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WP/97/162

INTERNATIONAL MONETARY FUND

European II Department

**Payments Arrears in the Gas and Electric Power Sectors
of the Russian Federation and Ukraine**

Prepared by Hrant Bagratian and Emine Gürgen¹

Authorized for distribution by John Odling-Smee

December 1997

Abstract

This paper discusses payments arrears in the Russian Federation and Ukraine, with emphasis on the gas and electric power sectors. Payments arrears, which were triggered primarily by the dislocations experienced during the transition from a centrally planned to a market economy, have reached significant proportions in these two countries. Governments have aggravated the problem by not honoring their own bills and by condoning payments arrears outside the budget. The paper argues that the solution to the problem lies in the implementation of comprehensive systemic reforms and outlines possible measures.

JEL Classification Numbers: E65, G38, P2, Q48

Keywords: Russian Federation, Ukraine, payments arrears, gas, electric power

Author's E-Mail Address: egurgen@imf.org

¹This is a modified and abbreviated version of a paper prepared by Hrant Bagratian under a consultancy project for the European II Department. The views expressed in the paper are those of the authors and do not necessarily reflect those of the International Monetary Fund. The authors would like to thank John Odling-Smee, Daniel Citrin, Adalbert Knöbl, Elaine Buckberg, Michael Buchanan, Jian-Ye Wang, Basil Zavoico, Dale Gray, and other colleagues in the IMF and the World Bank for their helpful comments, and Sepideh Khazai for her assistance with the data.

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SUMMARY

Slippages in making payments when due are frequently encountered in the Baltics, the Russian Federation, and other countries of the former Soviet Union (BRO). In recent years, payments arrears have reached significant proportions in most countries in the group, undermining their stabilization and reform efforts. While the dislocations associated with the transition to a market economy have been instrumental in triggering arrears, governments have aggravated the problem by not paying their own bills and thus weakening payments discipline in others. Equally significant has been the tendency for governments to compensate for the lack of budgetary resources by appropriating and redistributing goods and services in the economy without strictly enforcing payments. This has been particularly apparent in the energy sectors (notably gas and electric power) of the Russian Federation and Ukraine, encouraging excessive consumption of energy resources. However, in the case of Ukraine—which, unlike the Russian Federation relies heavily on imported energy (gas)—such policies have resulted in external payments arrears and added substantially to the country's external debt.

The paper argues that a lasting solution to the payments arrears problem faced by the Russian Federation and Ukraine requires the implementation of comprehensive systemic measures within the framework of a broader package of economic reforms. The key measures should include enforcing stronger payments discipline by the government, restructuring enterprises and ensuring greater transparency in their financial operations, creating a market environment where enterprises become financially responsible for their actions, replacing price subsidies by closely targeted social transfers, normalizing interstate debt, and developing a legislative and institutional framework conducive to these changes. The paper also outlines proposals for reforming the electric power and gas sectors of the Russian Federation and Ukraine, with a view to addressing payments arrears in these sectors.

I. INTRODUCTION

Payments arrears¹ present a serious problem in the Baltics, the Russian Federation, and other countries of the former Soviet Union (BRO). The disruption to interstate trade and financial flows following the dissolution of the Soviet Union, sizable relative price changes in the aftermath of price liberalization, inadequate policy responses to the emerging large macroeconomic imbalances, and the absence of an institutional and legislative framework appropriate for a market economy were the key factors contributing to this problem.² Given the size of the energy price shock, enterprises engaged in energy-intensive production were generally the hardest hit, accumulating large payments arrears to energy suppliers and triggering a ripple effect by weakening the latter's ability to pay. Governments often aggravated the arrears problem by failing to honor their own energy bills and condoning nonpayments by designated users of energy, who were not held sufficiently accountable for delinquent payments. The widespread accumulation of payments arrears, in turn, disrupted tax payments and weakened government finances, with adverse macroeconomic consequences.

While an accurate comparison across countries is made difficult by the absence of reliable and consistent data on payments arrears, available data suggest that the evolution of arrears tended to be influenced by the pace and strength of the economic transformations underway. In the fastest reforming BRO countries (notably the Baltic states), payments arrears have begun to stabilize and even decline, while in most other countries in this group, arrears have followed an upward trend, although displaying some cyclical features paralleling the phases of reform. In the Russian Federation and Ukraine, payments arrears have grown to significant proportions. At end-1996, total indebtedness of state enterprises and organizations in the Russian Federation was equivalent to 47 percent of GDP, about half which was delinquent (Table 1).³ On the same date, the comparable numbers for Ukraine were

¹In this paper, payments arrears are defined as payments to suppliers of goods and services, the state budget, banks, and other creditors (domestic or foreign) that are not made in accordance with the time periods for payments agreed between the parties concerned at the outset of the transaction, after allowing for grace periods and acceptable lags, if any.

²See Citrin, A. Daniel and Lahiri, K. Ashok, "Interenterprise Arrears" in "Policy Experiences and Issues in the Baltics, Russia, and other Countries of the Former Soviet Union", IMF Occasional Paper No. 133, December 1995.

³Data through the first four months of 1997 indicate that payments arrears continued to rise.

102 percent and 71 percent of GDP, respectively (Table 2).⁴ In both countries, payments arrears in the energy sector constituted a significant proportion of total arrears.

Drawing primarily on recent experiences in the gas and electric power sectors of the Russian Federation and Ukraine, this paper discusses measurement and data issues related to payments arrears (Section II), evolution and distinctive features of payments arrears in the Russian Federation and Ukraine (Section III), and factors underlying and contributing to payments arrears (Section IV). Conclusions and policy implications are summarized in Section V.

II. MEASUREMENT AND DATA ISSUES

The discussion in this paper is based primarily on official data obtained from Goskomstat of the Russian Federation and the Ministry of Statistics of Ukraine.⁵ The data presented cover accounts payable and receivable as measures of the overall level of indebtedness. Payments arrears refer to the portions within these totals that are overdue. The latter is defined—for interenterprise arrears—as **indebtedness that has been delinquent for more than three months**, i.e., beyond the duration of grace periods or trade credits. Although such a definition may not hold in all instances—some contracts may specify different payment periods—it is adopted as the most commonly encountered arrangement. Payments arrears to banks reflect bank loans not repaid upon maturity, unless there is prior agreement by the bank to automatically extend the duration of the loan. Arrears to the budget represent tax obligations not met within the time specified by the government.

