

# Institutions and the Underground Economy 10

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What went wrong with transition in the former Soviet Union? Instead of following more or less the Eastern European path of sustained reform, we see countries such as Russia and Ukraine failing to make progress or even falling back. In both countries, as in most other former Soviet countries, there is continued macroeconomic instability, limited restructuring of privatized firms, and slow development of new firms.

In both Russia and Ukraine a leading symptom of the problem with transition is that many firms exist largely underground, hiding their activity from the authorities. This diversion into unofficial activity undermines the tax base and makes it hard for the state to provide important public services, such as an efficient legal system. In the case of Russia and Ukraine, the large underground economy also makes it harder for the government to balance its budget.

What has driven so many firms underground? The most important problem appears to be not high marginal corporate or personal income tax rates but rather high levels of regulation, bureaucratic discretion, and corruption. There is also evidence that these countries have experienced a downward spiral, in which firms leaving the official sector have reduced state revenue, forcing a reduction in publicly provided services, which in turn has further reduced the incentive to register in the official sector.<sup>1</sup> Most of the former Soviet Union countries have thus ended up in a "bad" equilibrium, with low tax revenue, a large unofficial economy, and low quality of publicly provided services.<sup>2</sup>

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<sup>1</sup>Loayza (1996) reports similar findings for Latin America. In his model unregistered firms use but do not pay for public services, thus leading to congestion costs for public goods such as roads, and slower growth.

<sup>2</sup>A Western manager, who decided against locating a plant in Russia, illustrates the logic behind the decision to go underground. Recounting the pressures he would have faced in Russia, he explained: "It doesn't matter who it is: fire inspector, zoning committee member, mayor

This situation stands in striking contrast with that in Central and Eastern Europe (CEE), especially Poland. Poland is not perfect by any means, but its unofficial economy remains small and may actually have fallen relative to GDP during the reform period. Before 1989 Poland had earned a reputation for being extremely corrupt (Clark and Wildavsky, 1990). Yet to a remarkable degree, Poland has managed to reduce corruption through three measures. First, elections have installed new political leaders at both the national and the local level. Almost everyone who runs a significant level of government in Poland was not in power under communism. Second, the Mazowiecki government moved quickly, in 1989-90, to eliminate important lobbying organizations that existed under communism. Third, workers' councils fired the managers of large state enterprises at the very beginning of transition. Particularly when seen in comparison with other transition economies such as Russia and Ukraine, Poland's experience shows that the principal need is to reduce the scope for capricious action by government officials, including by changing those officials.<sup>3</sup>

This chapter summarizes our main findings from three strands of research on the unofficial economy that have tested this idea and explored its implications. First, we report aggregate evidence on the size of the underground economy in CEE and the countries of the former Soviet Union since 1989. The underground economy has shrunk or remained about the same size in CEE during the transition, at the same time that it has grown dramatically in many of the countries of the former Soviet Union. Most of the divergence in the size of the unofficial economy can be attributed to greater levels of corruption in the latter set of countries. Tax rates are either quite similar across these countries or, in some cases, actually lower in the countries of the former Soviet Union than in CEE.

Second, we report estimates of the size of the underground economy based on firm-level surveys in five countries: Poland, Romania, Russia, the Slovak Republic, and Ukraine. This work confirms that there is a large difference in the size of the unofficial economy between CEE

for that region, anybody can come and shut you down in five minutes. The fire guy could come, find fire hazards, and demand \$50,000 into his overseas account. They know that if you shut down production for a few days, you're going to lose a lot more" (Wilson, 1996). Faced with this hostile environment, foreign firms may choose not to invest in Russia. However, for local entrepreneurs seeking to avoid the same risks, the usual course is to go underground (Kaufmann, 1997).

<sup>3</sup>For transition economies this idea was developed in Kaufmann (1994 and 1997), Kaufmann and Kaliberda (1996), Shleifer (1997), Frye and Shleifer (1997), Kaufmann and Siegelbaum (1997), and Johnson, Kaufmann, and Shleifer (1997). Important previous work dealing with these issues includes de Soto (1989) and Shleifer and Vishny (1993 and 1994). Most recently this view has been tested and developed further by Havrylyshyn and Wolf (this volume).

and the countries of the former Soviet Union. It also confirms that regulation and corruption, rather than official tax rates, lie behind the much larger underground economy in Russia and Ukraine. This work also provides a great deal of detail about the magnitude of bribes being paid for certain services and emphasizes the importance of payments made to tax officials and other government inspectors.

Third, we summarize evidence and analysis on regulation and the size of the unofficial economy from a comparative sample of 69 countries. Our analysis reveals no positive correlation between direct or indirect tax rates and the size of the unofficial economy. In contrast, more regulation, greater corruption, and a weaker legal environment are all associated with a larger unofficial economy, even (in most cases) when we control for income per capita. Russia and Ukraine now resemble developing countries at similar income levels. They have high levels of corruption and a large unofficial economy. In contrast, Poland and, to a lesser extent, other countries in CEE have made impressive progress in bringing economic activity back into the official sector.

