Working Paper

INTERNATIONAL MONETARY FUND

WP/94/104

INTERNATIONAL MONETARY FUND

European I Department

Eastern Europe - Factors Underlying the Weakening Performance of Tax Revenues

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September 1994

Abstract

The paper analyzes the decline of tax revenue/GDP ratios in transition economies of central and eastern Europe. The paper separates the effect on revenues of discretionary policy actions and finds that endogenous factors, notably the collapse of underlying profits and declining effective tax rates, were the main source of falling tax revenue/GDP ratios. Underlying factors are analyzed to provide a basis to discuss the outlook for tax revenues in coming years.

JEL Classification Numbers:

H2, H3, H6, P2, P3

1/ Information and analysis for individual countries were provided by D. Hewitt and L. Figliuoli (Bulgaria); T. van der Willigen (Czechoslovakia); M. Jones (Czech Republic) and T. Sukselainen (Slovak Republic); M. Lutz (Hungary); A. Chopra and G. Schwartz (Poland); and S. Nolan (Romania). Messrs. Figliuoli and Schwartz are FAD staff. The cross-country analysis was done by G. Bélanger, U. Stiehler, and P. De Masi.

Contents

Summary

After some initial success in narrowing budget deficits, fiscal pressures have emerged in most countries of central and eastern Europe. Underlying these developments has been a rapid erosion of revenues. This paper analyzes the factors responsible for the decline of tax revenue/GDP ratios.

In several cases, the longer-term trend decline of revenue/GDP ratios was masked initially by a revenue bonanza from profit taxes: price jumps following price liberalization sharply increased profit tax liabilities due to the use of noninflation-adjusted valuation of inventories and depreciation allowances. Large valuation gains were also made in some cases on holdings of foreign currency deposits of enterprises. As inflation abated, the mitigation or disappearance of this boost to tax revenues brought out starkly in subsequent years the underlying weakness of profit taxes. On a cumulative basis, revenue losses from the taxation of enterprise incomes were the largest source of overall revenue losses, reflecting both a collapse of underlying profits and weak tax administration.

Although discretionary reform policies aimed at reducing the intermediation role of the budget contributed partly to the overall decline of revenues, the main factors responsible for declining revenue/GDP ratios were endogenous. Widening deficits required the adoption in later years of revenue-enhancing measures that offset, for the period as a whole, the impact of early measures to lower taxes.

For taxes other than the profit tax, the main source of dwindling revenue/GDP ratios was a decline of effective tax rates, typically particularly large in the second or third year of adjustment programs, with a continued erosion in subsequent years. This was especially evident for payroll/social security taxes and domestic indirect taxes, and likely reflected weak tax administration, as well as changed patterns of employment and consumption.

Looking forward, the paper concludes that a further large contraction of revenue/GDP ratios is unlikely, except perhaps in cases where inflation remains high and tax revenues may still include taxation of significant valuation gains. The likelihood of an uptrend in output and taxable profits, and of more effective tapping of the private sector tax base, suggest an improved profit tax performance. Moreover, economies commencing

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I. Introduction

Most countries in transition in central and eastern Europe have experienced rapidly widening fiscal imbalances in recent years. Targets of narrowing budget deficits have had to be repeatedly reassessed and additional measures introduced to limit the widening of deficits. Underlying these developments has been a rapid erosion of revenues. The purpose of this paper is to examine the factors responsible for the contraction of revenues since the initiation of stabilization/reform programs and, on this basis, assess the outlook for revenues over the next few years.

To some extent, revenue losses are not surprising as they reflect, in part, the large declines in output experienced by all countries in the region since the adoption of their reform/stabilization programs and also the reduction of the intermediation role of the budget as part of the systemic transformation toward market economies. Another factor stressed in several studies which would be expected to undermine revenue performance during the transition is the effect of the systemic transformation itself on the efficiency of tax administration--from centralized tax collection or, in some cases, confiscation under the planned regime to the new decentralized market environment--which requires the introduction and development of an entirely new tax administration machinery, a process which inevitably takes time. 1/

While there is broad agreement that these factors were important, it is not clear whether they are sufficient to explain the entire fall of revenues and what the implications are as activity recovers. The analysis in this paper focuses on the evolution of revenue/GDP ratios, thus making a rough cut adjustment for the effect of lower output on revenues. The analysis focuses on the behavior of revenues from individual taxes, separating the effect of discretionary policy actions from those of endogenous changes in effective tax rates and of endogenous changes in tax bases relative to GDP.

Except for Section II, which provides a broad overview of the evolution of revenues, expenditures and deficits for all countries over the period 1988-93, the analysis of the factors affecting revenue performance in each country covers the period starting in the year before implementation of major reform/stabilization measures in order to focus more sharply on the performance of revenues through the initial transition process until more recent years. The period thus differs slightly across countries: for Hungary and Poland, the study focuses on changes in revenues starting in 1989; and for Bulgaria, the ex-CSFR, and Romania, starting in 1990. The detailed study also focuses on tax revenues, rather than total revenue

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1/ See, for example, "Tax Reforms in Economies in Transition: A Brief Introduction to the Main Issues," V. Tanzi (WP/91/23, March 1991); and Fiscal Policies in Economies in Transition, V. Tanzi, ed., 1992.

including nontax revenues, as the former was by far the largest contributor to the decline of revenue/GDP ratios.

The broad conclusions of the study are that: (i) large swings in the taxation of inflation-related illusory profits often obscured, in the initial stages of the transition, the underlying erosion of tax revenues. (ii) Large swings in tax revenues have also been associated with the content and timing of stabilization policies, typically resulting from a contraction of important tax bases in the early stages of stabilization as real wages and consumption were reduced. For the most part, these factors have now largely spent themselves and should not contribute to further large losses of revenues. (iii) Other factors, however, appear to have contributed to a continued erosion of revenues in most countries. This is particularly the case for the widespread sharp reduction of effective tax rates in the early stages of reform programs and their continued downward drift for some taxes, although this trend now appears to have stabilized or to have been reversed in those countries where economic activity is recovering.

Overall, the study concludes that most of the sharp decline in revenue/GDP ratios experienced since the initiation of reform/stabilization programs appears to have run its course. While several influences may limit the reversal of revenue losses even as economic activity recovers, pressures on budget deficits nevertheless should alleviate, provided levels of real expenditure are held back relative to growing GDP.

