MEASUREMENT OF THE FISCAL
IMBALANCE IN A TRANSITION ECONOMY:
THE CASE OF UKRAINE

by

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Abstract

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The thesis addresses the issue of measuring fiscal imbalance in transition economies with application to Ukraine. Highly debated in developed countries, fiscal imbalance indicators are of special interest in transition economies, where some peculiar developments put under question the validity of conventional indicators. The paper discusses different approaches to fiscal imbalance measurement. Based on review of fiscal policies in Ukraine, the author suggests use of an indicator based on changes in the net worth of government. The results show that fiscal imbalance in Ukraine was much larger over years 1995-2000 than the conventional indicators suggest. Some implications for wealth redistribution and growth are discussed.

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GLOSSARY

Accrual accounting. An accounting method in which revenues, expenses, lending, and borrowing are recorded when they are earned or accrued, regardless of when payment is made or received. (IMF, 1986, p. 321).

Cash basis accounting. The recording of transactions when payment is made or received. (IMF, 1986, p. 322)

Deposit money banks subsector. Those financial institutions other than the monetary authorities whose liabilities are primarily in the form of deposits payable on demand and transferable by check. Demand deposits liabilities of the treasury, postal checking system and other governmental bodies are included. ((IMF, 1986, p. 325)

Grants. Nonrepayable, unrequited, noncompulsory payments between governments or international organizations. (IMF, 1986, p. 327)

Non-financial public enterprises (NFPE). Government-owned and/or government-controlled industrial or commercial units. They may be combined with general government to form the **nonfinancial public sector**. (IMF, 1986, p. 329).

Public financial institutions (PFI). Government-owned and/or government-controlled institutions primarily engaged in both incurring liabilities and acquiring financial assets in the market, any acceptance of demand, time or savings deposits, or performance of monetary authorities' functions. Any such body or activity in government sector is considered to be outside the general government sector and in the financial institutions sector. (IMF, 1986, p. 331).

Public financial sector (PFS). Consists of all public financial institutions.

Public sector. A combination of the general government sector, nonfinancial public enterprises, and public financial institutions, distinguished by government ownership and/or control rather than function. (IMF, 1986, p. 331).

Quasi-fiscal activities (QFA). Tax and subsidy equivalent operations carried out by institutions other than general government.

Soft budget constraints. A situation where the state can not commit not to bail out loss-making firms. Due to one of the interpretations given in Kornai (1992, p. 143), "The extending of external assistance <to a firm> is a random variable with probability distribution, of which the firm's decision maker has a subjective "perception". The greater the subjective probability (…), the softer the budget constraint."

Supranational authorities. A nonresident organizations that are entitled by the national government with an authority to raise taxes or other compulsory contributions (adapted from IMF, 1986, p.333).

INTRODUCTION

The problem of assessment of fiscal policy is one of the most prominent ones in any economy. Evaluation of the fiscal impact is conducted for purposes of internal policy formulation as well as for external assessment of the fiscal policy in a country. The issues usually addressed by the analysis are fiscal imbalance, size of government, composition of government expenditures and revenues, and effectiveness of government in the provision of public goods. Among the less frequently assessed but no less important are success in structural reform, real resource preemption by government, and effectiveness of resources reallocation. The three latter issues can provide an invaluable insight into the functioning of the fiscal system and economy as a whole, but are difficult to estimate. Consequently, economic analysis is often based on conventional indicators of fiscal imbalance and size of the government.

The paper discusses different measures for assessment of fiscal imbalance and their applicability in transition economies, with special focus on Ukrainian public finances. The underlying reason for increased attention to fiscal imbalance measurement in transition countries is its large magnitude in these countries. Moreover, transition to a market economy requires changing the role of the state, which includes among others, the conduct of fiscal reform. The success in this reform, as well as in overall reform process, is believed to be reflected by some conventional indicators, such as the size of government in the economy, the composition of budget revenues and expenditures, the size of fiscal deficit and sources of its financing. The fiscal deficit figure is being used as a barometer of the state's financial health. As domestic, so international authorities emphasize the necessity of keeping the fiscal deficit at a reasonable (sustainable) level.

Preliminary observation of conventional economic indicators in transition economies suggests that they do not reflect well true economic phenomena

that are taking place: sometimes figures just do not make sense, signs and magnitudes of correlation between conventional indicators might violate economic predictions, some factors are omitted from the measurement etc. In particular, to assess fiscal balance economists usually use the budget balance indicator.[1] However, the correspondence of budget balance and fiscal balance is often violated in transition economies: striving to reduce the reported figure of official budget deficit, governments may resort to hiding substantial part of the actual fiscal shortfall. As a result, budget deficit figures do not reflect the magnitude of fiscal deficit; in some cases, the two indicators may even move in opposite directions.

Among the gravest problems in fiscal assessment in transitional countries is the low level of transparency of public finance. The lack of transparency affects not only public finance. The whole economy operates in two dimensions: official and unofficial. The hidden, unofficial part can be so considerable that conventional economic indicators become of little value. This phenomenon has been given the name of " virtual economy" and is intensively investigated by economists.

Some observations of Ukrainian fiscal policy suggest that Ukrainian fiscal imbalance is probably much larger than reported by the budget deficit indicator. A number of hidden or partially hidden sources of financing the fiscal deficit in Ukraine are used in addition to conventional means of financing; in particular, quasi-fiscal operations of public financial and non-financial enterprises might constitute a large portion of additional deficit financing.

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[1] "Fiscal balance", sometimes referred to as "an overall balance", is the general notion which reflects the fiscal stance of government. In Manual on GFS (IMF, 1986), the overall deficit/surplus is defined as "a measure of how much net borrowing and use of cash the government requires in addition to its revenue, grants, and loan repayments in order to carry out the objectives it has decided to pursue through expenditure and lending." If public finance accounting is accurate, budget balance is a good approximation of the true fiscal balance.

In view of the limitations of conventional fiscal indicators, the need for the development of a comprehensive measure of fiscal stance of government in a transition economy arises. On the basis of comparison of the merits and limitations of different approaches, and considering fiscal developments in Ukraine, I propose an indicator of fiscal imbalance. It is based on the balance sheet approach and estimates solvency of government, being broadly defined to include public financial institutions. The indicator has its limitations, both conceptual and practical. Nevertheless, it provides additional insight on the state of public finances in Ukraine, and thus could be used as additional measure in assessment of government's financial position.

The plan of the paper is as follows. In Chapter 1, a revision of existing approaches to assessment of fiscal balance are presented. Conventional measures (budget balance and its modifications) and their limitations are discussed. Then discussion turns to different suggestions and alternative approaches to measurement of fiscal balance, in particular, broadening the notion of government and application of balance sheet approaches. Chapter 2 is an overview of fiscal developments in Ukraine. In Chapter 3, an alternative measure of government fiscal stance is developed, specified for Ukrainian conditions. Chapter 4 presents results of measurement and their implications.

The results of calculation of the measure proposed signify that fiscal imbalance in Ukraine is really large, and much larger than conventional budget balance indicator suggests. A brief discussion of the results obtained is made with special accent on implications for wealth redistribution and growth.

C h a p t e r   1

REVIEW OF MEASURES OF FISCAL STANCE

1.1. The Problem of Fiscal Policy Assessment.

The importance of fiscal policy in a country is hard to overestimate. It effects strongly major economic determinants of macroeconomic performance: inflation, growth, and external balance. Fiscal policy can operate through direct impact on national income, savings and monetary aggregates and indirectly – through resource reallocation. Due to large variety and high complexity of ways the government can effect economy, the task of assessment of fiscal policy is challenging.

It is widely recognized that there is no unique indicator that could embrace the whole spectrum of government fiscal activities. An array of measures has been developed that complement each other and serve particular needs of fiscal analysis. In the assessment of fiscal policy analysts concentrate on the three major questions: the size of the government, fiscal balance, and sustainability of fiscal policy. Special interest of economists is drawn to possible negative consequences of inefficient fiscal policy. Existence of a large public sector in an economy may lead to inefficient allocation of resources and thus undermine its growth potential. Among possible consequences of large fiscal imbalance are inflation, current account deficit, slow economic growth etc. In the analysis of sustainability of fiscal policy, economists address the question of a government's capability of financing its internal and external debts over a long period of time.

Fiscal situation in transition economies is often characterized by a combination of these problems: they are saddled with a large government

(public sector), fiscal imbalance and unsustainable fiscal policy, which makes fiscal adjustment a crucial component of stabilization.

In the paper I concentrate on the measurement of fiscal imbalance. The question of my research is "How large is the fiscal imbalance in Ukraine?" While seemingly narrow, the issue appears to be very broad in terms of its implications and relations with macroeconomic objectives and policies. In particular, the size of fiscal imbalance and the way it is financed affects links between fiscal and monetary policy, income and wealth redistribution, as well as institutional issues and implications for growth.

1.2. Conventional Indicators and Their Deficiencies.

There is an array of indicators that serve as a measure of fiscal balance. Among the most broadly used is budget balance. In "A Manual on Government Finance Statistics" (IMF, 1986, p. 324) it is defined as the difference between total revenues and expenditures:

Budget balance =   Total revenue   -   Total expenditure
                   and grants   and net lending

where   net lending = government loans to private sector – interest payments received

A positive budget balance implies a budget surplus, and a negative budget balance – a budget deficit. Such definition of fiscal balance is narrow in its treatment of sources of expenditure financing: only "ordinary revenue" is treated as revenue, and borrowing is not. Such version of balance is called public sector borrowing requirement (PSBR), and it measures the use of new financial resources by the government, net of debt repayment.

Budget balance indicator is considered to be efficient in terms of its "price/quality" ratio (i.e., it gives a good idea of fiscal stance while does not require enormous effort in calculation) and is computed routinely by

governmental agencies. Moreover, it is used by many countries and, to some extent, standardized internationally (see for example, IMF, 1986), which makes it convenient for cross-country comparisons.

There are different modifications of budget balance. A discussion on the merits and the drawbacks of various modifications can be found in Tanzi(1993), Eisner (1984) and Blejer and Cheasty (1991). Table 1 presents the indicators that are most widely used.