### Aggregate Data on the Size of the Underground Economy, Corruption, and the Legal Environment

This section, which reports our main results for both CEE and the countries of the former Soviet Union on the size of the underground economy, on the extent of corruption, and on the effectiveness of legal institutions, draws heavily on Johnson, Kaufmann, and Shleifer (1997). Data on the unofficial economy are available only through 1995.

#### Size of the Unofficial Economy

Table 1 shows estimates of the share of the unofficial economy in GDP using the methodology presented in Johnson, Kaufmann, and Shleifer (1997), which is based on electricity consumption. The data reveal two divergent development paths. The average (unweighted) share of the unofficial economy in the CEE countries starts at 16.6 percent of GDP in 1989, peaks at 21.3 percent in 1992, and falls to 19.0 percent by 1995. In contrast, the average share in the countries of the former Soviet Union starts at 12.0 percent and rises to 36.2 percent in 1994 before dropping to 34.4 percent in 1995. Even more striking is the contrast between Poland and Romania on the one hand, where the unofficial economy's share fell from 1989 to 1995 by about 3 percentage points of GDP, and Russia and Ukraine on the other, where the unofficial share rose 29.6 and 36.9 percentage points, respectively, over the same period.

Table 1. Share of the Unofficial Economy in CEE and the Countries of the Former Soviet Union

Country	Share of the Unofficial Economy (in percent of GDP)							GDP (Index, 1989 = 100)			
								1994		1995	
	1989	1990	1991	1992	1993	1994	1995	Official	Total	Official	Total
<b>Eastern Europe</b>											
Bulgaria	22.8	25.1	23.9	25.0	29.9	29.1	36.2	72.3	78.7	73.7	89.2
Czech Rep.	6.0	6.7	12.9	16.9	16.9	17.6	11.3	81.0	92.4	84.3	89.3
Hungary	27.0	28.0	32.9	30.6	28.5	27.7	29.0	83.4	84.3	84.7	87.1
Poland	15.7	19.6	23.5	19.7	18.5	15.2	12.6	92.0	91.4	98.3	94.9
Romania	22.3	13.7	15.7	18.0	16.4	17.4	19.1	72.7	68.4	77.7	74.7
Slovak Rep.	6.0	7.7	15.1	17.6	16.2	14.6	5.8	77.9	85.8	83.1	82.9
<b>Former Soviet Union</b>											
Azerbaijan	12.0	21.9	22.7	39.2	51.2	58.0	60.6	30.1	71.5	31.4	70.1
Belarus	12.0	15.4	16.6	13.2	11.0	18.9	19.3	62.5	67.8	56.1	61.2
Estonia	12.0	19.9	26.2	25.4	24.1	25.1	11.8	67.1	78.8	69.1	68.9
Georgia	12.0	24.9	36.0	52.3	61.0	63.5	62.6	15.6	37.6	16.0	37.6
Kazakhstan	12.0	17.0	19.7	24.9	27.2	34.1	34.3	51.0	68.2	46.5	62.3
Latvia	12.0	12.8	19.0	34.3	31.0	34.2	35.3	48.1	64.3	47.3	62.3
Lithuania	12.0	11.3	21.8	39.2	31.7	28.7	21.6	43.9	54.1	45.1	50.6
Moldova	12.0	18.1	27.1	37.3	34.0	39.7	35.7	41.7	60.9	43.0	58.8
Russia	12.0	14.7	23.5	32.8	36.7	40.3	41.6	51.3	75.5	49.1	74.0
Ukraine	12.0	16.3	25.6	33.6	38.0	45.7	48.9	44.2	71.6	39.0	67.0
Uzbekistan	12.0	11.4	7.8	11.7	10.1	9.5	6.5	85.0	82.6	84.0	79.0

Source: Johnson, Kaufmann, and Shleifer (1997).

## Corruption and Legal Institutions

The rest of this section summarizes our empirical results from regressing the share of the unofficial economy in 1995 on measures of corruption and the legal environment. Our proxy for corruption is the *Wall Street Journal's* index of "crime and corruption." A one-point improvement in this index (which ranges from 1 to 10) is associated with a fall in the share of the unofficial economy by 3.4, to 4.7 percentage points of GDP.

We use four measures of the legal environment. The first two are the result of evaluations by two different panels for the *Wall Street Journal*, the first on "legal safeguards for investment," and the second more generally on the "rule of law." The third measure, constructed by the European Bank for Reconstruction and Development (EBRD, 1995, p. 103, and 1996, p. 14) evaluates countries in terms of the de jure extensiveness of their legal systems in protecting investment. The fourth measure, also from the EBRD (1995, p. 103, and 1996, p. 14), assesses the de facto effectiveness of legal systems in protecting investment.

