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The Restructuring of Large Firms in Slovakia

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Large industrial firms in Slovakia have restructured more rapidly than expected, including firms regarded as "nonviable" only a few years ago. Rapid privatization is an important determinant of successful restructuring. The method of privatization and the type of owner appear to play only a minor role.

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Summary findings

Evaluating the restructuring of large enterprises in transition economies is difficult because it is only one of many economic changes. Such evaluation is nevertheless essential for designing reform policies.

Djankov and Pohl examine 21 case studies of Slovak firms based on detailed financial information for 1991–96, and interviews with top management. Much of their sample was firms initially classified as "nonviable lossmakers." They found that the majority of large Slovak firms successfully restructured without the help of foreign investors or government restructuring programs.

Privatization to insiders, through management-employee buyouts, did not hamper restructuring because the new owners (old managers) invested heavily in new technology, laid off a substantial part of the workforce, sought foreign partnerships, and were prepared to sell controlling stakes to outsiders in return for fresh financial resources.

The evidence also suggests that mass privatization did not result in weak corporate governance because it was followed by a rapid consolidation of ownership.

Their findings support the view that the main objective of privatization programs should be the speedy transformation of ownership, not the selection of perfect owners.

Slovakia was an interesting choice for case-study analysis because much of the heavy industry and arms industry of former Czechoslovakia was located in Slovakia, so it inherited a relatively unattractive industrial structure. Slovakia also implemented two very different privatization programs, one of mass privatization and one of leveraged management buyouts or direct sales to (domestic) outside investors.

This paper — a product of the Finance and Private Sector Development Division, Europe and Central Asia Technical Department — is part of a larger effort in the department to study the determinants of enterprise restructuring in transition economies. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Faten Hatab, room H8-087, telephone 202-473-5835, fax 202-477-8772, Internet address fhatab@worldbank.org. April 1997. (28 pages)

Restructuring of Large Firms in Slovakia

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Restructuring of Large Firms in Slovakia

I. Introduction

The restructuring of large enterprises has received much attention in the transition of centrally-planned economies to market economies. The need to transform these enterprises into viable firms is widely acknowledged. The extent of such restructuring and the determinants that underlie a successful transformation are less studied. Various schemes for dealing with large enterprises have been tried. The effect of such programs is hard to measure since the restructuring of enterprises (or the lack thereof) has taken place in the context of significant changes in the overall economic environment. Notwithstanding the difficulty in such measurement, a proper evaluation is crucial for designing further reform policies.

This paper extends the literature on the microeconomics of transition by re-examining the stylized facts about firm restructuring in the light of new empirical evidence. The study is based on twenty-one case studies of Slovak firms and uses detailed financial information for the 1991-96 period and interviews with top management. A large part of our sample represents firms that were initially classified as "non-viable loss-makers." We show that the majority of large Slovak firms have successfully restructured in the absence of foreign investors and government-led restructuring programs. The study also throws some new queries on the effectiveness of different privatization methods in enhancing corporate governance and improving access to skills and capital.

We find that privatization to insiders through management-employee buy-outs did not hamper firm restructuring as the new owners (old managers) invested heavily in new technology, laid off substantial part of their workforce, sought foreign partnerships, and were prepared to sell controlling stakes to outsiders in return for fresh financial resources. The evidence also suggests that the mass privatization program did not result in weak corporate governance since it was followed by a rapid consolidation of ownership. Our findings support the view that the main objective of privatization programs should be the speedy transformation of ownership, not the selection of perfect owners.

Why use case studies rather than analyze larger sets of firms? Our earlier studies (Pohl et al., 1996; Claessens et al., 1997) use financial data for the 500-1,000 largest manufacturing firms in several transition economies to study the restructuring process. Such analysis presents, however, only a partial picture. Many variables used to uncover patterns of adjustment are not part of standard financial reports -- e.g., data on firm input and output prices, managerial profiles, ownership changes, foreign partnerships, quality control. They are nevertheless essential in understanding the causes for firm restructuring and can only be obtained in enterprise visits.

Slovakia is particularly interesting for a number of reasons. A large part of the heavy and arms industries of former Czechoslovakia was located in Slovakia and it thus inherited a relatively unattractive industrial structure. Slovakia also implemented two very different privatization programs. It participated in the first wave of mass-privatization and privatized the remainder of the firms through leveraged management buy-outs or direct sales to (domestic) outside investors.

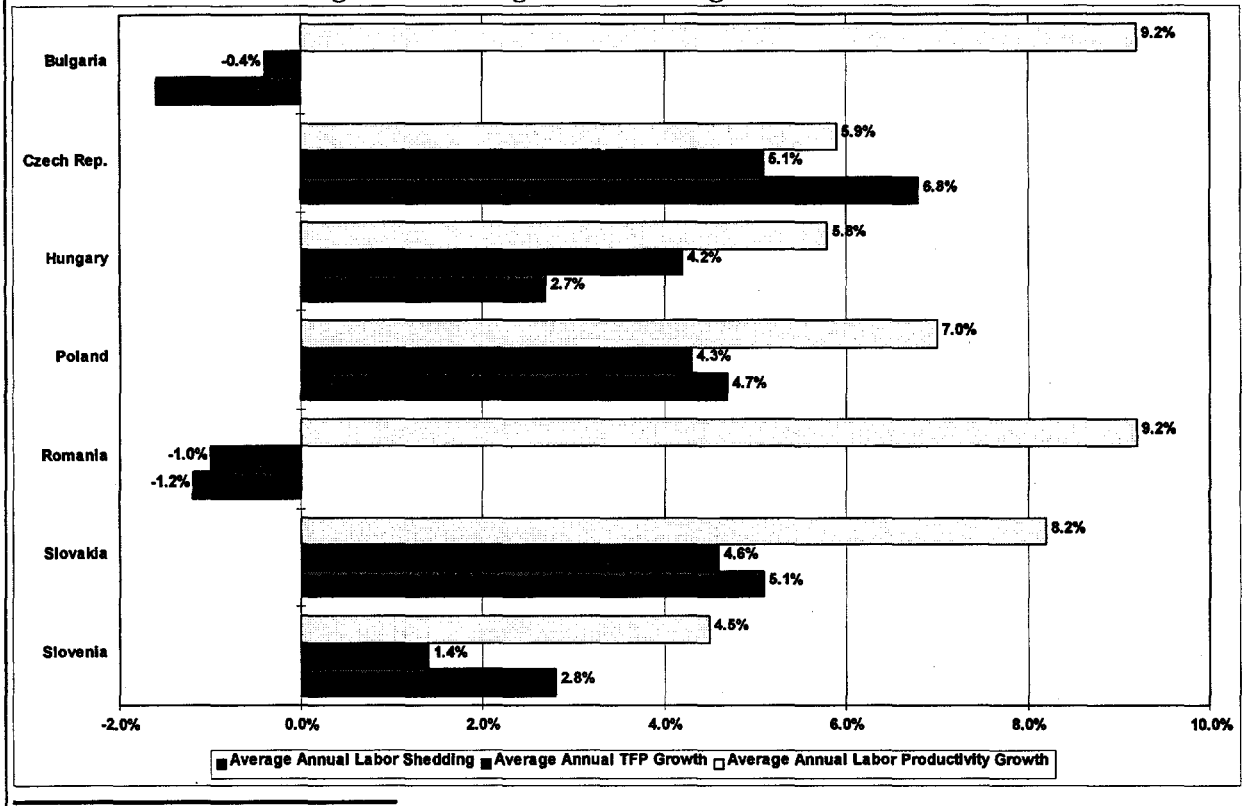
The paper is organized as follows. Section II compares the speed of restructuring of large Slovak firms with similar samples from other transition economies. Section III describes the data and the methodology of collecting it. Section IV reports changes in the ownership structure of the firms. Section V documents some of the common restructuring paths observed during company visits. Section VI evaluates the differences in firm performance and their likely determinants. Section VII concludes.

