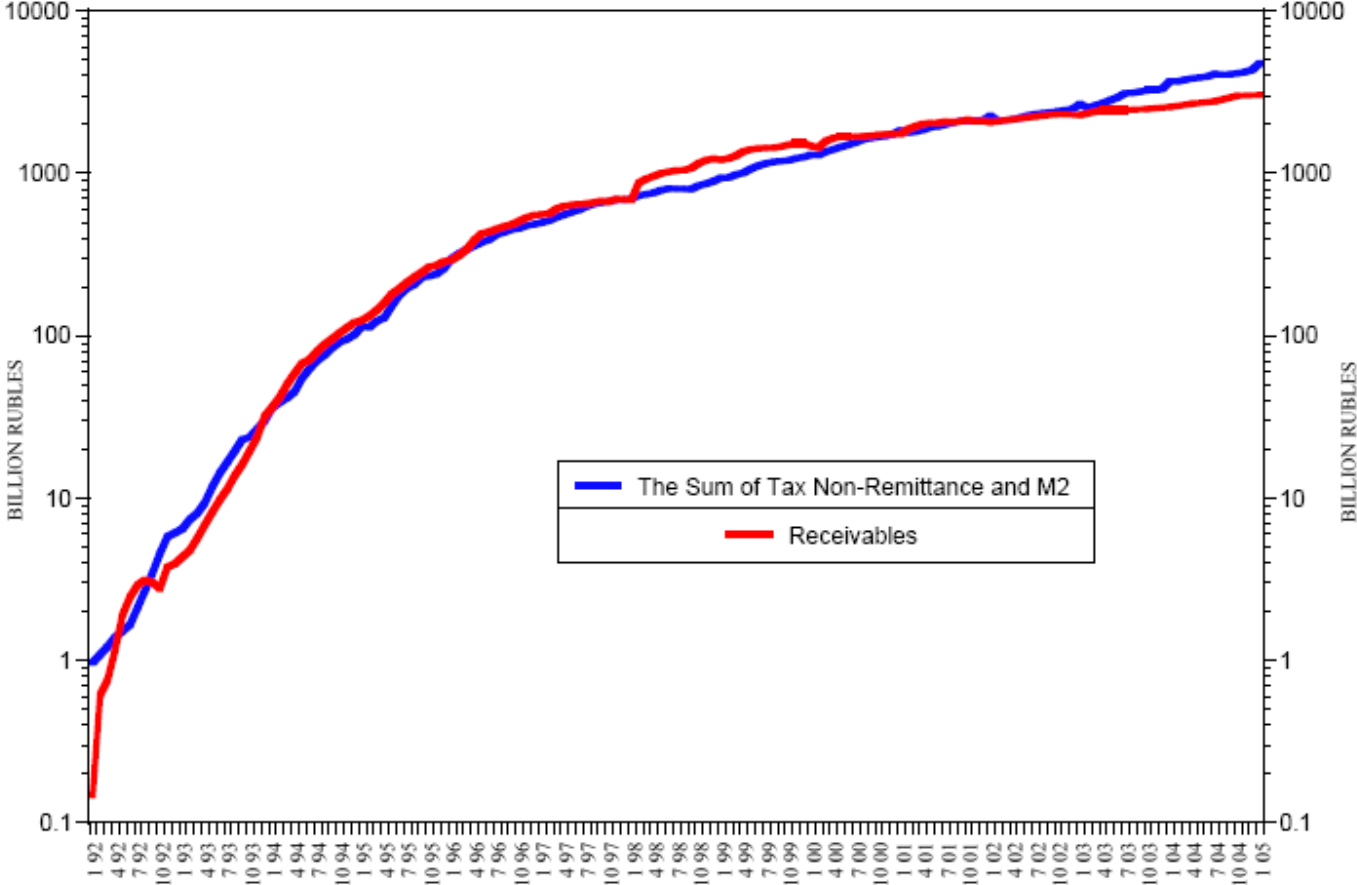
Sources:
Receivables and tax non-remittance: Russian State Committee on Statistics
Money: Central Bank of Russia

FIGURE 8. THE SELF-ENFORCEABLE TAX SUBSIDY: THE RELATIONSHIP BETWEEN ENTERPRISE RECEIVABLES, TAX NON-REMITTANCE, AND MONEY, RUSSIA, 1992-2005



Note:
 1. All data are denominated in billion 1998 nominal rubles
 2. An increase in the deposit multiplier during 2000-2004, when tax non-remittance decreased and became negative and the subsidy to finance enterprise receivables decreased accordingly, makes the monetary aggregate M2 less suitable than M1 for approximating the quasi-fiscal component of the subsidy, which, together with tax non-remittance as a fiscal component, matches the outstanding balances of enterprise receivables. This change shows the excess of M2 over receivables in 2002-2004.
 Sources: Receivables and tax non-remittance: Russian State Committee on Statistics; money: Central Bank of Russia.