A negative relationship is found between the supply of law and order to the official economy and the relative size of the unofficial economy. CEE and the Baltics score significantly higher on the rule-of-law measure than do the countries of the Commonwealth of Independent States (CIS, which is the countries of the former Soviet Union minus the Baltics). In the *Wall Street Journal's* measure of the rule of law, only one CEE country, Bulgaria, has a lower score than the CIS country with the highest score, Moldova, and the difference is very small. The lowest legal safeguards score among the non-CIS countries is that of Romania, at 5.6, and the highest in the CIS is that of Moldova, at 4.3.

Controlling for the initial share of the unofficial economy, a one-point improvement in the index of legal safeguards (which also ranges from 1 to 10) is associated with a 5.1-percentage-point fall in the share of the unofficial economy. A change in the rule-of-law index has only a slightly smaller effect. The EBRD's (1997) legal effectiveness and extensiveness indices have effects of similar magnitude, although precise comparisons are difficult because their values range only from 1 to 5. This evidence supports the theoretical prediction that the unofficial economy is larger where the official sector's public goods are poorer, and particularly where the rule of law is weaker.

To summarize, across CEE and the countries of the former Soviet Union, liberalization, privatization, fairer taxation, and fewer regulations are all associated with a smaller unofficial economy. Better provision of public goods to the official economy is associated with a rel-

atively larger official economy. Public finance mechanisms also appear to be at work: countries with less distortionary tax and regulatory systems collect more tax revenue and provide more public goods to their official economies.<sup>4</sup> However, posted tax rates do not appear to be an important explanatory variable. Corporate tax rates are actually lower in Russia and Ukraine than in much of CEE. The problem appears to lie with the more general burden imposed by government officials.

## Detailed Evidence from Five Countries

To understand this issue in more detail, we turn to our firm-level data in Poland, Romania, Russia, the Slovak Republic, and Ukraine. This section draws heavily on Johnson, McMillan, and Woodruff (1998, 1999a, and 1999b).

### The Extent of Reform

Three independent sources measure the extent of reform: the EBRD, the *Wall Street Journal*, and the Heritage Foundation.<sup>5</sup> Reform is usually considered to have three dimensions: stabilization, which primarily considers the rate of inflation; liberalization, meaning the extent of restrictions on economic activity; and privatization (World Bank, 1996). However, recent analysis indicates the potential importance of the legal environment in explaining outcomes in transition economies (Johnson, Kaufmann, and Shleifer, 1997; Havrylyshyn and Wolf, this volume), so we include these measures as well. We also report the available country-level measures of reform of the banking system and securities markets.

The five countries in our sample had markedly different inflation experiences during the 1990s. Since 1990, inflation in Poland and the

<sup>4</sup>Appendix 4 in Johnson, Kaufmann, and Shleifer (1997) shows the available numbers on general government spending as a percentage of both official and total GDP. There is a marked difference between the CEE and the CIS countries. General government spending in Poland was 48.8 percent of GDP in 1989, 39.8 percent in 1990, and 47.5 percent in 1994 (EBRD, 1996, p. 201); in the Czech Republic it was 60.1 percent in 1990 and 50 percent in 1994 (EBRD, 1996, p. 191); and in Hungary it was 53.5 percent in 1990 and 56.1 percent in 1995. In contrast, Russian government spending fell from 60.5 percent of official GDP in 1992 to 31.9 percent in 1995. For the latest available year, general government spending as a share of total GDP was about 40 percent for Poland (1994) and under 20 percent for Russia (1995). A large decline in general government spending as a percentage of GDP has occurred in the CIS countries, but not in CEE or in the Baltics.

<sup>5</sup>The World Bank indices (World Bank, 1996) give results similar to those of the EBRD, but their content is harder to interpret, so we prefer to leave them out. See Johnson, Kaufmann, and Shleifer (1997) for a more detailed discussion of indices of reform, including those of the World Bank, the IMF, Freedom House, and Transparency International.

Slovak Republic has not exceeded 60 percent and has fallen fairly steadily. In comparison, inflation in Romania peaked at nearly 300 percent in 1993, and the government has struggled to bring it under control. Both Russia and Ukraine experienced hyperinflations, with peaks in average annual inflation of 2,500 percent in 1992 for Russia and over 10,000 percent in 1993 for Ukraine. In terms of cumulative inflation from 1990 or 1991 to 1997, the five countries therefore differ dramatically.<sup>6</sup> However, by 1996 inflation in all five countries was under control: at 19 percent in Poland, 57 percent in Romania, 22 percent in Russia, 5 percent in the Slovak Republic, and 40 percent in Ukraine (EBRD, 1997, p. 118). It remains essentially under control until today, although there is still strong inflationary potential in Romania, Russia, and Ukraine. On this dimension, policy and outcomes have definitely converged in the five countries.