Table 1. Modifications of budget balance indicator.

	Indicator	Construction
1	Primary balance	GFS less interest payments
2	Operational balance	GFS less inflationary component
3	Current balance	GFS less capital expenditure and revenue
4	Domestic balance	GFS less transactions with foreigners
5	Structural balance	Cyclically adjusted

Each indicator focuses on the effect of the deficit on a particular macroeconomic variable, such as inflation, domestic demand or balance of payments, and the choice of a particular measure depends on purposes of analysis. They are discussed in turn. **The Primary Balance (1)** excludes interest payments on debt, as these are the result of past borrowing, rather than current fiscal stance. It reflects how current policy affects the net indebtedness of the government sector. **The Operational Balance (2)** excludes the inflationary component of interest payments on the grounds that inflationary part of the balance does not represent income to recipients, but is, in fact, part of repayment of the real value of government. This modification is useful as a measure of change in real indebtedness. **The Current Balance (3)** omits capital revenues and investment outlays; it provides an estimate of government's contribution to national saving. This indicator is especially useful in fiscal analysis in developing countries, as they experience large injections of foreign loans and assistance and undergo massive privatization programs, which yield temporary revenue. **The Domestic Balance (4)** helps

to estimate expansionary impact of fiscal policy on domestic demand. It is a good measure especially in countries with extensive foreign trade (in particular, oil exporting countries) or those obtaining large external grants. As aggregate demand affects budget, cycling component is built into budget balance figure. **The Structural Balance (5)** is used to disentangle the cyclical component of budget balance and to show "neutral" fiscal stance which would have pertained if the GDP was at the natural level.

One of such structural measures - "fiscal impulse measure" - is used by IMF (Heller et. al, 1986). First, a measure of fiscal balance is calculated as difference between reported budget balance and cyclically adjusted balance (a base year is chosen in which it is believed that the actual and potential real income are the same). Then the fiscal impulse measure is obtained by taking the difference of obtained fiscal balance and normalizing by output in respective year. The fiscal impulse measure provides the magnitude of the initial stimulus to aggregate demand arising from the fiscal policy in a given period.

As many experts point out, the budget balance indicator, as well as its transformations, may fail to provide an adequate picture of the government's fiscal stance when there are significant deviations in accounting procedures and, more importantly, in fiscal practices exercised in a particular country.

Blejer and Cheasty (1991) discuss some ways accounting procedures can distort the picture. They point out the following problems:
1) the distinction between the items that determine the deficit and the items that finance it (the issue as to where to "draw the line");
2) the specification of the time at which the resource use is measured (cash versus accrual accounting).[2]

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[2] It is discussed below in Section 1.4.

The first complication arises in the treatment of such categories as net lending, external grants and debt service. All these items could be attributed to expenditure and so to financing, depending on accounting procedures and criteria for classification applied. For example, net lending by the government, on the one hand, could be treated as liquidity management and, thus, recorded in budget balance "below the line" (as negative financing). At the same time, budgetary loans contain not only pure loan, but also pure grant component: the funds are channeled to "preferred" sectors that would not have access to financial markets otherwise or would have paid higher rates. Hence, as Blejer and Cheasty (1991) suggest, the grant component of budgetary lending should be treated as deficit determining item ("above the line"), and the pure loan component - as financing item ("below the line').

There is also no consensus about treatment of external grants: on the grounds that they do not lead to increase in governmental liabilities, some suggest their treatment as revenue. However, as they are discretionary financing by donors and do not depend on government policy, their inclusion in revenues may result in "an inappropriate confidence in their permanence" (Blejer and Cheasty, 1991).

In the case when the government can not issue new debt (due to loss of investors' trust), not only interest, but also amortization payments on the previously issued debt could be treated above the line, as the government has to extract the needed resources by means of taxation.

Actually, "by relabeling its transactions (as taxes/borrowing, in various combinations with expenditure/amortization), government can shift operations from above to below the line (and vice versa) but, essentially, carry out the same policy while choosing to report either a balanced budget, a deficit or a surplus" (Blejer and Cheasty, 1991, p. 1648). Similarly, Tanzi (1993) suggests that governments tend to shift a large portion of fiscal deficit out of budget accounts when they face tight budget deficit targets.

There seems to be a consensus among economists that the budget balance measure is not comprehensive enough and that additional (or alternative) indicators of government fiscal stance should be developed. We can distinguish the following major directions in " indicator development":

1) broadening the scope of operations and institutions included (i.e. broadening the notion of government);
2) balance sheet approaches.

1.3. Broadening the Notion of the Government.

Many economists agree that not the budget deficit, but "the overall fiscal deficit" is the appropriate measure of the government fiscal stance and an object for targeting (IMF, 1995; Tanzi, 1993). Striving for low limits of official budget balance may create distorted stimuli and, instead of spurring the process of reforms, may slow them down (Tanzi, 1993).

Some authors suggest broadening the definition of the government. IMF experts define the general government sector as consisting of the following subsectors (IMF, 1986, p.327):

- central government (agencies or instruments of the central authority of a country whether covered by or financed through ordinary budgets or extrabudgetary funds);
- state and regional governments;
- local government including municipalities, school boards etc.;
- supranational authorities exercising taxation and government expenditure functions within the national territory.

The definition of the government can be broadened further to include public financial and non-financial enterprises. The Manual (IMF, 1986, p.331) defines this broadened sector as public sector, but avoids consolidation for the purposes of fiscal analysis. The following layers of "the government sector" are presented in IMF (1995):

- central government;
- general government (as defined before);
- non-financial public sector (general government plus non-financial public enterprises NFPEs);
- public sector (a combination of the general government sector, non-financial public enterprises and public financial institutions (PFI)).

The authors (IMF, 1995) suggest amalgamation with governmental operations of only a part of activities of public financial and non-financial enterprises – their quasi-fiscal activities (QFA).

1.3.1. Quasi-fiscal Activities of Public Financial Institutions.

Adding of a financial institution to the group of public financial institutions (PFI) is based on the functions it fulfills. Blejer and Cheasty (1991) propose to treat a financial institution as public if it frequently follows public policy considerations in its selection of direction of investment. Public policy orientation of PFI lending makes them less profitable and more exposed to risk. As a result, they need governmental support, such as government guarantees, subsidies, exclusive access to resources and other, in order to survive Thus the operations of these institutions have the same crowding-out effect on financial markets as other government financing operations, and should be amalgamated with them for fiscal impact assessment.

Normally, the following institutions enter the group of PFI: the monetary authority (central bank), social security schemes and pension funds (except those formed by employers), savings and loans associations, deposit money banks and other financial institutions managed or controlled by government (IMF, 1986).

Quasi-fiscal Operations of Central Bank.

It is a quite common practice for central banks to take on quasi-fiscal functions. Mackenzie and Stella (1996, p.18) define quasi-fiscal activity of central bank and other public financial institutions as "an operation or a measure carried out by a central bank or other PFI with an effect that can, in principle, be duplicated by budgetary measures in the form of explicit tax, subsidy or direct expenditure and that has or may have an impact on the financial operations of the central bank, other PFIs, or government."

Quasi-fiscal activities of central bank could be divided in two main groups: those that relate to the financial system, and the ones that concern the exchange system. Mackenzie and Stella (1996) suggest the following classification of QFA of public financial and non-financial institutions (Table 2):

Table 2. Classification of quasi-fiscal activities.

Operations related to financial system	Operations related to the foreign exchange system
1. Subsidized lending - Administered lending rates - Preferential rediscounting practices - Poorly secured and sub-par loans - Loan guarantees 2. Underrenumerated reserve requirements 3. Credit ceilings 4. Rescue operations	1. Multiple exchange rates 2. Import deposits 3. Deposits on foreign asset purchases 4. Exchange rates guarantees 5. Subsidized exchange risk insurance
	Sterilization operations*
Operations of enterprises 1. Charging less than commercial prices 2. Provision of non-commercial services (e.g. social services) 3. Pricing for budget revenue purposes 4. Paying above commercial prices to suppliers	

Source: Mackenzie and Stella (1996)

* Sterilization operations are not in the original table of Mackenzie and Stella (1996), but they are included on the basis of the discussion in Mackenzie and Stella (1996), Markiewicz (2000), and Robinson and Stella (1993).

A comprehensive discussion of types of central bank's QFA, mechanisms of their execution and technical problems of quantifying and amalgamating with governmental accounts can be found in works of Mackenzie and Stella (1996), Markiewicz (2000), Buiter (1997), and Robinson and Stella (1993). Below I present a brief description of some operations. As can be seen, all such operations include fiscal (tax or subsidy) component.

Administered lending rates. Central bank or other PFI could be "asked" to lend a particular institution at a rate lower than market interest rate. It is often government which enjoys such deductions in interest payments when getting credit from central bank. There is a widespread practice to compensate the negative impact of reduction in earnings of central bank by the imposition of zero interest on reserves of commercial banks. But such sword has another end: unrennumeration of reserves affects the profitability of commercial banks and undermines their intermediation activities. Thus, **unrennumerated reserve requirements** represent a tax on banks and are also treated as quasi-fiscal measures.[3] Sometimes, a softer variant of requirements is applied, when banks are required to hold government paper as a part of their reserves. From the point of view of financing government needs, it is just a switch to another instrument: by demanding (or allowing) to hold reserves in government paper, central bank boosts demand for it. Thus, unrennumerated reserve requirements are a part of taxation/subsidization scheme aimed at fulfillment of government policies and financial needs.

Credit ceilings are restrictions on amount and direction of credit. They are used to direct bank credit to predetermined entities, which implies taxation of banks and subsidization of receivers of such credits

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[3] Sometimes it is quite difficult to determine the agent who actually "pays the tax". For example, in the case of underrenumerated reserves the tax burden is not shouldered by commercial banks, but rather shared between bank owners, depositors and borrowers. It is our perception that, while no legal entity is actually paying the bill, the ultimate payers and beneficiaries are individuals.

