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Microeconomic adjustment in Hungary: Results from a survey of enterprises

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Microeconomic Adjustment in Hungary:
Results from a Survey of Enterprises

by

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1. Introduction*

Following the initiation of radical reform packages in 1990 and 1991 respectively, Poland and the former CSFR plunged into deep crises. Hungary, which had started earlier with piecemeal reforms, continued to liberalize and to open up its economy after 1990. Yet, this more gradual approach was equally unable to spare the country the experience of a serious transformation crisis (Kornai 1992). The preconditions for macroeconomic stabilization are well understood (see e.g. Bruno 1992). Another key element for successful transition is the microeconomic supply response. Numerous arguments have been advanced to explain how this response could be brought about, why it has been absent in the early phase of the reforms, or even why perverse adjustment should be expected early on (see e.g. Hinds 1990, Winicki 1991, Murrell/Olson 1992, Swaan/Lissowska 1992a). To be sure, the transition is an evolutionary process, and much of the progress will inevitably have to come from a selection process among enterprises, i.e. from shutting down existing organizations unfit for the markets and from founding new enterprises better suited to meet demand. Well-functioning factor markets are a necessary condition for this selection process to be smooth and efficient, and fostering the creation of factor markets therefore is one of the core tasks for economic policy. However, it would be overly pessimistic to assume that the entire organization-specific stock of both physical and human capital of formerly centrally-planned economies is made obsolete by the shift to market coordination, and that restructuring existing enterprises is an entirely hopeless endeavor. Rather, improving the allocative and technical efficiency of existing enterprises could be expected to contain the short-term costs of the transition. Essentially two policy tools have been proposed to achieve both market selection between organizations and efficiency improvements of existing organizations: Establishing product market competition, and privatization. Although substantial headway has been made in Hungary on both counts, progress particularly on the privatization front has been slower than expected (see appendix A7). The relative importance of product market liberalization and privatization policies for microeconomic adjustment, and thereby the required speed of privatization, has remained an open question (Estrin et al. 1993). By analyzing a sample of Hungarian enterprises, this paper sheds light on the impact of these policies on market-oriented adjustment at the enterprise level in Hungarian industry. The paper is organized as follows. Section two gives a description of the methodology and the sample. In sections three and four I present evidence on the performance and adjustment efforts of the sample firms. Adjustment will be subdivided into improving the technical efficiency of production,

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changing the organizational setup, and increasing demand orientation. Section five then looks at possible determinants of differential intensity of adjustment across firms. Here, I distinguish between initial starting conditions, ownership status, and market structure. Section six summarizes the main conclusions.

2. The Sample

The survey was conducted in the summer of 1992 in a total of 39 state-owned or formerly state-owned enterprises, with some of them having been transformed into private law companies, some self-managed¹ and others of the state enterprise variety. The analysis is confined largely to the industrial sector. The sample was compiled with a view to capturing the structure of Hungarian state-owned industry at the two-digit level (see appendix). The criteria used were the relative size of sectors as measured by number of enterprises and by output value in 1988.² Another important criterion for the selection of enterprises into the sample derives from the very approach of the analysis: the willingness of enterprises to cooperate. The cooperation of roughly half of the firms was established on the basis of personal contacts of the local researchers. To complete the other half of the sample, around forty enterprises had to be contacted. It is our impression that this self-selection of part of the sample has led to a slight bias in favor of enterprises in above average economic condition.

Given the somewhat limited size of the sample, the structural match with the overall economy is also less than perfect. Most notably, the chemicals sector is overrepresented, while the light and food industries carry less weight in the sample than in the overall economy (tables A1 - A3). Table A4 in the appendix points to another important structural difference. The sample is heavily concentrated on enterprises which were in the medium to large category in 1988. On the one hand, this has the advantage that our survey covers firms which accounted for around ten percent of the labor employed by Hungarian state-owned enterprises in industry in 1988. On the other hand, it introduces a bias into the analysis. However, many of these enterprises have undergone substantial organizational changes since then, and are by no means as large today as they used to be. They have spun off divisions as independent enterprises and have closed down others. In fact, more than three quarters of the enterprises which I surveyed underwent some organizational shake-up during the period

¹The term "self-managed" is taken to cover both enterprises governed by employee councils and enterprises governed by enterprise councils. For the distinction see Nagaoka (1989).