The initial focus of economic reform in these countries was on the liberalization of prices, and the EBRD's index (EBRD, 1997, p. 14) indicates that by 1996 all five countries had the same level of price liberalization. Again, all five have converged in this dimension of reform.<sup>7</sup> The EBRD's index of "trade and foreign exchange system" reform, which measures the liberalization of current account transactions, shows Poland at the highest level (4+), followed closely by Romania, Russia, and the Slovak Republic (at 4), with Ukraine lagging behind (at 3; EBRD, 1997, p. 15).<sup>8</sup> Given that a score of 4 represents almost complete liberalization, all the countries except Ukraine can be considered to have achieved a high degree of liberalization.

The EBRD (1997, p. 14) offers two measures of privatization: "large-scale privatization," meaning large firms, usually in manufacturing, and "small-scale privatization," meaning small firms, primarily shops. On the first measure, in 1996-97 the Slovak Republic led the group with a score of 4 (primarily the result of privatization organized while still part of Czechoslovakia), while Poland and Russia scored 3+,

<sup>6</sup>Åslund, Boone, and Johnson (1996) argue that cumulative inflation is highly correlated with rent seeking. This would suggest that the extent of corruption and other forms of preying on private business should be highest in Ukraine and Russia, followed by Romania.

<sup>7</sup>All five countries scored 3 on this index, which denotes "substantial progress on price liberalization: state procurement at non-market prices largely phased out."

<sup>8</sup>A 4+ denotes "standards and performance norms of advanced industrial economies: removal of most tariff barriers; membership in WTO." A 4 denotes "removal of all quantitative and administrative import and export restrictions (apart from agriculture) and all significant export tariffs; insignificant direct involvement in exports and imports by ministries and state-owned trading companies; no major non-uniformity of customs duties for non-agricultural goods and services; full current account convertibility." A 3 denotes "removal of almost all quantitative and administrative import and export restrictions; almost full current account convertibility."

Romania was at 3-, and Ukraine was at 2+.<sup>9</sup> In terms of small-scale privatization, Poland and the Slovak Republic scored 4+, Russia scored 4, Ukraine scored 3+, and Romania scored 3.<sup>10</sup> In this case it seems that Poland, Russia, and the Slovak Republic can claim almost complete reform in terms of privatization, with Romania and Ukraine lagging only slightly behind. Again, there is not much variation between countries.

Three organizations offer measures of these countries' legal environments for business. The EBRD's (1997, p. 17) measure of the legal system's effectiveness attempts to capture how commercial laws are being enforced and administered. The data are from a survey of lawyers in the region. According to this index, there were significant differences among the countries: Poland scored 4+; Romania, Russia, and the Slovak Republic scored 3; and Ukraine scored 2.<sup>11</sup>

The *Wall Street Journal's* panel of investment professionals rates the countries according to their attractiveness as a place to do business over the coming year. The ratings are on a scale of 1 to 10, with 10 being the best (*Central European Economic Review*, 1997-98).<sup>12</sup> At the end of 1997, their overall ratings placed Poland in the lead with 7.8, followed by Russia at 6.0, the Slovak Republic at 5.8, Romania at 5.7, and Ukraine at 3.9. Two subindices, measuring the rule of law and corruption, particularly address the legal environment. On the rule-of-law measure, Poland scored 9.0, Romania 6.4, the Slovak Republic 6.2, Russia 5.4, and Ukraine 3.9. On the corruption subindex, Poland scored 8.2, the Slovak Republic 5.7, Romania 5.4, Russia 3.7, and Ukraine 2.1.

The Heritage Foundation's Index of Economic Freedom is also the result of evaluation by outside experts (Johnson, Holmes, and Kirkpatrick, 1998). This index is a simple average of a country's scores

<sup>9</sup>A score of 4 denotes "more than 50 percent of state-owned enterprise and farm assets in private ownership and significant progress on corporate governance of these enterprises." A 3 denotes "more than 25 percent of large-scale enterprise assets in private hands or in the process of being privatized (with the process having reached a stage at which the state has effectively ceded its ownership rights), but possibly with major unresolved issues regarding corporate governance." A 2 denotes "comprehensive scheme almost ready for implementation; some sales completed."

<sup>10</sup>A 4+ denotes "standards and performance typical of advanced industrial economies: no state ownership of small enterprises; effective tradability of land." A 4 denotes "complete privatization of small companies with tradable ownership rights." A 3 denotes "nearly comprehensive programme implemented."

<sup>11</sup>The EBRD's explanations for these scores are rather long and should be consulted by the reader (EBRD, 1997, p. 19). To summarize, a score of 4+ denotes clear commercial laws that are supported by an effective court system; 3 indicates that the commercial laws are clear but not fully supported by the court system; and 2 indicates that "commercial legal rules are generally unclear and sometimes contradictory."