II. Restructuring of Industrial Firms in Transition Economies

Different approaches to restructuring have been extensively debated by policy makers, foreign advisors and academics. However, it is often not clear what is meant by "restructuring." Does restructuring refer to a single firm or the entire economy? How is restructuring different from the normal process of growth and change? How does one measure restructuring? At the plant level? Economy-wide?

Restructuring is probably best understood as the transition process from a highly distorted economy with many loss-making firms to a "normal" market economy in which the overwhelming majority of firms are profitable. Evidence from the transition economies shows that the speed of the restructuring process varies greatly across countries (Figure 1). Firms in the countries with rapid adjustment, the Czech Republic, Hungary, Poland, and Slovakia have reached total factor productivity (TFP) growth rates equal to those in the fastest growing economies.[1] Bulgarian and Romanian firms, on the other hand, experienced a relative decline in productivity.[2] What explains these differences in performance?

Figure 1: Average Restructuring Indicators 1992-95



Source: Claessens et al., 1997

Germany and Japan experienced 4-5% TFP growth in the 1950s, and Japan sustained this level through the 1960s (Wolff, 1996); South Korea experienced a 4.8% TFP growth in 1971-1981, Taiwan and Hong Kong - 4.3% in 1966-1976 (Young, 1995).

2 The methodology used in calculating the restructuring indicators in Claessens et al., (1997) is identical to the measures described in Section V and the Appendix to this paper. This allows a direct comparison of the preformance of the firms in our sample and the whole manufacturing sector in Slovakia. Figure 1 is based on the manufacturing censuses and covers 48%, 64%, 44%, 42%, 92%, 93%, 91% of 1992 manufacturing employment in each (alphabetically listed) country.

Various aspects of enterprise reform can be identified: managerial autonomy, competition, privatization, concentrated ownership, hard bank lending, and financial discipline, including bankruptcy and liquidation. The relative importance of each these factors in enhancing enterprise restructuring is unknown. This is for a number of reasons. To begin with, the variation in performance among firms in any one transition economy is much greater than that in market economies (see Pohl et al. (1996)), making it more difficult to explain individual enterprise restructuring. This is likely becauserestructuring is influenced by not just one, but a large number of factors, each of which contributes an essential, but often statistically marginal aspect to enterprise reform. Previous studies find that most variables explain little of relative enterprise performance within a country (once one controls for just a few, basic variables). While the contribution of particular reforms to enterprise restructuring is hard to identify, it is clear from the experience to date that a comprehensive policy reform package is needed. The degree of enterprise restructuring can be taken as an indicator of the overall strength of a reform package.

Empirical studies on firm behavior in transition economies agree on three broad determinants of the speed and depth of restructuring: a firm's initial conditions ("inheritance"), enterprise-specific factors (corporate governance, managerial ability), and the external environment (macroeconomic stability, import competition, financial discipline, the bargaining power of labor unions). Initial conditions include sector of activity (Estrin et al., 1995), the pre-transition level of productivity (Estrin and Takla, 1995), firm size (Pinto et al., 1993), and the inherited debt burden. Firm-specific factors include the structure of property rights,[3] especially the extent of progress towards full privatization (Estrin, 1994), the presence and type of outside owners (Claessens et al., 1996), the ability (and willingness) of managers to attract foreign partners, and more generally to ensure access to better technology, intermediate inputs and capital goods.

[3] For a theoretical discussion of the effects of different privatization methods on firm restructuring, see Aghion and Blanchard (1996), Blanchard (1996), and Shleifer and Vishny (1994).

The role of the external environment has been extensively studied in cross-country comparisons of transition economies' growth performance (Sachs, 1996). Fast liberalization, for example, has been shown to lead to productivity growth (World Development Report 1996 and Gelb et al., 1996). Financial discipline imposed by external parties is an essential part of this external environment: when no one financing losses, firms have no choice but to eliminate losses by increasing productivity.[4] There is less agreement on the privatization method that leads to the most effective corporate governance and can be implemented over a significant share of a country's industrial enterprises.

Previous studies (Caves, 1990; Carlin et al., 1995) have argued that the primary rationale behind privatization is to create owners who have the power and incentives to monitor managers and ensure that they act in the firm's best interest. Each approach to privatization, however, may lead to different results. Table 1 illustrates the existing hypotheses on the trade-offs among the three prevalent privatization methods. While management-employee buy-outs (MEBOs) and mass privatization lead to speedy transformation of ownership, they are inferior (or questionable at best) to direct sales to outside owners in ensuring effective corporate governance and better access to skills and capital. This is particularly the case if firms are sold to foreign owners who (as the argument often goes) are able to implement deep restructuring.

[4] It should be noted that important relationships exist between micro factors (initial conditions and internal factors) and the external environment. The influence of external discipline, for example, depends on managerial expectations regarding how binding (credible) these are. Thus a belief that governments will bail out loss-making firms affects enterprise restructuring. A number of studies have examined these relationships, e.g., Pinto et al., (1993) and Claessens and Peters, (1997).