The data suffer from a number of shortcomings and need to be interpreted with caution. **First**, the data on overdue amounts may be overstated to the extent that nonmonetary payments are not fully captured.⁶ **Second**, Goskomstat of the Russian Federation reports data for accounts payable and receivable for gas transport under the transportation sector rather

⁴The tracking of payments arrears is also carried out by the central banks of the countries concerned. Such data essentially capture delinquent bank debt (a relatively small proportion of total arrears) and payments orders drawn on bank accounts of enterprises, for which there are insufficient funds in the accounts. Banking data, therefore, have a narrower coverage and could understate total delinquent payments, as is the case for Ukraine on the date in question.

⁵Goskomstat of the Russian Federation began tracking overdue debt as of October 1994. The Ministry of Statistics of Ukraine introduced systematic accounting of overdue debt during 1996-97, so that complete and consistent series on back data are unavailable.

⁶As discussed in Section IV, such payments may be underreported by the receivers for tax evasion purposes.

than the gas sector, which tends to distort the sectoral evolution of indebtedness.⁷ **Third**, in Goskomstat data, the notion of delinquency for payments on expenditure from the state budget does not exist. **Finally**, a number of enterprises in the Russian Federation and Ukraine have not yet adopted transparent accounting methods (under the International Accounting System), so that bad debts are not adequately singled out. Notwithstanding these weaknesses, Goskomstat (for Ukraine, the Ministry of Statistics) data—complemented by information from the country authorities and energy companies—provide the most comprehensive basis presently available for the analysis of the payments arrears problem.

In analyzing payments arrears and measures to address them, it is also necessary to distinguish between **stocks and flows of arrears**. The stocks refer to outstanding arrears at a given point in time, while the flows reflect the changes in the stock through the accumulation of new arrears and the discharge of existing ones. As noted in the final section, although measures are needed to deal with both the stock and the flow problem, addressing the flow problem poses more of an immediate concern, since the real value of the stock can be expected to erode gradually over time with inflation, while the arrears problem will persist if there continue to be net additions to the stock.

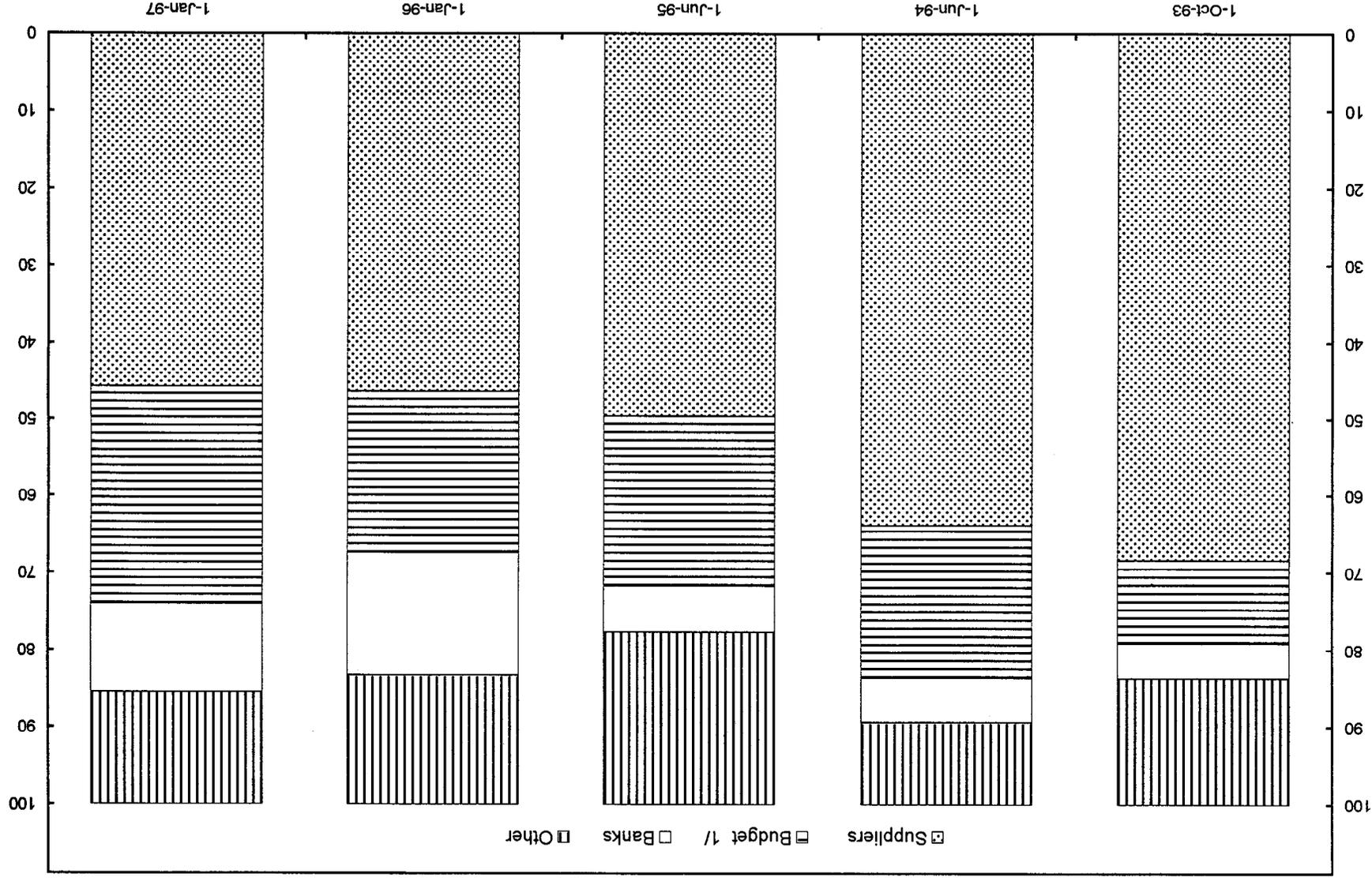
III. EVOLUTION AND DISTINCTIVE FEATURES OF PAYMENTS ARREARS IN THE RUSSIAN FEDERATION AND UKRAINE

Since independence, **the Russian Federation has experienced two payments arrears crises: during 1992–93 and from late 1994 to date**. The second crisis exceeded the first in magnitude, with overdue debt rising from about 10 percent of GDP at end-1993 to 24 percent of GDP at end-1996, and witnessed a growing share of money surrogates (such as barter, debt offsets, and regional promissory notes) in total payments.

