Powerless Against the Shadow Economy?

The Case of Ukraine

There is no doubt that the shadow economy plays a big part in the transition countries. For Ukraine the estimates range from 30% to 100% of the official figure for GDP.¹ But for economic policy the question of how the shadow economy can be reduced is more important than its absolute size. An econometric study on this question is now available for the transition country Ukraine.² It shows that the following aspects are significant, here in order of importance: the regulatory burden on companies, the complexity of the tax system, the burden of taxation and social security contributions, and 'soft budget constraints' on companies. The results of the study give the impression – which is also widely held within Ukraine – that the shadow economy has shrunk slightly since about 1998. The main reasons are probably the reduction in the tax and social charges ratio, and the introduction of a moderate presumptive tax for small firms. Presumably the shadow economy would have shrunk even further if – beside the reductions in the burden of charges – the tax system had not been made even more complex, the regulatory burden on companies had not become even greater and if companies had been made to accept more liability for their financial activities. As these factors are largely determined by economic policy the key to the reduction of the shadow economy lies in the hands of the politicians.

The background of economic policies

Initial estimates of the size of the shadow economy in Ukraine have been made since 1995, and they have received close attention from politicians.³ As economic policy generally became more open to reform this problem also came on the agenda. Corporation tax was reformed in 1995, export taxes were abolished, between 1993 and 1995 the top rate of personal income tax was brought down from 90% to 40% and between 1997 and 1999 the very high level of social charges was also reduced, from 52% of gross earnings to 40%. Moreover, in 1998 a very moderate presumptive tax was introduced for small companies, providing an option to income tax. It was also the Government's aim to reduce the burden of bureaucracy on companies. Authorities were instructed to coordinate controls of firms and reduce the general level, and a state agency was set up whose main function is to put forward proposals for 'promoting private enterprise' and for deregulation. Finally, steps were also taken to make the 'budget constraints' on companies more stringent, by making non-monetary transactions such as barter and borrowing between companies more difficult,⁴ and particularly by introducing successive reductions in subsidies on the expenditure side of the state budget. The very much greater subsidies on the revenue side in the form of tax concessions have, however, largely been retained.

A quantitative analysis of the causes of the shadow economy

The measures to cut down the shadow economy have increased the variation in the available data, and now it is possible to make econometric estimates of its development.⁵ They generally proceed from the assumption that transactions in the shadow economy are in cash. In addition to the two traditional factors that explain real currency holdings (real per capita incomes and real interest rate levels), factors are taken into account that can be the reason for holding money to finance unofficial transactions ('illegal' currency holdings).⁶

² For more detail see I. Melota, U. Thiessen and T. Vachnenko: Fiscal and Regulatory Causes of the Shadow Economies in Transition Countries: The Case of Ukraine, Institute for Economic Research and Policy Consulting (IER), Working Paper no. 9, August 2001, (http://www.ier.kiev.ua/Eng/WPEng.htm). The Kiev institute has been assisted since it was founded by the Ukraine Government's German Economic Advisory Group with the participation of DIW Berlin; it also receives financial support under the German Government's TRANSFORM programme.
⁴ Since 2000 non-monetary transactions in the important energy sector have actually been forbidden. This is thought to be the main reason for the subsequent strong rise in the cash payment of energy bills.
⁶ Following the usual procedure, in the estimates of the functions of the demand for notes and coins the dependent variable is not the real stock of notes and coins but, for statistical reasons, the relation of the stock of notes and coins to bank deposits.
Generally, to calculate the size of the shadow economy the estimated 'illegal' stock of notes and coins is multiplied by a velocity figure and set in relation to GDP. However, this requires an assumption to be made of the velocity of cash holdings in the shadow economy: here it is assumed that the trend of this velocity is the same as the trend of 'official' cash holdings. As a result, therefore, it is not the size of the shadow economy that is estimated, but only the progress over time of an index for the share of the shadow economy in official GDP and the influence of various economic policy variables on that index.

Among the variables that can be regarded as promoting the shadow economy the burden on economic subjects of direct and indirect taxes is considered, the burden of social security contributions, and the regulatory burden. Then the complexity of the tax system also has to be taken into account. This is determined by tax exemptions, concessions, the scope for the authorities to interpret the tax regulations, and the number of taxes. But unlike the other variables, the direction in which the complexity of the tax system influences the shadow economy is a priori unclear, because two contradictory effects can occur: firstly, the growing complexity of the tax system can be a reason for the economic subjects to work more in the shadow economy, because they find the system incomprehensible, for example, or too complicated, and possibly also unfair. On the other hand, the growing complexity of the tax system can also induce them to shift from the unofficial to the official economy, because they may underestimate the taxes and charges they are actually paying and/or they make use of the exceptions and concessions that are available to reduce their tax burden.