²1988 was the last year before the reforms led to a wave of new enterprise establishments, thereby making it difficult statistically to determine the relative weights of sectors of *state-owned* industry alone, due to the growth of new enterprises which are outside the scope of this study.

covered. Thus, the sample bias towards larger firms was less at the time of the survey than indicated by table A4.

Small firms receive relatively little attention in this survey. While what happens in these firms is certainly important for the economy and for economic recovery, their adaptation to the market and their privatization for four reasons generally encounter far fewer problems than is the case in larger state firms. Small firms usually depend less on hierarchical structures and are thus more flexible. Also, their privatization is politically much less sensitive. The fate of individual small enterprises does not influence the economy, so political infighting is less likely than over huge conglomerates. By the same token, managers and workers of small enterprises are not usually politically tainted, and therefore populist opposition to them taking over their own firms will be less likely. Finally, acquiring and restructuring a small enterprise requires only limited amounts of capital. For these reasons small privatization is basically a success story not only in Hungary, but throughout the region. The focus of our study is on the medium and large enterprises, where the major problems lie. The sample includes enterprises which were in majority private ownership at the time of survey, and others in which private owners held minority stakes, as well as firms that reported privatization plans of varying concreteness and realism, and some that had no plans whatsoever in this respect (see table A5).

The results drawn from the analysis of the sample can be of a qualitative nature only, due to the lack of representativeness and due to the fact that in most cases it was not possible to obtain a complete data set. Despite these limitations, we can gain important insights from the analysis of the sample into what is actually happening within enterprises during the transition period towards a full-fledged market economy. What I report below are the results of personal interviews conducted with senior managers of the enterprises in question by researchers under the local guidance of the Institute for World Economics of the Hungarian Academy of Sciences. The interviews were based on a questionnaire comprising a little more than one hundred questions. The purpose of the exercise was to obtain detailed information on the economic performance of the enterprises over time, on their efforts to adjust to the changing market environment, and on the internal and external determinants of both their performance and their adjustment efforts. Thus, the questions asked related to measures of the firms' success in the market place, to their financial situation, as well as to the changes they implemented in the spheres of production, organization, and marketing of products. Furthermore, we were interested in the ownership structures, market positions, and sizes of firms, their relationship to banks, the incentives faced by their management and the way it was being supervised (either by private owners, or by representatives of the state, or by employees). We supplemented this information with subjective judgments of managers as to

the main problems and future prospects of their enterprises, and their strategic plans for the future.

3. Enterprise Performance in the Transition

Although the economic situation of the enterprises in our sample is probably better than the Hungarian average, the majority of enterprises experienced a clear worsening of their positions. This experience reflects the overall crisis of the Hungarian economy. In 1990, two thirds of the enterprises surveyed reported positive gross operating profits. Of these, less than a third managed to increase their profits in real terms in 1991, while more than half suffered real decreases, and four enterprises even slipped into the red. None of the enterprises who had reported losses in 1990 succeeded in turning them into profits in 1991 (see table 1).³

Table 1: *Percentage Real Profit Changes, 1990-91¹⁾²⁾*

	down >30	down 0-30	up 0-10	up 10-20	up 20-40	up > 40	turned ³⁾
profits	11	3	2	1	0	5	4
losses	4	3	1	0	1	3	0

Notes: 1) Nominal changes deflated by industrial producer price index. 2) No data available for one enterprise. 3) Profit turned into loss or vice versa.