FIGURE 9
 THE SELF-ENFORCEABLE TAX SUBSIDY: THE RELATIONSHIP BETWEEN ENTERPRISE RECEIVABLES,
 TAX NON-REMITTANCE, AND MONEY (LOGARITHMIC SCALE), RUSSIA, 1992-2005

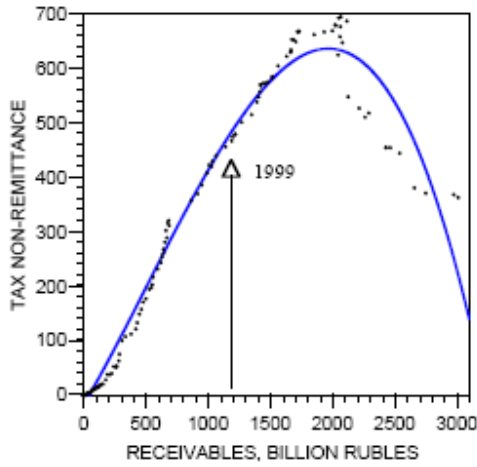


Note: All data are denominated in billion 1998 nominal rubles.
 Sources: Receivables and tax non-remittance: Russian State Committee on Statistics.
 Money: Central Bank of Russia.

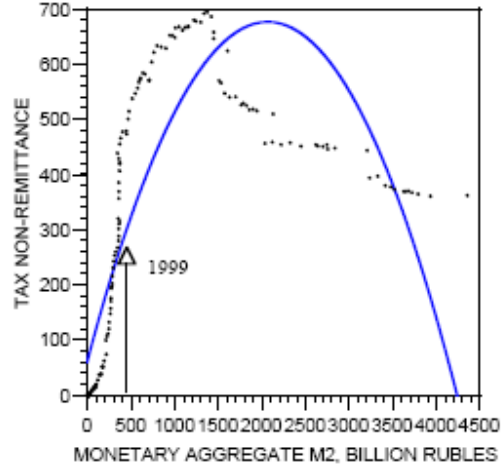
FIGURE 10

PANELS 1-3. TAX NON-REMITTANCE, MONEY STOCK, AND RECEIVABLES, IN BILLION RUBLES, MONTHLY DATA, RUSSIA, 1992-2005

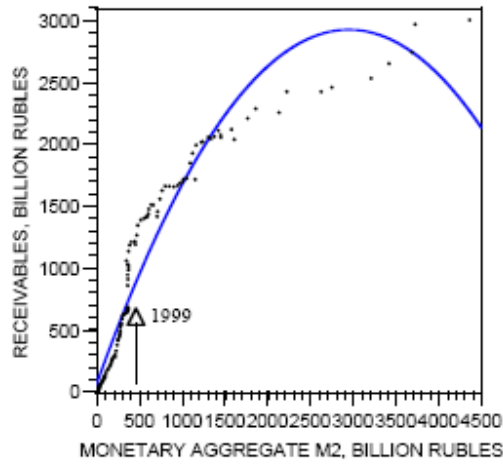
Panel 1. Tax Non-Remittance against Receivables, 1992-2005



