

The Informal Economy in Eastern Europe: The Example of the Ukraine

It is generally doubted whether the official statistics on the decline of GDP in the successor states to the Soviet Union since the start of the 1990s paint a true picture. These doubts have been substantiated by direct observation and by the large number of statistical inconsistencies. In a number of countries – and particularly in the Ukraine – the decline in employment has been far greater than the rise in unemployment and in the number of pensioners. A further source of doubt is the fact that in most of the successor states the consumption of electricity has fallen far less than the official GDP. Moreover, the official statistics of many CIS countries record sharp real growth of imports and exports despite the decline in real GDP. Last but not least, cash holdings have increased in many countries as a proportion of the money supply. One possible explanation for all these developments is the growth of the unofficial sector within the economy. By its very nature any estimate of the size of the unofficial economy is highly uncertain. In this report a number of approaches used to determine unofficial income are presented, taking the Ukraine as an example, and conclusions for economic policy are drawn from them. According to rough calculations, informal economic activities amount to around 50% of official GDP.

Various estimation approaches for the Ukraine

Surveys

Since 1993 the World Bank has conducted surveys of Ukrainian private and state-owned firms and private households on the unofficial economy.¹ In these surveys private companies put their unofficial value-added – i.e. that not covered by the statistics and not subject to taxation – at between 47% and 59% of total value added in the years 1993 to 1995. On this basis, unofficial activities

¹ The informal economy is defined here as those activities considered in national accounting terms to be value added but which are not covered in the official statistics and the taxation system. For details see Daniel Kaufmann and Aleksander Kaliberda, "Integrating the Unofficial Economy into the Dynamics of post-Socialist Economies: A Framework of Analysis and Evidence", *Policy Research Working Paper* No. 1691, World Bank, December 1996, pp. 9 ff.

in private companies amounted to between 90% and 145% of official value added. It seems that in state-owned firms unofficial value added constitutes a smaller proportion of the total: for 1994 an average figure of 35% was given. This would imply that the unofficial economy equals 54% of official value added in this sector. Given that it must be doubted whether respondents are prepared to be completely truthful in the surveys, the results can be considered to mark the lower limit of the unofficial economy.

70% of those individuals questioned who were currently (in mid-1994) or previously employed in a state-owned company reported that they were involved in unofficial forms of employment. On average such employment generated more than half their income.

The reasons given for unofficial economic activity were: regulation of trade, of foreign exchange dealings and of domestic trade, high inflation, a heavy tax burden and frequent changes in tax regulations. The view that, for instance, the complicated procedures for registering firms, labour law requirements, motivation and qualification problems on the part of employees, and infrastructural inadequacies constituted reasons for performing unofficial economic activities, on the other hand, was not confirmed by the surveys.

Finally, another finding yielded by the surveys is that firms are frequently prepared to make payments to public authorities and/or mediators in order to receive certain services (e.g. better incorporation of the firms into communication and other public services, licences, and administrative approval) and to limit the costs involved with administrative controls (auditing of accounts, inspection of adherence to health and safety and fire regulations, the norm office). Small and medium-sized firms mentioning such payments put their value at between 10% and 25% of turnover (1994). To the extent that these payments can be interpreted as an additional, implicit taxation of official commercial activity, they constitute an incentive to enter the unofficial economy.

Electricity

It has been suggested that electricity consumption be used as an indicator of economic activity in the transition countries.² In industrialised countries the consumption of electricity is relatively closely linked to real GDP. For instance, in western Europe (excluding Greece

² Cf. Istvan Dobozi and Gerhard Pohl, "Real Output Decline in Transition Economies – Forget GDP, Try Power Consumption Data!", *Transition Newsletter*, vol. 6, no. 1-2, World Bank, Washington D.C., 1996, pp. 17-18, and Kaufmann and Kaliberda op. cit.

and Portugal) the elasticity of electricity consumption with respect to real GDP for the period 1985 to 1995 largely lay between 0.8 and 0.9; i.e. a 1% increase in real GDP was associated with an increase in electricity consumption of between 0.8% and 0.9%.³ On top of this comes the fact that the short-term price elasticity of electricity consumption tends to be low. If this is assumed to apply in the case of eastern European countries, it is possible to draw conclusions on the extent of economic activity from electricity consumption. The gap between the estimated and the official GDP can be taken as a rough indicator of the size of the unofficial economy.