Table 1: Tradeoffs among privatization methods

Method	Better Corporate Governance	Speed and Feasibility	Better Access to Skills and Capital	More Government Revenue	Greater Fairness
Sale to Outsiders	+	-	+	+	-
MEBO	-	+	-	-	-
Mass Privatization	?	+	?	-	+

Source: World Development Report, 1996

The comparisons in Table 1 were based on conceptual, not empirical analysis. The main reason was the limited evidence. The different privatization methods were also country-specific. Thus, for example, the Czech Republic opted for mass privatization, Hungary went primarily for sales to foreign investors, while MEBOs were wide-spread in Poland. This made studies on the effectiveness of privatization methods difficult (if not impossible) since one could not control for the impact of the overall economic environment. In this paper we evaluate the effectiveness of different privatization methods in fostering firm restructuring in the light of new evidence from Slovak firms' case studies. Slovakia provides the best natural experiment among all transition economies since it is the only country which has adopted all three privatization methods over a large number of former state-owned firms.

III. The Data

The evidence presented here builds on a series of visits to large Slovak enterprises undertaken by the authors in December, 1996. By that time all the initial macroeconomic shocks were over and the economy had registered high aggregate growth in two consecutive years[5]. The twenty-one enterprises we visited were scattered throughout Central and Western Slovakia and displayed significant diversity in sector origin and ownership structure.

[5] For further analysis of the Slovak stabilization and mass privatization programs see Shafik (1995).

The selection was done on the basis of several criteria. First, all enterprises were state-owned in 1991 and were listed among the largest 200 Slovak manufacturing enterprises (the average size was over 2,000 workers in 1991). Second, we mostly selected enterprises which had difficulties in the early transition period. Such enterprises were followed by the Slovak Ministry of the Economy starting in 1992. In 1993, the Ministry commissioned major consulting firms to study twenty-seven large firms. A detailed report with recommendations for further restructuring steps was issued in each case. Based on the reports, firms were classified in three categories (Table 2): non-viable loss makers (category NL), potentially viable loss makers (category VL), viable profit makers (category VP). We revisited seven firms in category NL, nine firms in category VL, and two firms in category VP included in the original survey. Three other firms had become part of holding companies by 1996. We visited the respective holding companies and obtained information on the individual firms which participated in the original survey, as well as the other firms in the holdings. Six firms from the Ministry list remained outside the scope of this study. Their exclusion was dictated solely by time-constraints.[6]

The case studies provide both quantitative and qualitative evidence. Balance sheet and income statement data were obtained for 1991-96. The interviews with managers and owners contain information on production and marketing strategy, firm-specific input and output prices, technology acquisition, sale/disposal of social and dubious assets, labor shedding, wage policies and severance packages, cooperation with foreign firms, financing, and export performance. The interviews followed a structured questionnaire (available from the authors). A presentation on the history of the enterprise preceded each interview. Since the industrial conglomerates were broken down in 1990, we followed

[6] Those are Hydrostav Bratislava, Kinex Bytca, Vihorlat Snina, VSS Kosice, ZSNP Ziar nad Hronom, and ZTS Dubnica nad Vahom.

Table 2: Privatization

Case	Category	Sector	Year	Ownership
1	NL	car components	1992	31% individual owners; 32% investment funds; 34% NPF; 3% Restitution Fund
			1995	consolidation of ownership to larger investment funds
2	VP	paints	1992	25% individual owners; 75% Investment funds (VUB; Harvard Capital; SG Warburg, etc.)
			1995	consolidation of ownership to VUB and SG Warburg (together own 82%)
3	NL	electrical engines	1995	97% management buy-out (top five managers); 3% Restitution Fund
4	VL	steel tire cords	1996	100% local strategic investor, unsuccessful bid by management
5	VL	military trucks	1996	100% local strategic investor, unsuccessful bid by management
6	NL	skid steer loaders	1996	80% local strategic investors including VUB bank, 20 % NPF
7	VL	rubber and fertilizers	1996	67% local strategic investors, unsuccessful bid by management
8	VL	steel; cement	1992	75% management buy-out, 25% major creditors (VUB, Investicni, CSOB) acquired significant stakes in 16 mass-privatized manufacturing firms
9	NL	army uniforms		100% state ownership, offered to management in 1996 but still in negotiations
10	VL	rubber floors	1993	67% management buy-out; 33% NPF
			1996	33% General Director, 67% management buy-out
11	VL	overhead projectors	1996	100% local strategic investor, no management participation
12	VL	bread and pastries	1996	100% local strategic investor, no management participation
13	VL	rolling bearings	1992	77% management-employee buy-out, 20% NPF, 3% Restitution Fund acquired significant stakes in ten mass-privatized manufacturing firms
14	VL	industrial chemicals	1992	100% management buy-out
15	VP	glassfiber felts and fabrics	1995	67% management-employee buy-out; 30% NPF; 3% Restitution Fund
16	VL	technical glass	1995	75% management-employee buy-out; 22% NPF; 3% Restitution Fund
17	VP	petrochemicals	1992	20% individual investors; 80% NPF
			1995	25% EBRD and Bank of New York, 20% individual investors; 55% NPF
			1996	39% management, 25% EBRD and Bank of New York, 20% individual investors; 16% NPF
18	NL	military trucks	1992	100% local strategic investor; management bid unsuccessful
19	VL	freight wagons	1995	100% local strategic investor, no management participation
20	VL	paper and cellulose	1992	100% management buy-out acquired significant stakes in 30 mass-privatized manufacturing firms
21	NL	military trucks		100% state ownership

the same firms (organizational structures) in our 1991-96 sample.[7] The obtained price data allowed us to calculate input and output price indices at the firm level. Those were used in the analysis in the next sections.[8]

The interviews covered eighteen manufacturing firms and three former trading companies. The trading companies had turned into private holding companies in 1992 and had managed to buy majority stakes in most of the companies whose products they had marketed including some of the firms on the Ministry list. The interviews with their managers contained information on both the parent holding company and its subsidiaries. While the statistical analysis in the next section is based on the overall financial performance of the holding companies, most restructuring measures (improving quality standards, new product lines, foreign partnerships) are traced back to their subsidiaries.

The case study method normally has significant downsides. Most important is the lack of representativeness of case study findings, i.e., their performance may not be indicative of economy-wide trends. Fortunately, we have comprehensive data on all large industrial firms in Slovakia and can therefore link the smaller sample of case studies to the broader trends in the manufacturing sector (see Figure 1 above). Another potential problem is the subjective narrative of managers/owners regarding the causes of (and constraints to) restructuring. We have, however, only used the interviews to complement our analysis of the financial performance of firms in getting a better understanding of the many elements of a successful restructuring strategy.

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7 In two cases, firms were still undergoing a split-up of the former conglomerate in 1991. Since both firms were independent plants (located away from other plants in the conglomerate and with their own general managers) even before the split-up, we obtained financial and other (including employment) data from their managers pertaining to their respective plants *only*. For further analysis of the impact of conglomerate split-ups on restructuring in Czechoslovakia, see Lizal et al., (1996).