II. Revenue Performance and Budget Deficits

The evolution of general government revenues, expenditures and balances relative to GDP since 1988 are shown in Table 1. 1/ All countries experienced declines of revenues relative to GDP, although the size of such declines varies widely ranging--from peak to trough--from 6-8 percent of GDP for Hungary and Poland; to 14 percent for the former Czech and Slovak Federal Republic (CSFR); and to 20-30 percent for Albania, Bulgaria, and Romania. In all cases, revenue losses from taxes on corporate incomes and domestic turnover taxes accounted for the larger share of the decline of revenues relative to GDP. 2/ These, together with payroll taxes/social security contributions, were the main sources of government revenues under the planned regime.

With the large contraction of output experienced by all countries during that period, the decline of revenues in real terms was even larger than suggested by falling ratios to GDP. Thus, even for Poland which

1/ A more detailed review of the evolution of revenues, expenditures, and fiscal balances during the period 1988-92 can be found in "Fiscal Developments in Economies in Transition Under Fund-Supported Adjustment Programs," (SM/94/11, 1/12/94).

2/ SM/94/11, op. cit.

Table 1. General Government Operations: Revenues, Expenditures, and Fiscal Balances, 1988-93

(In percent of GDP)

	1988	1989	1990	1991	1992	Est. 1993
Revenues						
Albania	53.2	48.2	46.8	31.4	25.2	28.5
Bulgaria	57.5	58.0	53.3	42.3	37.0	30.6
Czech Republic	...	...	...	...	47.5	49.8
Hungary	62.0	59.2	57.6	56.0	57.7	54.0
Poland	48.0	41.5	43.0	41.5	44.0	45.5
Romania 1/	44.9	51.5	40.5	41.0	37.6	30.9
Slovak Republic	...	...	...	...	50.7	48.0
ex-Czechoslovakia	65.6	69.5	61.2	55.1	56.5	...
Expenditures						
Albania	54.4	56.8	62.1	61.9	47.3	44.6
Bulgaria	58.4	61.4	64.3	50.7	43.9	41.7
Czech Republic	...	...	...	...	47.1	48.5
Hungary	61.9	60.5	57.2	58.3	63.4	60.4
Poland	48.0	49.4	39.1	48.0	50.7	48.4
Romania 1/	39.0	42.7	39.3	40.4	42.2	31.0
Slovak Republic	...	...	...	...	63.8	55.5
ex-Czechoslovakia	67.1	72.2	61.6	57.1	60.1	...
Fiscal balances						
Albania	-1.2	-8.6	-15.3	-30.5	-22.1	-16.1
Bulgaria	-0.9	-1.4	-12.7	-15.1	-14.0	-13.5
Czech Republic	...	...	...	...	0.4	1.4
Hungary	0.1	-1.3	0.5	-2.3	-5.6	-6.4
Poland	--	-8.0	3.9	-6.5	-6.7	-2.9
Romania 1/	5.9	8.8	1.2	0.6	-4.6	-0.1
Slovak Republic	...	...	...	...	-13.1	-7.5
ex-Czechoslovakia	-1.5	-2.7	-0.4	-2.0	-3.6	...

Sources: National authorities; and Fund staff estimates.

1/ GDP estimates for 1993 for Romania remain very uncertain; and the decline of both revenue and expenditures relative to GDP may be significantly overstated.

experienced the smallest decline of its revenue/GDP ratio, revenues are estimated to have contracted by close to 20 percent in real terms. For Albania, Bulgaria, and Romania the real decline exceeded one half of pre-reform revenues.

Restrained expenditure policies and reforms have, however, in all cases resulted in lower real public spending. The size of deficit increases has, thus, typically been smaller than the loss of revenue relative to GDP. Among the countries which experienced the largest losses of revenues, the increase in the deficit was limited to less than 4 percent of GDP through 1992 in the ex-CSFR and, in 1993, the Czech Republic's budget was in small surplus although the Slovak Republic's budget recorded a deficit of 8 percent of GDP, roughly the size of transfers from the Czech lands to Slovakia prior to dissolution of the federation. Similarly, Romania's budget was balanced in 1993 while large deficits in Albania and Bulgaria, about 15 percent of GDP in 1993, still were equivalent to only about one half of the cumulative loss of revenues experienced in previous years.

III. Causes of the Fall in Tax Revenues

Every year several factors impact on overall revenue/GDP ratios as well as revenue/GDP ratios for individual taxes. The observation of broad trends in overall revenue/GDP ratios, such as in the preceding section, are thus not particularly illuminating in identifying the causes of the trend decline. In order to analyze the contribution of various factors, this study separates the yearly change of the revenue/GDP ratio individually for five main taxes (payroll/social security contributions, wage/income taxes, indirect taxes, trade taxes, and corporate income taxes) into several components. The first is discretionary policy actions taken by governments to increase or lower taxes. Estimates of the revenue impact of such actions were typically prepared at the time of formulation of annual budgets and may differ from the actual ex post effect of the measures. It is not believed, however, that the use of ex ante estimates systematically affects the results presented below.

Actual revenue changes adjusted for the impact of such discretionary policy actions are referred to below as endogenous revenue changes. For all taxes, except the tax on corporate incomes, the endogenous revenue change is further broken down into an endogenous change in the effective tax rate (the actual change in the effective tax rate adjusted for the estimated impact of discretionary policy actions) and an endogenous change in the size of the relevant tax base relative to GDP. 1/

Comparable data are not available across countries on the actual tax base for each individual tax. Thus, for purposes of intercountry comparability, the tax bases were approximated by available information on closely

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1/ The method is explained in more detail in Annex II.

related macroeconomic flows: the total wage bill for payroll taxes, including social security contributions; household incomes for personal income taxes; purchased consumption for domestic indirect taxes; and imports for custom duties. With exemptions in several cases and tax evasion, these are probably better considered as representing potential, rather than actual, tax bases.

The contribution of these various components to the evolution of revenue/GDP ratios is analyzed in the following subsections. More detailed country-specific results are presented in Annex I.