<sup>12</sup>See the discussion in Johnson, Kaufmann, and Shleifer (1997) for details of how this panel operates and its results in previous years. It appears to give consistent and reasonable results over time.

on 10 specific indexes.<sup>13</sup> A lower score on the overall index means the economy is "more free" or offers a more favorable environment for private business. The 1998 index basically measures the environment as it existed in 1997. In the overall index, the Slovak Republic did best, with a score of 3.05, Poland scored 3.15, Romania 3.3, Russia 3.45, and Ukraine was last again with 3.8. On the taxation index, Poland and Russia scored 3.5, the Slovak Republic 4.5, Ukraine 4, and Romania 5.<sup>14</sup> On the property rights index, Poland was ahead with a score of 2, the Slovak Republic and Russia each scored 3, and Romania and Ukraine scored 4.<sup>15</sup> Finally, on the regulation index, Poland and the Slovak Republic each scored 3, and Russia, Romania, and Ukraine all scored 4.<sup>16</sup>

The picture from these measures of legal and regulatory environment is therefore fairly consistent. Poland is usually the best performer, followed closely by the Slovak Republic. Ukraine consistently scores the lowest. Russia and Romania occupy intermediate positions, with Romania having a slight advantage in terms of corruption and rule of law.<sup>17</sup>

Finally, the EBRD offers two measures of financial system reform: "banking reform and interest rate liberalization," and "securities markets and nonbank financial institutions." On the first measure, Poland scores a 3, Romania and the Slovak Republic both score 3-, Russia scores 2+, and Ukraine scores 2.<sup>18</sup> On the securities markets index, Poland scores 3+, Russia scores 3, the Slovak Republic scores 2+, and Romania and Ukraine both score 2.<sup>19</sup>

<sup>13</sup>The specific indexes cover trade, taxation, government intervention, monetary policy, foreign investment, banking, wages and prices, property rights, regulation, and the black market. See Johnson, Holmes, and Kirkpatrick (1998, pp. 35-51) for a detailed description of each measure.

<sup>14</sup>The taxation index is an average of a country's score on separate income tax and corporate tax grading scales. On both scales a 3 denotes moderate taxes, a 4 high taxes, and a 5 very high taxes (Johnson, Holmes, and Kirkpatrick, 1998, pp. 40-41)

<sup>15</sup>This index measures the protection of private property by the government and judicial system. A 2 denotes "very high" protection, a 3 "high" protection, a 4 "low" protection, and a 5 "very low" protection (Johnson, Holmes, and Kirkpatrick, 1998, p. 47).

<sup>16</sup>This index measures "how easy or difficult it is to open and operate a business" (Johnson, Holmes, and Kirkpatrick 1998, p. 49). A 3 denotes a moderate level of regulation, and a 4 denotes a high level of regulation.

<sup>17</sup>The more detailed analysis in Johnson, Kaufmann, and Shleifer (1997) shows basically the same relative rankings across all the available measures of legal reform. The largest difference is consistently between CEE and the countries of the former Soviet Union.

<sup>18</sup>A 3 denotes "substantial progress in establishment of bank solvency and of a framework for prudential supervision and regulation; full interest rate liberalization with little preferential access to cheap refinancing; significant lending to private enterprises and significant presence of private banks." A 2 denotes "significant liberalization of interest rates and credit allocation; limited use of directed credit or interest rate ceilings."

<sup>19</sup>A 3 denotes "substantial issuance of securities by private enterprises; establishment of independent share registries, secure clearance and settlement procedures, and some protection

## Size of the Unofficial Economy

In their comprehensive survey, Schneider and Enste (1998) use our estimates of the unofficial economy but express reservations about the electricity consumption methodology. However, alternative estimates by other authors seem to confirm our findings.

In 1997-98 we carried out detailed firm-level surveys to obtain independent information on the size of the unofficial sector in Poland, Romania, Russia, the Slovak Republic, and Ukraine. This evidence indicates that the size of the unofficial economy is roughly the same as estimated using the electricity consumption methodology. For Ukraine we found the same result from microsurvey work in the mid-1990s and from the electricity consumption method (Kaufmann and Kaliberda, 1996; Kaufmann, 1997). We also find that interactions with the government are much more costly in the countries of the former Soviet Union, primarily because of the need to pay bribes.<sup>20</sup>

## Taxation and Corruption

Firms are understandably reluctant to reveal the level of their payments to the government, even when the payments are official. We therefore phrased questions about these payments in terms of payments made by "firms in your industry."

Tax rates are high in all five countries, but the taxes supposed to be paid by firms (corporate and social security tax rates) in Russia and Ukraine are generally not higher, and in some instances may be lower, than in Poland, Romania, and the Slovak Republic. The picture for personal tax rates is mixed, with Ukraine and Romania having the highest tax rates, followed by the Slovak Republic and Russia, and then Poland. Overall, however, we can conclude that the posted tax rates that firms are supposed to pay are, if anything, higher in the CEE countries of our sample than in Russia and Ukraine.

However, our survey indicates that the effective or perceived tax rates are almost twice as high in Russia and Ukraine as in the other three countries. Managers of start-ups report higher tax rates than do managers of privatized firms in all the countries.<sup>21</sup> Other payments to

of minority shareholders; emergence of non-bank financial institutions (e.g., investment funds, private insurance and pension funds, leasing companies) and associated regulatory framework." A 2 denotes "formation of securities exchanges, market-makers and brokers; some trading in government paper and/or securities; rudimentary legal and regulatory framework for the issuance and trading of securities."