The analysis of **total debt** in the Russian Federation reveals the following: During 1993–96, debt to suppliers (interenterprise debt) continued to hold the highest share, although debt to the budget and to banks gained in significance (Chart 1 and Table 3). These trends were driven mainly by industry, which remained the largest borrowing sector. The combined weight of the electric power, gas, and transportation (mostly gas pipeline) sectors rose from under 3 percent of GDP in 1993 to over 13 percent of GDP on January 1, 1997. The share of **overdue debt** in total debt grew sharply from 30 percent at end-1993 to 50 percent at end-1996 and 52 percent by April 1, 1997 (Table 1). Overdue debt in the electric power, gas, and transportation sectors taken together exceeded 34 percent of total overdue debt by January 1, 1997 (Chart 2), reaching almost 8 percent of GDP. By the same date, the government's arrears on its payments for gas and electricity rose to ruble 28 trillion (1.2 percent of GDP).

⁷It is largely because of such classification that the share of the transportation subsector in total accounts payable rises sharply during 1993-97 (Table 3). The analysis in the paper corrects for this, and looks at the gas industry and gas pipeline transport taken together.

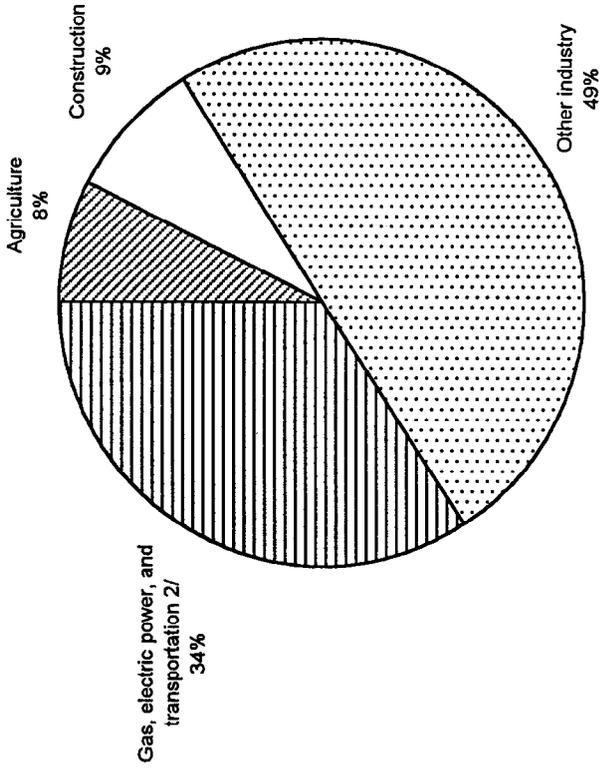
Chart 1
 Russian Federation: Indebtedness by Type of Debt, 1993-97
 (In percent of total accounts payable)



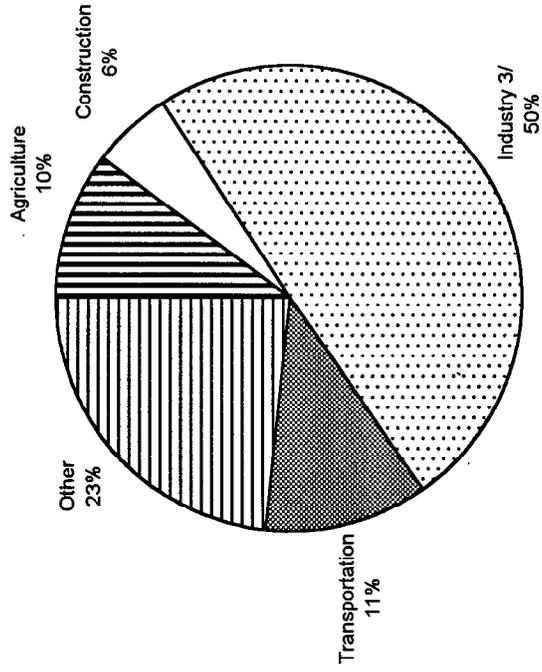
Source: Goskomstat of the Russian Federation.
 // As of 1995, includes nonpayments to state extrabudgetary funds.

Chart 2
Sectoral Composition of Overdue Debt, January 1, 1997 1/

Russian Federation



Ukraine



Sources: Goskomstat of the Russian Federation; and Ministry of Statistics of Ukraine.

1/ Overdue accounts payable in the sectors shown in percent of total overdue accounts payable.

2/ Mostly pipelines.

3/ Including the gas and electric power sectors.

The **means of payment** changed drastically during 1993–96.⁸ As of end-1996, 130 regional and local administrations in the Russian Federation issued various types of securities, many of which were money surrogates. In 1996, payments were made on 74 to 91 percent of the amounts due for electric power and heating in different regions of the Russian Federation, with payments in money constituting 9 to 22 percent of the total (Table 4). For gas, the share of payments made on amounts due ranged from 49 to over 100 percent (the latter reflecting payments of some overdue amounts), with less than 7 percent of total payments to RAO Gazprom affected in money (Table 5). Similarly, in Ukraine, payments in money for electric and thermal power were a fifth of total payments in September 1996 (Table 6).

The analysis of payments arrears **on the basis of ownership**⁹ indicates that the level of financial discipline tends to be higher in the nonstate sectors of the Russian economy. The purer the form of nonstate ownership, the greater the financial discipline. In the state sector, the ratio of overdue accounts payable to overdue accounts receivable is generally higher (except for agriculture) than in the nonstate sector (Table 7). This implies that state enterprises obtain some support from the state in collecting the money that is owed to them, and rely on state support to delay or avoid payments to their creditors. Financial discipline in enterprises and organizations in the energy sector tends to be positively correlated with the existence of a competitive environment and the absence of state interference in management decisions. A comparison of the overall debts owed for electric power and gas by customers also indicates a relatively higher degree of discipline among nonstate customers.