The difficulties of the transition are also apparent when looking at sales revenues. In domestic markets, more than three quarters of the enterprises polled suffered a decline in real terms. An even bleaker picture emerges from Eastern markets. With two exceptions, all firms who were engaged in exporting and who provided data reported declining sales revenues. To some limited extent, these losses of business were compensated for by expansion into Western markets. However, even on this count, less than a third of the participants in our survey managed to clearly improve their position (see table 2).⁴ A similar story is told by

³A caveat is in order when interpreting data on enterprise profitability in the early phase of systemic reform. In conditions of high inflation, accounting profits are raised artificially by the fact that both output and input prices rise quite significantly during the production process. Since input costs enter the books at the prices prevailing when the inputs were purchased, only output price inflation is captured in accounting profits. These are mere paper profits because the firms must purchase new inputs if they want to continue production, and inflation in input prices then eats up a substantial part of profits. Even though this phenomenon should be most pronounced in case of very high inflation like in Poland, or large sudden jumps in the price level like in former Czechoslovakia (see Estrin et al. 1993), the economic situation of our sample firms in 1991 may thus have been even worse than indicated by our profit data.

⁴The actual extent of regional trade reorientation of our sample firms in Western markets is even exaggerated by the figures because some firms have started selling to intermediaries, particularly in Austria, who then re-export to the CIS. The advantage for Hungarian firms apparently lies in the greater reliability of payment in hard currency.

capacity utilization figures. The majority of enterprises saw their capacity utilization rates drop over the period monitored. At the time of surveying, more than half the respondents were operating at 60% of their capacity or less (see table 3).

Table 2: *Percentage Real Sales Revenues change 1990-91*

	down >30	down 0-30	up 0-10	up 10-20	up 20-40	up >40
Domestic markets ¹⁾	21	9	1	3	1	2
Eastern markets ²⁾	23	2	0	0	0	2
Western markets ³⁾	8	12	3	2	0	6

Notes: 1) No data for two firms. 2) No data for six firms; six firms not engaged in any exporting to that region. 3) No data for five firms; three firms not engaged in any exporting to that region.

Table 3: *Capacity Utilization in percent*

number of firms with	40	>40-50	>50-60	>60-80	>80-100
1991 ¹⁾²⁾	2	2	3	14	15
1992 ¹⁾³⁾	3	4	12	10	8

Notes: 1) First quarters respectively. 2) No data for three firms. 3) No data for two firms.

Taking into account profits, sales, capacity utilization, development of market shares, and investment outlays, fifteen percent of the sample can be rated as unequivocally having been in good economic condition throughout the period covered. Another fifteen percent appeared to be in fair shape, but also exhibited weaknesses in specific areas. The rest of the enterprises were struggling through a difficult period (table 4).

Table 4: *Economic Condition of Sample Firms in 1991*

	good	fair	difficult
number of firms	6	6	27

4. Enterprise Adjustment in the Transition

In a market economy, enterprises continually adjust to the changing demands of the market in an effort to reign in costs and to serve their customers. Firms which fail to do so are forced by competition either to change their ways or to exit the market. Under socialist central planning by contrast, individual enterprises are largely insulated from competition. Costs are of no particular significance due to the lack of a meaningful way of measuring them and to the pervasive soft budget constraints of enterprises. The needs of customers are of little concern to producers. Because costs do not count, state enterprises under central planning tend to maximize their stock of productive resources in an effort to make sure they can meet production targets despite the frequent coordination failures which lead to plans being unveiled only after the period of implementation has started, or to production breakdowns at earlier supply stages. The main managerial problem under central planning, then, is to secure scarce inputs. Finding customers for one's output is never much of a problem because state enterprises sometimes enjoy monopolistic market positions and because customers also lack hard budget constraints, meaning that there are few boundaries on their willingness to pay. Such is the story told by Janos Kornai (1979) to explain the chronic shortages and inefficiencies even of reformed planned economies like Hungary's. The fact that there is little competition and no markets in the proper sense of the term is also known to prevent agents from obtaining relevant information and from revealing what information they possess. Despite devoting huge amounts of scarce resources to the planning process itself, central planners are therefore unable to channel resources into their most productive use.