Rescue operations can be realized in variety of forms: infusion of capital, assumption of non-performing loans, provision of ex-post guarantee, implicit insurance of deposits. IMF (1986) suggests treating such expenditures as government transfer or net lending, which implies that a rescue operation is a transfer of income from taxpayers to creditors and depositors of troubled banks.

Multiple exchange rates (MER) could be applied to particular categories of exports and imports. For example, application of overvalued rate exchange rate taxes exporters and benefits importers. Apart from its fiscal consequences, MER system influences reallocation of resources and worsens transparency, as indirect nature of taxes/subsidies makes them difficult to measure.

Exchange rates guarantees and **loan guarantees** represent contingent liabilities of central bank (or other agency that provides them). These liabilities are not ordinary ones in that their realization is some probability function, and specificity of their treatment and economic effect is an issue of numerous research (see the section "Balance Sheet Approaches" below).

The attribution of a particular operation to the group of QFA sometimes calls for considerable theoretical and practical problems. Some purely monetary operations influence government financial position and thus should be treated as quasi-fiscal. This relates, first of all, to **sterilization or open market operations**: they do not fall into general definition of QFA, as they do not contain tax or subsidy element. Notwithstanding, some authors (Mackenzie and Stella, 1996; Robinson and Stella (1993); Markiewicz (2000)) suggest their inclusion in QFA, as sooner or later they may cause substantial losses. For example, when central bank purchases government paper, in order not to increase money supply it should sell its foreign exchange reserves. Thus, central bank ends up with a riskier (and thus, of lower value than before) portfolio.

Cottarelli (1993) discusses the forms and consequences of central bank credit to the government. Central bank can credit government directly or indirectly (Table 3).

Table 3. Forms of central bank credit to government.

Direct credit	Indirect credit
- overdraft facilities - fixed-term loans and advances - purchases of T-bills at the primary market	- purchases of T-bills at the secondary market - repurchase agreements - government deposits at central bank

Source: Cottarelli (1993)

Cottarelli's (1993) analysis of the practice in 57 countries shows that, as a rule, direct credit is prohibited (at least, some its forms) and indirect credit is allowed. Credit to government contains a quasi-fiscal component if it is disbursed at a preferential (lower than market) rate, which is often the case. Moreover, subsequent sterilization also entails quasi-fiscal costs to central bank. For example, interest on government paper (T-bills) may be set above world (external) rate to make the paper attractive. When the central bank sells government paper and uses local currency proceeds to buy foreign assets, it becomes exposed to loss equal the difference between the interest it will have to pay on domestic paper and interest it gains on foreign assets. Government obtains additional credit, and central bank "pays" the commission. Thus, seemingly pure monetary operations may contain a considerable fiscal component. Result of such operations is not only reduced profits of the central bank, but also an increase in riskyness of its portfolio and possible reduction in value of assets, with the ultimate consequence being fall in the central bank net worth.

Although the complete separation of fiscal and monetary activities is not feasible in practice, some reform of government-central bank relations should be undertaken. It is especially topical in transition countries, where monetary

policy is heavily subordinated to fiscal needs, imposing large costs on central bank and , sometimes, resulting in losses. Robinson and Stella (1993, p. 257) argue that government accounts and central bank account could be amalgamated so that "government accounts should incorporate quasi-fiscal revenues and expenditures,[4] leaving the central bank accounts covering only monetary activities". Such unification of accounts poses some technical difficulties, as government statistics is done on cash basis, while banking accounts are calculated using the accrual method. Nevertheless, some simple transformations could be done for fiscal balance to be more comprehensive. In particular, Robinson and Stella (1993) suggest that "First, central bank losses in the profit and loss account could be amalgamated into a adjusted fiscal deficit by the addition of a transfer from government to central bank financed by a credit from central bank. Second, an estimate of the size of central bank quasi-fiscal activities falling outside the profit and loss account could be made and the activities removed from central bank accounts and amalgamated into the fiscal deficit". Another way to amalgamate the balances is proposed by Buiter (1997) who that in the case of a transition economy, central bank credit to all sectors other than government can be treated as quasi-fiscal transfer.

Moreover, not only accounting transformations are needed, but financing of central bank costs should be taken into account. Mackenzie and Stella (1996) stress that "effective management of macroeconomic policy must ensure that unfunded and implicit liabilities incurred through financial operations are explicitly recognized and funded". What one should keep in mind is that the central bank can not have a loss like other economic agents, since it finances its deficit by issuing money. As Tanzi (1993) argues, "if the deficit is to be

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[4] Quasi-fiscal revenues and expenditures are financial flows or changes in wealth resulting from quasi-fiscal operations. For example, the difference between market credit rate and preferential rate, multiplied by the amount of credit, is the quasi-fiscal component of preferential loan, and is quasi-fiscal expenditure of bank. The major type of quasi-fiscal revenue of central bank is seigniorage and imputed interest on reserves of commercial banks.

financed through inflationary finance, it may still be better if this finance is directly allocated to the budget", as central bank involvement in deficit finance undermines its flexibility in monetary policy conduct.

Quasi-Fiscal Operations of Commercial Banks.

Not only central bank, but also other public financial institutions accomplish quasi-fiscal functions. Like central bank, commercial banks may (not voluntarily) exercise preferential credit allocations and lend at subsidized interest rates. But the scope and magnitude of such operations is quite limited, as, unlike central bank, other PFIs do not have "coercive power" to extract resources by means of quasi-fiscal taxes.

Quasi-Fiscal Operations of Extrabudgetary Funds.

The economic impact of extrabudgetary funds' (EBF) activity is by far and much the same as of budgetary system: redistribution of resources by means of taxation and subsidization. IMF (1986, p.11, 327) suggests inclusion of extrabudgetary funds into the general government sector. In terms of accounting they suggest amalgamating the balances of EBF and different levels of government, while at the same time reporting balances of EBF as memorandum item to facilitate analysis.

1.3.2. Treatment of NFPEs' Quasi-Fiscal Activities.

The correctness of counting non-financial public sector enterprises (NFPEs) as a part of the government is disputable (Tanzi, 1993; Blejer and Cheasty, 1991; Buiter, 1997). In transition economies the distinction between "private" and "public" is very vague: enterprises accomplish some duties of government, while government in turn, manages or controls enterprises. The vagueness of boundaries between "state" and "private" is related to the "soft budget constraint" phenomenon (Kornai, 1992). Among major quasi-fiscal functions accomplished by NFPEs are social services and non-market pricing (Table 1).

Tanzi (1993) supports the treatment of social payments of NFPEs as government expenditures, while Buiter (1997) does not include them in his measure and suggests amalgamating only with PFI.

1.4. Balance Sheet Approach.

1.4.1. Cash vs. Accrual Measurement.

While the budget deficit is conventionally measured on a cash basis, some authors put forward arguments for the use of accrual deficit measurement. Accrual deficit captures "the actual resource preemption of government – the consequences of its policy decisions - during the fiscal year, regardless of whether or not transactions have actually been paid for" (Blejer and Cheasty, 1991, p. 1649). For example, capital depreciation is included as an outlay in accrual deficit, but is not counted in cash deficit measure. What is actually often employed are surrogate measures with some expenditures treated on accrual basis. In particular, some authors suggest addition of expenditure arrears to the cash deficit measure (Diamond and Schiller, 1993, Legeida, 2000, Markievich, 2000). According to Diamond and Schiller (1993, p. 136), "If delays in payment are unanticipated, they represent forced borrowing from suppliers, with the result that the cash measure of borrowing requirement misrepresents the sources of credit to the government".

On the other hand, the accrual measure has its own limitations in application to government accounts. As stated in Manual on GFS (IMF, 1986, p.33), "the full measurement of accrued liabilities and of the related business accounting concepts of net worth, income and total accrued costs cannot be carried out by the government". The rationale put forward by the authors is that "the accrual of most liabilities to government occurs as a result of transactions and activities in which the government does not directly participate".

1.4.2. Net Worth Measurement.

Several measures proposed use the concept of net worth. An extensive discussion can be found in the volume "How to Measure the Fiscal Deficit: Analytical and Methodological Issues" (1993), in particular in papers by Buiter, Blejer and Cheasty, Towe, Diamond and Schiller, as well as in Blejer and Cheasty (1991) and in Manual on GFS (IMF, 1986).

In 1980s, as many countries, both industrialized and developing, accumulated large debts, the concern of economists shifted from short-term analysis of government fiscal stance to its long-term implications for an economy. The price level and exchange rate movements proved to influence significantly government's solvency. Effects of privatization programs on government worth have also drawn much attention of economists.

Blejer and Cheasty (1993) discuss the existing balance-sheet approaches to government net worth measurement (based on government financial statistics and national income accounting). Some aspects of constructing government balance sheet are discussed: valuation of financial and real assets, contingent liabilities and tax programs. As the authors conclude, "The jury is still out on whether net worth calculations of the deficit are superior to traditional flow measures" (Blejer and Cheasty, 1993, p.294).

W. Buiter (1993) describes the **ideal public sector balance sheet** He suggests construction of comprehensive wealth and permanent income accounts, in addition to conventional accounts. The structure of the comprehensive balance sheet he suggests is presented in Table 4.

Table 4. Comprehensive consolidated public sector balance sheet (at current market or implicit prices)

Assets	Liabilities
$P_{Ksoc}K_{soc}$ Social overhead capital (nonmarketable)	B_H Net interest-bearing debt denominated in domestic currency, held by residents
$p_G K_{soc}$ Equity in public enterprises (partly potentially marketable)	B_F Net interest-bearing debt denominated in domestic currency, held by nonresidents
$p_R R_G$ Land and mineral assets (marketable)	eB^*_H Net interest-bearing debt denominated in foreign currency, held by residents
eE^* Net foreign eschange reserves	eB^*_F Net interest-bearing debt denominated in foreign currency, held by nonresidents
T Present value of future tax pro grams, including social security contributions, tariff revenue, and the like (implicit assets)	pB_H Net interest-bearing index-linked debt, held by residents
pA_M Imputed net value of govern ment's cash monopoly	pB_F Net interest-bearing index-linked debt, held by nonresidents
	H Stock of high-powered money
	N Present value of social insurance and other entitlement programs (implicit liability)
	W_G Public sector net worth

Source: Buiter (1993)

The conventional balance sheet of public sector does not normally include all nomarketable and nonfinancial assets and liabilities, such as K_{soc}, K_G, R_G, T, N and A_M.