8 The possibility of obtaining firm-specific price data is one of the main merits of the case study methodology.

IV. Privatization

The privatization program in Slovakia went in two steps. Approximately 600 Slovak firms were privatized in 1992 through the first Czechoslovak voucher scheme. A second wave was scheduled for late 1994 but abandoned at the last moment. In 1995, direct sales became the dominant mode of privatization. The process continued in 1996 and by the end of the year an estimated 92% of all Slovak manufacturing firms were privatized (Interview, 1996).

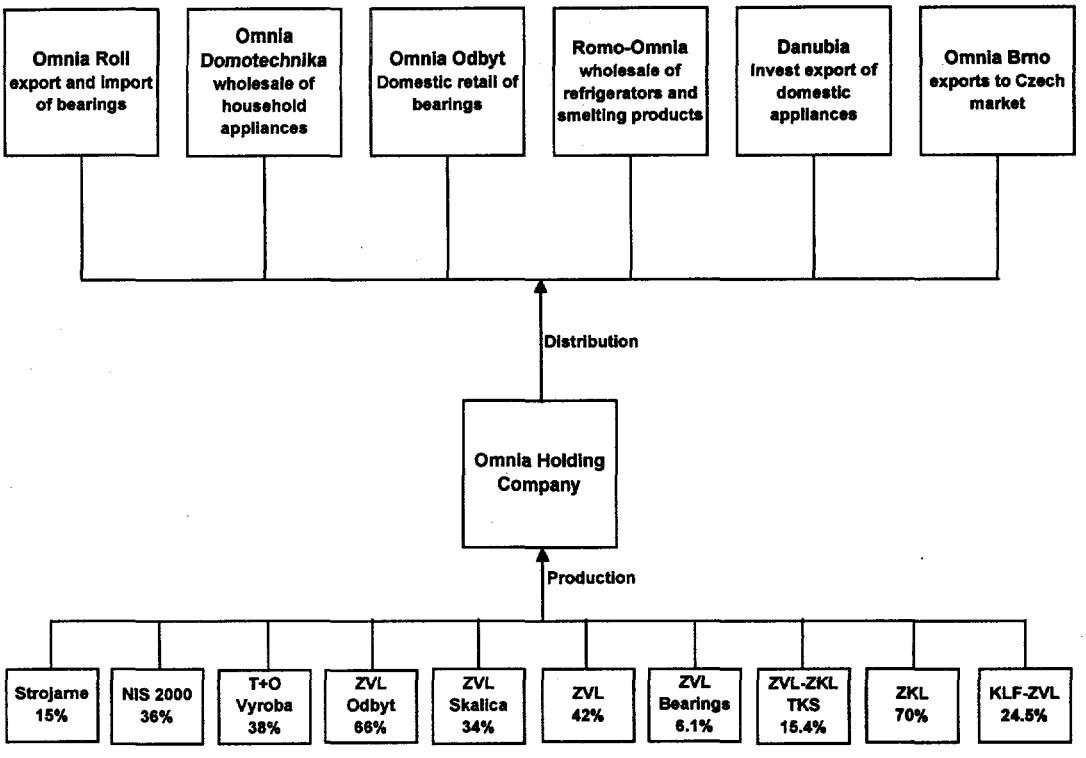
Three firms in our sample were directly included in the voucher scheme (Table 2). The ownership pattern of these firms changed substantially in 1993-96. In two cases the largest investment funds had bought out individual investors and smaller investment funds. In another case the voucher privatization was followed by a partial privatization to foreign investors followed in turn by a management buy-out which resulted in majority inside ownership.

The consolidation of ownership of mass privatized firms was especially strong in the backward integration of the former foreign trade companies. Such consolidation was possible through purchases of shares of mass-privatized firms on the secondary markets and through direct purchases of shares from individual citizens. The three holding companies in our sample became significant owners in some of the firms in their respective industries. One of them, for example, acquired significant stakes in ten firms producing rolling bearings and domestic appliances (Figure 2, ownership shares shown in the boxes).

The findings from firms which either participated in the mass privatization program or bought out firms on the secondary market show that mass privatization did not result in dispersed ownership. These case studies are suggestive of a broader trend noted in other studies. Further analysis by the authors indicates that the concentration of ownership among the universe of mass-privatized firms in Slovakia (all firms listed on the Bratislava Stock Exchange (RM-System)) increased by 50% during 1993-95. The former foreign trade companies played a significant part in this consolidation process -

the twelve holding companies represented on the list of top 100 largest Slovak companies owned significant stakes in 146 manufacturing firms (Trend, 1996).

Figure 2: Ownership Concentration after Mass Privatization



Source: Omnia Annual Report, 1995

All direct sales were done through auctions. The National Property Fund (NPF) favored bidders with developed long-term strategies (Interview, 1996). In eight cases management won over outside bidders while in four cases management lost. Frequently, management did not participate in the bidding process but was consulted by all bidding parties. Direct sales were highly leveraged (Figure 3). The new owners were required to put a (at most) 10% downpayment on the book value of the company. The rest would be paid in equal installments over a period of two to seven years. The resources of the privatized firm (retained earnings or debt) could also be used to finance subsequent

payments. In some cases, the NPF retained residual ownership, but it was always smaller than the minimum (a third of all shares) required for a blocking vote.

Figure 3: A Direct Sale (Case 15)