<sup>20</sup>See Frye and Shleifer (1997) for further evidence that Poland's regulatory environment is more supportive of business activity than Russia's.

<sup>21</sup>Given that taxes are levied on corporate income, this result is consistent with the fact that start-ups are more profitable.

the government are also higher in Russia and Ukraine than in other countries. Lower response rates in Russia and Ukraine probably indicate that some firms who pay bribes preferred not to say anything about it.

Where tax rates and bribes are high, one might expect firms to underreport sales, wages, and other data. Our respondents were asked, "It is thought that many firms in your industry, in order to survive and grow, may need to misreport their operational and financial results. Please estimate the degree of underreporting by firms in your area of activity." The estimated underreporting of sales is highest in Ukraine (41.2 percent), followed by Russia (28.9 percent), the Slovak Republic (7.4 percent), Romania (5.7 percent), and Poland (5.4 percent). In Russia and Ukraine, managers of privatized firms said that such firms underreport sales to a greater extent than managers of start-ups do, whereas the opposite was true in the other three countries. The results for underreporting of salaries are quite similar.

We asked the top manager in each firm to estimate the fraction of his or her time devoted to various activities. Managers in Russia and Ukraine say they spend, respectively, a fifth and a quarter of their time dealing with the government, much more than their counterparts in the other three countries. Managers of start-ups spend more time dealing with the government than do managers of privatized firms in Russia, the Slovak Republic, and Ukraine.

There are other significant costs of doing business. Our respondents were asked the total cost, official plus unofficial charges in dollars, of various services.<sup>22</sup> Unofficial payments are uniformly a low part of total cost in Poland, Romania, and the Slovak Republic. The highest share of unofficial payments is for initial enterprise registration in Romania, where it stands at just over 25 percent. There is also a significant share of unofficial payment in the cost of a fire or sanitary inspector's visit in Romania and the Slovak Republic (about 25 percent of the total), but the total cost is still low.

In contrast, in Russia and Ukraine the unofficial payment ranges from 64 percent (for a telephone line in Russia) to 100 percent (for a tax inspector's visit in Russia). These unofficial payments are also large in absolute terms. For example, in Ukraine the average official payment is \$464 for a telephone, \$526 for initial enterprise registration, and \$236 for a visit from the tax inspector. The absolute level of payments in Russia is slightly lower than in Ukraine, but still far above the level of CEE.

<sup>22</sup>Again, in an attempt to elicit honest answers, they were asked not what they themselves pay but what they believe typical charges are for firms in their industry.

It appears that taxation and the time cost of dealing with the government are significant burdens on private firms, and particularly on start-ups in Russia and Ukraine. The problem lies not with high posted tax rates, but rather with the way in which the tax system is administered: large bribes to tax inspectors in Russia and Ukraine are typical. However, our surveys also show very high unofficial payments for all kinds of government-related services in Russia and Ukraine. We also find evidence that firms in the countries of the former Soviet Union hide a significant proportion of their activities.

## Worldwide Evidence

This section, which examines the extent to which our hypotheses hold in a wider sample of countries, is based on Johnson, Kaufmann, and Zoido-Lobaton (1998) and Friedman and others (2000).

### Size of the Unofficial Economy

Comparable data on the unofficial economy are available for 69 countries: 8 in Asia, 4 in Africa, 4 in the Middle East, 15 in Latin America, 20 in industrial countries (in Europe, North America, and Australia), and 18 in CEE and the countries of the former Soviet Union (Schneider and Enste, 1998). To what extent can we explain variation in the size of the unofficial economy using the same variables as in our analysis above?

### Measures of Institutions

Nine indices from six different organizations measure some aspect of corruption.<sup>23</sup> The relationship between the share of the unofficial economy and corruption is strong and consistent across these nine measures. All nine suggest that the unofficial economy is a larger share of the total in countries with more corruption. It would be useful to suggest that a few other rule-of-law variables, including property rights, do work out as well. In contrast, there is no significant relationship between official tax rates and the size of the unofficial economy.

Every available measure of regulation is significantly correlated with the share of the unofficial economy, and the sign of the relationship is

<sup>23</sup>Each index of corruption has its own strengths and weaknesses. Generally they are based on perceptions and subject to various errors. We therefore use the full range of indices that are available and are confident only about results that are robust across indices.

unambiguous: more regulation is correlated with a larger unofficial economy. For six out of our nine measures, the correlation is significant even once we control for income per capita (in logarithms). This is strong evidence that, across countries, more regulation is associated with more unofficial activity.

A weaker legal environment is strongly correlated with a larger share of the unofficial economy in GDP. All five of our legal environment measures are significant in the basic regressions using the ordinary least-squares method, and three of these remain significant when we control for the logarithm of GDP per capita. The results for shareholder rights are much weaker: two out of three measures are significant, although only at the 10 percent level.