Using the structure of comprehensive balance sheet, Buiter (1993) constructs the current and capital balances of the public sector. Then he compares the two indicators obtained – the public sector budget constraint and the change in real net worth. He finds that the difference between the two is due to capital gains and losses and changes in the value of the implicit assets and liabilities. These components of the public sector balance sheet bring forward much controversy. As Blejer and Cheasty (1993, p. 286) remark, "the present value of the tax program presents conceptual difficulties large enough to cast doubt on the interpretation of any measure of government net worth", and

they conclude that "the measure is not broad enough to internalize the indeterminacy created by the government's power to change the present value of tax and entitlement programs" (Blejer and Cheasty, 1993, p. 294).

1.4.3. Treatment of Valuation Changes.

In all studies reviewed (for example, Blejer and Cheasty (1993), Buiter (1993), Eisner and Pieper (1984)) the authors point out that valuation changes present the major challenge in re conciliation current and capital accounts. The examples of capital gains and losses that are omitted from conventional flow of funds accounts are:

- change in the real value of public debt due to inflation;
- change in the real value of foreign-currency-denominated assets and liabilities caused by changes in exchange rates;
- capital gains or losses due to changes in relative prices.

Eisner and Pieper (1984), for example, suggest adjusting debt series for valuation changes. On the other hand, as stated in an unpublished paper Russo (quoted after Blejer and Cheasty, 1993), "unless the government raises taxes to prepay its debt, the public debt is always amortized at its face value; neither gains nor losses from shifts in market valuation over the life of the loans are ever realized. (…) Hence, such shifts (…) are irrelevant to the sustainability of the deficit".

1.4.4. Contingent Liabilities.

Treatment of contingent liabilities is one of the most debated issues in balance sheet measures application. Contingent liability is an obligation to pay in the future if a certain event occurs. Contingent liability does not initiate a current cash flow, but rather is an obligation regarding future cash flows. Some examples are deposit insurance, social security, loan and exchange rate guarantees. By its effect on economic behavior contingent liability is very

much like a subsidy: for example, the provision of a guarantee on a loan to a private entity makes this loan risk free (if guarantor is government or central bank, and the credibility of the commitment is high), which allows the private entity to pay lower interest. Hence, guarantee is just an indirect subsidy. In such a case, logic requires treatment of contingencies like any other subsidy. The major problem is in uncertain nature of such liabilities: obligation of government depends, in its timing and amount, on the occurrence of a particular event. One of the ways to account for some contingencies (loan and exchange rate guarantees) is to calculate the difference between the rate the borrower would have paid in the absence of guarantee and the interest he actually pays with guarantee (Towe, 1993).

In their discussion of value of tax program, Blejer and Cheasty (1993) suggest that valuation changes lead to changes in "private sector perceptions of its claims on the government", and that Ricardian equivalence might be broadened to include changes in the value of contingent claims. Such a line of reasoning leads to a quite important idea, which I find fundamental for my research, that sustainability of fiscal deficit and debt is an influential factor of wealth and growth of an economy. As Blejer and Cheasty (1993, p.293) state, "the government's control over resources conceivably encompasses all of the private sector income and wealth. The sustainability of government policy then depends on its impact on the total wealth of the economy – in other words, on private agents' view of their net worth". From their discussion it follows that inconsistent fiscal policy may ruin down the economy's capital stock and make future generations poorer than present one.

In order to capture this wealth-redistribution effect, in assessment of fiscal policy it is important to consider not only monetary effect of fiscal balance changes, but also net resource preemption by the government, regardless of whether the government actually pays for transactions or not. Diamond and

Schiller (1993) mention a method that is based on calculation of the change in net liabilities of the government..

Summary.

As the literature review suggests, there is multiplicity of measures to assess fiscal stance of the government. Each of them could be used depending on the purpose of the analysis. In particular, for the short-term analysis flow measures are considered more appropriate, such as budget deficit or fiscal impulse. If one wants to consider long-term effects and redistributional impact of fiscal policy, net worth approach should be chosen. Under the conditions of transition economies, with vague boundaries between fiscal and monetary policy and pervasive use of soft budget constraints, the scope of the government operations should be broadened to take into account quasi-fiscal operations of public financial and non-financial institutions. The next section is devoted to analysis of fiscal developments in Ukraine in the context of the issues discussed above.

DEVELOPMENT OF A MEASURE FOR ASSESSMENT OF FISCAL IMBALANCE IN UKRAINE.

2.1. Persisting Imbalance.

As a transition economy Ukraine is facing a number of disequilibria both internal and external. It is to be expected, as transformation of any system results in major shocks.

The problem with the Ukrainian economy is that reforms are introduced slowly and not very effectively. As a result, a lot of elements of the old system continue functioning, giving rise to large internal and external imbalances. The essence of the problem lies in the required change in the role of the government: it should abandon its role of regulator, manager of productive activity and switch to functions of facilitator. This task can not often be accomplished swiftly, as new institutions and structures have to be created.

Under the central planning system a major part of income and wealth redistribution was managed by government. The essence of planning was heavy taxation of population and enterprises for the sake of financing public expenditures. Taxation often took implicit forms, the major being pervasive shortages.[5]

With the end of the plan system, the government became deprived of many sources for financing its expenditures, and the "simplest" means of financing

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[5] The phenomenon of shortage was characteristic not only of consumer goods and services market, but in all other spheres of economy: in means of production, including investment goods, in labor, in imported and exported products, and in international means of payment, giving rise to "shortage economy" (Kornai, 1992, p.233)

it resorted to was printing of money. This, supplemented by "monetary overhang"[6], led to outburst of hyperinflation in the early years of transition (1992-1994). With inflationary source being exhausted, government had to search for other sources of financing. In 1993-1995, it borrowed from Russia. From 1996 the credits of international financial institutions (IFI) such as World Bank and IMF were intensively used. A rough idea of the "dynamics" in terms of sources of financing of the fiscal imbalance is presented in Table 5. The pattern depicted in the table suggests that the government switched from one source of financing to another. When credits and grants from abroad began to diminish, government put into practice forced internal financing by resorting to arrears (column 12 in Table 5) and issuing Treasury bills (column 13).

The latest tendency is involvement of enterprises in financing of fiscal needs: for example, government arrears on VAT repayment[7] increased in equivalent of 1.1 percent of GDP in 1999 (SSC, 2001). Local budgets' debt to the "Naftogas of Ukraine" company for subsidies and privileges granted to population has amounted to UAH 1.2 bln as of October 1, 2000 ("Financial Week", 2000).

Beginning in 1999, a large part of budget revenue came from privatization, and this source is counted on in 2001 year's budget financing.

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[6] Monetary overhang develops when consumers are forced to save under conditions of shortages (Kornai, 1992, p.239).

[7] Due to payment procedure in import operations, subjects are to prepay value added tax (VAT) which the government should return afterwards.

Table 5. Examples of sources of financing fiscal imbalance, % GDP.

Nominal GDP, UAH mln	Real GDP change, %	Period	Shortages of labor, goods and services	Inflation, annual % rates*	Change in debt to Russia (state debt and arrears)	Change in external debt of enterprises, except Russia	Current transfers	Change in debt to WB and IMF	Change in budget and budget-related wage and pension arrears	Change of T-bills debt	Change in debt to foreign banks	Change in VAT credit liabilities	Privatization receipts
1	2	5	6	7	8	9	10	11	12	13	14	15	16
3	-8.7	1991		64									
50	-9.9	1992		1,750									
1,483	-14.2	1993		3,357	8.3								
12,038	-22.9	1994		953	3.9	2.3							
54,516	-12.2	1995		416	1.3	0.5	0.9	4.3	3.9				
81,519	-10.0	1996		66		0.7	0.6	2.5	7.1	2.7			
93,365	-3.0	1997		18		0.7	0.9	0.9	1.0	5.8	1.0		
102,593	-1.9	1998		12	1.2	3.7	0.8	1.9	2.8	4.9	3.2	0.4	0.5
127,126	-0.4	1999		24	7.6	2.9	0.6	1.4				1.1	0.6
71,337	5.0	2000 H1		23	2.6					2.5		1.3	1.6

Source: Szyrmer and Kolesnichenko (2000)

Only values that are equal or higher than 0.4 % GDP enter the table. Negative values are replaced by "zero" entries; they signify that a particular source of financing was given up. The degree of shading reflects the importance of source of financing (in terms of ratio to GDP). Shading allows to stress the "flow" pattern in the choice of financing sources.

* Inflation is calculated on the basis of GDP deflator.

The main message of the table is that, most likely, the imbalance in governmental finances is not declining. The government just shifts to diverse means and sources of financing without really combating the deficit. A more rigorous investigation of fiscal activities is required to clear up the financial stance of the Ukrainian government, to which we turn in the subsequent sections.

2.2. Quasi-Fiscal Operations.

The message of some studies of fiscal practices in transition countries is that a considerable part of fiscal activities could be carried out by institutions other than government. These are referred to as quasi-fiscal activities (QFA). Based on review of possible QFA (Section 1.3.) let us now consider quasi-fiscal practices implemented in Ukraine. The review is structured by type of agent conducting QFA: public financial institutions (extrabudgetary funds and central bank and commercial banks are considered) and non-financial public enterprises.

Extrabudgetary Funds' Operations

Extrabudgetary funds (EBF) in Ukraine conduct operations that are naturally to be accomplished by government: they collect taxes and make disbursements. The necessity of amalgamation of balances of EBF and budget balance is recognized, and operations of several state funds are already accounted for in budget statistics (Social Security Fund, Innovation Fund, Road Fund, Environmental Protection Fund, Chornobyl Fund)[8]. Nevertheless, operations of majority of EBF still rest outside of budget accounts, and, more importantly, its control. Operations of EBF are very opaque - there is even no unique reliable figure of the number of EBF. Due to estimates of Accounting Chamber of Parliament, in 1999 there existed

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[8] Some agencies (for example, UEPLAC) amalgamate Pension Fund balance with budget balance, nevertheless officially they are not amalgamated.

nearly 1500 EBF of different levels. The National Bank's figure is 829, and the State Statistics Committee reports about 683 EBF in Ukraine. The volume of operations and balances of these funds is also hard to estimate: the State Statistics Committee obtains information only on activities of large funds, such as the Pension Fund, the Social Security Fund, the Innovation Fund and some other. But there are also funds of ministries and committees, EBF of local authorities and EBF of budget enterprises, which are monitored very poorly. There are strong doubts whether the money is used properly in many EBF (Markiewicz, 2000; FAO, 2000).