Another central feature of market economies is that productive resources are usually privately-owned. Private owners compete with each other in maximizing the returns to their resources. Since they enjoy the benefits from efficient use (and bear the losses from inefficient use), they have incentives to make sure resources are not being wasted in unproductive activities. In centrally planned economies by contrast, productive resources are mostly owned by the state. This implies that property rights are attenuated. The title to the profits generated by an asset (the residual claim) belongs to the state. The right to dispose of the ownership rights, i.e. to sell the asset, is meaningless if nobody other than the state is legally allowed to own significant productive assets on an individual basis. And the operation of the assets must of necessity be delegated to bureaucrats, enterprise directors and sometimes worker councils. The agency problem caused by this separation of the title to the profits generated by an asset and the control of this asset does not have an efficient solution because the instruments of corporate control present in developed market economies, in particular independent financial intermediaries and a capital market, are needs absent. Therefore, the incentive structure generated by the command economy is not conducive to entrepreneurial risk taking, innovation and efficient resource use.

Economic theory as well as aggregate statistics thus suggests that state enterprises will frequently suffer from overstaffing, outdated capital stocks, oversized inventories, wasteful technologies, inefficient scale, lack of marketing expertise, lack of cost accounting systems, and production programs which do not fit in with demand on undistorted markets. In the course of economic reforms,⁵ Hungary has eliminated many of the features of economic planning. The prices for most goods have been liberalized. Multiple exchange rates have been unified, and convertibility on current account has been introduced for all practical purposes. Other barriers to trade have been lowered substantially. Real interest rates have been raised to positive levels. Discretionary taxes and subsidies, and automatic state-mandated credits for otherwise loss-making enterprises have been abolished, at least officially. The former East European trade club CMEA has been dissolved, and instead, Hungary has signed a treaty of association with the EC. Bankruptcy legislation has been introduced, and the privatization of the state sector has begun.

As a consequence, Hungarian enterprises now face a different set of relative prices, both internally and externally. The true value-added they produce is thereby revealed. Some enterprises find that they had been value-subtractors⁶. The collapse of the CMEA caused a shift in the terms-of-trade which has rendered obsolete even part of the capital stock which was adding to GDP under the old trade regime. Substantial adjustment efforts are thus required at the enterprise level.⁷

4.1 Adjustments in the technical efficiency of production

4.1.1 Employment

One area in which one would expect enterprise responses to the changed environment in which they now operate would be employment. Five reasons can be advanced for this hypothesis. For once, enterprises under socialism had been used as a substitute for unemployment insurance, with official policy forcing firms to keep workers on their payrolls even if there were not really any jobs for them to do. Second, it was rational for state enterprises to hoard labor because their soft budget constraints put them in a position to ignore the costs of such behavior while enjoying its benefits (to be able to fulfil the

⁵On reform efforts and enterprise response within socialism see e.g. Swaan/Lissowska (1992a).

⁶Hughes and Hare (1991) have calculated value-added at world market prices for industries in Czechoslovakia, Hungary and Poland. For Hungary, they find that iron and steel as well as parts of the food processing industry were actually subtracting from GDP in 1986. The authors also estimated domestic resource costs and found that in all three countries, average value-added was considerably lower at world market than at domestic prices.

⁷See van Long/ Siebert (1991) for a formal model of enterprise adjustment to an adverse price shock.

expectations of the planners even if something went awry at some earlier stage of production). Third, the nature of central planning had created bloated administrative overheads which saw their marginal value products decline dramatically as the reforms reduced the number and the clout of bureaucrats whom they could lobby for special treatment. Fourth, lack of competition, blurred property rights, and soft budget constraints had made sure that labor saving innovation remained insignificant in the days of the old regime. Fifth, with the dissolution of the CMEA and especially with the collapse of the Soviet economy, Hungarian exporters lost a substantial part of their markets, explaining some of the contraction in industrial output witnessed since 1989. These are reasons why one would expect enterprises who suddenly find themselves exposed to international competition, free prices, and fewer subsidies to shed substantial amounts of labor.