Panel 2. Tax Non-Remittance against the Money Stock, 1992-2005



Panel 3. Receivables against the Money Stock, 1992-2005

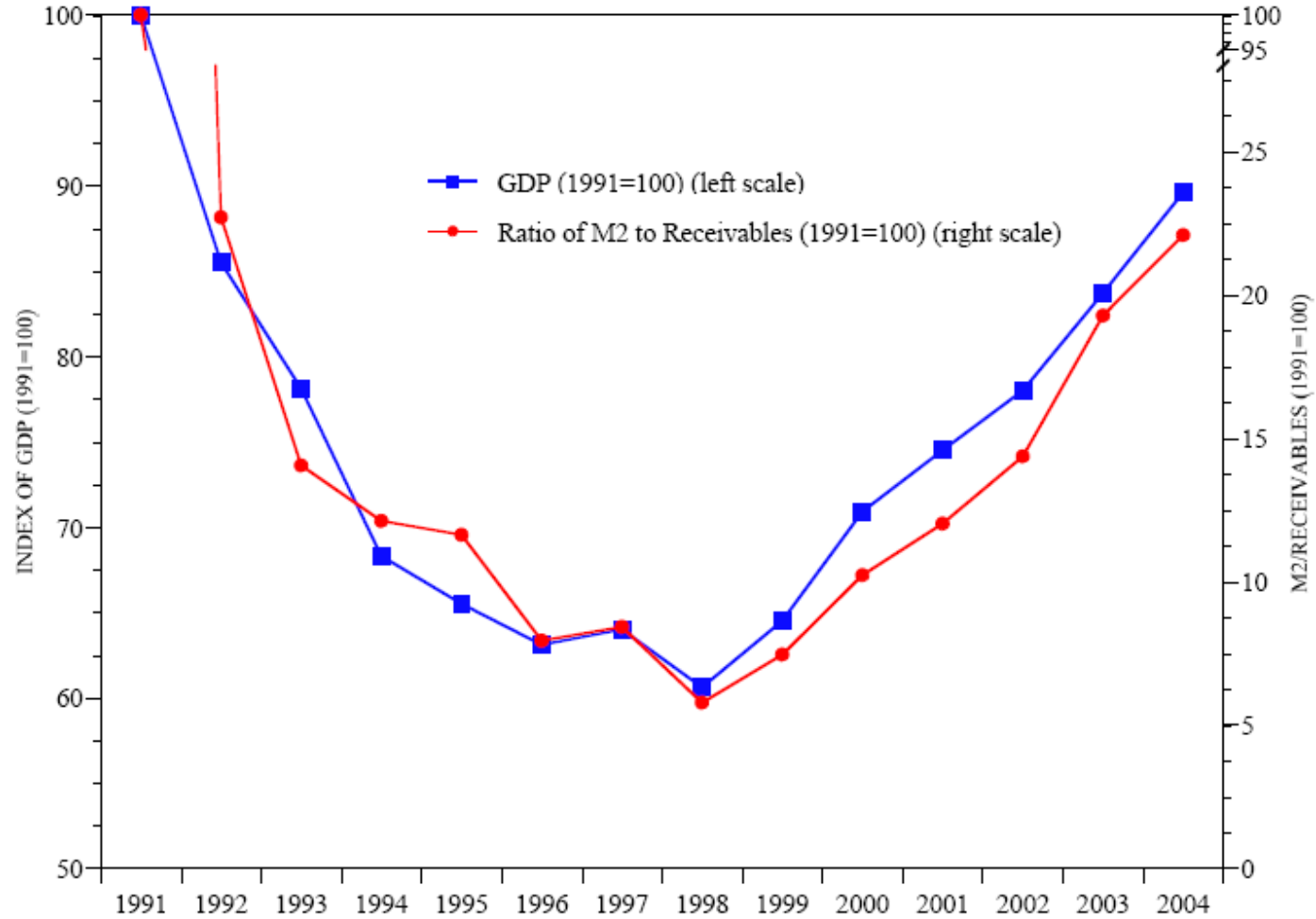


Sources:

Receivables and tax non-remittance: Russian State Committee on Statistics

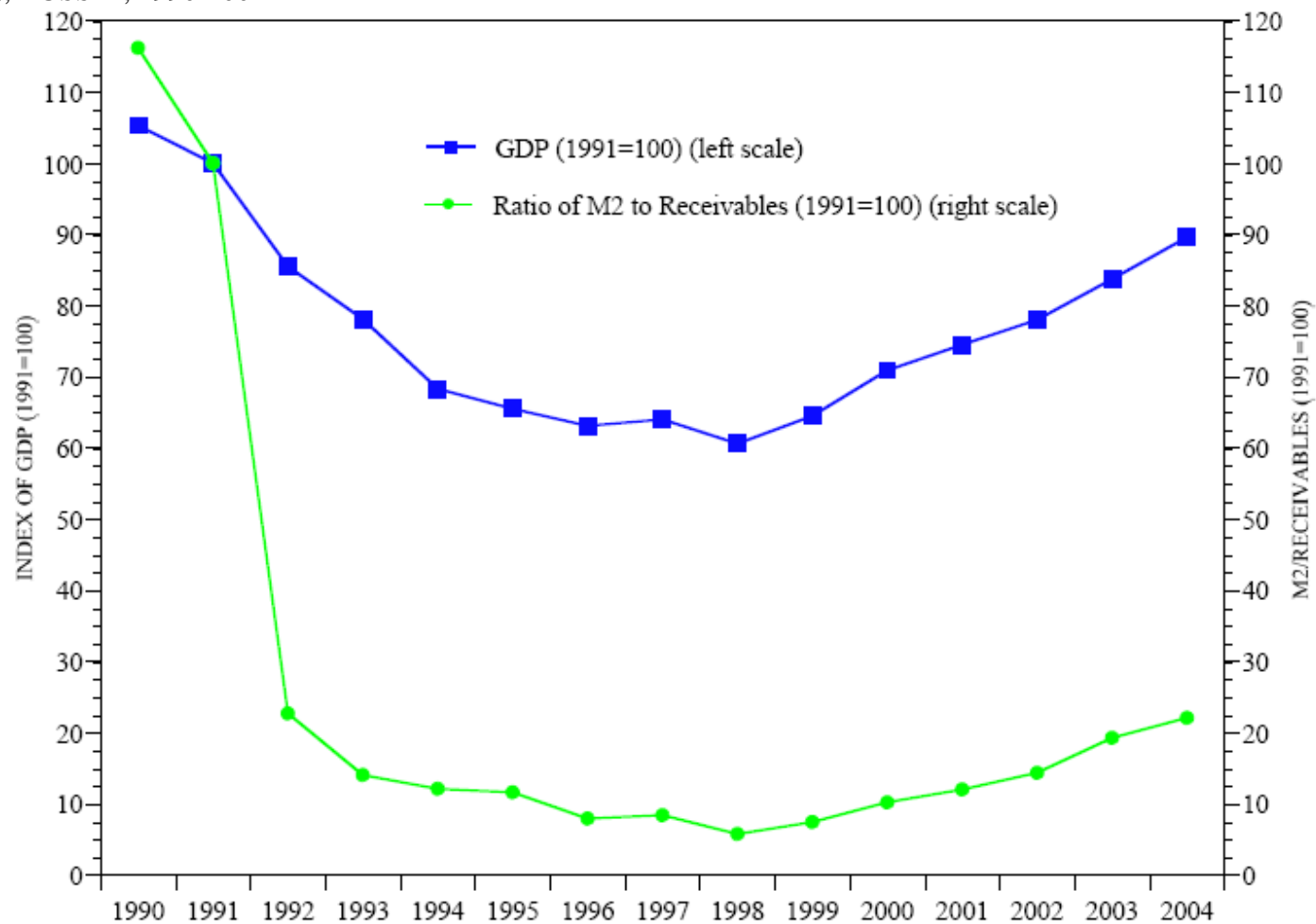
Money : Central Bank of Russia

FIGURE 11
 INDICES OF GROSS DOMESTIC PRODUCT (GDP) (1991=100) AND OF THE RATIO OF M2 TO RECEIVABLES (YEAR-END) (1991=100), RUSSIA, 1991-2004



Note: The break in the right scale truncates the index of the ratio of M2 to receivables between 1991 and 1992, truncates its sharp decline in 1992. Figure 12 presents the full scale
 Sources: Gross Domestic P roduct and enterprise receivables: Russian State Committee on Statistics
 The monetary aggregate M2: Central Bank of Russia
 The data are reproduced in table 1

FIGURE 12
 INDICES OF GROSS DOMESTIC PRODUCT (GDP) (1991=100) AND OF THE RATIO OF M2 TO RECEIVABLES (YEAR-END) (1991=100), RUSSIA, 1990-2004



Sources: Gross Domestic P roduct and enterprise receivables: Russian State Committee on Statistics
 The monetary aggregate M2: Central Bank of Russia
 The data are reproduced in table 1

Box 1

The Operation of the Total Third Party Billing under Enterprise Network Socialism

One can follow the arrows in the flow chart in figure 4 and proceed step-by-step thus:

Step 1. Trade credit separates from sales and production. Invoices outgrow payments when enterprises add a third party surcharge to the price and bill the government. See figures 5 and 6

Arrow 1 in the flow chart leads to step 2

Step 2. The flow of receivables for many enterprises exceeds net income. They increase payables lest their net cash flow turn negative. Aged receivables increase payment arrears and vice versa. This chain reaction circulates the payment jam across the economy. Enterprises whose flow of receivables exceeds that of trade payables must increase tax payables.