In laws on 1999 and 2000 budgets a requirement was introduced to liquidate EBF of executive bodies and local authorities by consolidation of their accounts with respective budgets. But, as observers state (FAO, 2000), in practice liquidation of EBF goes very slowly, even new EBF are being created (for example, Odessa Municipal Rada created new extrabudgetary fund). As some experts suggest (Markiewicz, 2000), the revenues of local EBF might considerably exceed official revenues of local authorities.

Central Bank Operations

As capital markets were, initially, poorly developed, National bank of Ukraine (NBU) credit was the biggest source of budget deficit financing up until 1996 (Table 6).

Table 6. Sources of financing the budget deficit, percent.

	Direct NBU credits	Foreign credits	T-bills
1995	72.7	19.8	7.4
1996	40.2	22.8	37.0
1997	1.6	26.7	71.7
1998	0.8	68.0	31.2
1999	0.1	13.7	86.2

Source: UEPLAC, 2000

With the launch of government paper (T-bills) in the beginning of 1995, direct credits were abandoned, and NBU began buying government paper at the primary market. After outburst of financial crisis in 1998, NBU became the sole buyer of T-bills. At the beginning on 2000, NBU's holdings of T-bills amounted to UAH 10.6 billion.

Another way the central bank "helps" the government are quasi-fiscal operations. As can be observed, National Bank of Ukraine is engaged in many kinds of quasi-fiscal activities. In their presentation we will follow classification given in Table 2 in the "Review of Measures" section.

Administered lending rates. The credit of NBU to the government was often provided at below market rates. In particular, interest on T-bills bought by NBU in 1998-99 was lower than the market rate of interest.

Preferential rediscounting practices. NBU often refinanced banks at rates lower than official rate. Depending on the state of the bank and its size, NBU set rates of refinancing in a discretionary manner.

Subsidized lending. In the frames of fiduciary loans, foreign commercial banks got deposits of NBU reserves, conditional that loans would be disbursed to determined Ukrainian enterprises and banks. Secured by NBU reserves, such loans may have had low interest (exact figures are not available), which would imply subsidization of the Ukrainian enterprises and banks.

Loan guarantees. Another type of fiduciary agreements included disbursement of guarantees on loans to given enterprises by the foreign bank holding NBU reserves. In such a case, deposit of NBU reserves was a collateral.

Underrenumerated reserve requirements. NBU does not pay interest on reserves of banks.

Rescue operations. NBU did bail out troubled banks. It injected funds in bank "Sloviansky" (but eventually stopped doing this, and the bank went bankrupt in the beginning of 2001), it also conducted rescue operations in respect of bank "Ukraina".

Exchange rate guarantees. In some deals on T-bills (OVDP), NBU guaranteed the foreign buyer a conversion of hrivnia-denominated income on the paper into foreign currency after a predetermined exchange rate. By April 2000, the volume of such guarantees comprised USD 291 mln (Markiewicz, 2000).

Both crediting of the government and quasi-fiscal activities may have negatively influenced central bank balance and riskyness of its portfolio. The effect of these operations on the balance of NBU should be explicitly treated in fiscal assessment.

Quasi-fiscal Activities of Commercial Banks.

The types of quasi-fiscal operations commercial banks engage in are similar to those conducted by central bank, but their scope and volumes are limited. Among those most broadly used are preferential credit allocations ("directed credits") and subsidized interest rates. In 1998, there was introduced a mechanism which made it attractive for banks to engage in QFA. Namely, several large commercial banks were allowed to service budget accounts. In response they were obliged to buy T-bills (which could be treated as preferential credit allocation). Moreover, sometimes NBU (at the request of the government) "strongly recommended" that banks disburse credits to certain enterprises (so called, "directed credits"). This was the case, for example, in the spring of 2000, when banks were asked to disburse credits to agricultural sector.

Quasi-Fiscal Activities of NFPEs.

All Ukrainian enterprises, especially large ones, have inherited a bunch of quasi-fiscal functions from the central planning system: provision of social services for employees (housing, medical care, kindergarten services and other), maintenance of virtual employment etc. The scope of such operations has been declining over the recent years, nevertheless, they still constitute a considerable expenditure as in nominal terms, so as a percentage of GDP (Table 7).

Table 7. Expenditures of state and collective enterprises on provision of social services, UAH million, and percent of GDP, 1995-1999.

	Unit	1995	1996	1997	1998	1999
Social payments	UAH mln	2938.7	3670.0	3649.1	3201.8	n/a
	% GDP	5.4	4.5	3.9	3.1	n/a

Source: Legeida (2000)

To its turn, the government supports NFPEs by explicit subsidies, budget loans, directed credits (forced lending by commercial banks), loan guarantees, tax privileges, tax arrears write-offs and restructuring. The explicit forms of support (subsidies, budget loans) are treated quite well in budgetary statistics. Challenges arise in treatment of implicit forms of support, such as directed credits and loan guarantees (these points are discussed in the section on contingent liabilities).

2.3. Arrears.

Arrears have become a persistent phenomenon in Ukrainian economy since 1994. There exist a "vicious circle" of indebtedness: government owes enterprises and households, enterprises owe government and employees, households owe budget. The major categories of government sector arrears are summarized in Figure 1:

Figure 1. Categories of government arrears

Government arrears:	NFPEs' arrears	Contingent liabilities of government
- budget wage arrears	- wage arrears	
- arrears on tax repayment	- foreign debt	
- for supplies to budget sphere		
- to electricity and utility companies for supplies		

EBFs' arrears
- social payments arrears
- pension arrears
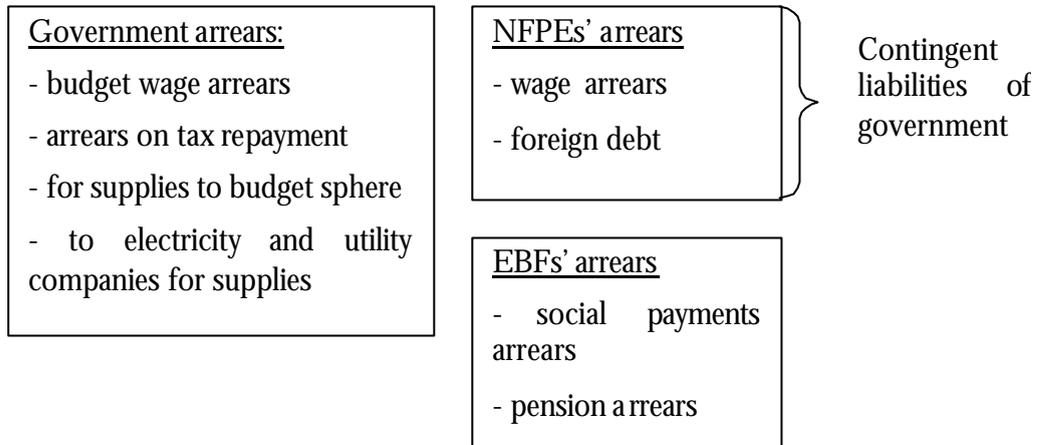
Arrears of local budgets to electricity supplying companies arose due to subsidies to population: by means of special subsidies, the authorities granted certain groups of population a right to pay for just a part of consumed energy. But the required transfers from budgets to electricity companies were not made on time, hence, arrears accumulated.

Arrears of budget on tax repayment are the sums that were overpaid to the budget but not reimbursed on time. A special mechanism is applied to taxation of imports, when value added tax (VAT) should be prepaid in the course of import operation and should be returned afterwards but actually is not.

I suggest treating arrears of NFPE as contingent liabilities due to special treatment of NFPE I use (discussed below).

2.4. Contingent Liabilities

Both the Ukrainian government and the National Bank provide extensive guarantees on enterprises' debt. Moreover, activity of some major extrabudgetary funds by its nature creates contingent liabilities (Pension Fund, Social Security Fund). The major types of contingent liabilities of different parts of government are:

Of the government:

- explicit loan guarantees;

- implicit guarantees on external debt of NFPEs;

- implicit guarantees on arrears of NFPEs.

Of the National Bank:

-   loan guarantees;

-   exchange rate guarantees.

Of EBFs:

- future pension payments;

- future social security payments.

The amount of loans guaranteed by the Ukrainian government since 1991 comprised USD 2744 mln as of January, 2000 (FAO, 2000). Almost 65 percent (USD 1769 mln) has been repaid from budget as borrowers defaulted.

Besides providing explicit guarantees, the government repeatedly took implicit obligations on external debt of certain enterprises. In particular, this was the case with external debt for gas supplies from Russia, when Ukrainian government in 2000 assumed USD 1.4 bln (UAH 7 bln)[9] of the claims on "Naftogaz of Ukraine" company. Another example of ex-post guarantees is payment of wage arrears of selected enterprises and industries, in particular, coal mines.

Central bank provided exchange rate guarantees and loan guarantees in 1997-1998 (see Section 2.1.2.).

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[9] The figures are approximate (taken from news issues), as no official data were available.

2.5. Transparency Problems.

The major feature of the operations described is their poor transparency. Guarantees are often disbursed discretionary and, apparently, are not based on the principle of efficiency.

The most recent example of poor transparency in state finances is the so called "Russian gas deal", where it was not even clear (to masses) how much is owed and who is the true debtor.

The accounting procedures at state bodies are highly nontransparent, and as a rule, only aggregated information is available to public, if available at all. In the research we try to shed some light on phenomena hidden behind official statistics, which requires rigorous investigation not only of budgetary information, but actually, of all economic developments in the country that might be related to public finances. Investigation of such developments and collecting of data was among the major challenges of the research, yet some information is still unavailable.