1. Discretionary policy actions

Part of the observed revenue decline was discretionary, reflecting reduced intermediation through the budget or tax reforms. 1/ Although this accounted in some years and for some countries (e.g., Romania in 1990, and ex-CSFR in 1990 and 1991) for large cuts in revenues, on a cumulative basis for the whole period such discretionary cuts in revenues were the main source of declining revenue/GDP ratios only in the case of the ex-CSFR. 2/ In most cases, widening deficits required the adoption in later years of revenue enhancing measures which offset the impact, for the period as a whole, of early measures to lower taxes. Thus, while significant reforms of tax systems were undertaken during the period which tended to reduce the intermediation role of the budget, the cumulative net impact of discretionary changes was, in general, either small or positive (Table 2). In two cases, Bulgaria and Poland, discretionary policy measures introduced during the period added the equivalent of about 10 percent of GDP to revenues.

For the ex-CSFR, the large estimated contribution of discretionary policy changes in reducing the revenue/GDP ratio reflects in part the process of transformation of a system which was, in some ways, more centralized than most and where starting levels of fiscal revenues and expenditures relative to GDP had been particularly high. Prior to 1990, branch ministries centralized profits of enterprises under their jurisdiction mainly to cross-subsidize other enterprises. Elimination of these Funds of Ministries in 1990 reduced this taxation/confiscation of enterprise profits by 6 percent of GDP. Other main changes were the reduction of the profit tax rate by 10 percentage points each in 1990 and 1991 and the lowering of turnover tax rates in 1991.

1/ A detailed review of tax reforms introduced by each country can be found in Transition to Markets: Studies in Fiscal Reform, V. Tanzi, ed., IMF, 1993; and also in Quarterly Economic Review, April 1993, EBRD.
2/ For Romania, the data available frequently did not make it possible to separate the effect of policy changes from that of endogenous changes in effective tax rates. The estimated impact of policy changes may thus be overstated (see Annex I).

Table 2. Effect of Discretionary Policy Changes on Revenue/GDP Ratios

(In percent of GDP)

	Corporate Taxes	Payroll Taxes	Incomes Taxes	Indirect Taxes	Foreign Trade Taxes	All Policy Changes	Total Tax Revenue Change
Bulgaria (1990-93)	2.5	2.8	0.2	1.7	1.5	8.7	-18.4
Czechoslovakia (1990-92)	-8.3	0.3	0.2	-3.3	-0.8	-11.8	-17.3
Czech Republic (1993)	-2.6	4.0	-3.9	1.0	-0.2	-1.7	1.7
Slovak Republic (1993)	-2.1	4.3	-4.0	1.4	--	-0.4	-4.7
Hungary (1989-93)	-2.2	4.3	1.3	0.8	-2.5	1.7	-7.1
Poland (1989-93)	0.8	2.1	2.7	2.7	3.1	11.4	-1.0
Romania (1990-93)	-2.5	6.5	3.1	-9.4	-0.9	-3.2	-17.0

Source: Annex I.

Another example of the effect of the reduced intermediation role of the budget on revenues, which affected not only the ex-CSFR but several other countries as well, concerns the taxation of CMEA trade prior to 1991. In several countries, complex systems of taxes and subsidies were applied to this trade to adjust import and export prices to targeted domestic prices. With the adoption of world prices for CMEA trade in 1991 and widespread liberalization of domestic prices in countries of central and eastern Europe, these taxes and subsidies disappeared. The reduction of tax revenues from this source was significant, accounting in some cases (e.g., Bulgaria, ex-CSFR, and Hungary), for 2-3 percent of GDP. The net effect on individual countries' budgets, however, differed depending on whether the net revenues from this price equalization system were positive (e.g., Hungary) or negative (e.g., ex-CSFR).

Although, overall, discretionary policy changes did not contribute significantly to the revenue decline, the effect of tax reforms introduced during the period is clear from an examination of the contribution of policy actions affecting individual taxes (Table 2). In many cases, the effect of policy actions was to scale back the previously required transfer of a large share of corporate income to the central budget under a variety of labels. This liberalization was implemented to various extents through a combination of termination of dividend transfers, adoption of parametric taxes, reduced tax rates, and the adoption of more economically justified concepts of valuation and depreciation life for fixed assets. In some cases (e.g., Bulgaria and Hungary), the adoption of more relaxed rules for provisioning by banks against bad loans in their portfolios also were main contributors. The main policy offsets to this loss of revenues from lowering the taxation of profits were increases in payroll/social security taxation and, to a lesser extent, taxation of personal incomes.

2. Endogenous changes in revenues

The limited contribution of discretionary policy changes to the overall decline of revenue/GDP ratios means that endogenous factors played the main role. Revenue losses from this source are estimated to have amounted, on a cumulative basis, to the equivalent of 6-14 percent of GDP for the ex-CSFR, Hungary, Poland and Romania; and to as much as 27 percent of GDP in the case of Bulgaria.

The contribution of endogenous factors is examined in this section separately for taxes on corporate incomes and other taxes. The main reason for this split is that very different factors were at play in the case of taxes on corporate incomes.

a. Taxes on corporate incomes

Revenue losses from the taxation of corporate incomes were, by far, the largest source of overall revenue losses from endogenous factors for the region as a whole and in the majority of individual countries. Losses from this source were responsible for declines in revenue/GDP ratios during the

period of about 5 percentage points in Hungary and Romania, 10 percentage points in Poland, and a high of 20 percentage points in Bulgaria. Only the ex-CSFR appears to have escaped, with endogenous changes in corporate tax revenues contributing 1 percentage point of GDP to revenues through 1992; although, in 1993, losses from this source are estimated at 1.8 percentage points of GDP for the Slovak Republic.

In several countries, however, the weakening performance of profit taxes was initially masked by taxation of illusory profits from high rates of inflation. The mitigation or disappearance of this latter factor as inflation abated brought out starkly in subsequent years the underlying weakness of profits and associated tax revenues.

One well-known effect of inflation on tax revenues is the Tanzi (and the reverse Tanzi-Olivera) effect of lowering real tax revenues as inflation increases due to collection lags and the reverse enhancement of real collections as inflation decreases. With relatively short tax collection lags in most transition countries of central and eastern Europe, however, this does not appear to have exerted a major influence: for example, in Hungary, although regular payments of profit tax obligations during the course of the year are based on the preceding year's taxes, firms must adjust their payments by year-end (subject to penalty) to reflect current-year liabilities.