The lack of historical data rules out a systematic analysis of the evolution of **payments arrears in Ukraine**, although partial data and information indicate that arrears have displayed an upward trend. The period prior to 1995 was marked by a number of bailout operations by

⁸Presently, payments in Russia are made by money (cash or noncash), barter (bilateral or multilateral exchanges of goods), offsets (mutual debt clearance with varying complexity, some involving tax exemptions), and securities (money surrogates, including regional and local promissory notes).

⁹Care needs to be exercised in such analysis as, for example, the energy sector in the Russian Federation is dominated by large monopolies in the electric power and gas sectors, with no comparable private companies. Also, the statistics can be misleading, as kolkhozes, virtually all of pipeline transport, and a bulk of the electric power and gas industries are assigned to the nonstate sector, although these structures are not strictly nonstate. Moreover, some of the differences in payments performance on the basis of ownership may arise from the differences in the types of activities engaged in by the state and nonstate sectors, with more immediate payments requirements in some (e.g., retail trade, where the nonstate sector is particularly active) than in others.

the government (one in early 1993 and two during 1994), which led to temporary dips in arrears. The latter, however, rebounded with renewed strength each time. A comparison of Ukraine's experience with that of the Russian Federation reveals the following:

- The sluggish pace of economic reforms in Ukraine, coupled with the periodic bailout operations by the government noted above, contributed to a rising level of payments arrears.
- In the Russian Federation, extremely rich energy resources (primarily gas) formed the basis of appropriation and redistribution of resources by the government. In Ukraine, such redistribution pertained mostly to imported energy resources, which were not always fully paid for, thereby adding to the country's external debt.
- A higher proportion of the debt in Ukraine is owed to suppliers, i.e., debt among enterprises on payments for goods and services is larger in Ukraine than in the Russian Federation (Tables 3 and 8). Industrial enterprises and energy companies, in particular, have become informal creditors to enterprises in other branches of the economy.
- In Ukraine, energy-related payments arrears are partly a product of government intervention in the domestic gas market as illustrated by the allocation of gas resources into state and nonstate uses, the establishment of territorial quotas on gas consumption, the practice of centrally setting gas prices, and the laxity in the enforcement of sanctions for delinquent payments. These practices have tended to weaken payments ability and discipline.
- The energy-related nature of payments arrears is more pronounced in Ukraine than in the Russian Federation. Over 80 percent of the debt owed to the electric power and gas industries is attributable to the budget and to municipalities.
- In Ukraine, evidence is less conclusive (based on Table 7) that payments discipline is stronger in the nonstate sectors of the economy.
- As in the Russian Federation, there has been a rapid decline in Ukraine in the proportion of payments made with money.

IV. FACTORS UNDERLYING AND CONTRIBUTING TO PAYMENTS ARREARS

The key factors contributing to payments arrears in the Russian Federation and Ukraine may be grouped into **initiating** and **aggravating** factors. The initiating factors observed in the early 1990s—which could be considered a natural consequence of the transition process—reflected the uncertainties stemming from the inability to immediately fill the void created by the removal of central controls with a properly functioning market mechanism. The output collapse resulting from the disruptions to traditional interstate trade and financial relations, coupled with huge relative price shifts following price liberalization, affected enterprises' profitability—particularly in energy intensive lines of production, where

the price shocks were particularly severe. In the subsequent stage (1994–95), considerable tightening in fiscal and monetary policies under the stabilization and reform programs introduced marked an end to automatic budget/bank financing for enterprises to meet production targets. Moreover, in the absence of a guaranteed market through state orders—which were being phased out as part of the reforms—enterprises were often forced to extend trade credits to attract buyers. The failure to collect the payments due contributed to enterprises' financial problems and, in turn, weakened their payments ability. Breaking out of this cycle, which required adjustment by enterprises to the changing economic environment through restructuring, proved difficult. In most instances, neither the willingness nor the legal/institutional framework needed for rapid adjustment was there. Also, bankruptcy and liquidation procedures were seldom activated when called for, even after the legislation to enforce such action was in place. Claims that payments arrears were caused by liquidity shortages were thus more a reflection of enterprises failure to adequately adjust than to a lack of access to bank financing for justifiable needs.

Factors aggravating payments arrears in the Russian Federation and Ukraine related, for the most part, to government behavior. Using their discretionary powers, governments contributed to payments arrears directly by not paying for their purchases of goods and services, as well as indirectly by appropriating and redistributing goods and services in the economy, without strictly enforcing payments. Such behavior became evident notably during periods of scarce budgetary funds. State regulation served to redirect resources without, however, much attention to efficiency considerations. In the energy sector, governments frequently designated privileged users (mainly those producing goods and services considered to be of strategic importance for the economy), who benefitted from subsidized rates and were exempted from penalties on delinquent payments. Such behavior encouraged the excessive consumption of energy resources.¹⁰

At times, arrears outside the budget were tolerated to compensate for budgetary arrears (e.g., on wage payments), or for political reasons.¹¹ The accumulation of large payments arrears, in turn, intensified pressure on governments to conduct bailout operations, which addressed the symptoms rather than the causes of the problem and further weakened

¹⁰In 1994, electric power use per unit of GDP was 4–4.5 times higher in the Russian Federation than in Western Europe (this ratio was 2.5–3 under the USSR). A similar situation held in Ukraine. The Russian Federation and Ukraine surpassed virtually all West European countries in per capita electric power consumption.

¹¹For example, a 1995 resolution of the Supreme Council of Ukraine stipulated that cutting off gas, electricity, or municipal services to the population for slippages in payments would not be acceptable as long as there existed arrears on wage payments from the budget; in November 1996, this resolution was transformed into a law. In the Russian Federation, Decree No. 1089 (November 1995) prohibited the cutting off of energy supplies to a list of customers until May 1996, i.e. in the pre-election period (this was later extended to August).

payments discipline by creating expectations of similar operations in the future. At the same time, arrears on tax and social security payments were tolerated by governments (notably in the recent period) as a means of compensating for slippages in budgetary payments, curtailment of direct budgetary subsidies, and/or to avoid costly bankruptcy procedures against nonpaying enterprises. Alternatively, schemes were devised to indirectly enforce tax collections through payments in goods outside the budget. For example, in the Russian Federation, oil companies were allowed to settle tax liabilities through deliveries of fuel to the agricultural sector.