CONSTRUCTION OF THE INDICATOR

3.1. Main Features.

Based on the literature review and the analysis of fiscal practices in Ukraine a comprehensive indicator of financial stance of Ukrainian government should have the following features.

Feature 1: The capital accounting approach, according to which fiscal balance is calculated as the difference between the change in assets and liabilities:

fiscal balance =   change in value   -   change in value
                          of government assets   of government liabilities

This indicator measures the change in the net worth of the government, but does not involve the calculation of the net worth itself. It is the sum of changes of different components (assets and liabilities) of the government.

As was discussed earlier in the paper, the applicability of the net worth concept to government finances is questionable. But, given the considerable changes in stocks of Ukrainian government's assets and liabilities (the effect of devaluation, inflation, privatization, arrears, contingent liabilities etc.), the capital accounting approach has the advantage of covering all these changes, while measures based on the current accounting approach do not. [10]

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[10] In the current accounting approach, balance is calculated as the difference between revenues and outlays. This method is conventionally used as the budget balance. On the other hand, capital accounting is used in enterprise and bank accounting.

Moreover, the debt restructuring deal of April 2000 showed that Ukrainian government really faces the problem of insolvency. Although a crisis was averted, the default situation may repeat. What becomes crucial is a long-run ability of the government to pay its bills, and the net worth approach is the right instrument to assess this.

Feature 2: A broad notion of the government sector: along with general government, public financial institutions (PFIs) are included to form the public financial sector (PFS). As we have seen, PFIs conduct a number of quasi-fiscal activities that significantly influence their balances, which justifies amalgamation of their balances with that of the government. As the analysis of quasi-fiscal operations of Ukrainian PFI showed, central bank is the major provider of QFA. Commercial banks also appear to be involved in quasi-fiscal activities, but to a lesser extent. For the purposes of the present research I suggest amalgamation of only central bank balances with government accounts. The quasi-fiscal component of commercial banks operations is not large enough (compared to that of central bank) to include their balances fully into public financial sector balance. What could be done is to include only quasi-fiscal component of commercial banks' operations into PFS balance, but this is a very complex task which is beyond the capacity of the present research.

Non-financial public enterprises are not included in the government sector directly, as quasi-fiscal component of their operations is difficult to disentangle from the rest of their operations. Under the capital accounting approach, unification of government and NFPEs balances becomes even more problematic, as the value of enterprises is subject to numerous influences other than fiscal ones. Moreover, the amalgamation of the non-financial enterprise sector with the public financial sector would lead to loss of information on transactions between these sectors.

What I suggest doing is including of quasi-fiscal component related to NFPEs financing by public financial sector. This financing is reflected by changes in contingent liabilities of the government and public financial institutions.

Feature 3: Implicit liabilities are included in the balance. In this respect the measure proposed is similar to that suggested by Buiter (1993). In particular, I suggest inclusion in the government balance of such liabilities as governmental explicit loan guarantees on enterprises' debt, implicit guarantees of government on NFPE's arrears, augmentation of central bank balance by the exchange rate guarantees and other implicit liabilities for which no reserve provisions are made, as well as such implicit assets as net present value of cash monopoly (future seigniorage revenues).

Feature 4: All the figures are expressed in **percent of GDP**, which allows to eliminate the effect of inflation.

3.2. Composition

In the construction of the indicator I borrowed some ideas from Buiter's "ideal balance sheet" (1993). Liabilities side reflects Buiter's approach, but the classification differs. Buiter uses detailed classification of liabilities: in his balance, liabilities are distinguished on the basis of denomination (currency), and on the basis of creditors (residents or non-residents). I distinguish liabilities only on the basis of denomination. Such treatment does not allow derivation of external balance from the entries of the resulting balance sheet, but this deficiency is not crucial for my analysis, as its aim is in measuring the total financial position of the government, without special attention to internal and external balances.

Moreover, I do not include central bank's assets and liabilities in "the comprehensive balance" directly, as Buiter does. In particular, he includes the stock of high powered money on the liability side of the public sector balance

sheet, and net foreign exchange reserves on the assets side. I use the net worth of central bank figure given in the official statistics and augment it by implicit assets and liabilities not included in the official balance. A recalculation of the central bank balance would be a useful exercise, but is beyond the scope of my research.

On the asset side, the scope of items covered is close to that in Buiter's balance. The difference is in the treatment of the imputed value of government's cash monopoly, which I include not in general government's assets, but in central bank's implicit assets.

The indicator is constructed as follows:

Financial stance of the government   =
Change in net worth of general government +
Change in central bank net worth, augmented

where:

Change in net worth of general government =
Change in assets - Change in liabilities

Change in general governmental liabilities:
1. Change in the debt of the central government:
    1.1. Internal debt of the central government;
    1.2. External debt of the central government.
2. Change in the debt of local governments.
3. Change in the stock of general government expenditure arrears.
4. Change in contingent liabilities of the general government:
    4.1. Explicit loan guarantees;
    4.2. Implicit guarantees on external debt of NFPEs;
    4.3. Implicit guarantees on wage arrears of NFPEs.

Change in general government assets:

1. Change in the value of government equity in enterprises.
2. Change in the value of government property of land and mineral resources.
3. Change in the stock of revenue arrears.
4. Implicit assets
    4.1.   The present value of future tax programs;
    4.2.   The net present value of EBF programs.

Change in central bank net worth, augmented =

Change in net worth, official

+ Change in net value of central bank's cash monopoly (implicit assets)

- Change in contingent liabilities (not included in the official balance):

    Loan guarantees

    Exchange rate guarantees

The indicator proposed is comprehensive, while at the same time adapted to Ukrainian conditions: it includes relevant assets and liabilities that constitute the balance of public financial sector in Ukraine.

**THE MAGNITUDE OF FISCAL IMBALANCE IN UKRAINE:
MEASUREMENT AND IMPLICATIONS.**

4.1. Data Sources and Calculations.

The indicator of fiscal imbalance is calculated on annual basis for the period
1995-2000. The major consideration for the choice of the time span was data
availability: for the early years of transition (1991-1994), the data are often
unreliable or missing.

As one of the tasks of my research is to reveal the developments not showed
explicitly in budgetary statistics, I spent considerable effort on data search.
The data I use comes from diverse sources: State Statistics Committee,
Ministry of Finance, Ministry of Economy, National Bank, as well as some
news issues, such as Financial Week, published by Ukrainian News agency.
Yet I was not able to collect all needed data. The first problem is that, in some
cases, the data just do not exist, as is the case with value of government
property of land, or exist in a very aggregated format (for example, data on
external debt of NFPEs is classified only by type of creditor, but not debtor).
The second problem is that some data was unavailable to me. This refers to
data on some items of National Bank's balance, debt write-offs, implicit
guarantees (debt takeovers by the government) and some other.

The details of the calculations are discussed below. The data are presented in
Table A1 in the Appendix, and the respective changes in stocks are in Table
A2 in the Appendix.

External debt.

External debt of the central government began accumulating rapidly in 1992, with foreign governments being the major creditors (Table A3 in Appendix). In 1994, international financial institutions began providing credits to the Ukrainian government; and in 1995 there was a massive increase in external credit, when foreign commercial banks became involved in crediting, and dollar-denominated obligations were issued by the government. The magnitude and structure of the external debt of the government as of January 1, 2001 is provided in Table A4 in Appendix. The major part of the debt is the debt of the Ministry of Finance. Only debt to IMF is the debt of NBU, nevertheless, it is treated as contingent debt of the government (Table A4). I do not include the debt to IMF in external debt of central government, as it is accounted for in NBU balance (amalgamation of government and NBU accounts is discussed below).

The change in the external debt in terms of domestic currency is calculated using the following formula:

$$\ddot{A}D^{UAH} = D^{USD}(t_1) * ER(t_1) - D^{USD}(t_0) * ER(t_0)$$

where:

$D^{USD}(t_0)$ and $D^{USD}(t_1)$ are stocks (in USD terms) of the external debt at the beginning and at the end of the year;

$ER(t_0)$ and $ER(t_1)$ are the USD exchange rates set at the end of the preceding and current year respectively.

For the purpose of analysis, the effect of valuation changes (due to changes in exchange rate) is disentangled from the total figure for change in external debt (row 1.2.2. inTable A2).

Internal debt of the general government.

Almost the entire volume of the internal debt is the debt of the central government. There was a single precedent when a local government issued debt: in 1996, Odessa mayoralty issued obligations in the amount of UAH 61 million. Afterwards, borrowing by local administrations was prohibited. The data on the dynamics of this debt was unavailable, so that I could not account for it (in any case, its magnitude is negligible compared to the volume of central government debt).

The internal debt of the central government consists of T-bills, debt to the central bank, debt to commercial banks, and debt to legal persons. The debt of the government to the National Bank accrued during the first years of transition, when NBU disbursed direct credits to the government. Commercial banks provided direct credit to the government as well, although on a much smaller scale. After the launch of the T-bills market in 1995, direct crediting by NBU was prohibited. Commercial banks, NBU and legal persons, both national and foreign, were the buyers of T-bills. As of January 1, 2001, 42 percent of internal debt was the debt on Treasury bills (Table A1), and nearly 77 percent of the value of T-bills (UAH 9600 mln) was held by NBU.

General government expenditure arrears.

This category comprises expenditure arrears of general government: central government, local governments, and extrabudgetary funds, although in the presentation in Tables A1 and A2 this distinction is not drawn. The reason is that detailed series were available not for the whole period in consideration, and, moreover, in 1996 some extrabudgetary funds' accounts were included in the budget accounts (the Chernobyl Fund, the Social Security Fund, and the

Innovation Fund), which would have made the data for previous years incomparable with those for 1996.

Arrears on supplies to budget sphere, tax repayment, and on social payments are, mostly, central budget's arrears. The "social payments" category includes the following items:
- Wages and salaries;
- Social insurance;
- Stipends and other transfers to population;
- Chornobyl-related subsidies.