Arrow 2 in the flow chart leads to step 3

Step 3. Enterprises do not remit taxes withheld from workers and collected from consumers. The government cannot enforce full tax remittance, as in the game of chicken. See table 3, figure 7.1

Arrow 3 in the flow chart leads to step 4

Step 4. The government is forced to issue debt, i.e., securitize tax non-remittance. See figure 10

Arrows 4 and 5 in the flow chart lead to step 5

Step 5. To delay the default, the government is forced to monetize budget deficit, to wit, monetize enterprise tax remittance, as in the game of chicken. See figures 4 and 7.2

Arrow 6 in the flow chart leads to step 6

Step 6. Banks transmit, extend, roll over credit, which reduces aged receivables, but see step 8

Step 7. Variable trade-offs between tax non-remittance and monetization of tax remittance, followed by credit rollover and extension, wind up in the self-enforceable subsidy. It sums up to the outstanding balances of receivables. See figures 4, 8, and 9

Corollary: A complementary array of cross-industry price subsidies accompanies this subsidy

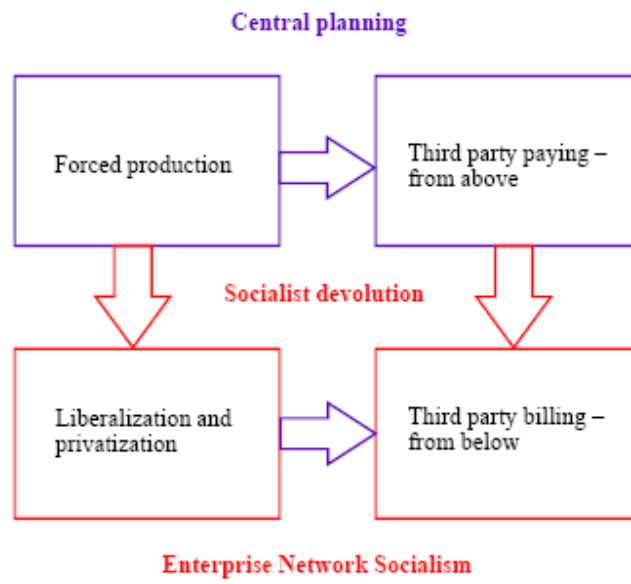
Arrows 7 and 8 in the flow chart lead to step 8

Step 8, which is identical to step 1. Stimulated by all these components, enterprises surcharge invoices with a network tax to extract the self-enforceable subsidy. See figures 7.1 and 7.3.

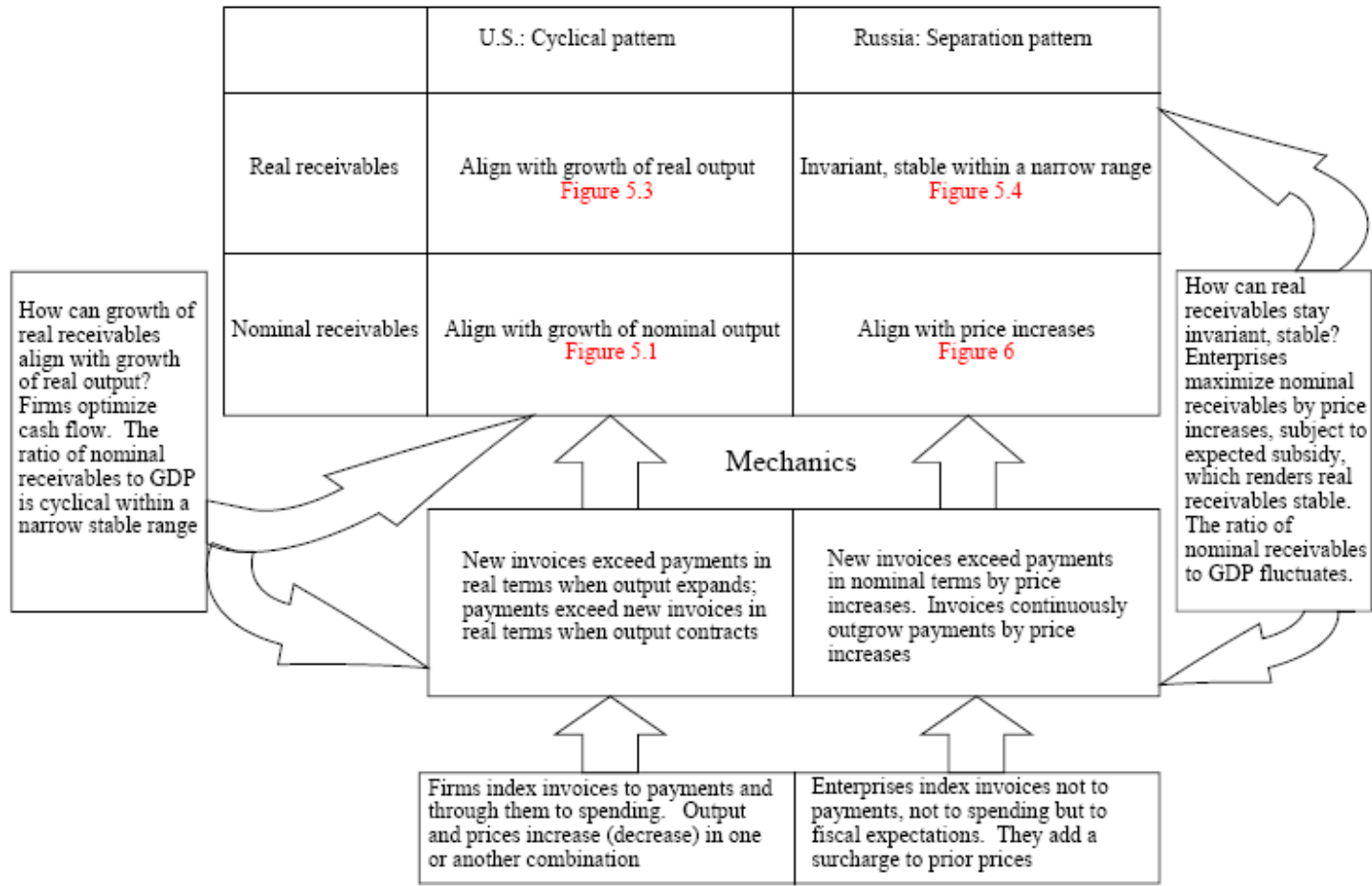
Corollary: This system becomes circular and self-reinforcing