However, we would expect not just indiscriminate lay-offs. Rather, the shift from a resource-constrained to a demand-constrained system (Kornai 1979), or from a quantity-oriented to a quality-oriented system (Keren 1992), not only destroys the human capital of procurement departments and forces firms to lay off redundant shopfloor workers; it also creates the need for marketing specialists, accountants, controllers, and sales personnel. Therefore, structural adjustment should be accompanied by changes not only in the *number* but also in the *structure* of an enterprise's labor force.

In order to assess properly the efforts undertaken by a given enterprise, we did not stop at recording the presence or absence of the changes discussed above. Instead, we also tried to find the *motivations* behind those changes, in order to be able to discriminate between active and passive approaches to adaptation. It is important to distinguish enterprises that just discover that they are in trouble and then lay off some employees simply because they cannot find the means to meet their payrolls anymore, from enterprises that proceed from a sober analysis of the roots of their problems to the development of a realistic strategy towards their resolution. Finally, it should be pointed out that, as is true generally when assessing changes at the enterprise level, finding no or little evidence of adjustment efforts does not necessarily indicate difficulties of the firm in question to adapt its ways to the new exigencies of the market economy. Rather, account has to be taken of the fact that the competitive positions that enterprises inherited from the centrally-planned economy are vastly different, with some firms virtually unviable in the new environment, but others quite able to do well even without major adjustments.

As expected, almost all enterprises in our survey have reduced their labor force, most of them substantially (see table 5). This is true for all industries.⁸ Given the reported declines in

⁸Nation-wide, industrial employment declined by 13.1% in 1991. The differences across sectors were of minor significance with the exception of miscellaneous industries. In large enterprises (those with more than 300

sales revenues, however, and taking into account that enterprises presumably had been suffering at least from some overstaffing, the cut-backs on jobs may not have been sufficient yet.⁹ The results are in line with economy-wide developments. Labor-shedding in Hungary was more pronounced than e.g. in Poland or former Czechoslovakia, and yet it fell short of the decline in output, implying decreasing productivity of labor (Estrin et al. 1993).

Table 5: *Development of Employment in 1990-91*

	increase	stagnation	down 0 - 10%	down 10-20%	down >20%
<i>number of firms with</i>	2	2	10	10	15

When asked about the reasons for reducing their labor force, sample firms came up with three major explanations with roughly equal frequency. They argued that job reductions were due to shrinking demand for the enterprises' products, and to divestitures, and that they were the result of efforts to cut costs. Other explanations did not play a significant role. While the latter two of these main motivations generally reflect an active approach in that they are based on an assessment of an enterprise's problems, the first by comparison seems to indicate a rather passive reaction to changes in the firm's environment. This judgment may have to be modified, though, for enterprises with a previously large dependence on CMEA markets. The loss of those markets not only reflects a lack of competitiveness or responsiveness to demand on the part of Hungarian enterprises, but also in large measure exogenous factors, such as the economic crisis in the successor states of the Soviet Union and the break-down of the old payments system.¹⁰

employees) both the overall decline (by 16.5%) and the variation across sectors was somewhat larger (see Központi Statisztikai Hivatal 1992).

⁹It should be noted, however, that this assessment was not shared by the enterprises in our sample. Almost ninety percent expressed the opinion that overstaffing was either irrelevant or of lesser importance at the time of survey, indicating that enterprises were hoping that the job cuts they had made would be sufficient. Aggregate unemployment figures meanwhile indicate that this hope was overly optimistic (unemployment stood at 7.5 percent at the end of 1991, but increased to 12.0 percent until the end of 1992; see PlanEcon 1992).

¹⁰Cutting jobs because of declining demand of course does not always reflect an entirely passive attitude. To some extent, declining *overall domestic* demand is a problem which affects all enterprises independent of their competitiveness and responsiveness to demand. However, the view that systemic transformation is essentially a negative shock to domestic aggregate demand is controversial at best. It can certainly be rejected for East Germany, where aggregate demand received a huge boost by increases in real wages and transfers from the West, and yet production and employment collapsed. The demand-shock story has also been criticized for providing insufficient explanation of persistent inflation and for being inconsistent with actual real wage movements in Poland (Raiscr 1992). For Bulgaria, Romania and the former CSFR a recent study by Borensztein et al. (1993) also finds that supply side factors explain most of the output decline. Therefore, declining sales at the enterprise level should in general be interpreted not so much as a problem of weak overall demand than as a problem of insufficient adaptation to market demand or as a lack of competitiveness.