In most of the transition economies electricity consumption fell to a lesser extent than official real GDP during the initial phase of economic contraction. In the countries of eastern central Europe (Bulgaria, Poland, Romania, the Czech and Slovak Republics and Hungary) this deviation was relatively minor, whereas in the successor states to the Soviet Union the discrepancy is very great.⁴ It can be concluded from this that the decline in real GDP is exaggerated in the official statistics. The decisive question in this context is what elasticity of demand for electricity with respect to total GDP (official and unofficial value added) can be assumed to have prevailed during transition.⁵ This requires an assumption to be made with respect not only to the energy intensity of output, but also to the possibility of substitution between electricity and other forms of energy due to relative price movements. As far as changes in energy intensity are concerned, it can be assumed, for the purpose of determining the minimum size of the informal sector, that energy efficiency declines sharply in an economic downturn.⁶ As far as the substitution between electricity and other forms of energy is concerned, in the case of the Ukraine it must be taken into account that for firms the price of electricity relative to other sources of energy has fluctuated since the start of transition.⁷ Yet despite the relative cheapening of electricity against coal and gas, it is unlikely that a substantial process of

substitution between energy sources will have occurred, as this would have required additional investment, and investment has fallen sharply during the transformation process.

In the following it is only commercial electricity consumption – i.e. that in industry, agriculture, transport and other commercial activities – that is considered. This is because unofficial economic activity can be expected to be concentrated in these areas, rather than elsewhere in the economy (private households and local government). Since 1991 commercial electricity consumption has declined sharply, whereas household consumption has risen steadily and in local government declined only marginally.

Initially, in 1989, the unofficial economy probably accounted for somewhat over 12% of total GDP.⁸ Taking this as a point of departure, a rough estimate can be made of the development of the unofficial economy (cf. table 1). On this basis the unofficial economy expanded strongly in the period 1990 to 1992. Between 1989 and 1995 the decline in actual output is estimated at 48%, compared with the 61% fall in official GDP. During the period 1993 to 1995 the decline in commercial electricity consumption was no longer significantly lower than that of official GDP, so that the estimated size of the unofficial economy actually declined.⁹ On very rough estimates the unofficial economy accounted for around half of official GDP in the years 1995 and 1996. If a different initial figure for the unofficial economy (i.e. in 1989) is assumed, the estimated results vary only slightly, because the growth of the unofficial economy was concentrated in the subsequent period.¹⁰

³ For west Germany the figure was 0.776 during the same period.

⁴ Cf. Dobozi and Pohl, op. cit.

⁵ Given the high degree of uncertainty on this point, some authors have expressed doubts as to the value of electricity consumption for determining the course of actual GDP. Cf., for instance, Vincent Koen, "Flawed Conclusions", *Transition Newsletter*, vol. 6, no. 4, World Bank, Washington D.C, 1996, p. 11.

⁶ It is assumed that a decline in overall GDP of 1% is associated with a cut in electricity consumption of just 0.85%. Output falls more than electricity consumption.

⁷ In 1992 and to some extent in 1993 the price of electricity rose sharply against that of other sources of energy. This was followed by a fall to below the initial level with respect to coal and gas and to just above the initial level in the case of oil. Since around 1994 there have been only marginal fluctuations in these relative prices.

⁸ This figure is the median of an estimation of 10 to 15% for the unofficial economy as a share of total GDP (i.e. including unofficial activity) in the Soviet Union in 1989. Cf. Janine Braithwaite, *From Second Economy to Informal Sector: The Russian Labor Market in Transition*, unpublished, World Bank, Washington D.C., 1994.

⁹ This reflects the conservative assumptions chosen.