Box 2

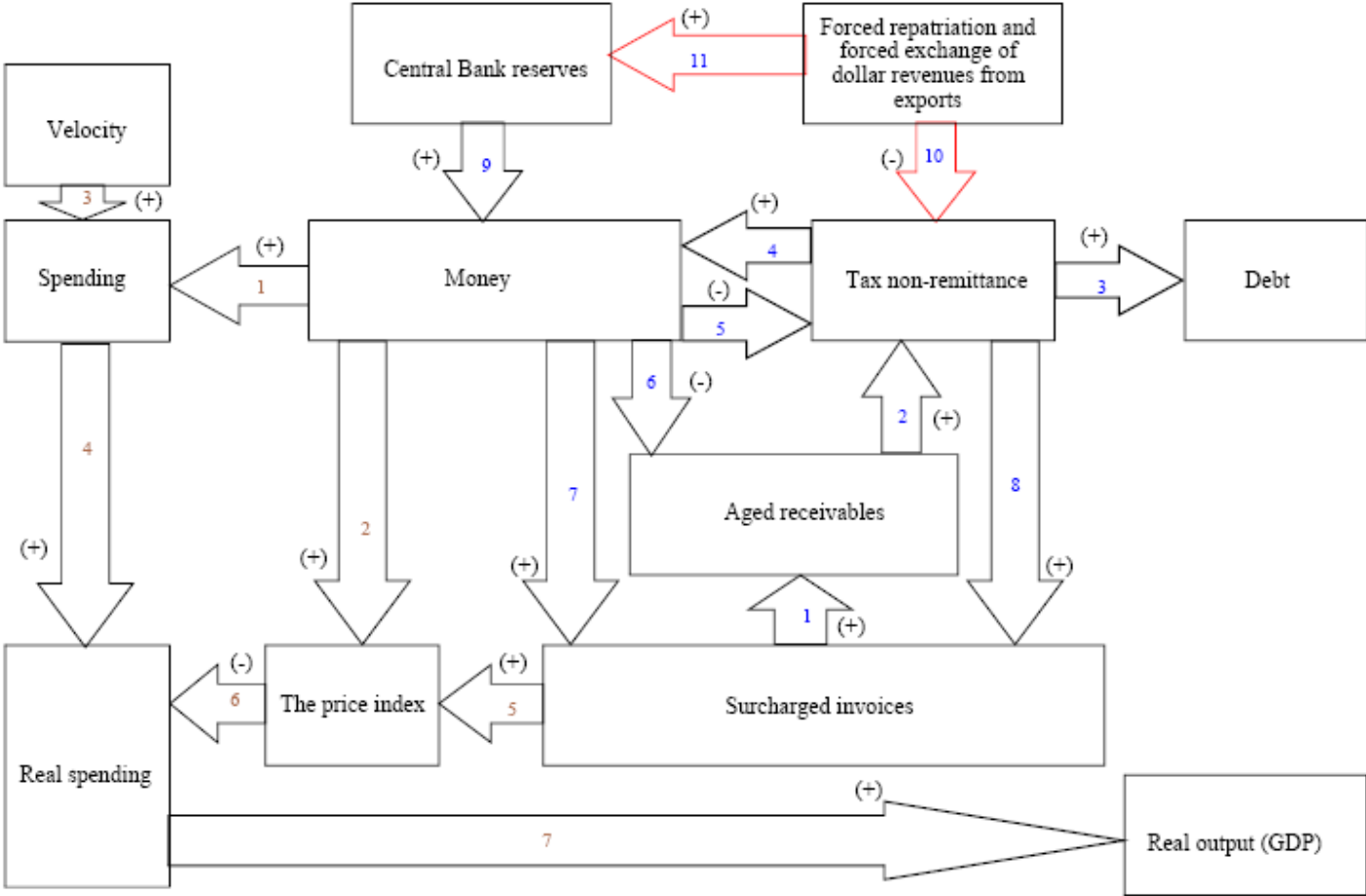
The evolution from central planning to enterprise network socialism