The introduction of the presumptive tax for small firms in 1998 was included in the regressions as another policy variable using a dummy variable. It was expected that the presumptive tax would have the effect of reducing the shadow economy, for it reduces the tax burden and the bureaucracy this involves for firms.

Finally, the estimates also take into account the special features of Ukraine as a transition country in regard to the widespread use of non-monetary means of payment. As a variable to represent all the non-monetary transactions the real size of the arrears of payments between firms was used. It can be shown that there is a substitution relation between the overdue payments between firms and notes and coins, but not between these outstanding payments and bank deposits. The reason for this may be that transactions in the shadow economy are made in cash and not through bank accounts.

The results of estimates...

The traditional factors that determine cash holdings exert the expected influences: the relation between the stock of cash and bank deposits falls as real incomes and real interest rates rise. Regarding the variables of particular interest here, i.e. direct taxes, social charges and the actual burden of regulations on companies, they have a statistically significant and positive effect on cash holdings relative to bank deposits, and so also on the shadow economy.

Indirect taxes, on the other hand, have no significant influence, but the complexity of the tax system does encourage the shadow economy. That may not be surprising – surveys have shown that in the period observed (1993 to 2000) there was great dissatisfaction

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7 The regulatory burden is quantified through the relation of certain employees on all levels of government to the population, cf. I. Melota, U. Thiessen and T. Vachnenko, loc. cit., p. 181.
8 Following the usual procedure in research a composite quantitative indicator is calculated for these components of the complexity of the tax system, I. Melota, U. Thiessen and T. Vachnenko, loc. cit., p. 19 ff.
9 A theoretical and empirical study on the shadow economy in Austria found that the comprehensive tax reform there at the end of the 1980s, which involved considerable reductions in marginal tax rates and the average tax burden while at the same time widening the tax base by abolishing a number of tax concessions, could not prevent the growth of the shadow economy in relation to GDP. The authors argue that reducing the complexity of the tax system and abolishing tax concessions made the tax burden more 'visible' and also put a heavier tax burden on those who had formerly profited from the concessions. As a result of these effects the incentives to engage in unofficial activities continued to grow on the whole. Cf. F. Schneider and R. Neck: The Development of the Shadow Economy under Changing Tax Systems and Structures; Some Theoretical and Empirical Results for Austria, in: Finanzarchiv, vol. 50, 1993, p. 344-368.
10 For more details see I. Melota, U. Thiessen and T. Vachnenko, loc. cit.
11 Idem.
12 Variables are regarded as statistically significant here if their level of significance is 5% or more. All variables that represent the burden of direct taxes were consistently significant, with the exception of the explicit tax rates. The variables representing the burden of indirect taxes were consistently non-significant. With regard to the burden of social charges the explicit rate of social charges was consistently non-significant, while there was no clear result for the three implicit rates of social charges calculated. If the social charges are added to the implicit burden of direct taxes the significance of the latter remains almost unchanged, and it is consistently above the 5% level. Altogether, it must be assumed that the direct taxes and social charges are statistically significant causes of the shadow economy, cf. idem.
13 The same result was found for Germany and Austria. One explanation could be that companies do not regard indirect taxes as a particular burden, because they aim to pass them on to consumers. Pre-tax deductions are also an incentive for them to charge the tax. Consumers are bound to see indirect taxes as a burden, but it is generally difficult to avoid paying them.
with the tax system, not only because the tax burden was felt to be too high, but also because of decisions by the tax authorities that were often regarded as arbitrary, and because the tax regulations were frequently changed, in some cases actually backdated to the disadvantage of taxpayers. Moreover, the distribution of the tax burden was highly unequal as a result of the many tax concessions. The presumptive tax that was included in the regressions using a dummy variable is, as expected, having a dampening effect on the shadow economy. Similarly, there is a significant and positive relation between non-monetary transactions and the shadow economy.

... and policy simulations

The index estimated here\(^\text{15}\) shows that the shadow economy in Ukraine was growing up to about 1997. Since then the trend has been downward; however, a slight growth is again apparent for 2000 (cf. table 1 and figure 1).