Government interference in interstate trade transactions also contributed to payments arrears. Following the dissolution of the Soviet Union, material assistance to the BRO countries by the Russian Federation replaced the financial transfers of the previous era. Gas deliveries to the “near abroad”, which were partly unpaid for, intensified payments arrears in the energy sector of the Russian Federation. The willingness to tolerate payments arrears for energy exports reflected, for the most part, the inability to cut off nonpaying customers without disrupting supplies to other trading partners receiving energy through the same pipeline network. Political considerations also played a role. In Ukraine, payments difficulties in the domestic energy sector—caused partly by government interference in the operations of the sector (noted in section III)—translated into large external arrears to the country’s major gas suppliers (the Russian Federation and Turkmenistan). Such payments problems and the associated rescheduling agreements added substantially to Ukraine’s external debt. To strengthen payments discipline by consumers, as of 1996, government guarantees were removed on payments for Ukraine’s gas imports and work was initiated on setting up a competitive gas market with appropriate regulatory bodies.

Shortcomings in **energy price formation** also contributed to payments arrears in the Russian Federation and Ukraine. During transition, energy prices in these countries rose significantly faster than other prices. However, the prices of energy resources continued to be centrally set (except in the electric power sector in Ukraine) rather than determined by participants in the energy market. Moreover, a sound legislative framework specifying the rights and obligations of the government in regulating energy prices was not put in place. In the Russian Federation, energy prices to industry were frequently set at levels well above short- or long-run economic costs of supply, which exacerbated payments problems and triggered payments arrears. The large rents implicit in energy prices, moreover, allowed energy monopolists to use payments arrears as a means of effective price discrimination among customers. These factors may have accounted for the predominance of the energy sector in total payments arrears. Cross subsidies (price breaks to one sector/region at the expense of another) played an increasing role in the redistribution of resources in the Russian Federation. Such practices were not cost effective and added to payments problems.¹² As

¹²For example, charging lower prices to households than to industry runs contrary to meeting the economic costs of energy, as the costs of local distribution networks arise primarily from
(continued...)

noted earlier, in Ukraine—a country dependent on energy imports—the redistribution of resources through cross subsidization was more limited.¹³

Energy companies tended to tolerate **payments arrears and noncash payments** (indeed, may even have encouraged the latter) for a variety of reasons:¹⁴ **First**, as noted above, they had little choice, as the government discouraged cutoff of energy supplies to strategically important customers. **Second**, in the case of the Russian Federation, there was not much opportunity to sell gas or electricity elsewhere, given excess supply in most parts of the country, transmission difficulties, and limited immediate prospects for raising exports. **Third**, noncash payments, which were often not fully reported, provided energy companies with a means for tax evasion in a system where bank accounts of tax delinquents could be subject to seizure by the tax authorities. **Fourth**, in some cases, energy companies benefitted from arrears, since they were able to swap such debt for equity in consuming enterprises on favorable terms.

Finally, there were **social factors** behind payments arrears. Attempts by governments to protect living standards in the face of sharply declining incomes during transition perpetuated heavy price subsidies for basic goods and services provided to the population. In Ukraine, the government's gas subsidy policy aggravated the arrears problem.¹⁵ Local governments were instructed to meet subsidy payments to suppliers that provided gas and heating to households at subsidized prices. When local governments failed to make these payments, suppliers incurred arrears on their own bills (notably gas bills to importers). Actions by the central government against delinquent local governments were often constrained by legal considerations. Suppliers were reluctant to interrupt supplies to households, although the latter were also not current on their payments. Slippages in payments by households reflected, for the most part, a faster growth in the tariffs for gas, heating, and electricity than in household incomes. Collection efforts were also weakened by the difficulties in measuring

¹²(...continued)

meeting the demands of households. See Gray, Dale, "Policy Analysis Related to Energy and Natural Monopoly Issues in FSU Countries", September 1996.

¹³In Ukraine, the industrial rate for electric power is half of the rate in the Russian Federation, while the rate for households is twice as high. Regional rates do not show as large a variation as in the Russian Federation, where the Moscow Regional Commission has approved 9 rates for electric power, while the Perm Oblast Commission has approved 26 rates for different groups of customers.

¹⁴Gray, Dale, "Evaluation of Taxes and Revenues in the Energy Sector in the BRO Countries", forthcoming IMF Working Paper.

¹⁵See Bisat, Amer, "Ukraine's Gas Arrears: Issues and Recommendations", IMF PPAA/96/3, April 1996.

energy consumption by households, given the shortage of meters, and hence determining with any accuracy the extent of overdue payments. Such shortcomings may also have heightened the unwillingness to cutoff delinquent customers.

V. CONCLUSIONS AND POLICY IMPLICATIONS

Payments arrears have several adverse consequences. Notably, they encourage financial disintermediation and undermine the conduct of sound macroeconomic policies; complicate the assessment of financial health of state enterprises and hinder privatization; and disrupt interstate financial relations when payments problems spill across national borders. Payments arrears in the Russian Federation and Ukraine, which display these features, have reached significant proportions, so that their solution would lie above all in the implementation of systemic measures that are:

- Comprehensive and part of an overall reform program;
- Pertaining simultaneously to stabilization, structural, and social areas;
- Rigorous and clearly defined in quantitative and qualitative terms;
- Introduced expeditiously and implemented in a well coordinated fashion.

Within the above broad framework, measures will be needed in **four key areas**: **First**, the problem of payments arrears from the budget will have to be addressed, as the government will not be in a position to demand financial discipline from other sectors of the economy until it sets its own house in order. Moreover, the government has to refrain from bail out operations, which give the wrong signals and are inflationary. **Second**, the accumulation of payments arrears by state enterprises and organizations needs to be curbed through determined implementation of reforms, including corporatization, privatization, and liquidation through bankruptcy proceedings where called for. A market environment has to be created, where enterprises become financially responsible for their behavior and enterprise managers are held accountable for operating results. **Third**, a social safety net system targeted to the lowest income groups should replace price subsidies, and budgetary arrears on such social transfers should be strictly avoided. **Fourth**, interstate debt must be normalized (not discussed in this paper). Implementation of measures in these areas will need to be backed by the development of a supporting legislative and institutional framework.