Table 6 summarizes approaches to employment policy. The basis for the classification of strategies consists of a set of variables including changes in employment, the development of sales in domestic, Western and Eastern markets, changes in firms' domestic market shares, the weight of exports to the East in firms' sales, profitability changes, the development of labor productivity and unit labor costs, changes in the structure of firms' labor forces, and the motivations cited by firms for their employment policies. Note that more than half of the enterprises could be classified as active or active with qualification, but also that a quarter remained entirely passive.

Table 6: *Approaches to Employment Policy*

	clearly active	active with qualification	inconclusive	passive	no change required
<i>number of firms</i>	12	8	6	10	3

4.1.2 Technological Adaptation

The second major area in which adjustment efforts can be expected is technological innovation. For reasons already mentioned above, innovation was not among the strong suits of any centrally-planned economy. Although Hungary had been among the more open countries within the CMEA, its integration into the world economy had been severely limited under socialism. Cooperation with Western partners in the form of joint ventures had been possible for some time before 1989, but had remained rather unimportant due to administrative barriers as well as the Cocom list. Cross-border technological proliferation had thus been hampered. Vigorous, aggressive adjustment would be expected to involve investment in *new technologies* or the upgrading of existing ones. In addition, we would expect enterprises to take advantage of Hungary's more liberal trade regime and the convertibility of its currency to shop abroad for higher quality, lower cost *inputs*.

Our finding, however, is that in 1991 changes in production technology did not play a major role in firms' adjustment to the new environment, as little more than one third of all respondents reported any activity in this field.¹¹ This result invites three possible explanations. First, half of the managers interviewed expressed the opinion that outdated equipment did not constitute a significant problem in their enterprises. These opinions however need to be taken with more than a grain of salt. They not only run counter to conventional wisdom as expressed above. They also square badly with the dismal economic

¹¹In an additional three firms it was apparent that they correctly claimed not to need any upgrading of their production technologies.

situation of many sample firms. Most importantly though, they are at odds with the argument that private investors have successfully picked the cherries of Hungarian industry. According to this argument, it would be reasonable to assume that the percentage of enterprises not requiring technological restructuring was clearly higher in those firms picked by private investors than in the sample overall. However, half of the privatized enterprises actually *did* implement technological changes (see section 5.2 below), implying that the need for this kind of adjustment has generally been greater than was acknowledged by managers of state-owned enterprises. The second possible reason for not introducing changes in technology is that obtaining finance might have been difficult and expensive for most firms. Obtaining financial funds from banks indeed was cited as a quite pervasive problem by almost two thirds of the sample firms. This would also help to explain why more than two thirds of firms scaled back their investment outlays. A third conceivable reason, which would apply to state-owned firms only, is property rights uncertainty (see below).

4.2 Organizational Adjustment

The transition to a market environment necessitates not only adjustments in employment and technology, but also in the structure of the entire organization of the firm. First, the transition from socialist central planning implies that the production of goods and services is allocated according to efficiency criteria. Entry and exit into markets are ideally free, and the forces of competition determine whether a given organization continues to produce a given good or service or not. Judging from the experience of mature market economies, enterprises in centrally-planned economies tended to be excessively integrated horizontally, but also vertically. The reason is twofold (Nayshul 1992). On the one hand central planners found it easier to set up plans and to supervise their execution for a small number of large firms than for a large number of small firms. On the other hand enterprises tried to insulate themselves from the consequences of planning failures by producing their own inputs as much as possible. After the demise of central planning we would thus expect to see enterprises *divest of input and maintenance activities* as these goods and services start becoming reliably available from the market cheaper than they could be produced by the firms themselves.¹²

¹²To be sure, integration is a common feature in market economies as well. The optimal degree of vertical concentration in a firm operating in a market economy depends on the costs involved in carrying out transactions via markets relative to those involved in carrying them out within one organization. The use of markets requires searching for partners to the transaction, and negotiating and policing contracts. The use of inra-firm procurement has opportunity costs in that high-powered incentives (i.e. the title to residual income) become infeasible and have to be replaced by a combination of low-powered (cost-plus) incentives and (costly) monitoring (see Williamson 1985).