The main influence in the transition economies of central and eastern Europe appears, rather, to have been the opposite one of sharply increasing profit tax liabilities at the time of accelerating inflation due to the use of noninflation adjusted valuation of inventories (which were very large under the planned regime) and depreciation allowances; large valuation gains were also made in some cases on holdings of foreign currency deposits of enterprises. Although this was offset by deductions for interest payments on firms' debts, where such deductions were allowed, this offset was only partial as real interest rates were typically sharply negative (ex post) during the initial period of rapid price increases following price liberalization. 1/

Special institutional arrangements or policy actions in individual countries also affected the size of the contribution of inflation to measured profits and associated tax liabilities. For example, in Bulgaria where interest deductibility had traditionally not been allowed, measures were taken to limit depreciation allowances and interest deductibility (to 7.5 percent of interest expenses for the period April 1 to June 30, 1991, and to 25 percent for the remainder of the year; raised to 50 percent in 1992) in order to prevent too rapid an erosion of the tax base.

1/ A detailed study of mechanisms through which inflation affected revenues in Poland can be found in M. Schaffer, "The Enterprise Sector and Emergence of the Polish Fiscal Crisis, 1990-1991," IBRD, Policy Research Working Papers, September 1993.

The influence of inflation on profits is clear from the evolution of the ratio of positive profits, i.e. profits excluding losses, to GDP (Table 3). In all cases in which the initial program included a substantial element of price liberalization and corrective inflation, the ratio of positive profits to GDP increased in the first year of the program. This was the case for Poland in 1990, and Bulgaria and Czechoslovakia in 1991. No such effect, however, is apparent for Hungary where, with substantial progress already in this area in previous years, the element of price liberalization in its more recent reform program has been less than in other transition economies.

A rough estimate of the contribution of this factor to tax revenues in the first year of adjustment programs can be obtained by applying statutory tax rates to the difference between the actual and trend ratios of positive profits to GDP. 1/ On this basis, the burst of inflation is estimated to have contributed about 6.5 percent of GDP to tax revenues in the first year of their reform programs in the case both of Bulgaria and Poland and about 2 percent of GDP in Czechoslovakia. 2/ 3/ With the subsequent slowdown of inflation, however, this revenue windfall was lost exposing, for both Bulgaria and Poland, the weakening of the underlying tax base.

For Romania, no estimate of positive profits is available so that the above methodology cannot be applied. With inflation accelerating sharply in 1991, however, the same factors were likely at play although a number of ad hoc adjustments to depreciation lives and revaluation of assets during

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1/ Assuming that the underlying ratio, unaffected by inflation, followed a smooth line from the year preceding introduction of the reform program to the second year of the program.

2/ Although rough, these estimates are not significantly different from the few other estimates known to the authors. Schaffer, op.cit, estimates that the inflation bias in profit tax revenues accounted for a swing equivalent to about 7 percentage points of GDP between the years of highest and lowest contribution from this source. While he finds the largest profit gains to have been in 1989, related taxes may well have been paid in 1990 only as the burst of inflation was in the last quarter of 1989. For Czechoslovakia, an estimate of 3 percent of GDP is reported in EBRD, op.cit.

3/ The fall of real wages in the initial stages of stabilization also contributed to the observed increase of profit shares so that attributing all of the latter to lack of inflation adjustment exaggerates its importance. The decline of the base for wage-related taxes is discussed in the next section. As can be seen from the more detailed data shown in Annex I, however, the loss of tax revenues from contraction of the base from wage-related taxes in the initial year of stabilization was significantly lower than the above estimates of the contribution of inflation to profit tax revenues for both Bulgaria and Poland, although this was not the case for the ex-CSFR.

Table 3. Positive Profits as a Share of GDP, 1989-93

(In percent of GDP)

	t-1	t 1/	t+1	t+2	t+3
Bulgaria 2/	27.5	34.9	16.5	11.3	...
Czechoslovakia 2/	22.8	25.0	21.2	...	...
Hungary	18.9	17.0	13.4	8.4	7.0
Poland	24.2 2/	35.0 2/	13.8	9.9	8.1

1/ 1990 for Hungary and Poland. 1991 for Bulgaria and Czechoslovakia.

2/ Calculated from tax revenues and the tax rate. This may differ from actual positive profits to the extent that various exemptions apply in calculating taxable profits or that some deductions (e.g., interest expenses in Bulgaria) are either not allowed or allowed only partially. The tax rates used were: Bulgaria, 65 percent before 1991 and 50 percent subsequently; Czechoslovakia, 70 percent before 1991 (midpoint of the actual 65-75 percent range) and 55 percent subsequently; Poland, 40 percent before 1991. Similar estimates could not be prepared for Romania due to the application, especially in 1991, of a wide range of different tax rates depending on the level of profits and frequent changes in tax brackets.

the period may have kept the impact of inflation on enterprise tax liabilities somewhat smaller than in Bulgaria and Poland. 1/

With inflation boosting taxable profits, but only temporarily in those cases in which inflation subsequently receded, the major factor responsible for the fall of profit taxes relative to GDP over the entire period was the decline of underlying profits due to the insufficient response of real wages and employment to large output declines and terms of trade losses following the adoption of world prices for CMEA trade. This relationship was particularly close for Hungary and Poland (Table 4). 2/

In several cases, the loss of revenue would have been accentuated by the fact that starting levels of broadly defined profit tax rates were significantly higher than tax rates on labor incomes. Subsequent to tax reforms, tax rates on enterprise and labor incomes (including social security contributions) have typically been more comparable. However, the declining profit share of GDP has not been matched by an equivalent increase in the wage share, which would also have been subject to tax. Rather the wage share of GDP, for the whole period, typically was relatively stable or fell (Table 5). What increased sharply in all cases was the share of other incomes (e.g., social benefits, incomes from self-employment, fringe benefits), most of which are either tax-exempt or difficult to tax.