Arrears on heating, gas, electricity, rent, water supply and sewage are, mostly, arrears of local budgets (as of January 1, 2001, UAH 1225 mln (or 88 percent) of such arrears was owed by local budgets)). These arrears emerged due to subsidies to population and the failure of the government to compensate energy companies and utilities for the difference in payments.

Contingent government liabilities.
Loans provided under government guarantees are included (in the Ministry of Finance statistics) in the full amount in government external debt. The major part of guaranteed loans are those provided by international financial institutions (World Bank, European Bank for Reconstruction and Development), as well as some loans provided by foreign governments (Table A3). The procedure of disbursement of such guarantees is as follows: the creditor provides a loan to the government, and the government disimburses the funds to recipients. Repayment of the loan is exercised through the same chain: borrower – government (MinFin) – creditor. In every year's budget a provision is made for the full amount of repayment due (interest and principal). Thus, we will not treat government loan guarantees separately, as they are already included in the external government debt figure. Interestingly, 100% reserve provision for repayment implies that the government expects

very low level of repayment of such loans, and such expectations are, indeed, correct:: only about 3% of the debt was repaid as of October 2000 (FAO, 2000b).

There were numerous cases when the Ukrainian government provided ex-post guarantees to selected enterprises and industries. They differ from explicit loan guarantees in that they are not agreed upon before the deal, but are a kind of bail-outs for failing enterprises. Some examples of such guarantees (wage arrears, external debt) are described in Section 2.4. There is no systematic data on such liabilities. They are created on a case-by-case basis, and the information on such deals is rarely disbursed. Moreover, such operations are conducted, as a rule, in a non-monetary form with multiple transactions involved, which makes it almost impossible to estimate the actual value of the payment. Under such conditions, a second best solution would be to consider the debts of enterprises or industries, to which one can attribute a high probability of take-over by the state. Unfortunately, not only classification of the debt by enterprises was not available to me, but also the industrial division is not reflected in reports of the Ministry of Statistics. As a result, in my calculations I used the following "rule of thumb": implicit government liabilities are equal to 1/5 of the total enterprises' debt outstanding (which is roughly the case for the year 2000 if the takeover of gas debt is considered). Given that the figures for the implicit government obligations are very approximate, I provide an additional version of the fiscal imbalance that does not include these liabilities. Nevertheless, such liabilities are too important to neglect, and, were more reliable data to appear, they should be included in the fiscal imbalance measure.

General government assets.

The estimation of the value of government's assets poses not only technical, but also some conceptual problems, which were discussed in the theoretical part of the paper. For example, such important asset as the present value of

tax program is subject to governmental decisions: it can be changed discretionary at any time. As I haven't found any calculations of such kind for Ukraine, the net value of the tax program is not included in the calculations.

The World Bank Ukrainian office made some attempts to calculate the present value of Pension and Social Security programs. Unfortunately, I was unable to obtain their results. Instead of the change in the present value of the mentioned extrabudgetary funds' programs, I used augmented balance measure:

Augmented balance of EBFs = Official balance of EBFs + Expenditure arrears of EBFs

Expenditure arrears of EBFs are included with all other expenditure arrears of the general government.

The value of government property of land and mineral resources has not been measured so far by governmental agencies. Absence of such estimates is quite natural, as land has not been treated as a good in the Soviet economy. As far as government property in enterprises is concerned, the existing estimates are highly unreliable. They are based on the balance value of enterprises, which can significantly differ from real (market) value. Nevertheless, I account for a major change in the value of government property - privatization (it is treated as reduction in government assets and, thus, enters the balance figure with a negative sign (Table A2)).

Revenue arrears are included in governmental assets. These are arrears of enterprises on payments to the state budget, to tax administration, and to extrabudgetary funds).

Amalgamation with central bank accounts.

As was already mentioned in the description of the indicator suggested, the central bank's accounts are not amalgamated with government accounts completely, in the sense that central bank's assets and liabilities are not treated explicitly in the balance of public financial sector. Rather, the reported (official) NBU net worth figure augmented by contingent liabilities is added to the calculated general government net worth. As becomes obvious, the result of the amalgamation is canceling out of mutual obligations between government and central bank. So, all net claims of NBU on the general government (appear on NBU balance asset side) are netted by corresponding liabilities of the general government.

As in case of general government, measurement of implicit assets and liabilities of the central bank posed the major difficulties. Loan and exchange rate guarantees of the National Bank of Ukraine are usually provided indirectly (see examples in Section 2.1.2., part "Central bank operations"). Given the absence of systematic statistics, the available pieces of information were not sufficient to incorporate them in the calculation of the imbalance indicator. Net present value of cash monopoly is also missing on the assets side of the suggested balance. Generally, the measurement of all implicit assets and labilities is a programming exercise and can be accomplished by constructing a model of the economy. It can be a possible extension of the research.

4.2. The Results of the Measurement: the Magnitude and the Dynamics of Fiscal Imbalance in Ukraine in 1995-2000.

The results of calculations for the years 1995-2000 is presented in Table 8, which is a summary of the more detailed Table A2 in the Appendix. Source data are in Table A1 in the Appendix.

Table 8. Fiscal imbalance in Ukraine, percent of GDP, 1995-2000.*

| Row	Category	1995	1996	1997	1998	1999	2000
1	Change in the debt of the central government	21.7	5.0	9.4	24.4	20.4	-4.9
1.1	Internal debt of the central government	5.8	5.0	9.3	7.6	5.2	-0.9
1.2	External debt of the central government	15.9	0.1	0.1	16.9	15.2	-4.0
1.2.2	of which: valuation change	10.5	0.8	0.1	13.5	13.6	1.0
3	General government expenditure arrears	2.4	5.3	3.7	6.7	0.3	-2.4
4	Contingent liabilities of the government	0.0	1.0	0.6	2.4	2.7	0.2
5	**Total change in gen. gov. liabilities (1+3+4)**	*24.1*	*11.3*	*13.8*	*33.5*	*23.4*	*-7.1*
6	Change of value of government equity in enterprises	0.1	0.2	0.1	0.1	0.6	1.1
9	Change in the stock of revenue arrears	0.9	1.6	-0.2	7.8	6.0	-0.6
10	**Total change in general gov. assets (6+9)**	*0.8*	*1.4*	*-0.3*	*7.8*	*5.4*	*-1.7*
11	**EBF official balance**	0.1	0.0	-1.0	-0.8	-1.0	0.9
12	**Change in gen. gov. net worth (10-5+11)**	-23.2	-10.0	-15.1	-26.5	-19.1	6.3
16	**Change in net worth of central bank, augmented**	0.3	0.2	0.5	1.3	-0.8	0.9
17	**Total fiscal balance (12+16)**	**-22.9**	**-9.8**	**-14.5**	**-25.3**	**-19.9**	**7.2**
17.1	without valuation change	-12.4	-8.9	-14.5	-11.7	-6.2	8.2
17.2	without contingent liabilities	-22.9	-8.8	-13.9	-22.9	-17.2	7.4
	Memorandum items:						
	Official budget balance	**-6.8**	**-4.8**	**-6.7**	**-2.2**	**-1.5**	**2.4**
	GDP, UAH mln, current prices	**54516**	**81519**	**92484**	**102593**	**127126**	**175010**

* - The row numbers correspond to the row numbers in Table A2.

Table 8 shows that the fiscal imbalance in Ukraine was very large during the years of transition, reaching the maximum value of 25.3% of GDP in 1998.

Figure 2 shows that the official budget balance and the fiscal balance differ in their dynamic behavior. The budget deficit was the smallest in 1998, but the fiscal imbalance rose sharply that year. This suggests that the budget balance

not only does not reveal the "true" picture in fiscal situation, but does not reflect the trend, either.

Figure 2. Fiscal imbalance and budget deficit, percent of GDP, 1995-2000
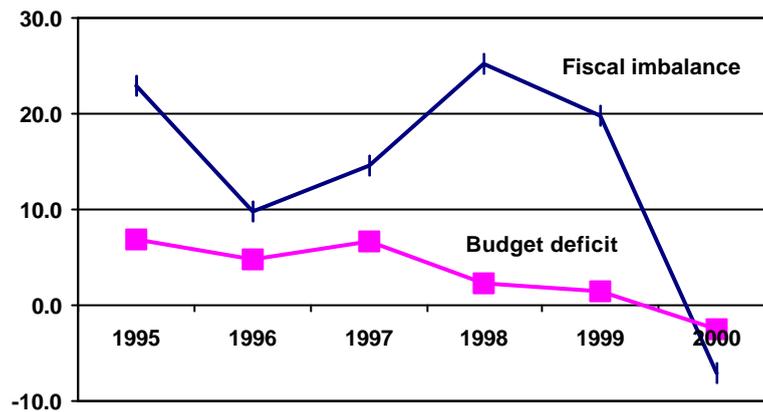
In 1997-1998, there was a sharp swing in the magnitude of the fiscal imbalance. The main source of such variation are developments in the foreign exchange market: in 1997 the exchange rate was appreciated and in 1998 a sharp devaluation occurred. This precipitated valuation changes, in particular, of government external debt (Table 8, row 1.2.1). If the effect of changes in exchange rate is eliminated, the behavior of the fiscal imbalance is smoother, with the magnitude of the resulting imbalance figure also considerably smaller (see Table 8, row 17.1).

On the other hand, such a large swing in the magnitude of the indicator suggests that the calculated indicator is not sufficiently broad: the solvency of the government could not, actually, fluctuate so much. A possible missing item are exchange rate guarantees provided by NBU in 1997; their inclusion would have increased the magnitude of the indicator for the year 1997, smoothening the changes in fiscal balance.

In 2000, a sharp reduction in the fiscal imbalance, equivalent to 7.2% of GDP, is observed. The major underlying factor is a massive repayment of external debt, both principal and interest. New external borrowing was very limited. The result was a reduction in external debt of USD 2150 mln, or UAH 7050 mln, in 2000.