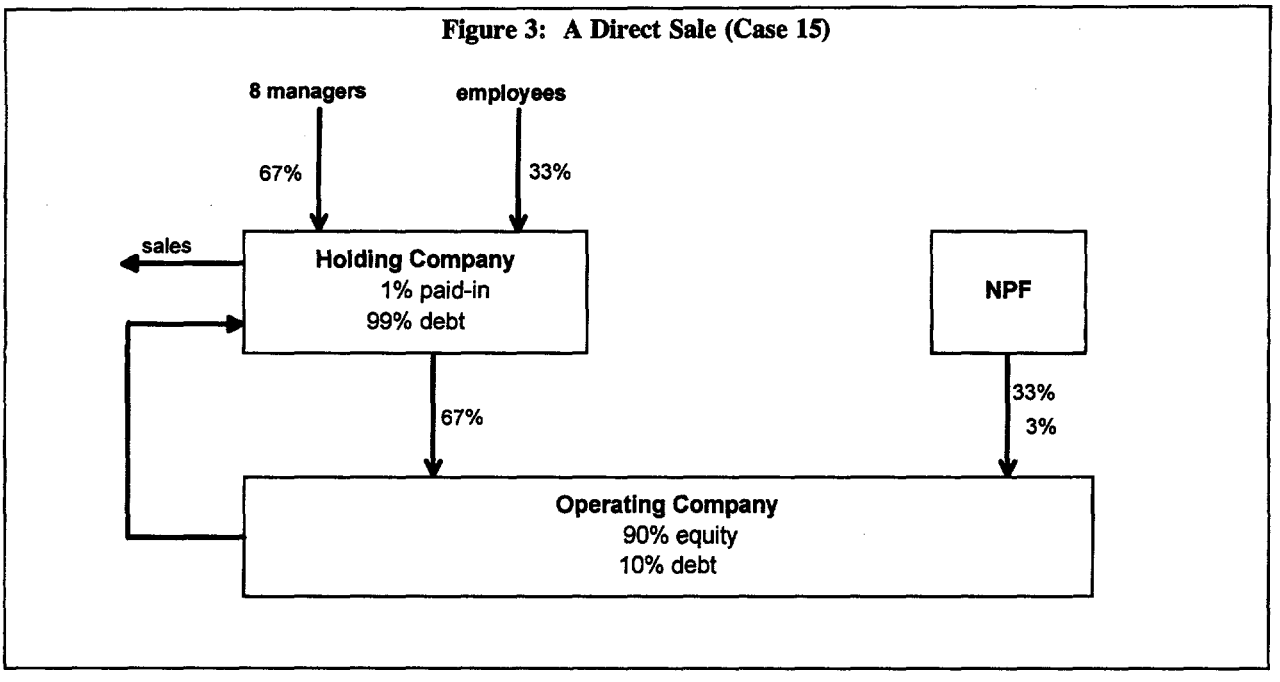


Table 2 shows the absence of foreign owners. This is not surprising since the privatization mechanism in Slovakia favored local investors. In nine of the direct-sale firms, however, negotiations were underway for the establishment of joint ventures (in most cases building on existing subcontracting arrangements). In three cases (all management buy-outs), foreign partners had expressed interest in buying majority stakes while keeping current management on board. Those transactions (called the "third wave of privatization" by managers) were in their preliminary stages at the time of the visits (December 1996).

Two trends emerge from the descriptive analysis of ownership changes. First, we find that new insider owners were prepared to sell controlling stakes to foreign investors in return for fresh financial resources. Second, the evidence suggests that mass privatization did not result in weak corporate governance since it was followed by a rapid consolidation of ownership.

V. Dimensions of Restructuring

The twenty-one enterprise visits reveal a bewildering array of restructuring paths. Much of the variation can be explained by differences in initial conditions and managerial motivation. In this section we document some of the common restructuring characteristics. While some of the actions are already catalogued in previous studies, others, like subcontracting arrangements and joint ventures, are new developments. Quite interestingly, the restructuring process was not led by new managers. To the contrary, most pre-1991 managers were (after several years of absence) reinstituted as general managers by 1996.

Management Turnover

In 1991-92 the general managers of 20 of the visited firms were replaced by the Ministry. Those were mostly engineers who had gained their positions in the 1980s but were, of course, party members and were therefore replaced for political reasons. Many firms saw several subsequent management teams in the pre-privatization period. By 1996, however, in nineteen of the visited firms the top management team was again the pre-1992 team. These managers were either reinstituted by the Ministry, by the new owners, or came back as owners. The typical general manager had worked in the enterprise for an average of 17 years before he was rehired in his current position and knew the firm's operations in depth. [9] In seven cases, general managers had started work in the company after high school as workers, and had obtained a managerial position after finishing (evening) university education. These profiles suggest that firm restructuring was not due to the entry of new, better-skilled managers.

[9] In one case the general manager had spent 37 years with the company. He knew the names of all his 2,000 employees and the age of every machine in all five plants.

Labor Restructuring

Restructuring is most likely to be reflected in labor shedding in the first years of transition. An enterprise can reduce its variable costs relatively fast by engaging in downsizing. Previous studies (Carlin et al., 1995; Claessens et al., 1997) found that labor reduction in Slovak manufacturing firms was significant (Figure 1) due to the absence of strong labor unions and the rapid expansion of the service sector. The evidence here supports those findings. On average enterprises cut their labor force almost in half (Table 3). In several firms employment was reduced to a third of the 1991 level. It is interesting to note that profitable firms also made very large reductions in the labor force.

The rubber floor producer (Case 10) was the leader in labor shedding. Management laid off three-fourths of the labor force and concentrated in the production of seven profitable lines (22 lines were operated in 1991). A number of workers were sent to foreign partner firms to study the use of new labor saving technology. The new quality control system eliminated a fifteen-member quality team. Similarly, the introduction of computerized accounting system eliminated the need for eight accountants. The contracting out of the cafeteria resulted in further cuts of forty jobs.

While the magnitude of employment reduction seems staggering, it is not unprecedented. Similar labor cuts were reported prior to the privatization of several large British companies in 1981-86. British Steel, for example, reduced its labor force by half while keeping revenues constant. British Airways reduced its labor force by 40% while expanding the number of flights. Those were, however, selected companies in an otherwise stable economy. The results in Table 3 are surprising because many Slovak companies simultaneously laid off half of their labor force.