Several other factors also no doubt exacerbated the contribution of the decline of underlying profits to lower profit tax revenues, perhaps especially so in the case of Bulgaria and Romania, where the loss of tax revenues appears quite large relative to the estimated contraction of the tax base. They likely include the decreasing weight of state-owned enterprises relative to a still not fully taxed private sector, softness in tax

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1/ A study prepared by World Bank staff "Romania-Fiscal Policy in the Transition" (July 1993) estimates the distortion to profits from inflation. The results presented therein suggest that in 1992--with inflation of 200 percent and interest rates of 50 percent--the net effect of taxation of valuation gains and of interest deductibility would have been a net revenue gain of about 3 percent of GDP.

2/ See also Ronald I. McKinnon "Macroeconomic Control in Liberalizing Socialist Economies: Asian and European Parallels" in A. Giovannini, ed., Finance and Development: Issues and Experience, 1992, for a discussion of why reforms would be expected to lower permanently the share of enterprise profits in GDP, the latter having been inflated artificially under the planned regime to facilitate revenue collection for the budget. Although the increase in the relative price of agricultural products may be more germane to China, the counterpart for central Europe would be the increase in the relative price of raw materials--reflected in the terms of trade loss from world pricing of CMEA trade. Another factor mentioned by McKinnon, the erosion of very high rates of effective protection for manufactured products following trade liberalization, would also apply.

Table 4. Corporate Profit Tax: Changes in
Tax Revenues and in Profit Tax Base

(In percent of GDP)

	Change in Tax Revenues 1/	Change in Tax Base 2/
Bulgaria (1990-93)	-20.1	-31.7
Czechoslovakia (1990-92)	1.0	-9.0
Hungary (1989-93)	-4.7	-11.2
Poland (1989-93)	-9.4	-23.7
Romania (1990-93)	-4.8	-1.7

1/ Endogenous change only, adjusted for estimated impact of discretionary policy actions.

2/ Positive profits relative to GDP for Hungary and Poland. Net profits for Bulgaria, Czechoslovakia, and Romania since no independent estimates of positive profits are available. With growing losses, however, net profits would tend to exaggerate the contraction of the tax base.

Table 5. Changes in Income Shares

(In percent of GDP)

	Enterprise Profits	Wages	Other Incomes
Bulgaria (1990-93)	-31.7	-5.5	37.2
Czechoslovakia (1990-92)	-9.0	-5.2	14.2
Hungary (1989-93)	-20.9	0.3	20.6
Poland (1989-93)	-23.7	0.6	23.1
Romania (1990-93)	-1.7	-6.8	8.5

collections as a form of implicit subsidization, and commercial bank provisioning against bad loans in their portfolios. Special factors which exacerbated the collapse of profits in the case of Bulgaria included delays in price adjustments and the concentration of output contraction in higher tax-paying industries; much of the focus of the early programs was in fact on finding means of limiting the overall revenue effect of rapidly disappearing profit tax revenues.

b. Other taxes

Endogenous revenue losses relative to GDP from taxes other than the profit tax also contributed significantly to the overall decline of revenue/GDP ratios in most countries, with losses from this source ranging from 3-4 percent of GDP in Hungary and Poland; 6-7 percent of GDP in Bulgaria and the ex-CSFR; and up to 9 percent of GDP in Romania.

As was the case for profit taxes, several common developments are apparent across countries (Table 6);

- A loss of revenues from a contraction of tax bases relative to GDP at the outset of stabilization programs. This was apparent in Hungary and Poland in 1989-90; and in Bulgaria, Czechoslovakia and Romania in 1991.

- The decline of revenue/GDP ratios from this source was typically reversed, at least in part, in the second year of implementation of stabilization policies: Hungary and Poland, 1991; Bulgaria and Czechoslovakia, 1992. This effect appears to have been delayed until the third year (1993) in the case of Romania.

- The most significant source of revenue loss was a decline of effective tax rates, which was typically particularly large in the second year of implementation of stabilization/reform policies: Hungary and Poland, 1991; Bulgaria and Czechoslovakia, 1992. Once again the effect appears to have been delayed to the next year in the case of Romania.

The first two developments above reflect primarily the content and timing of stabilization/adjustment policies. In all cases, the onset of stabilization programs was accompanied by a contraction of tax bases (especially the bases for wage-related taxes and domestic indirect taxes) relative to GDP, reflecting the contraction of wages/employment and domestic consumption in the initial stages of the stabilization process. Subsequently, however, these same tax bases tended to recover relative to GDP, as real wages and consumption reversed some of their earlier losses. This, of course, was not always a net gain for the budget as the recovery of real wages, with continuing declines in productivity, contributed to the deterioration of underlying enterprise profits noted in the preceding section.

The unusually large gain from this source for Hungary in 1991 is probably due to measurement problems associated with the adoption of world prices for

Table 6. Endogenous Changes in Revenues from Other Taxes, 1989-93 1/

(In percent of GDP)

	t-1	t 2/	t+1	t+2	t+3	Total
From changes of effective tax rates						
Bulgaria	-3.8	-1.7	-3.3	1.3	...	-7.5
Czechoslovakia	-0.7	-0.5	-4.0	...	...	-5.2
Czech Republic	...	...	...	1.3	...	1.3
Slovak Republic	...	...	...	-3.7	...	-3.7
Hungary	0.5	-0.7	-5.0	0.2	-3.3	-8.3
Poland	-5.7	1.2	-1.7	-1.9	1.5	-6.6
Romania	-0.1	-0.8	-0.6	-5.1	...	-6.6
From changes of tax base relative to GDP						
Bulgaria	1.7	-4.4	3.2	--	...	0.5
Czechoslovakia	-0.3	-4.6	3.6	...	...	-1.3
Czech Republic	...	...	...	2.3	...	2.3
Slovak Republic	...	...	...	1.2	...	1.2
Hungary	-0.8	0.2	6.4	-1.1	-0.5	4.3
Poland	3.3	-5.0	3.7	1.6	--	3.6
Romania	4.0	-5.5	-2.2	1.4	...	-2.3

Source: Annex I.

1/ Wage/social security taxes, income taxes, indirect taxes, and foreign trade levies.
2/ 1990 for Hungary and Poland. 1991 for Bulgaria, Czechoslovakia (and the Czech and Slovak Republics), and Romania.