Although addressing the problem of **net flows of payments arrears** through the above measures should carry greater immediate weight, it will also be necessary to deal with the **accumulated stock of payments arrears**. Addressing the problem of outstanding budgetary debts would entail a careful determination of the size of accumulated debt and restructuring of the amounts identified over a reasonable time frame. Regarding outstanding arrears to the budget, consideration could be given to modifying, but strictly enforcing

penalties on unpaid taxes. The Russian Federation and Ukraine have imposed extremely severe penalties on delinquent tax payments, the effectiveness of which may be questionable.¹⁶ Consideration could also be given to not charging penalties to enterprises and organizations that are delinquent on their tax liabilities because of payments arrears from the budget. Regarding the stock of interenterprise arrears, the government should refrain from playing an active role in reducing this debt. Instead, enterprises should consider securitizing and trading interenterprise claims (as was done in a number of Eastern European countries), with the government's role confined to providing an adequate regulatory framework for such operations.

Payments arrears in the energy sector have been encouraged by a broader problem of nonpayments in the government and enterprise sectors. Therefore, addressing the latter, as discussed above, will help alleviate arrears in the energy sector. More specifically, curtailing payments arrears in the energy sector will require: eliminating government intervention in the energy market; strengthening payments discipline through improved billing and collection procedures (including by inserting meters to measure consumption and cutting off supplies to delinquent customers); and speeding up the rehabilitation and privatization of energy companies. The restructuring of the electric power and gas sectors of the Russian Federation and Ukraine—the basic framework for which would be similar in the two countries¹⁷—can be expected to contribute substantially to addressing the payments arrears problem in these sectors. Reforms should include the separation of production and transmission activities; the setting up of an independent and well-functioning regulatory commission; the creation of an energy market and market-based prices,¹⁸ and the phasing out of cross subsidies; the privatization of power generating companies; and the transfer of social functions of energy enterprises to local governments. In the Russian Federation, structural reforms in the electric power and gas sectors should be carried out in parallel, as the electric power industry is the largest consumer of gas. The settlement of Ukraine's foreign debt on gas imports should constitute an important element in the restructuring of its gas industry.

¹⁶Penalty charges designed to enhance financial discipline go some way toward lowering payments arrears but fail to eliminate them. See Kim, Se-Jik and Kwon, Goohoon, "A General Equilibrium Approach to Interenterprise Arrears in Transition Economies with Application to Russia", IMF working Paper, December 1995.

¹⁷In Ukraine, reforms in the electric power sector are at a more advanced stage than in the Russian Federation.

¹⁸With the longer-run objective of having the state regulate only the tariffs for transmission of electricity and gas by high-voltage lines and high-pressure pipelines.

Table 1. Russian Federation: Debt Owed by Enterprises and Organizations, 1993-97
(End-of-period)

	1993	1994	1995	1996	1997 1/	1993	1994	1995	1996
	(In trillions of rubles)					(In percent of GDP)			
Total debt	58.3	219.1	574.4	1,065.0	1,205.7	33.9	35.9	35.2	47.2
Owed to:									
Banks	11.3	45.1	91.4	123.8	131.2	6.6	7.4	5.6	5.5
Other 2/	47.0	174.0	483.0	941.2	1,074.5	27.3	28.5	29.6	41.7
<i>Of which</i>									
Overdue debt	17.5	96.0	249.6	537.9	627.0	10.1	15.7	15.3	23.8
Owed to:									
Banks	1.1	5.6	10.6	23.5	26.0	0.6	0.9	0.6	1.0
Other 2/	16.4	90.4	239.0	514.4	601.0	9.5	14.8	14.7	22.8
Accounts payable 3/	47.0	174.0	483.0	941.2	1,074.5	27.3	28.5	29.6	41.7
<i>Of which</i>									
Overdue	16.4	90.4	239.0	514.4	601.0	9.5	14.8	14.7	22.8
Accounts receivable	43.8	150.0	362.0	662.6	745.6	25.5	24.6	22.2	29.4
<i>Of which</i>									
Overdue	18.1	80.4	165.0	336.0	400.1	10.5	13.2	10.1	14.9
Net overdue 4/	-1.7	10.0	74.0	178.4	200.9	-1.0	1.6	4.5	7.9
Memorandum item:									
Gross domestic product (GDP)	172	611	1,631	2,256	...	...	...	...	...

Sources: Goskomstat, "Socioeconomic Situation of the Russian Federation" and "Russian Statistical Handbook: A Statistical Compilation".

1/ First four months of 1997.

2/ Including debt owed to the budget and to suppliers of goods and services.

3/ Excluding debt to banks.

4/ Overdue accounts payable less overdue accounts receivable.

Table 2. Ukraine: Debt Owed by Enterprises and Organizations, 1993-96
(End-of-period)

	1993	1994	1995	1996	1993	1994	1995	1996
	(In millions of hryvnias)				(In percent of GDP)			
Total debt	1,807.1	9,155.9	36,862.5	82,302.5	121.9	76.1	67.6	102.2
Owed to:								
Banks	407.3	1,562.4	4,113.0	5,496.2	27.5	13.0	7.5	6.8
Other 1/	1,399.8	7,593.5	32,749.5	76,806.3	94.4	63.1	60.1	95.4
<i>Of which</i>								
Overdue debt	...	...	...	57,475.5	...	...	...	71.4
Owed to:								
Banks	39.9	155.3	388.0	417.0	2.7	1.3	0.7	0.5
Other 1/	...	...	...	57,058.5	...	...	...	70.9
Accounts payable 2/	1,399.8	7,593.5	32,749.5	76,806.3	94.4	63.1	60.1	95.4
<i>Of which</i>								
Overdue	...	...	...	57,058.5	...	...	...	70.9
Accounts receivable	1,049.2	5,113.7	23,574.3	51,396.6	70.7	42.5	43.2	63.8
<i>Of which</i>								
Overdue	...	...	...	38,756.1	...	...	...	48.1
Net overdue 3/	...	...	...	18,302.4	...	...	...	22.7
Memorandum item:								
Gross domestic product (GDP)	1,483	12,038	54,516	80,510	...	...	...	...