¹⁰ If the electricity consumption indicator is used to evaluate other eastern European countries and a decline in energy efficiency in the course of transformation since 1990 is assumed (an elasticity of electricity consumption with respect to real GDP of 0.85) in order to determine the lower limit for the size of the unofficial economy, a greater relative size of the unofficial economy than in the Ukraine is found in those countries suffering political disorder (Aserbaidschan and Georgia). For Russia the lower limit of the unofficial economy is estimated by this method to account for more than 40% in 1995. According to this approach only Uzbekistan of all the eastern European countries had a figure of less than 15% in 1995. Shares of between 20% and 35% were recorded for the eastern central European countries and Estonia, Lithuania and Belarus. Cf. Kaufmann and Kaliberda op. cit. pp. 17 f. For a classification of the eastern European countries into groups of varying degrees of energy efficiency see, for instance, D. Gray, "Reforming the Energy Sector in Transition Economies: Selected Experience and Lessons", *World Bank Discussion Paper* 296, Washington D.C., 1995.

Table 1

Ukraine: Estimation of the Size of the Unofficial Economy on the Basis of Electricity Consumption, 1989 to 1995

	1989	1990	1991	1992	1993	1994	1995
	change on previous year in %						
(1) Electricity consumption ¹⁾	.	-0.1	-4.8	-8.6	-12.0	-16.1	-9.6
(2) Estimated actual real GDP ²⁾	.	-0.1	-5.6	-10.1	-14.1	-18.9	-11.3
	index 1989=100						
(3) Estimated actual real GDP ²⁾	100.0	99.9	94.2	84.7	72.7	59.0	52.3
(4) Official real GDP	100.0	96.3	83.3	68.8	58.5	44.2	39.0
(5) Unofficial real GDP (unofficial economy)	100.0	126.2	174.5	201.4	177.2	167.3	149.9
	change on previous year in %						
(6) Official GDP	.	-3.7	-13.5	-17.5	-14.9	-24.5	-11.8
(7) Unofficial economy	.	26.2	38.3	15.4	-12.0	-5.6	-10.4
	in %						
(8) Unofficial economy as a % of official GDP	14	18	29	40	41	52	52
(9) Unofficial economy as a % of estimated actual GDP	12	15	22	29	29	34	34

1) Electricity consumption in industry, agriculture, transport and other commercial consumers. — 2) Assuming an elasticity of electricity consumption with respect to actual real GDP during the period of contraction of 0.85.

Sources: Kaufmann and Kaliberda, op. cit., p. 12 f.; World Bank: Ukraine: The Real Economy and its Sectors. A Quarterly Statistical Abstract, Volume II, Issue No. 1, Kiev, February 1996, Table 3.4.; DIW calculations.

Demand for money

If it assumed that transactions in the unofficial economy are largely financed by cash payments, it is possible to estimate unofficial income generation by estimating the proportion of cash balances in domestic currency required for transactions in the unofficial sector. This, too, marks a lower limit, because it excludes unofficial value added based on barter trade or foreign currency. This is the approach most frequently used in industrialised countries. The procedure consists of three steps. Firstly, the willingness to hold cash balances (demand for money) is estimated using econometric methods. In addition to the usual explanatory factors of the real demand for money (real interest rate and real national income), at least one additional variable is included to represent the motive of financing transactions in the unofficial economy, usually marginal or average income tax rates. Then the demand for money used to finance transactions in the unofficial sector is calculated.¹¹ In the final step the income generated in the unofficial economy is estimated by multiplying this "unofficial" demand for money with an assumed velocity of circula-

tion. Normally the velocities of circulation in the official and the unofficial sectors are assumed to be equal.

In determining the demand for money in the way just described for the Ukraine, the usual correlations emerged – the demand for money declines with rising real rates of interest and increases with rising GDP – but it proved extremely difficult to determine the influence of the unofficial economy on the demand for money. In particular, the method of using tax rates failed to generate a satisfactory result. An alternative was to view inflation and the burden on economic activity of administrative requirements as causal factors behind the unofficial economy and thus the additional demand for money.

Since the start of 1992 the World Bank has used suitable indices¹² to measure the burden of administrative controls on official economic activity. However, cash balances have only been published in the statistics since 1992, so that the unofficial sector – to the extent that it is financed with domestic currency – can only be estimated for the subsequent period using this method. On this basis the size of the unofficial sector financed with

¹¹ To this end, those variables representing the causes of unofficial economic activity are set at zero in the estimated demand for money equation and the volume of currency in circulation derived is then subtracted from actual currency in circulation.