The internal debt has also stopped growing in 2000: it fell by 1 percent of GDP. The government has undertook numerous attempts to sell T-bills, but the market was quite shallow. The memory of forced restructuring (actually, a default) of T-bills in 1998 was still strong enough to discourage potential buyers from purchases. The effect of the default is seen quite clearly in 1999, when debt in T-bills form fell by more than UAH 2 bln (Table A2).

In 2000, a significant improvement was achieved in repayment of some categories of arrears. The government made repayment of pension, wage and social transfers arrears one of its most important tasks. As a result, pension arrears were eliminated, while the arrears on subsidies to population have fallen by 70 percent. At the same time, arrears of the state to enterprises almost doubled. This includes, in particular, arrears on payments for supplies to the budget sphere and arrears on tax repayment. Such offsetting of some sources of financing the deficit by other sources casts doubt on the progress achieved. The task of an analysts becomes to trace the direction of switch, which is not sometimes straightforward, as the "instruments" used become sophisticated. Some hidden forms of financing may not be acounted for in my calculations, and the true fiscal imbalance may be, in fact, larger than the figures suggest.

In this respect the results obtained for the year 2000 are remarkable: they signify that solvency of the Ukrainian government has improved significantly – in equivalent of 7.2% of GDP (Table 8). This prompts a question: is this reduction of fiscal imbalance is sustainable? Has the government incurred other liabilities not accounted for in the analysis?

Another important aspect of the analysis is the net worth of the government. Although the aim of the research was not to measure the net worth itself, but rather its changes (fiscal imbalance), some insights can be obtained from analysis of the figures on net worth. The indices are summarized in the Table 9, which is an extract of more detailed Table A1 in the Appendix.

Table 9. Net worth of the Ukrainian government, UAH mln, end of period, 1994- 2000.

Row	Category	1994	1995	1996	1997	1998	1999	2000
1	Debt of the central government	6042	17880	21987	30712	55778	81760	73105
1.1	Internal debt of the central gov.	1010	4193	8245	16868	24622	31238	29633
1.2	External debt of the central gov.	4828	8000	8839	9553	11483	12475	10327
3	General gov. expenditure arrears	407	1738	6051	9517	16392	16824	7838
4	Contingent liabilities of gov.	667	653	1475	2030	4493	7866	8258
5	**Total gen. gov. liabilities (1+3+4)**	*7115*	*20331*	*29513*	*42295*	*76664*	*106450*	*89201*
10	**Gen. gov. assets***	*8500*	*9000*	*10303*	*10153*	*18184*	*25819*	*24789*
11	**EBF official balance**		80	-11	-913	-779	-1245	1581
12	**Gen. gov. net worth (10-5+11)**	*1385*	*-11251*	*-19221*	*-33055*	*-59259*	*-81876*	*-62830*
16	**Net worth of central bank**	76	231	421	915	2231	1185	2692
17	**Net worth, total (12+16)**	1461	-11020	-18800	-32140	-57028	-80691	-60139

* - Value of government property dos not enter these figures.

The remarkable message of the indices is that the net worth of the Ukrainian government has been negative since 1996, implying that the government was technically insolvent. The major factor of the poor government financial stance were huge liabilities accumulated during the years of transition. However, the magnitude of figures should not be taken at face value: one should remember that the value of some major government's assets, such as future taxes and property in land and mineral resources, did not enter the balance. It is only general trend (changes in net worth) that we can take out of these figures.

The results show that the performance has deteriorated significantly compared to the early years, especially 1995, when net worth of the government was positive. In order to understand such movement in government solvency one would have to expand the net worth calculations to

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the earlier period (1989-1994). But, as was already mentioned, the data for this period is highly unreliable and often is not existent. Moreover, in the early years of transition, the Soviet-type institutions were so strong, that the whole analysis would have to be adapted.

4.3 Financing of the Fiscal Imbalance: Implications for Wealth Redistribution and Growth.

The net worth approach applied for measuring fiscal imbalance, basically, allows to estimate changes in government solvency. As was already discussed, the validity of application of the notion "solvency" to governmental finances is controversial. As government has coercive power, it can just take resources from other sectors in case of need. Moreover, the government has at its disposal an array of implicit means of taxation (or subsidization) for its particular policy needs. Hence, it can improve its financial state just by extracting resources from non-government sectors, either explicitly (through the tax system), or implicitly. Examples of hidden financing of fiscal imbalance are presented in Figure 3.

Figure 3. Examples of hidden financing of the fiscal imbalance.
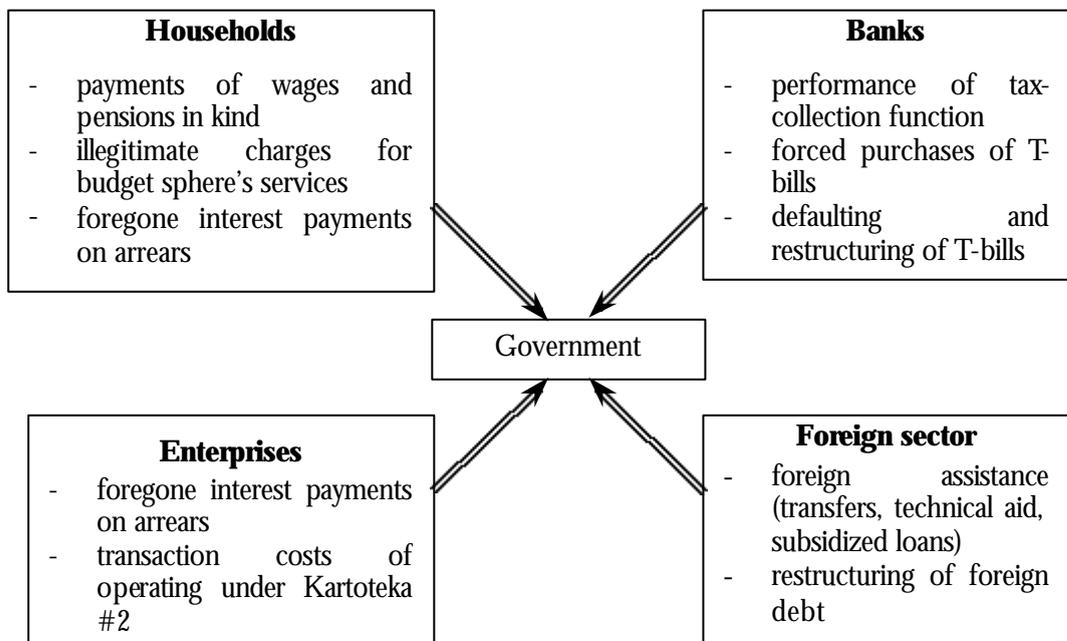
Both the population and enterprises appear to be "taxed" at the amount of imputed (unpaid) interest on arrears. Banks bear costs on servicing Kartoteka #2[11]: they are, virtually, obliged to operate as agents of tax administration by rationing indebted enterprises' cash flows. Moreover, this system prevents enterprises from use of banks for their transactions, which undermines the basis of the banking system.

Restructuring of T-bills is an example of wealth transfer: in some cases restructuring deals had confiscating effect (for example, the restructuring in the fall of 1998), with a part of wealth of T-bills holders transferred to the government.

Actually, hidden financing represents additional redistribution of income and wealth, and there are strong reasons to suspect that this redistribution is not efficient. Some experts, for example, claim that government uses majority of the funds for consumption, and not for investment (Vornovitsky, 1999). Moreover, enterprises-recipients of government's funds (as a rule, NFPEs) are not often efficient (Dubrovsky, 2000). Thus, a massive redistribution of income from profit generating entities to loss making sectors takes place, with the ultimate result being decapitalization[12] of the economy. In 2000, net investment in Ukraine has turned to be negative: according to Szyrmer and Kolesnichenko (2000), net disinvestment in 2000 constituted 0.2% of GDP (Table 10).

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[11] Kartoteka #2 is system of payments serviced by commercial banks. Its essence is in priority of payments being given to tax payments. Its abolishment is scheduled to be completed by the end of 2001.

[12] Decapitalization is negative net investment

Table 10. Investment in the Ukrainian economy, 1995-2000.

	Category		1995	1996	1997	1998	1999	2000
1	Total accumulation of fixed capital	UAH mln	12692	16891	18517	20096	25128	30574
		% GDP	23.3	20.7	19.8	19.6	19.8	17.5
2	Change in inventories	UAH mln	1787	1467	1346	1128	-123	1500
		% GDP	3.3	1.8	1.4	1.1	-0.1	0.9
3	Total capital consumption	UAH mln	9955	14702	17342	19281	23518	32377
		% GDP	18.3	18.0	18.6	18.8	18.5	18.5
4	Net accumulation of capital	UAH mln	4523	3656	2521	1943	1487	-303
		% GDP	8.3	4.5	2.7	1.9	1.2	-0.2

Source: "Ukraine in figures", 2000; Szyrmer and Kolesnichenko, 2000.

* - CASE estimates for year 2000

** - Author's estimates

Decapitalization represents intertemporal redistribution of wealth from future generations to the present generation. The practice of dissaving by the government, accompanied by ineffective redistribution, may turn to be very harmful for the economic prospectives of the country.

Thus, although the government survives the state of insolvency (escapes default), the economy pays a high price for this. In this respect what becomes important is real resource preemption by the government, which embraces all means of income and wealth transfer from the rest of the economy to the government.

CONCLUSIONS

Conventional indicators of the government fiscal stance are not comprehensive enough, especially in a transition country context. They fail to account for massive stock adjustments that are characteristic of transition processes, and for numerous quasi-fiscal activities that are excluded from budget accounts.

The alternative indicator of the government's financial stance, proposed in the paper, is based on balance-sheet approach. It can be treated as a measure of government solvency. Although the assessment of government's solvency poses considerable theoretical and practical problems, it provides additional information on financial developments in a country.

The results show large and continuing fiscal imbalance in Ukraine. Both the level, and the dynamics of the fiscal imbalance, differ substantially from the official budget balance figures. This implies that the fiscal imbalance and the size of the government in Ukraine are, most likely, significantly underestimated.

The large difference between indicators arises due to massive hidden redistribution of wealth in the economy, both between acting agents and intertemporally. There are reasons to suspect that the redistribution is ineffective and damaging for growth.

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