Table 3: Labor Restructuring

		Labor Shedding (Number of Workers)							Average Nominal Monthly Wage (in current SK)						
Case	Sector	1991	1992	1993	1994	1995	1996	% change*	1991	1992	1993	1994	1995	1996	% change
1	car components	1,547	1,314	1,428	835	773	646	-58.2	4,87	5,645	6,612	6,875	6,841	7,181	47%
2	paints	838	808	779	803	798	767	-8.5	4,87	5,742	8,163	9,244	10,756	11,165	129%
3	electrical engines	770	712	654	531	437	301	-70.9	3,11	3,435	3,767	3,895	4,167	4,326	39%
4	steel tire cords	3,145	2,663	2,478	2,062	1,754	1,432	-54.5	4,21	4,604	5,792	7,001	8,567	8,917	112%
5	military trucks	1,419	1,171	981	912	734	641	-54.8	2,67	2,972	3,876	4,354	4,587	4,981	86%
6	skid steer loaders	529	505	560	440	361	440	-16.8	3,42	3,718	4,861	4,675	4,981	5,118	49%
7	rubber and fertilizers	7,140	6,354	5,614	4,100	3,354	2,817	-60.5	4,12	4,413	5,627	6,186	6,583	7,021	71%
8	steel; cement	356	340	312	281	247	220	-38.2	4,56	5,118	6,214	6,765	7,217	7,865	72%
9	army uniforms	1,112	786	718	627	513	364	-67.3	2,85	3,007	3,694	3,965	4,017	4,265	49%
10	rubber floors	1,410	1,222	811	601	456	370	-73.8	5,07	5,863	7,314	8,433	8,964	9,457	86%
11	overhead projectors	592	533	489	448	428	382	-35.5	4,46	4,789	5,897	6,165	6,435	6,587	48%
12	bread and pastries	451	417	342	331	317	306	-32.2	3,58	3,838	4,562	4,783	4,968	5,348	49%
13	rolling bearings	405	298	273	254	233	217	-46.4	4,01	4,261	5,381	5,673	6,723	7,003	74%
14	industrial chemicals	436	389	315	241	212	177	-59.4	4,36	4,498	5,119	5,476	5,797	6,235	43%
15	glassfiber felts and fabrics	2,280	2,110	1,874	1,653	1,453	1,300	-43.0	4,41	4,671	6,237	7,285	9,119	10,080	129%
16	technical glass	827	629	582	539	517	493	-40.4	4,23	4,681	4,582	6,034	6,483	7,928	86%
17	petrochemicals	7,462	7,053	5,921	5,309	5,276	4,986	-33.2	5,33	6,351	7,813	10,442	12,247	12,871	141%
18	military trucks	4,100	3,700	3,300	2,800	2,100	1,754	-57.2	2,45	2,546	3,375	3,915	4,337	4,984	103%
19	freight wagons	3,461	3,048	2,673	2,273	2,149	2,017	-41.7	4,65	5,091	6,483	7,361	8,462	9,784	110%
20	paper and cellulose	445	411	361	302	234	212	-52.4	5,21	5,924	7,157	8,339	9,856	10,893	109%
21	military trucks	6,300	6,172	5,983	5,633	4,773	4,213	-33.1	5,12	5,458	6,126	6,432	6,761	6,872	34%
Average	manufacturing	2,144	1,935	1,736	1,475	1,291	1,145	-46.2	4,19	4,602	5,669	6,301	6,994	7,518	78%

* Change in 1991-96. Since we follow the same plant/firm for the whole period, the numbers reflect only labor shedding, not employment reduction resulting from split-ups from former conglomerates or spin-offs of smaller units.

None of the managers met significant opposition to labor shedding. In Bratislava, for example, voluntary departures were often the rule as workers could find better paying jobs in the emerging private sector. Mass lay-offs were implemented in only three firms (cases 3, 7, and 9) where managers did not see prospects for future demand increases. In such cases, workers received a compensation package of six months pay (available in monthly installments) if they left at once, or a two months pay if the legal advance notice (three months) was observed. Virtually all employees opted for immediate departure.

The reduction in labor force was reinforced by a freeze in real wage increases (Table 3). The average wage conceals, however, a wide dispersion. One reason for such dispersion was the absence of industry-wide collective bargaining agreements. Another possibility may be profit-sharing in firms where employees helped managers in acquiring majority stake. A rise in real wages was seen, however, in firms privatized through all three privatization methods. On average, workers in the more successful firms (irrespective of privatization technique) captured a larger part of the productivity differential. Real wages in unprofitable firms were 40% lower than in profitable firms in the same sector (and requiring the same skills).

Spinning-Off Social and Surplus Assets

All enterprises sold their housing to employees or transferred it to the municipality. In most cases the recreational facilities and cafeterias were also sold or the service was contracted out. Only one firm (case 6) failed to sell its social assets (hotel and garages). Management attributed this to the location of the facilities. They were within a mile from the main production complex and six miles from the nearest town. Two firms purposefully kept some social assets: in both cases management had decided that the offer prices were low and had temporarily leased them in expectation of better deals.

When the industrial conglomerates were broken down, many firms inherited large surplus assets on their balance sheets including unsold inventories from canceled orders, spare parts for

machinery already out of use, material inputs, machinery and equipment no longer used. Disposing of such assets was difficult given their limited alternative uses. Their presence distorted the balance sheet of firms. Foreign partners frequently required managers to dispose of such assets before signing a contract. The reason lay in the difficulty of measuring performance in a plant which had inherited such assets. Although the market for dubious assets was small, the majority of firms managed to sell or scrap all their surplus assets. The buyers were usually small private firms. Several firms also sold machinery and materials to Ukrainian partners. Only four firms (cases 3, 5, 9, 21) still retained a significant share of their surplus assets by 1996.

Finding New Markets

In 1991, 46% of all output (on average) was sold on the Council of Mutual Economic Assistance (CMEA) markets, 45% was sold in Czechoslovakia, and 9% in Western Europe or other markets. By 1996, only 15% of revenues came from the former CMEA markets while 47% came from rest of world (RoW). The reorientation was made possible for several reasons. First, some firms had already entered export markets by 1991 and worked to expand them in the following years. Second, a large part of the expansion came in the form of subcontracting with Western European (mostly German and Austrian) firms (Table 4). Third, many of the former trading companies remained in business as holding companies and acted as marketing departments of all firms under their ownership. Lastly, and contrary to expectations, demand in the Czech Republic remained stable after the Czecho-Slovak split-up in 1992. This was due to the preferential trading and payments agreements between the two countries.

Subcontracting had additional beneficial effects. The contractors often required that Slovak firms buy quality control systems and recommended appropriate technology and suppliers. On several occasions they trained Slovak workers in using it. While essential for the survival of several firms in the sample, subcontracting was fragile and could move eastward once labor costs in Slovakia increased.

Managers were, however, confident that the obtained knowledge would help them penetrate new markets even if they lost their contracts.

New Products

The reorientation of product markets and the dependence on subcontracting arrangements brought significant changes in the product mix of most firms. Only a handful of firms maintained their product lines close to their 1991 mix. As stated earlier, these firms had substantial presence on Western European markets prior to 1991. In contrast, Firm 11 abandoned its old production lines almost completely (Table 4). On average, 35% of all lines were introduced after 1991.

The introduction of product lines was possible through new investments in equipment (Table 4).[10] Since most of the investment was done after privatization had taken place, one explanation may be the creation of clear property rights. A second explanation is the development of private and foreign banks. The large inherited debt burden of some firms made it impossible for them to acquire new loans from domestic banks. In several cases, however, management was able to raise capital for new investment projects from foreign and private domestic banks (Bank Austria, Tatrabanka, Istrobanka, ING Bank) particularly if they were supported by foreign partners' guarantees. Lastly, most firms obtained international total quality assurance (ISO 9001) certifications (Table 6). In addition, the two chemical firms recently received an ISO 14001

[10] Only one firm (Case 17) reported new investment in the 1991-92 period.