CMEA trade and the attendant terms of trade loss for Hungary. This is apparent, first, in the jump of imports from 26 percent of GDP in 1990 to 37 percent of GDP in 1991, following the adoption of world prices for CMEA trade and elimination of the artificial ruble/forint rate at which such trade was previously recorded. This factor alone accounts for 40 percent of the estimated enhancement of tax revenues from the increase of tax bases relative to GDP in Hungary in 1991. This is essentially a statistical artifact resulting from mismeasurement of both imports and GDP prior to 1991. This is probably the case also for most, if not all, revenue gains in 1991 in Hungary estimated to have resulted from faster increases of wages, incomes, and consumption than GDP. With wages, incomes, and consumption little changed in real terms--as domestic prices had already been adjusted to a significant extent, through the tax/subsidy mechanism described earlier for distorted CMEA prices, the terms of trade loss from the adoption of world prices for CMEA trade likely resulted in an understatement of nominal GDP in 1991 compared to nominal wages, incomes, and consumption. It is not clear why such an effect is not apparent also for other countries which applied taxes and subsidies in CMEA trade. One possibility is that Hungary's consumer prices were less distorted but its national income accounts were more distorted than the others from artificial pricing of CMEA trade.

Although these swings of tax bases relative to GDP contributed to large year to year fluctuations of revenues/GDP ratios, the main continuing influence responsible for declining revenue/GDP ratios for these taxes appears to have been a continuing erosion of effective tax rates, especially for the payroll/social security tax and domestic indirect taxes. Signs of reversal have only recently (1993) started to emerge for both taxes in Poland; and for the payroll/social security tax in the Czech Republic.

The main factor responsible for this erosion of effective tax rates has no doubt been the weakness of tax administration. This was perhaps especially the case for indirect taxes, the administration of which remains encumbered through numerous exemptions (or in the case of VAT, zero-rating) and multiple rates of taxation; and a rapidly growing small-scale service sector which is difficult to bring into the tax net.

Several other factors also contributed, however, which differed somewhat across countries but, for both taxes, reflected changes in composition of the relevant tax base (respectively, employment and spending) and the accumulation of arrears. For the payroll/social security taxes, changes in the composition of employment played an important role in cases in which different tax rates apply in different sectors of the economy. This was the case in the ex-CSFR, where the services sector has been subject to a lower payroll tax rate (20 percent compared to the standard rate of 50 percent which applied until the beginning of 1993) while only part of the income of the self-employed and their employees was subject to tax. Since these have been the two fastest growing forms of employment in the ex-CSFR, this preferential treatment relative to payroll taxes must account for a large part of the observed erosion of the effective payroll/social security tax

rate. Payments difficulties of enterprises in the traditional sector also contributed in some cases as enterprises built up arrears relative to their payroll/social security contributions. In Hungary, for example, the cumulative stock of such arrears was estimated to amount to close to 4 percent of GDP in mid-1993.

Similar considerations apply in the case of domestic indirect taxes. Arrears were identified as having played an important role in Poland, at least in 1989 and 1991; while the exemption of services probably played an important role in the ex-CSFR. The frequent exemption of food and other essentials from indirect taxes in the early stages of the transformation--and its subsequent taxation but at lower rates following tax reforms in some cases, e.g., Bulgaria and Hungary--would also be expected to result in a trend decline of tax revenues relative to total purchased consumption as the elimination or reduction of consumer subsidies as part of the systemic transformation should have resulted in most cases in a significant increase in the share of food purchases in total consumption, and thus an increase in the share of total consumption exempt from tax or taxed at a lower rate.

Encouraging signs concerning the contribution of strengthening effective tax rates for revenue performance have, however, emerged during the last year for those countries where growth has resumed or appears on the verge of resuming, notably the Czech Republic and Poland. In both cases, this reflected a sharp reversal of the eroding trend of effective tax rates for payroll/social security contributions apparent in previous years as well as, in the case of Poland, a similar reversal in the case of indirect taxes and a continued strengthening of the effective rate for the income tax. While, for Poland, the introduction of VAT in 1993 contributed to the strengthening performance of indirect taxes, the only other element common to both countries was the strengthening of economic activity.

IV. Conclusions and Outlook

The transition of formerly centrally planned economies has brought with it many surprises, some of which have led to a rapid erosion of fiscal revenues. First, the large contraction of economic activity clearly contributed to the weakness of revenues. Second, weakening revenue/GDP ratios compounded the impact of falling GDPs. As a result, and despite significant expenditure restraint, pressures on budget deficits have rapidly emerged in most countries.

Limits on the speed with which public expenditure can be reduced while retaining popular support for the reforms has meant that falling revenues have, in most cases, been accommodated in part by wider budget deficits. With only limited sources of nonmonetary financing of the deficits, this has also meant that, in several cases, somewhat higher rates of monetary expansion and inflation had to be accepted. This would clearly have been self-defeating, both in terms of the reforms and the revenues to be raised from the inflation tax, if it had led to continuance of excessive rates of

inflation; and the adjustment of initial targets for fiscal adjustment thus was constrained by the need to keep budget financing requirements to levels consistent with continued progress in lowering inflation. The role of the inflation tax, in substituting in part for other revenue shortfalls has, however, limited in most cases progress in achieving low single-digit (or even single-digit) inflation.

The study points to the preponderance of endogenous factors in explaining the decline of tax revenues. Even in the ex-CSFR, where discretionary reform-oriented policy actions were responsible for a significant portion of the decline of the revenue/GDP ratio, other factors were at play undermining the performance of revenues. In other countries, such factors often more than offset the impact of discretionary policy actions aimed at enhancing revenues.

By far, the main factor responsible for weakening revenue/GDP ratios has been the weak performance of taxes on corporate incomes. In several cases in which liberalization/stabilization programs resulted in an initial burst of corrective price adjustments, the trend weakening of revenues was masked by a stronger-than-expected performance of profit taxes. This has now been increasingly recognized to have been the result of one-time taxation of valuation gains on inventories and lack of inflation adjustment of depreciation. With both inventory levels and capital/output ratios very high at the start in the formerly centrally planned economies, the revenue gains were substantial.