Box 3
Facts and Mechanics of Two Patterns of Trade Credit



Box 4
The mechanism of enterprise network socialism



Note: The red arrows emphasize the relationship which became empirically dominant in 1999-2004

Table 1

| Year | Growth rate of real GDP | Index of real GDP (1991=100) | Monetary aggregate M2 (billion rubles) | Enterprise receivables (billion rubles) | The ratio of M2 to receivables, year-end (percent) |
|------|-------------------------|------------------------------|--|---|--|
| 1990 | -3.0 | 105.3 | n.a. | n.a. | 762.5 |
| 1991 | -5.0 | 100.0 | 0.456 | 0.060 | 656.2 |
| 1992 | -14.5 | 85.5 | 0.958 | 0.146 | 149.0 |
| 1993 | -8.7 | 78.1 | 6.4 | 4.3 | 92.2 |
| 1994 | -12.5 | 68.3 | 33.2 | 36.0 | 79.5 |
| 1995 | -4.1 | 65.5 | 97.8 | 123.0 | 76.3 |
| 1996 | -3.6 | 63.1 | 220.8 | 289.3 | 52.1 |
| 1997 | 1.4 | 64.0 | 288.3 | 553.2 | 55.3 |
| 1998 | -5.3 | 60.6 | 374.1 | 677.0 | 37.9 |
| 1999 | 6.4 | 64.5 | 453.7 | 1,198.2 | 48.9 |
| 2000 | 10.0 | 70.9 | 714.6 | 1,462.6 | 67.1 |
| 2001 | 5.1 | 74.5 | 1,154.4 | 1,721.4 | 78.9 |
| 2002 | 4.7 | 78.0 | 1,612.6 | 2,045.1 | 94.3 |
| 2003 | 7.3 | 83.7 | 2,134.5 | 2,262.7 | 126.5 |
| 2004 | 7.1 | 89.6 | 3,212.7 | 2,540.0 | 144.9 |
| 2005 | | | 4,363.3 | 3,010.5 | |

Table 2

| Year | Enterprise receivables (billion rubles) | Receivables flow (billion rubles) | GDP (billion rubles) | Receivables flow as a percent of GDP (Claim on the tax subsidy) | Enterprise receivables including internal receivables within holding companies (billion rubles) |
|------|---|-----------------------------------|----------------------|---|---|
| 1990 | n.a. | n.a. | 0.644 | n.a. | n.a. |
| 1991 | 0.060 | 0.086 | 1.399 | 6.1 | 0.082 |
| 1992 | 0.146 | 4.15 | 19.0 | 21.8 | 0.204 |
| 1993 | 4.3 | 31.7 | 171.5 | 18.5 | 5.2 |
| 1994 | 36.0 | 87.0 | 610.7 | 14.2 | 43.8 |
| 1995 | 123.0 | 166.3 | 1,428.5 | 11.6 | 150.5 |
| 1996 | 289.3 | 263.9 | 2,007.8 | 13.1 | 362.0 |
| 1997 | 553.2 | 123.8 | 2,342.5 | 5.3 | 662.6 |
| 1998 | 677.0 | 521.2 | 2,629.6 | 19.8 | 846.1 |
| 1999 | 1,198.2 | 264.4 | 4,823.2 | 5.5 | 1542.0 |
| 2000 | 1,462.6 | 258.8 | 7,305.6 | 3.5 | 1999.7 |
| 2001 | 1,721.4 | 323.7 | 8,943.6 | 3.6 | 2450.8 |
| 2002 | 2,045.1 | 222.6 | 10,817.5 | 2.1 | 3211.0 |
| 2003 | 2,267.7 | 272.3 | 13,201.1 | 2.1 | 3663.3 |
| 2004 | 2,540.0 | 470.5 | 16,778.8 | 2.8 | 4138.7 |
| 2005 | 3,010.5 | | | | 5174.4 |

Note: All nominal values are denominated in billion 1998 rubles

Sources:

Receivables and GDP: Russian State Committee on Statistics, various releases

Central Bank of Russia (various releases)

Table 3

| | (1) | (2) | (3) | (4) |
|-------------------|---------------------------|--------------------|-------------------------|--|
| Beginning of year | Enterprise money balances | Tax non-remittance | The ratio of (1) to (2) | The ratio of tax non-remittance to GDP (%) |
| 1992 | 0.221 | 0.010 | 22.1 | 0.6 |
| 1993 | 0.980 | 0.122 | 8.0 | 1.7 |
| 1994 | 5.9 | 3.0 | 2.0 | 2.5 |
| 1995 | 15.7 | 15.1 | 1.04 | 5.3 |
| 1996 | 19.6 | 75.1 | 0.26 | 10.1 |
| 1997 | 39.3 | 203.4 | 0.19 | 13.5 |
| 1998 | 58.5 | 316.6 | 0.18 | 18.0 |
| 1999 | 93.5 | 474.5 | 0.20 | 11.3 |
| 2000 | 169.0 | 572.6 | 0.30 | 9.2 |
| 2001 | 231.3 | 668.5 | 0.35 | 7.0 |
| 2002 | 337.1 | 625.2 | 0.54 | 4.7 |
| 2003 | 549.9 | 510.8 | 1.08 | 3.4 |
| 2004 | 509.7 | 444.7 | 1.15 | 2.2 |
| 2005 | 679.4 | 363.2 | 1.87 | |

Note: All nominal values are denominated in billion 1998 rubles

Source: Russian State Committee on Statistics, various releases

Glossary

| Stock or flow | Sellers, trade creditors | Buyers, trade debtors |
|---------------|--|--|
| Flow | Invoice: An instrument of trade credit with the amount charged to the buyer, technically the list of goods shipped and services rendered, itemized by units and unit prices, and with the sum due | Bill: An instrument of trade credit with the amount charged by the seller in the invoice |
| Flow | Charge: The amount, sum, or price for goods supplied and services rendered in the invoice and the bill | |
| Flow | Payment: The complete or partial discharge of the invoice, the amount remitted in cash (liquid funds) by the buyer | |
| Stock | Accounts receivable, trade receivables, receivables: Outstanding balances (due by buyers) of amounts invoiced minus amounts paid, balances of invoices net of payments, a current asset of sellers | Accounts payable, trade payables, payables: Outstanding balances (due to sellers) of amounts billed minus amounts paid, balances of bills net of payments, a current liability of buyers |
| Flow | The flow of trade receivables, receivables flow, period receivables: Balances of invoices net of payments during a given period, the difference between receivables at the beginning and the end of the period | The flow of trade payables, payables flow, period payables: balances of bills net of payments during a given period, the difference between payables at the beginning and the end of the period |
| Flow | The average collection period, collection ratio, days sales outstanding: Outstanding balances of receivables divided by the average trade credit sales per day; or receivables divided by total sales on trade credit times 365 days | Days payable outstanding: Outstanding balances of payables divided by purchases times 365 days |
| Flow | Accounts receivable aging schedule: Accounts receivable tabulated by the length outstanding—by the number of days until due and past due | Due period: The number of days after issuance of the invoice (or receipt of the bill) allowed to remit payment |
| Stock | Aged receivables: Accounts receivable past due | Payment arrears, arrears: Accounts payable past due |
| Flow | Net income, surplus, profit: Revenues (total earnings) minus expenses, on the accrual or cash basis accounting | |
| Flow | Net cash flow, cash flow, net cash from operating activities: Net income adjusted for non-cash charges; net income minus receivables flow plus trade payables flow plus the flow of taxes payables plus depreciation. If the flow of receivables is greater than the sum of net income, the flow of trade and tax payables, and depreciation, net cash flow is negative | |
| Stock | Clearing, settlement, mutual netting: Without cash transactions, in lieu of payments, the bookkeeping crediting of accounts receivable of sellers and debiting of accounts payable of buyers in discharge of equal amounts of mutual obligations between two or any number of enterprises in a circular chain of trade credit, performed by the Central Bank | |
| Flow | Tax remittance: Payment of taxes in cash, including taxes withheld from workers and collected from consumers | |
| Stock | Taxes payable, tax liabilities, tax payables: Payroll taxes withheld from workers and sales taxes and value-added taxes collected from consumers due to be remitted to the government and currently held with the enterprise cash balances; also profit taxes, corporate income taxes, and employer taxes due | |
| Stock | Tax arrears: Taxes payable past due | |
| Stock | Payroll arrears, wage arrears: Wages and salaries of employees past due | |