Source: Ministry of Statistics of Ukraine.

1/ Including debt owed to the budget and to suppliers of goods and services.

2/ Excluding debt to banks.

3/ Overdue accounts payable less overdue accounts receivable.

Table 3. Russian Federation: Sectoral Breakdown of Accounts Payable by Type of Debt, 1993-97

	Suppliers	Budget 1/	Banks	Other	Suppliers	Budget 1/	Banks	Other 2/
	(In percent of total payables)				(In percent of GDP)			
1993 (October 1)								
Total	68.4	10.7	4.6	16.3	18.7	2.9	1.3	4.6
Industry	56.8	8.8	3.2	12.6	15.6	2.4	0.9	3.6
<i>Of which</i>								
Electric power	2.9	0.2	0.1	0.3	0.8	0.1	0.0	0.1
Gas	1.3	0.4	0.1	0.0	0.4	0.1	0.0	0.0
Agriculture	2.1	0.2	1.0	1.1	0.6	0.1	0.3	0.3
Transportation	3.9	0.4	0.1	1.0	1.1	0.1	0.0	0.2
Construction	5.5	1.3	0.3	1.5	1.5	0.4	0.1	0.4
1994 (June 1)								
Total	63.8	19.8	5.7	10.7	18.2	5.6	1.6	3.1
Industry	51.6	15.7	4.0	8.0	14.7	4.5	1.1	2.2
<i>Of which</i>								
Electric power	7.2	1.1	0.2	0.1	2.1	0.3	0.1	0.0
Gas	1.5	1.2	0.0	0.1	0.4	0.3	0.0	0.0
Agriculture	2.5	0.4	1.3	0.7	0.7	0.1	0.4	0.2
Transportation	4.3	1.1	0.1	0.9	1.2	0.3	0.0	0.4
Construction	5.4	2.6	0.3	1.1	1.6	0.7	0.1	0.4
1995 (June 1)								
Total	49.6	22.1	5.9	22.4	14.7	6.5	1.8	6.8
Industry	34.5	17.7	3.6	16.5	10.2	5.2	1.1	5.0
<i>Of which</i>								
Electric power	8.3	1.5	0.1	1.6	2.5	0.5	0.0	0.5
Gas	1.5	1.2	0.0	0.5	0.4	0.3	0.0	...
Agriculture	2.8	0.6	2.0	2.2	0.8	0.2	0.6	0.7
Transportation	9.1	1.9	0.1	1.6	2.7	0.6	0.0	0.5
Construction	3.2	1.9	0.2	2.1	1.0	0.6	0.1	0.6
1996 (January 1)								
Total	46.3	21.1	15.9	16.7	16.2	7.4	5.6	5.9
Industry	30.3	15.5	11.6	11.9	10.7	5.4	4.1	4.2
<i>Of which</i>								
Electric power	6.8	1.6	0.2	0.5	2.4	0.6	0.1	0.2
Gas	1.3	0.7	0.1	0.1	0.5	0.2	0.0	0.0
Agriculture	2.5	1.0	3.1	0.5	0.8	0.4	1.1	0.2
Transportation	9.7	2.4	0.6	2.9	3.4	0.9	0.2	1.0
Construction	3.8	2.2	0.6	1.4	1.3	0.8	0.2	0.5
1997 (January 1)								
Total	45.7	28.3	11.6	14.4	21.6	13.3	5.5	6.8
Industry	29.3	19.9	8.1	...	13.8	9.4	3.9	...
<i>Of which</i>								
Electric power	8.9	2.2	0.6	...	4.2	1.0	0.3	...
Gas	1.5	0.8	0.1	...	0.7	0.3	0.0	...
Agriculture	2.4	2.2	2.4	...	1.1	1.0	1.1	...
Transportation	10.2	3.3	0.7	...	4.8	1.6	0.3	...
Construction	3.8	2.9	0.4	...	1.9	1.3	0.2	...

Source: Goskomstat of the Russian Federation.

1/ As of 1995, includes nonpayments to state extrabudgetary funds.

2/ Includes arrears in wage payments.

Table 4. Russian Federation: Payments for Electric Power and Heating
by Energy Zone, September 1, 1996
(In percent)

	Share of payments 1/	Types of payments			Other 2/
		Money	Promissory notes	Treasury bills	
Central	83	9	9	3	62
Northwest	82	15	12	5	50
Middle Volga	83	9	9	2	63
Ural	81	12	6	1	62
Siberia	91	9	6	2	74
Far East	74	12	3	11	48
North Caucasus	80	22	13	4	41

Source: Government of the Russian Federation, Electric Reform Study.

1/ As a proportion of amounts due for payment.

2/ Mostly barter.

Table 5. Russian Federation: Regional Breakdown of Types of Payments for Gas, 1996

Enterprise	Cost of gas delivered (In billion of rubles)	Payments received	Share of payments	Types of payment		
				Money	Securities	Barter
				(In percent)		
Yamburggazdobycha	9.4	9.7	103.2	0.0	0.0	103.2
Urengoygazprom	24.2	25.3	104.5	0.0	0.0	104.5
Nadymgazprom	19.0	10.9	57.4	0.0	0.0	57.4
Surgutgazprom	2,675.6	2,513.4	93.9	1.5	5.3	87.1
Tyumengazprom	1,419.4	1,316.7	92.8	0.2	5.4	87.2
Permtransgaz	4,359.3	2,297.0	52.7	6.4	7.1	39.3
Volgotransgaz	7,385.7	6,308.7	85.4	8.2	5.9	71.3
Uraltransgaz	9,857.4	7,225.0	73.3	2.9	17.9	52.5
Severgazprom	3,157.1	2,655.8	84.1	13.3	12.2	58.6
Tomsktransgaz	2,698.6	2,194.7	81.3	4.8	0.4	76.1
Bashtransgaz	3,733.9	2,499.1	66.9	1.3	1.9	63.7
Yugtransgaz	1,736.5	1,272.2	73.3	1.8	19.8	51.7
Volgogradtransgaz	1,674.1	811.9	48.5	1.7	12.2	34.6
Samaratransgaz	4,475.4	2,998.1	67.0	2.9	30.7	33.3
Tatransgaz	3,092.7	1,810.3	58.5	0.9	3.3	54.4
Orenburggazprom	745.1	839.8	112.7	1.1	4.6	107.0
Astrakhangazprom	384.1	470.2	122.4	2.8	3.3	116.4
Kubangazprom	1,694.7	1,477.0	87.2	26.8	19.9	40.4
Kavkaztransgaz	3,215.1	2,141.5	66.6	8.7	23.9	34.0
Dagestangazprom	180.3	122.2	67.8	10.1	14.0	43.6
Lentransgaz	6,152.6	3,072.0	49.9	12.2	24.5	13.2
Mostransgaz	32,838.0	24,224.1	73.8	6.9	16.3	50.5
Total RAO Gazprom	91,528.2	66,295.6	72.4	6.4	14.5	51.6