¹² For example the burden on economic activity due to import and export controls, cf. Daniel Kaufmann, "Diminishing Returns to Administrative Controls and the Emergence of the Unofficial Economy", *Economic Policy*, vol. 19, December 1994, pp. 52-69, and World Bank, *Ukraine: The Real Economy and its Sectors: A Quarterly Statistical Abstract* Volume II, Issue no. 1, February 1996, Kiev.

domestic cash was equivalent to 9% (1993), 13% (1994) and 27% (1995) of official GDP (annual average figures). In order to compare these findings with the estimation on the basis of electricity consumption, those proportions of unofficial economic activity financed with foreign currency and in the form of barter trade need also to be estimated. The lower limits for these segments of the unofficial economy in 1995 were probably of the order of 16% and 4% of official GDP respectively.¹³

Table 2 presents the estimates for the unofficial economy on the basis of electricity consumption (columns 1 and 2) and the demand for money (domestic cash, US-\$) plus barter trade (columns 4 and 5). Conservative assumptions were chosen for both estimates. The results do not vary greatly, although it is important to underline once more the degree of uncertainty surrounding the estimates. Yet in the light of the results of surveys of firms and private households, an unofficial economy of this order of magnitude is not implausible.

Implications for economic policy in general

An unofficial economy amounting to 50% of official GDP implies losses of fiscal revenue of the order of 10% of official GDP as taxes on profits and income and value-added tax represented more than one fifth of official GDP in 1995 and 1996. In 1996 the consolidated budget including the accumulated unpaid wages in the budget amounted to more than 5% of GDP. Thus it would suffice to integrate half of the unofficial sector into the official economy in order to wipe out the budget deficit, bolster the social insurance system and thus underpin stabilisation.

In opting for activities in the unofficial sector, each individual market actor takes into account only the personal costs and benefits. The possible macroeconomic effects of such micro-level decisions are not taken into account. These effects include, above all:

- the waste of resources and the lowering of overall productivity due to the time invested in order to circumvent controls, the failure to exploit economies of scale (in order to reduce the chance of being discovered) and the greater difficulty of access to the financial markets;
- the increased tax burden on official and taxable value-added and the behavioural changes so induced resulting in altered relative prices, changes in resource allocation and returns to the factors of production;

¹³ Due to the limitations of the available statistical data no attempt was made to estimate figures for the previous years.

- the distortion of the supply and demand structures of the official economy, because the unofficial sector purchases some inputs in the official sector and some of the resulting income is also used officially,¹⁴
- the economic policy problems caused by the misleading official statistics; this applies in particular to fiscal policy, social policy, the labour market and structural reforms.

A continuation of structural reforms could squeeze the unofficial economy as – in general – they reduce the costs of official economic activity and improve the incentive and sanction system based on market forces. Such reforms include the strengthening of the competitive position, even with help from a coherent protectionist system with moderate and uniform import duties, privatisation (including that of land) and the reduction in government influence on corporate decision-making, including the abolition of the sectoral ministries. Other measures include improving the scope for creditors to gain access to the assets of debtors in cases of delayed repayment, improving the legal framework to ensure the stability of the financial system, facilitating the setting-up of new businesses and foreign investment and the flexibilisation of the housing and labour market. Above all, confidence in the permanence of such measures is required.

Implications for fiscal policy

Changes in the taxation and social insurance system could help reduce the importance of the unofficial sector. The first thing that needs to be considered is a moderate marginal rate of tax on incomes. In October 1995 the rate was reduced to 40% with a further cut to 30% expected during the current year. The rate of corporation tax is already 30%. Due to a range of other taxes and charges on business profits (a total of 15 central and local government deductions), and in the case of state-owned firms even on depreciation, the effective corporate tax rate is in most cases far higher than the official rate. On the other hand, there are a range of tax allowances on corporate and turnover taxes, in particular for agriculture and a large group of industrial firms associ-

¹⁴ No attempt is made here to examine this influence of the unofficial economy. A first attempt has been made for Greece: Gerasimos T. Soldatos, "The Structural Consequences of the Underground Economy – The Case of Greece", *Jahrbücher für Nationalökonomie und Statistik*, vol. 214/3, 1995, pp. 302–323. This study presents evidence that virtually all the components of official GDP on the origin side are influenced by the unofficial economy. The demand side, on the other hand – private consumption was studied – appears to be affected to a lesser degree.