Second, under socialism production enterprises had often been assigned the task of providing a variety of social services not typically found in enterprises in market economies. Therefore *divestiture of social services* should be part of market-oriented adjustment as well. Finally, the switch from a bureaucratic, command-oriented mode of operation to autonomous, results-oriented behavior also requires that the internal structure of information flows, responsibilities and rewards be reformed (Dunsire 1991). In particular, *new management techniques* and *new reward systems* for managers and workers might have to be introduced. These reforms may also have to be accompanied by *replacements of management personnel* as incumbent managers may not always be ready or qualified to implement required changes. The need for this kind of reforms may have been less in Hungary, though, than in certain other East European countries because a tendency towards decentralization of decision making had been present in Hungary for two decades and because the planning process had moved towards results-orientation in that physical indicators had largely been replaced by financial measures.

The sample firms overall showed substantial activities in the field of reorganization along functional lines. One third of the firms have emerged from the break-up of a larger state enterprise. Divestitures of inputs production, of maintenance activities, or of social services occurred in more than three quarters of the remaining firms. In the adaptation of the internal structures, personnel changes were quite frequent, not only at the shopfloor level (see previous section), but also at the managerial level. By contrast, less than a quarter of the firms polled introduced new management tools. Most managers were receiving a remuneration consisting of a fixed component and a portion linked to the performance of the firm, most often measured by period profits. However, this had been common under the old regime as well. In keeping with the need to shift towards results orientation, half the firms diversified the structures of their wage scales. The vast majority of enterprises also operated bonus systems as had been the rule under socialism.

4.3 Demand Orientation

A successful move from socialist central planning to market coordination would force firms to show increased sensitivity to market demand. This is true especially if the systemic transformation coincides with a hardening of firms' budget constraints, thereby making them dependent for their survival on passing the test of the market. Apart from efforts at improving efficiency through reorganization, technological modernization, and adjusting the work force, enterprises would have to reorganize, and presumably upgrade, their *sales and marketing operations* in order to be successful in the new environment. In addition, *production profiles*

would have to be reviewed in light of the collapse of Eastern markets, the increased competition from Western imports, and the shift in internal relative prices.¹³

We found that the sample firms generally recognized the need to market their products more actively. Most frequent were expansions of firms' own sales activities. It is difficult, however, to gauge the effectiveness of these efforts. For instance, it can be doubted whether the introduction of own outlets for direct sales of products remote from the consumption stage will help to boost sales. Advertising and the participation in fairs were also among the more popular marketing activities. Rarely did respondents invest in introducing or expanding marketing divisions. One could have expected that enterprises would try to revamp their price schedules as a way of winning new business without having to commit large up-front investments. However, there were only two cases where pricing policies were being used actively to this effect. Most firms claimed to have acquired new customers. The new business relations are heavily concentrated in the private sector, and foreign customers account for more than a third of them. The significance of these new customers for the overall sales of our firms remains unclear, though, since many of the firms which claimed to have acquired new foreign customers suffered a decrease in their sales to the West.¹⁴ They fared no better on western markets (or on eastern markets for that matter) than the sample firms overall.