Source: Gazprom.

Table 6. Ukraine: Regional Distribution of Payments for Electric Power and Gas, September 1996

	Electric and thermal power				Gas distributed by Ukgaz and Ukgazprom		
	Sales (In millions of hryvnias)	Payment recieved	Share of Payments (In percent)	<i>of which</i> Money (In percent)	Distribution (In millions of hryvnias)	Payment recieved	Share of Payments 1/ (In percent)
Vinnitsa	129,579	128,544	99	39	121	88	73
Khmelnitskii	127,435	120,404	94	23	150	105	70
Ternopol	81,339	81,816	101	23	97	61	63
Chernovitskii	61,965	54,027	87	42	63	31	49
Zaporozhe	617,677	583,493	94	9	358	76	21
Dnepropetrovsk	1,623,650	1,401,658	86	3	574	316	55
Kirovograd	160,517	152,711	95	25	87	48	55
Donetsk	1,431,421	1,304,388	91	12	628	380	61
Lugansk	671,003	510,358	76	15	343	196	57
City of Kiev	786,438	502,281	64	32	...	...	...
Kiev oblast	187,178	183,901	98	47	973	524	54
Zhitomir	135,531	135,709	100	37	87	63	72
Chernigov	152,201	140,415	92	61	91	65	71
Cherkassy	230,820	207,864	90	32	109	88	81
Crimean Autonomous Republic	282,304	238,413	84	29	115	68	59
City of Sevastopol	55,498	55,463	100	14	22	15	68
Lvov	247,746	219,980	89	25	521	305	59
Rovnensk	92,831	90,743	98	26	82	40	49
Volynskaya	80,666	75,341	93	28	92	68	74
Ivano Frankovo	129,061	136,718	106	21	243	181	74
Zakarpatskii	78,249	81,258	104	42	99	69	70
Odessa	349,623	298,021	85	38	109	73	67
Nikolaev	176,959	147,301	83	33	121	90	74
Kherson	169,837	160,042	94	23	85	63	74
Kharkov	521,274	360,645	69	25	607	393	65
Poltavskii	255,120	230,845	90	14	256	133	52
Summy	135,353	129,531	96	31	149	89	60
Total Ukraine	8,971,275	7,731,870	86	20	6,182	3,628	59

Sources: Ministry of Energy of Ukraine; and Ukrainian State Committee on Gas, Oil Production, and Oil Refining.
1/ Corresponds to cash payments, as the distribution shown is almost entirely to the public.

Table 7. Accounts Receivable and Payable in the State and Nonstate Sectors of the Economy, January 1, 1997

	Accounts receivable		Accounts payable		Overdue accounts receivable		Overdue accounts payable		Overdue accounts payable/accounts receivable	
	State	Nonstate	State	Nonstate	State	Nonstate	State	Nonstate	State	Nonstate
Russian Federation	(In billions of rubles)									
Total	119,065	543,526	179,058	762,104	46,844	288,733	88,777	425,377	1.9	1.5
Industry	60,664	347,446	97,865	530,788	30,150	172,681	55,489	292,995	1.8	1.7
<i>Of which</i>										
Electric power	15,522	115,447	19,223	113,723	8,754	67,306	10,630	62,434	1.2	0.9
Gas industry	2,026	19,852	2,203	24,938	1,949	15,882	2,110	18,230	1.1	1.1
Agriculture	3,694	10,798	10,865	46,241	1,954	5,269	7,127	31,305	3.6	5.9
Transportation	41,667	124,649	55,245	117,067	7,542	80,648	17,623	65,440	2.3	0.8
Construction	13,039	60,633	15,083	68,008	7,198	30,135	8,537	35,636	1.2	1.2
Ukraine	(In millions of hryvnias)									
Total	23,251	28,146	31,271	45,536	17,880	20,884	24,798	32,194	1.4	1.5
<i>Of which</i>										
Industry	12,920	8,914	19,894	16,686	10,426	6,632	16,253	11,947	1.6	1.8
Agriculture	350	1,239	1,057	5,339	307	1,111	944	4,891	3.1	4.4
Transportation	4,218	6,035	3,218	4,600	2,885	5,932	2,259	4,241	0.8	0.7
Construction	706	2,665	886	3,007	576	2,249	720	2,451	1.3	1.1

Sources: Goskomstat of the Russian Federation; and Ministry of Statistics of Ukraine.

Table 8. Ukraine: Structure of Accounts Receivable and Payable of State Enterprises, January 1, 1997
(In millions of hryvnias)

	Accounts receivable		Accounts payable	
	Total	Ovedue Percent overdue	Total	Ovedue Percent overdue
Total	48,018	36,486	73,168	54,719
Goods and services	37,599	29,961	44,069	34,679
Promissory notes	396	316	636	293
Labor and personnel	328	126	3,818	3,180
Budget	1,627	923	8,212	4,683
Extrabudgetary funds	...	...	2,091	1,780
Advances	1,152	516	2,354	1,322
Insurance	...	...	3,080	2,653
Subsidiary enterprises	2,219	1,647	3,513	2,462
Other	4,698	2,997	5,394	3,667
Total	48,018	36,486	73,168	54,719

Source: Ministry of Statistics of Ukraine.

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