The underlying weakening of profit tax revenue/GDP ratios is not surprising given the residual nature of profits. Much larger proportionate swings in the profit, rather than the wage, share of GDP are normal in market economies as well, although this was likely compounded in most transition economies by the slow adjustment of employment in the aftermath of the sharp contraction of activity. The larger revenue losses from this source, however, appear to have been concentrated in the early part of the period, which is also when most of the collapse of output was experienced. One exception is Bulgaria, which experienced not only the largest losses from this source over the entire period but also a continuing sizable loss in 1993. The likelihood that the trough of both output and taxable profits relative to output has been passed in several cases and that the statutory tax base within the private sector will be more effectively tapped in the future suggests that on these grounds no significant additional declines in revenue/GDP ratios should be expected. As economic activity bottoms out and activity recovers, revenue performance from this source should strengthen. This is also probably the area, however, where most uncertainty remains as many of the costs of ongoing reforms--notably provisioning for bad loans--are only now emerging. It would probably be prudent not to anticipate a strong recovery of revenue/GDP ratios from this source for several years.

Endogenous changes in revenues from other taxes have also contributed to the overall weakness of revenue/GDP ratios since the onset of liberalization/stabilization programs. Year-to-year swings in the performance of

these taxes have been dominated by swings in the tax base reflecting the timing and content of adjustment measures, with sharp contractions of real wages and consumption in the initial stages of adjustment, but subsequent (at least, partial) reversals.

The main influence, however, for taxes other than taxes on corporate incomes appears to have been the continued erosion of effective tax rates from tax evasion or changed patterns, in particular, of employment and consumption. This is also the main hope for a strengthening, or at least stabilizing, of revenue performance relative to GDP as those economies with clear signs of economic recovery (Poland) or on the verge of recovery (Czech Republic) showed some buoyancy of revenues from this source during the last year, suggesting that the erosion of preceding years may be reversed as activity recovers.

Similarly, the trend of eroding effective tax rates due to exemptions should slow down in those cases where the scope of such exemptions has recently been narrowed, even if the previously exempted items were brought into the tax net at a preferential rate. Individual countries have, however, clearly not reached the same stage in this respect or in strengthening tax administration.

Overall, and while many notes of caution obviously need to be sounded, a main conclusion is that, in most cases, a further large unexpected contraction of revenue/GDP ratios is unlikely although one should be particularly wary in those cases where inflation remains high and tax revenues may still include revenues from taxation of valuation gains; or where the trend of revenue losses, perhaps especially profit taxes, is not yet showing firm signs of tapering off. With several factors still likely to affect revenue performance negatively in coming years, however--especially profit taxes--it would likely be imprudent to assume a strong recovery of revenue/GDP ratios. Much of the weight of continuing fiscal adjustment will thus have to be borne by keeping real increases in spending well below the hoped for recovery of growth. This would also be consistent with the need to lower gradually tax/GDP ratios through a deepening of reforms over time as comparisons to other countries (especially those at similar income levels) suggest that tax/GDP ratios remain excessive in most transition economies of central and eastern Europe.

Table 7. Bulgaria: Changes in Government Tax Revenue, 1990-93

(In percent of GDP)

	1990	1991	1992	1993
Discretionary policy changes	--	4.4	3.0	1.3
Endogenous changes				
Profit tax and dividend transfers	-5.3	-2.4	-9.7	-2.7
Due to:				
Changes in underlying profits	(-5.3)	(-8.9)	(-3.2)	(-2.7)
Valuation/inflation taxation 1/	(--.)	(6.5)	(-6.5)	(--)
Other taxes				
Changes in effective rates	-3.8	-1.7	-3.3	1.3
Payroll taxes	(-0.7)	(-1.0)	(-0.8)	(0.4)
Income taxes	(-0.2)	(-0.9)	(0.7)	(0.6)
Indirect taxes	(-3.1)	(-0.5)	(-3.1)	(1.3)
Foreign trade taxes	(0.2)	(0.6)	(-0.1)	(-1.0)
Changes in tax base	1.7	-4.4	3.2	--
Payroll taxes	(0.7)	(-2.3)	(0.7)	(-0.5)
Income taxes	(0.3)	(--)	(0.9)	(-0.5)
Indirect taxes	(0.9)	(-1.8)	(1.7)	(-0.6)
Foreign trade taxes	(-0.1)	(-0.4)	(-0.1)	(1.6)
Total tax revenue	-7.3	-4.1	-6.8	-0.1

1/ Estimated from change in positive profit/GDP ratio, see main text.

Table 8. Czech and Slovak Federal Republic, Czech Republic, Slovak Republic: Changes in Government Tax Revenue, 1990-93

(In percent of GDP)

	1990	1991	1992	Czech Rep. 1993	Slovak Rep. 1993
Discretionary policy changes	-5.0	-8.3	1.5	-1.7	-0.4
Endogenous changes					
Profit tax and dividend transfers	-0.3	3.3	-2.0	-0.3	-1.8
Due to:					
Changes in underlying profits	(-0.3)	(1.6)	(-0.3)	(-0.3)	(-1.8)
Valuation/inflation taxation 1/	(--)	(1.7)	(-1.7)	(--)	(--)
Other taxes					
Changes in effective rates	-0.7	-0.5	-4.0	1.3	-3.7
Payroll taxes	(0.2)	(-1.0)	(-2.2)	(1.1)	(-2.0)
Income taxes	(-0.2)	(-0.2)	(-0.1)	(-0.1)	(0.4)
Indirect taxes	(-0.7)	(1.0)	(-1.9)	(0.1)	(-2.1)
Foreign trade taxes	(--)	(-0.1)	(0.2)	(0.3)	(-0.1)
Changes in tax base	-0.3	-4.6	3.6	2.3	1.2
Payroll taxes	(-1.0)	(-1.9)	(0.7)	(0.8)	(0.3)
Income taxes	(-0.1)	(-0.3)	(1.0)	(0.9)	(0.2)
Indirect taxes	(0.8)	(-2.9)	(1.8)	(0.6)	(1.1)
Foreign trade taxes	(0.1)	(0.4)	(0.1)	(--)	(-0.3)
Total tax revenue	-6.2	-10.1	-1.0	1.7	-4.7

1/ Estimated from change in positive profit/GDP ratio, see main text.