Table 2

Unofficial Economy 1990 to 1995: Comparison of Estimates

Year	Estimate of the size of the unofficial economy on the basis of electricity consumption			Estimate of the size of the unofficial economy using a monetary approach	
	as a % of official GDP	as a % of estimated actual GDP	memo item: Russia: as a % of official GDP	as a % of official GDP	as a % of estimated actual GDP
	(1)	(2)	(3)	(4)	(5)
1990	18	15	17	.	.
1991	29	22	21	.	.
1992	40	29	31	.	.
1993	41	29	34	.	.
1994	52	34	38	.	.
1995	52	34	41	47	32

1) Assuming an elasticity of electricity consumption with respect to actual real GDP during the period of contraction of 0.85. — 2) Estimate of the unofficial economic activities based on the use of domestic cash and foreign currency and on barter trade.

Sources: Kaufmann and Kaliberda, op. cit., p. 13 ff.; World Bank: op. cit., 1996; Goskomstat: Russian Statistical Yearbook, Moscow, 1996; DIW calculations.

ated with the agricultural sector. By abolishing these allowances it would be possible to reduce the deductions from profits without leading to a loss of fiscal revenue.

A second conceivable measure would be to change the structure of the taxation system in favour of more indirect taxes.¹⁵ One proposal would be to reduce business taxation, financing the resultant loss of revenue by increasing the rate of VAT and other consumer taxes. However, the Ukrainian rate of VAT is, at 20%, already relatively high and there are a large number of taxes on consumption, some of them at rather high rates. Moreover, it must be borne in mind that VAT and consumer taxes can be relatively easily circumvented. As an example of this, since 1993 receipts from consumer taxes have fallen as a proportion of total fiscal revenue by half despite marked increases in the rates of a number of such taxes. For this reason, and given the large number of exceptions and allowances, in particular with regard to VAT, a broadening of the tax base would be preferable to raising the rate of value-added tax.

Thirdly, in the light of the volume of outstanding tax dues, an improvement in the tax administration must be mentioned, particularly with regard to its rights of verifying tax returns,¹⁶ its equipment, staff and the latter's pay. The costs of collecting the various taxes should be determined so that this aspect can be taken into account

¹⁵ Empirically it has been shown that indirect taxes usually have only a weak influence on cash balances. It can be concluded from this that such taxes have little influence on the unofficial economy. On top of this comes the fact that in most cases an increase in the rate of value-added tax – for example, by one percentage point – generates greater fiscal receipts than increasing the marginal rate of income tax by one point.

¹⁶ The procedure adopted by the USA and Canada could serve as a model here: the tax authorities in these countries enjoy far-reaching rights in verifying the tax returns made by taxpayers.

when modifying the taxation system. A particular problem in this context is the taxation of small private enterprises, as this is costly, but at the same time vital so that the public sector benefits in fiscal terms from their future growth. One possible solution here might be to introduce a temporary lump-sum tax on firms below a given level of turnover. In practical terms the tax authorities could "sell" the firm a licence in return for the submission of a simple profit-loss statement, whereby random checks would have to be made.

Fourthly, a limited tax amnesty for past infringements against the taxation laws might be considered.

Any consideration of the relationship between fiscal policy and the unofficial economy must inevitably take into account the level and structure of public spending. A budget deficit, depending on its magnitude and the way in which it is financed, can have knock-on effects on the unofficial economy,¹⁷ in particular via the channels of higher inflation, a reduced supply of credit and expectations of a rising tax burden. As far as the structure of public spending is concerned, initially those spending items should be examined that are closely related to the motives for entering the unofficial economy mentioned in surveys on this issue: spending on the administrative regulation of foreign and domestic trade and the supervision of enterprises by sectoral ministries. In many of the successor states to the Soviet Union

¹⁷ For example, on the basis of an empirical analysis of Pakistan it has been argued that a mutually reinforcing process has been initiated between the budget deficit and the unofficial economy, the breaking of which makes it advisable to reduce the budget deficit without raising taxes. Possible solutions are, it is argued, broadening the tax base and strict spending discipline. Cf. Ghiat Shabsigh, "The Underground Economy: Estimation and Economic Policy Implications – The Case of Pakistan", International Monetary Fund, *Working Paper* no. 101, Washington D.C., 1995.