We have information on eight measures of tax rates from three independent sources. In summary, higher tax rates are generally correlated with a lower share of the unofficial economy. This is true whether we use tax rates directly or use an index representing the effective tax burden. However, in almost all cases this relationship ceases to be significant when we control for income per capita.

The interpretation is that richer countries have both higher tax rates and a smaller unofficial economy. Across the countries in our sample, the incentive to go underground to dodge higher tax rates is outweighed by the benefits of remaining in the official economy when tax rates are higher. This is probably because, at least for this set of countries, higher tax rates generate revenue that provides productivity-enhancing public goods and a strong legal environment.

### Reassessing Reform in Poland

Our cross-country results show that less corrupt countries have a smaller unofficial economy, and their governments have an easier time obtaining revenue and providing the public services that encourage firms to stay in the official sector. One reaction to this finding may be to argue that countries' legal environments are determined by their history and are not easily amenable to change. We find this argument unconvincing, and we address it here by asking, Was it inevitable that Poland would become relatively uncorrupt in the 1990s?

By all accounts, Poland was very corrupt before 1989. Bribery was rampant throughout society. Payments to various government officials were needed to obtain access to basic necessities, to import goods, and to obtain housing. Corruption appears to have worsened during the 1980s (Clark and Wildavsky, 1990). In particular, spontaneous privatization, in which the *nomenklatura* (the communist elite) obtained

property rights, began in 1988 and reached a peak in 1989. This process was very similar to what was seen in the Soviet Union in 1989–92 (Johnson and Kroll, 1991).

A very important part of Poland's political changes, beginning with the roundtable discussion in the spring of 1989, was the opening up of government to new people. Beginning with Solidarity's electoral success in June 1989, and continuing through the formation of the Mazowiecki government in September and into the new local elections in May 1990, great emphasis was placed on improving transparency and replacing the existing political leaders. Important lobby groups, like the coal industry association, were effectively dismantled (Johnson and Kowalska, 1994). In addition, workers' councils forced existing management out of many large state enterprises. This did not usually lead to impressive restructuring, but it did prevent these managers from obtaining property rights in the enterprises (Johnson and Loveman, 1995).

This is not to argue that macroeconomic stabilization and balancing the budget were not important. In fact, there is strong evidence for the countries of the former Soviet Union that the printing of money transferred vast resources into the hands of the old elite and worsened corruption (Åslund, Boone, and Johnson, 1996). More generally, however, Poland not only created conditions for private sector growth, but also created the incentive for private business to remain in the official economy and to pay taxes. Polish tax rates have not been low, but the tax system has been administered in a reasonable and relatively fair way. Poland has succeeded because corruption has been controlled through institutional reform.

### Conclusion

What drives entrepreneurs and large businesses underground? One school of thought identifies high statutory tax rates as the main culprit. Our findings, on the other hand, suggest that the institutions that govern the economy are to blame. Overregulation, corruption, and a weak legal system bear primary responsibility for driving businesses underground. Enterprise managers may be willing to be taxed fairly, but they are unwilling to put up with the constant threat of arbitrary, extortionate demands.

We find that, when faced with onerous regulations, high levels of corruption, and a weak legal system, businesses tend to hide their activities underground. Consequently, tax revenues fall, and the quality of public administration declines accordingly, further reducing the firm's incentives to remain in the official economy. Poor institutions

are also associated with a smaller share of tax revenue in GDP. Compared with other countries, Poland's success in bringing firms into the official sector is unusual; the growing unofficial sectors in Russia and Ukraine represent a common malaise.

The problem in Russia and Ukraine, as in many of the most troubled countries of the world, is not that official tax rates are too high, but rather that an ineffective and corrupt government administration drives firms underground. Eliminating corruption requires administrative reform, greater transparency, changes in institutional incentives, and, above all, the political will to remove corrupt officials.

We would emphasize the need for three specific forms of institutional reform in the former Soviet Union. First, there needs to be tax reform, including a great deal of tax simplification. An improvement in the transparency of tax administration is also a priority. Second, fundamental change is needed in the way the civil service is run, again with an increase in transparency. Third, the judiciary needs to become more independent. Alternative dispute resolution mechanisms should also be promoted.<sup>24</sup>

### Bibliography

- Åslund, Anders, Peter Boone, and Simon Johnson, 1996, "How to Stabilize: Lessons from Post-Communist Countries," *Brookings Papers on Economic Activity*, 2, pp. 217-313, Brookings Institution.
- Central European Economic Review, 1997-98, "Welcome to the World," Vol. 6 (December-January), pp. 15-21.
- Clark, John, and Aaron Wildavsky, 1990, *The Moral Collapse of Communism* (San Francisco: Institute for Contemporary Studies).
- de Soto, Hernando, 1989, *The Other Path: The Invisible Revolution in the Third World*, translated by June Abbott (New York: Harper and Row).
- European Bank for Reconstruction and Development (EBRD), 1995, *Transition Report 1995* (London).
- , 1996, *Transition Report 1996* (London).
- , 1997, *Transition Report 1997* (London).
- Friedman, Eric, Simon Johnson, Daniel Kaufmann, and Pablo Zoido-Lobaton, 2000, "Dodging the Grabbing Hand," *Journal of Public Economics*, Vol. 76 (June), pp. 459-93.