\(^1\) Assuming that inter-firm indebtedness is related to (Scenario A) or not related to (Scenario B) unofficial transactions.

**Simulation 1**: tax burden at 1993 level and no presumptive tax for small firms.

**Simulation 2**: presumptive tax for small firms not introduced.

**Simulation 3**: burden of regulations and bureaucratic obstacles on firms at 1993 level.

**Simulation 4**: complexity of the tax system at 1993 level.

**Simulation 5**: burden of bureaucratic obstacles on firms and complexity of the tax system on 1993 level.

**Simulation 6**: real overdue inter-firm indebtedness at 1993 level.

**Simulation 7**: avoiding policy mistakes (burden of regulations and bureaucratic obstacles on firms; complexity of the tax system and real overdue inter-firm indebtedness all at 1993 level).

Source: DIW Berlin calculations.
Simulations show how the shadow economy would have developed if economic policy had been different. If, for example, the tax burden had not been reduced since the mid-1990s and the presumptive tax had not been introduced for small firms, the shadow economy index would have risen almost without a break (cf. simulation 1, figure 1). If the only deviation from the actual development had been not to introduce the presumptive tax, the estimated index would have been about 11% higher in 1999 and about 13% higher in 2000 than without this reform (cf. simulation 2). That suggests that the presumptive tax is having the desired result and that its effect in dampening the shadow economy is growing. A number of small firms are utilising this new tax regulation, and some of them are moving out of the shadow economy into legal operations.

The simulations also show the influence of other policies. If, for example, the estimated actual burden of regulations (and corruption) on companies had not increased over time the index of the shadow economy would have tended downwards (cf. simulation 3). And if the tax system had not become more complex, the estimated index of the shadow economy would have remained almost constant (cf. simulation 4). If the strong rise in real overdue payments between firms from 1993 to 1998 had been avoided, the estimated index of the shadow economy would have fallen continuously (cf. simulation 7).

Finally, the simulations also show that the most important quantitative reason for the shadow economy is the actual burden of regulations (and corruption) on companies; this is followed by the complexity of the tax system.

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16 This is indicated by surveys and the surprisingly good development in the revenues from income tax, which have not suffered from the introduction of the presumptive tax (not even taking into account other important influences), although that could have been expected. However, it must be admitted that measuring the influence of the presumptive tax through a dummy variable can mean that the estimated coefficient of these variables measures not only the influence of the presumptive tax from 1999 but also other potential influences.

17 That is assuming that indebtedness between firms involves unofficial transactions.
system, the burden of taxation and charges and the 'soft budget constraints'.

A comparison with estimates based on electricity consumption

The estimates presented here have become possible for transition countries only very recently. Hence, many statements on the shadow economy have so far been based on a comparison between the development in electricity consumption and official real GDP.\(^\text{18}\) Table 2 shows the results of two marginal estimates using the two methods. For better comparability the indices for 1993 were set at 1. In the electricity approach the share of the shadow economy in GDP rose drastically in 1994; it continued to rise until 1996 and then fell again fairly rapidly. The currency demand approach, on the other hand, shows a gradual rise up to 1997 and a downward trend since then, with a break in 2000. Another important difference between the results from the two methods is that according to Scenario 1 of the electricity approach, in which it is reasonably assumed that in a downswing consumption of electricity will fall less strongly than production, the share of the shadow economy in GDP was less in 2000 than in 1993, while in the two scenarios for the currency approach it was larger by 30% to 50%. The results from the electricity approach are evidently very strongly influenced by the cyclic development, while the currency approach is based on an empirical model that gives statistically satisfying results. Above all, the monetary approach permits statements to be made not only on the reasons for the shadow economy in general, but also on the influence of certain policy variables.

Conclusion

The estimates and simulations of the development of the shadow economy presented here have a significance that goes beyond the case of Ukraine, because they show that the burden of bureaucratic regulations on companies and the complexity of the tax system; can be causes of the shadow economy that are quantitatively just as important as, if not more important than, the burden of taxes and charges on economic subjects. The estimates also suggest that a presumptive tax for small

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firms can be an effective way to discourage the shadow economy. They also suggest that there is no connection between indirect taxes and the shadow economy, so that the reduction in the relatively high level of 20% for VAT in Ukraine, which some politicians want, does not appear to be necessary, at any rate not in order to cut down the shadow economy. On the contrary, VAT could actually be considered to be a tax that allows taxation of a part of the income earned in the shadow economy without promoting the shadow economy itself.

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