Table 9. Hungary: Changes in Government Tax Revenue, 1989-93

(In percent of GDP)

	1989	1990	1991	1992	1993
Discretionary policy changes	1.0	-0.4	-1.8	-1.0	3.9
Endogenous changes					
Profit tax and dividend transfers	-1.3	-0.2	-1.8	-0.7	-0.7
Due to:					
Changes in underlying profits	(-1.3)	(-0.2)	(-1.8)	(-0.7)	(-0.7)
Valuation/inflation taxation	(--)	(--)	(--)	(--)	(--)
Other taxes					
Changes in effective rates	0.5	-0.7	-5.0	0.2	-3.3
Payroll taxes	(--)	(-1.1)	(-0.9)	(-0.8)	(-0.3)
Income taxes	(1.1)	(0.7)	(0.1)	(-0.4)	(-0.9)
Indirect taxes	(-0.8)	(-0.6)	(-0.7)	(0.7)	(-2.4)
Foreign trade taxes	(0.1)	(0.4)	(-3.5)	(0.7)	(0.2)
Changes in tax base	-0.8	0.2	6.4	-1.0	-0.5
Payroll taxes	(-0.3)	(0.7)	(1.1)	(-0.5)	(-0.7)
Income taxes	(--)	(0.2)	(1.3)	(-0.1)	(-0.2)
Indirect taxes	(-0.1)	(0.2)	(1.6)	(0.1)	(0.6)
Foreign trade taxes	(-0.4)	(-0.9)	(2.5)	(-0.6)	(-0.1)
Total tax revenue	-0.6	-1.1	-2.2	-2.6	-0.6

Table 10. Poland: Changes in Government Tax Revenue, 1989-93

(In percent of GDP)

	1989	1990	1991	1992	1993
Discretionary policy changes	0.9	1.5	1.3	5.9	1.7
Endogenous changes					
Profit tax and dividend transfers	-3.9	4.3	-7.9	-1.8	-0.2
Due to:					
Changes in underlying profits	(-3.9)	(-1.9)	(-1.5)	(-1.8)	(0.2)
Valuation/inflation taxation 1/	(--)	(-6.4)	(-6.4)	(--)	(--)
Other taxes					
Changes in effective rates	-5.7	1.2	1.7	-1.9	1.5
Payroll taxes	(-0.9)	(0.8)	(1.3)	(-1.8)	(0.4)
Income taxes	(-0.7)	(--)	(-1.4)	(1.1)	(1.5)
Indirect taxes	(-3.2)	(-0.3)	(-0.9)	(-0.6)	(0.3)
Foreign trade taxes	(-0.9)	(0.7)	(-0.6)	(-0.6)	(-0.8)
Changes in tax base	3.3	-5.0	3.7	1.6	--
Payroll taxes	(1.5)	(-2.4)	(1.5)	(0.9)	(-0.6)
Income taxes	(0.6)	(-0.4)	(0.8)	(0.2)	(-0.2)
Indirect taxes	(1.2)	(-2.2)	(1.6)	(0.6)	(0.3)
Foreign trade taxes	(--)	(--)	(-0.1)	(-0.2)	(0.5)
Total tax revenue	-5.5	2.1	-4.5	3.8	3.0

1/ Estimated from change in positive profit/GDP ratio, see main text.

Table 11. Romania: Changes in Government Tax Revenue, 1990-93

(In percent of GDP)

	1990	1991	1992	1993 1/
Discretionary policy changes 2/	-12.0	7.1	1.3	0.4
Endogenous changes				
Profit tax and dividend transfers	-0.9	-2.1	--	-1.8
Due to:				
Changes in underlying profits	(...)	(...)	(...)	(...)
Valuation/inflation taxation	(...)	(...)	(...)	(...)
Other taxes				
Changes in effective rates 1/	-0.1	-0.8	-0.6	-5.1
Payroll taxes	(...)	(...)	(...)	(-3.4)
Income taxes	(...)	(--)	(--)	(-1.6)
Indirect taxes	(...)	(-0.8)	(-0.7)	(-0.5)
Foreign trade taxes	(...)	(...)	(--)	(0.4)
Changes in tax base	4.0	-5.5	-2.2	1.4
Payroll taxes	(0.7)	(-1.6)	(-1.3)	(0.8)
Income taxes	(0.7)	(-1.4)	(-1.0)	(0.5)
Indirect taxes	(2.6)	(-2.5)	(-1.0)	(0.4)
Foreign trade taxes	(...)	(...)	(1.0)	(-0.3)
Total tax revenue	-9.0	-1.3	-1.5	-5.1

1/ GDP estimates in 1993 remain very uncertain and the revenue decline relative to GDP may be significantly overstated.

2/ For Romania, less information was available on the estimated impact of discretionary policy actions which often had to be approximated by the change in the effective tax rate. In those cases, it was not possible to estimate separate endogenous changes in effective tax rates.

Methodology: Separation of Discretionary Elements and Endogenous Changes in Effective Tax Rates and Tax Bases

For each tax, the change in revenue/GDP ratio was broken down into two components: the contribution of the change in the effective tax rate (t) and the contribution of the change in the tax base relative to GDP (B/GDP).

$$\Delta\left(\frac{REV}{GDP}\right) = \left(\frac{B}{GDP}\right)_{-1}*\Delta t \quad + \quad t*\Delta\left(\frac{B}{GDP}\right)$$

Independent estimates of the revenue impact of discretionary tax measures (Δt_p) were then subtracted from the first term in order to obtain separate estimates of policy actions, endogenous changes in effective rates and endogenous change in the tax base.

$$\Delta\left(\frac{REV}{GDP}\right) = \Delta t_p + \left\{\left(\frac{B}{GDP}\right)_{-1}*\Delta t \; - \; \Delta t_p\right\} + t*\Delta\left(\frac{B}{GDP}\right)$$

Note that, since the tax bases used for the analysis are flows from national accounts statistics (e.g., total private consumption) rather than the actual tax base (e.g., consumption subject to VAT or excises), both changes in statutory tax rates and policy measures to broaden or narrow the actual tax base affect the effective tax rate relative to total private consumption. Both types of measures are thus included in policy measures used to adjust the effective tax rate calculated above in the derivation of the endogenous change in effective tax rate.

The results for individual taxes are then summed up across taxes to obtain aggregated estimates.

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