<sup>24</sup>See Johnson, McMillan, and Woodruff (1999a) for evidence that such mechanisms are already functioning even in the countries of the former Soviet Union.

- Frye, Timothy, and Andrei Shleifer, 1997, "The Invisible Hand and the Grabbing Hand," *American Economic Review, Papers and Proceedings*, Vol. 87, No. 2, pp. 354-58.
- Johnson, Bryan T., Kim R. Holmes, and Melanie Kirkpatrick, 1997, *1997 Index of Economic Freedom* (Washington and New York: Heritage Foundation and Wall Street Journal).
- , 1998, *1998 Index of Economic Freedom* (Washington and New York: Heritage Foundation and Wall Street Journal).
- , 1999, *1999 Index of Economic Freedom* (Washington and New York: Heritage Foundation and Wall Street Journal).
- Johnson, Simon, and Marzena Kowalska, 1994, "Poland: The Political Economy of Shock Therapy," in *Voting for Reform*, ed. by Stephan Haggard and Steven B. Webb (New York: Oxford University Press).
- Johnson, Simon, and Heidi Kroll, 1991, "Managerial Strategies for Spontaneous Privatization," *Soviet Economy*, Vol. 7, No. 4, pp. 281-316.
- Johnson, Simon, and Gary Loveman, 1995, *Starting Over in Eastern Europe: Entrepreneurship and Economic Renewal* (Cambridge, Massachusetts: Harvard Business School Press).
- Johnson, Simon, Daniel Kaufmann, and Andrei Shleifer, 1997, "The Unofficial Economy in Transition," *Brookings Papers on Economic Activity*, 2, pp. 159-239, Brookings Institution.
- Johnson, Simon, Daniel Kaufmann, and Pablo Zoido-Lobaton, 1998, "Regulatory Discretion and the Unofficial Economy," *American Economic Review*, Vol. 88, No. 2, pp. 387-92.
- Johnson, Simon, John McMillan, and Christopher Woodruff, 1998, "Job Creation in the Private Sector: Poland, Romania, Slovakia, and Ukraine Compared" (unpublished; Cambridge, Massachusetts: MIT Press).
- , 1999a, "Contract Enforcement in Transition," Centre for Economic Policy Research Discussion Paper Series No. 2081 (London: CEPR).
- , 1999b, "Why Do Firms Hide? Bribes and Unofficial Activity After Communism," Centre for Economic Policy Research Discussion Paper Series No. 2105 (London: CEPR).
- Kaufmann, Daniel, 1994, "Market Liberalization by Stealth—Curse or Blessing in Disguise?" in *Trade in the New Independent States*, ed. by Constantine Michalopoulos and David G. Tarr (Washington: World Bank).
- , 1997, "The Missing Pillar of a Growth Strategy for Ukraine: Reforms for Private Sector Development," in *Ukraine: Accelerating the Transition to Market*, ed. by Peter K. Cornelius and Patrick Lenain (Washington: International Monetary Fund).

- , and Aleksander Kaliberda, 1996, "Integrating the Unofficial Economy into the Dynamics of Post-Socialist Economies: A Framework for Analysis and Evidence," in *Economic Transition in Russia and the New States of Eurasia*, ed. by Bartłomiej Kaminski (Armonk, New York: M.E. Sharpe).
- Kaufmann, Daniel, and Paul Siegelbaum, 1997, "Privatization and Corruption in Transition Economies," *Journal of International Affairs*, Vol. 50, No. 2, pp. 419–58.
- Loayza, Norman V., 1996, "The Economics of the Informal Sector: A Simple Model and Some Empirical Evidence from Latin America," *Carnegie-Rochester Conference Series on Public Policy*, Vol. 45, pp. 129–62.
- Schneider, Friedrich, and Dominik Enste, 1998, "Increasing Shadow Economies All Over the World: Fiction or Reality?" (unpublished; University of Linz, Austria).
- Shleifer, Andrei, 1997, "Joseph Schumpeter Lecture: Government in Transition," *European Economic Review*, Vol. 41, No. 3–5, pp. 385–410.
- , and Robert Vishny, 1993, "Corruption," *Quarterly Journal of Economics*, Vol. 108, No. 3, pp. 599–617.
- , "Politicians and Firms," 1994, *Quarterly Journal of Economics*, Vol. 109, No. 4, pp. 995–1025.
- Wilson, Drew, 1996, "Acer Computer in Russia" (unpublished case study; Durham, North Carolina: Fuqua School of Business, Duke University).
- World Bank, 1996, *World Development Report 1996: From Plan to Market* (New York: Oxford University Press).