Table 4: Export Performance and Foreign Partners

Case	Investment to Value Added (1993-94) (%)	Investment to Value Added (1995-96) (%)	New product lines **	ISO 9001	Export Share of Revenues 1991*		Export Share of Revenues 1996*		Subcontracts 1996***	Foreign Partners
					CMEA	ROW	CMEA	ROW	(%)	
1	11	32	35	1994	40	0	0	35	80	Volkswagen, Opel, Daewoo, Volvo, Audi
2	32	58	30	1995	30	2	0	25	40	Bayer, Hoechst, Shell
3	5	9	40	no	25	0	0	45	52	Austrian and German partners
4	21	16	25	1995	15	5	0	40	25	Pirelli
5	17	19	40	1996	70	11	0	90	90	Caterpillar, Hatlapa (Germany), Matorella
6	24	40	30	1995	40	0	45	0	0	Chinese partners
7	0	15	35	1996	65	3	20	52	30	Pirelli, Uniroyal
8	11	30	40	1995	70	30	40	60	40	German and Russian partners
9	0	0	15	no	80	0	0	95	95	Belgian and Dutch army suppliers
10	0	42	30	1994	65	6	51	23	10	Conti, Pirelli
11	3	21	80	no	45	0	5	80	80	Austrian and German wholesalers
12	16	22	20	no	0	0	0	0	0	services local market only
13	14	25	40	1995	82	18	22	78	60	AEG, Samsung, Honda, Aldi
14	21	25	30	1995	60	10	20	48	27	Austrian and German partners
15	23	31	10	1995	0	87	10	80	0	exports under own trademark
16	17	22	50	no	40	0	20	25	20	Philips, Austrian partners
17	17	31	25	1994	30	0	10	35	0	exports under own trademark
18	23	51	60	1996	60	10	25	55	30	Canon Enginering, Mahindra&Mahindra
19	12	23	35	1995	60	5	15	80	26	Krupp, Thrall-Chicago
20	9	16	20	1995	45	5	15	50	23	Motorola, German partners
21	0	0	45	no	60	7	10	30	30	Lombardini, Indian and Syrian partners
Average	16	24	35		47	9	15	49	36	

* The residual share of revenues comes from the Czech and Slovak markets. ** Product lines that were established after 1991. Does not include product lines that had been in operation prior to 1991 but were upgraded *** Revenue from subcontracting arrangements as a share of total revenue.

(environmental management) certification. An important factor in the decision to obtain quality licenses was the pressure from foreign partners. Several managers pursued such policy independently since they wanted to establish their own trademark products on foreign markets.

VI. Performance Measures

To measure the extent of enterprise restructuring, we focus on labor productivity, average operating profitability and total factor productivity (TFP) growth. All three measures are important indicators of enterprise restructuring, but to different degrees depending on the stages of reform. Taken together, they present a fairly complete picture of the restructuring process. The three measures rely on basic data (revenues and expenses) and should not be greatly affected by the still-evolving accounting practices in Slovakia.

Labor productivity (defined as value added per employee in constant 1996 prices) is a useful measure of restructuring in the early stages of enterprise adjustment. Labor productivity is regarded as a *leading* indicator of restructuring (Wolff, 1996) since wage and labor adjustment measures can be taken more rapidly than modernizing the capital stock, entering new markets, etc.

We next measure the extent of restructuring by examining firms' **average operating profitability** over time. Changes in operating profitability (defined here as [total revenues - wages - material inputs] \ total revenues) reflect a large number of restructuring measures: labor and wage rationalization, adjustment of input use to reflect new relative prices, better output quality and higher sales revenues, and the movement of resources toward higher-productivity firms and sectors. In measuring these changes, we use operating profitability rather than net profitability. The difference between operating and net profitability is in (not) accounting for interest and other financial charges; and depreciation. Given the often arbitrary allocation of liabilities under central-planning, the inclusion of these variables could introduce unnecessary noise in measuring enterprise restructuring.

Finally, we calculate **total factor productivity** (TFP) growth, which measures changes in a firm's efficiency in using inputs (factors of production): labor, materials, and capital. TFP growth is the standard measure of productivity and has been widely used in empirical studies of industrialized and semi-industrialized countries. We describe the estimation procedure in the Appendix.

The results (Table 5) show a significant improvement over time with average labor productivity nearly doubling by 1996. Average annual TFP growth is also high -- 3.3%. Operating profitability also improved but with a lag - a measurable improvement was seen only in 1996. The results show that the majority of large firms (including some of the largest loss-makers in Slovak manufacturing) restructured successfully in the absence of foreign investors and government-led restructuring programs. This outcome is encouraging for other transition economies which (like Slovakia) haven't attracted significant foreign investment and whose governments cannot afford large-scale enterprise restructuring programs.

The average performance indicators hide, however, a heterogeneous performance. A quarter of all firms remain plagued by serious problems at the end of the sample period. What explains their difficulties? Initial conditions play a big role. Five of the seven firms rated"non-viable loss-makers" in 1993 still performed poorly in 1996. Sector origin is also important. Firms in heavy machine industries (particularly in military equipment production) performed badly throughout the period. Even within the machinery sector, however, firm performance was far from homogeneous. Three firms in the sample - all producers of military trucks -- saw changes in labor productivity of -58%, +24%, and +226% respectively.

As half of the privatization deals were concluded in the 1995-96 period, the sample did not allow us to rigorously test the hypothesis that privatization explained differences in firm performance. Three developments, however, were already visible. First, privatization ended the