(although not in the Baltic States) spending on the public administration as a share of GDP is substantially higher than in the advanced transition countries and industrialised countries. Consequently the efficiency of the following areas, in particular, should be re-examined: law and order, health, education and defence. One way of doing this would be to compare a number of indicators with those in other countries. In the search for ways of reducing public spending attention should also focus on those allowances paid without any attempt to determine the need of the recipient. Once identified the scope for savings can be realised in order to bolster public sector investment and ensure a moderate tax burden.

Conclusion and outlook

By virtue of its very nature, any estimation of the size of the unofficial economy is subject to serious reservations. On the basis of rough estimates, the following conclusions seem plausible in the case of the Ukraine: the growth of the unofficial economy was particularly strong in the early years of transition. While the loosening of foreign trade regulation in 1994 and 1995 served to dampen unofficial economic activity, this was offset by other factors (such as the tax burden, inflation, administrative barriers), so that the underground economy continued to account for a substantial proportion of GDP.¹⁸ Besides persistently low inflation and macroeconomic stability the following measures could serve to reduce the extent of unofficial economic activity:

- opening up investment opportunities by accelerating structural reforms;
- removing the existing barriers to a liberal foreign trade regime;
- reducing the costs of administrative regulation for firms;
- reducing the numerous local government charges on firms in order to bring about a moderate marginal tax rate on retained profits;

¹⁸ It is to be emphasized that this report has not considered whether the unofficial economy affects primarily investment or consumption. It has been argued that unofficial economic activity in eastern Europe focuses on the production of consumer goods and consumption-oriented services, and thus that even given the current significant level of unofficial economic activity no significant impulse for the expansion of productive potential can be expected, because the official statistics have largely accurately reflected the drastic collapse of investment. This supposition would appear to be confirmed here, as in the Ukraine the unofficial economy seems to be concentrated on non-tradable goods and this excludes capital goods. On this hypothesis cf. Wolfram Schrettl and Ulrich Weissenburger, "Russia: Success Story or Collapse?", *The Halifax G-7 Summit: Issues on the Table*, ed. by Sylvia Ostry and Gilbert R. Winham, Center for Foreign Policy Studies, Halifax 1995, pp. 107 ff.

- broadening the tax base for turnover and corporation tax and removing the numerous tax allowances with the aim of retaining the budget deficit within tolerable limits;
- improving the tax administration in terms of rights of verification, equipment and personnel; determining the costs of collecting various taxes;
- re-examining public spending with respect to its efficiency and with the aim of exploiting the scope for reducing public spending in order to ensure a moderate level of taxation and of public sector investment;
- introducing, for a transitional period, a moderate lump-sum tax for very small firms in place of income and turnover tax;
- granting a temporary tax amnesty for past infringements of the taxation laws.

As far as the burden of taxation on firms is concerned, it should be recognised that the taxation system of an economy with a large unofficial sector will more probably have to have lower rates than one in which unofficial activity plays a relatively small role, as special incentives need to be provided to induce economic actors to switch from the unofficial to the official sector.

The measures mentioned take effect after time lags of varying duration and, over time, can be expected to be mutually reinforcing. It would appear possible to induce a self-reinforcing virtuous circle in the case, for example, that official economic growth is positive, the fiscal situation consequently improves, a further reduction in the tax burden is feasible and inflation remains under control. On the other hand, it is doubtful whether even a mass switch from the unofficial to the official sector would bring about a resolution of the major disequilibrium on the labour market (hidden unemployment). Following such a switch firms would be forced to pay social insurance and other contributions which would exert intense cost pressure on them. If the level of employment were to be maintained, productivity would have to rise substantially and/or the average wage rate cut. Neither of these is easy to achieve, so that an increase in the still very low official unemployment rate would be expected.

Even so the welfare gains of a return of the very substantial degree of unofficial economic activity to the official economy are likely to be considerable. The main advantages include the more efficient allocation of resources, the easing of pressure on the budget, the lower extent of internal and external government borrowing and reduced inequality of income distribution.

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