Table 5: Firm Restructuring Indicators

			Operating Profitability						Labor Productivity Index						Annual
Case	Type	Sector	1991	1992	1993	1994	1995	1996	1991	1992	1993	1994	1995	1996	TFP** Growth
1	NL	car components	-7.13	-12.50	-7.23	-16.18	-20.24	-3.81	100	73	96	78	97	168	1.8%
2	VP	paints	7.78	10.26	11.84	7.84	4.57	8.43	100	118	122	155	286	321	6.3%
3	NL	electrical engines	-15.20	-14.55	-21.58	-29.38	-23.00	-13.75	100	92	93	99	81	96	0.8%
4	VL	steel tire cords	2.99	4.44	4.89	5.82	5.32	6.12	100	101	78	109	133	166	4.7%
5	NL	military trucks	7.87	2.88	-57.33	-43.11	-15.38	-2.87	100	34	62	55	88	124	1.2%
6	NL	skid steer loaders	8.70	-0.83	-3.60	-39.88	-36.62	0.32	100	88	73	55	70	147	4.4%
7	VL	rubber and fertilizers	3.89	3.37	-1.02	0.32	1.43	-13.26	100	96	82	135	179	194	3.2%
8	VL	steel; cement	-0.03	-0.02	0.04	0.17	0.13	0.20	100	54	63	145	176	204	1.1%
9	NL	army uniforms	8.33	6.62	-3.65	-4.96	-16.67	-20.83	100	129	100	96	77	98	-0.4%
10	VL	rubber floors	-6.82	-4.47	-8.06	-1.54	3.00	6.16	100	101	115	149	230	310	6.4%
11	VL	overhead projectors	9.86	7.69	2.84	1.85	-15.52	3.28	100	91	86	104	113	133	2.3%
12	VL	bread and pastries	5.06	1.52	0.99	-7.14	0.81	2.16	100	82	68	74	101	126	1.6%
13	VL	rolling bearings	1.48	-1.24	-0.41	0.61	0.49	0.72	100	75	93	144	219	259	1.7%
14	VL	industrial chemicals	1.73	1.52	1.49	1.51	0.86	1.41	100	45	43	51	84	104	1.2%
15	VP	glassfiber felts and fabrics	1.05	0.94	1.40	1.57	1.65	2.01	100	106	138	167	213	271	6.8%
16	VL	technical glass	3.50	2.21	0.85	5.12	4.81	3.53	100	120	144	208	261	278	3.5%
17	VP	petrochemicals	3.96	7.26	10.00	9.52	9.94	11.14	100	87	122	191	181	210	4.3%
18	NL	military trucks	-0.91	-9.06	-14.93	-13.79	-2.90	10.84	100	74	38	64	216	326	4.4%
19	VL	freight wagons	0.84	1.95	5.03	0.90	1.77	2.50	100	74	58	107	146	154	3.6%
20	VL	paper and cellulose	0.35	-1.71	-1.21	3.10	6.62	7.29	100	89	89	133	191	227	2.3%
21	NL	military trucks	3.25	1.96	-20.75	-42.73	-39.00	-21.33	100	95	24	39	34	42	-0.4%
Average		manufacturing	1.93	0.39	-4.78	-7.64	-6.08	-0.46	100	90	88	115	155	193**	3.3%

* This corresponds to an average annual growth of 14%. ** See Appendix for a description of the estimation. We use firm-specific price indices as reported by managers.

high management turnover that some firms experienced in the 1991-94 period. Second, privatization resulted in contracts with foreign partners who were previously afraid of the lack of long-term commitment. Third, the firms which were privatized early invested more than state-owned firms (Table 4).

The relative success of the firms initially classified as non-viable also gives a further indication of the positive role of privatization. The only two NL firms (cases 1 and 18) which restructured significantly were privatized in 1992. Among the other five NL firms three were privatized in 1995-96, and two are still in state hands. The analysis in Table 5 shows a rapidly diverging performance as the firms privatized early consistently improved productivity and profitability while the state owned and late-privatized firms' performance deteriorated. This pattern should, however, be interpreted with caution. The two successful firms may have been privatized early *because* the new owners saw their potential for improvement. This holds in particular for firm 18, which was privatized through a direct sale. Since firm 1 went through the mass privatization, such a bias is unlikely.

Finally, a large part of the unexplained variation may be due to managerial ability and motivation. While the analysis in the preceding section showed few differences in age and backgrounds among firm managers, other characteristics likely matter too. Documenting such characteristics is not the primary focus of this work, and we leave it for future research.

VII. Conclusions

This paper documents the ownership changes and restructuring actions taken by a sample of large Slovak firms during the transition to a market economy. There is substantial evidence of improved performance in three-quarters of all cases. A quarter of firms still face difficulties. The variations in firm performance can mainly be attributed to different initial conditions, sector origin, and managerial ability in restructuring.

The reading of these cases brings a better understanding of the determinants of restructuring. It suggests the differences among privatization methods in enhancing firm restructuring are smaller than previously hypothesized. The study also shows that most managers led heroic restructuring efforts with no outside help, be it in the form of foreign investors or government programs. These findings are of course tentative and should be tested on larger panels of data in a cross-section of transition economies.

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Appendix

Total factor productivity (TFP) growth has been widely used in empirical studies of industrialized and semi-industrialized countries. It has received less attention in transition economies, based on the belief that the book value of fixed assets is inaccurate and introduces significant noise in any estimation. We avoid this problem by using energy consumption as a proxy for capital utilization.[11] This correction has many desirable properties. Most importantly, in the transition context, it is a flow measure and does not depend on accounting measures of fixed assets. It is also a good measure of capital services and is less volatile over time when compared to the standard capital stock measure.

TFP growth is estimated using a production function of the form

$$\Delta Y_{i,t} = \overset{0}{\alpha}_i + \overset{1}{\alpha}_{i,t}[\alpha_i \Delta M_{i,t} + \beta_i \Delta L_{i,t} + (\gamma_i + \varphi_i)\Delta E_{i,t}] + \varepsilon_{i,t}$$

where $\Delta Y_{i,t}$ ($\ln Y_{i,t} - \ln Y_{i,t-1}$) is the log-difference in total revenues, $\Delta M_{i,t}$ is the log-difference in material inputs, $\Delta L_{i,t}$ is the log-difference in number of hours worked, and $\Delta E_{i,t}$ is the log-difference in energy usage; α_i is the share of material input expenditures in total expenditure averaged over the sample period, β_i , γ_i , and φ_i are the average shares of wages, energy, and capital maintenance in total expenditures respectively.

We rely only on *flow* variables (investment plus maintenance and repairs costs minus depreciation) in calculating φ_i . The specification has two additional characteristics. The calculation of factor weights as average shares of total costs allows for non-zero pure profits (and thus imperfect competition). Since the $\alpha^1_{i,t}$ coefficient is estimated directly it does not impose the assumption of constant returns to scale. The relaxation of these two assumptions is important for Slovak firms since (as noted in Section IV) some may still enjoy substantial market power while others have returns-to-scale reduced by the drastic decline in demand.

We next calculate TFP growth as the sum of the firm's fixed effect (α^0) and the regression residual (ε). In particular,

$$\Delta \hat{t}_{i,t} = \hat{\overset{0}{\alpha}}_i + \hat{\varepsilon}_{i,t}$$

TFP growth can be calculated between two consecutive years, as well as over longer periods. Year-to-year differences give us a better idea of the evolution of productivity growth. Beginning-to-end-period differences typically smoothe some of the changes and give a more consistent picture of average firm performance. We have used the latter approach for the 1991-96 period and imputed the average annual TFP change reported in Table 3.

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11 An alternative approach is to correct for missing capital stock numbers and make inflation adjustments. It does not, however, address the fundamental question whether capital stock is the most appropriate proxy for capital utilization.

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