An extremely conservative approach prevailed with respect to changes in production profiles. This may reflect extraordinary uncertainty in the market environment in the early reform period, as well as financial constraints (see below). Finally, close to two thirds of the firms also claimed to have improved the quality of their products. When asked about the determinants of their output prices, firms most frequently replied to be watching the prices of competitors. Input costs, the development of market demand, overall inflation, and world market prices were cited with roughly equal frequency. Wages and government regulation apparently were of lesser importance. Few firms did not show any responsiveness to competitive pressures. However, a large minority did not consider costs as of particular relevance in determining output prices. On the one hand, this could be interpreted as price taking behavior on perfectly competitive markets. On the other hand, such an interpretation runs counter to experience from established market economies, where product differentiation is high and mark-up pricing is a common strategy. Thus, the behavior may indicate the

¹³Again, the need for changes along these lines may have been less for the average Hungarian firm than in other ex-CMEA countries. Swaan/ Lissowska (1992a) report that "quasi-market oriented behavior", i.e. an increased sensitivity to market demand and more sales activities, spread among Hungarian enterprises in the 1980s. For Poland they do not find this type of behavior.

¹⁴Individual firms might lose business on western markets either because of more intense competition from other Hungarian or East European firms which were allowed to enter foreign markets as a result of external liberalization, or because of cuts in export subsidies. The real appreciation of the forint in the course of Hungary's stabilization program probably was not a decisive factor, since overall exports to the West rose substantially during 1991.

persistence of soft budget constraints in these firms instead. More will be said on this problem below.

As a whole, there were clear signs of Hungarian firms trying to respond to changes in their operating environments induced by economic reform. However, firms differed markedly in the extent of their adjustment efforts, and few had a convincing record on all counts. The following section looks at possible determinants of these differences.

5. Determinants of Short-run Performance and Adjustment

5.1 Performance

One strand of argument suggests that *starting conditions* will be important for the performance of enterprises during and even after transition. The presumption is that already under socialism, some firms had been more sensitive to market demand than others (i.e. more allocatively efficient), and some firms had been more X-efficient than others. More specifically, there had been firms under the old regime which enjoyed virtual monopoly positions, while others had been subjected to competition on domestic markets, and still others had been competing on world markets. The structure-conduct-performance literature (Scherer 1980) predicts that firms operating in competitive markets will have an advantage over others in both allocative and X-efficiency. The reason is that competitive pressures force firms to economize on costs and to respond to market demand.¹⁵ If this theory applied, we would thus expect firms which had been operating under competition, and especially firms which used to export a large part of their output, to outperform the sample average and to have less need for restructuring. However, the structure-conduct-performance paradigm has been developed for market economies where all firms are being guided by the profit motive, where prices are flexible and allowed to reflect opportunity costs, and where hard budget constraints force inefficient firms to leave the market. Given that these conditions had not been met in full under Hungary's variant of reformed socialism, the relevance of the above mentioned starting condition can be questioned. If for instance multiple exchange rates were used to subsidize Hungarian exports to the West, firms with large export shares might well have been very inefficient both allocatively and with respect to technical efficiency.

¹⁵In developed market economies of course it would be too simplistic to interpret market structure as the exogenous variable explaining conduct and performance. Rather, the structure of any given market is something that would need to be explained itself (Tirole, 1988). The structure of markets *as inherited from socialism*, however, can be taken to be truly exogenous for the purpose at hand.

Another relevant starting condition might be *firm size*. Under socialism, firm size tended to be a good proxy for the importance which the state accorded to the supply of the goods produced in a firm. Products deemed "strategic" tended to be produced in big firms under close state control. The production and distribution of these strategic goods tended to be subsidized particularly. Big enterprises also commanded considerable clout and were able to extract additional favors from state authorities upon request. It could therefore be expected that the production programs of big enterprises used to be more distorted on average than those of smaller enterprises (who had been further down on the priority list of the state and had not received as many subsidies), and that big enterprises used to be more cost-inefficient on average than smaller ones (because the budget constraints of the former were softer than those of the latter). If all or some of this were correct then, we should find a negative correlation between firm size and performance in our sample.

Finally, *different sectors* might be afflicted to differing degrees by the transformation crisis. Sectors where Hungary has a genuine comparative advantage should benefit from the liberalization of the economy, while sectors which before had grown artificially large due to subsidies and protection should suffer more than the average. Again, this argument in principle presupposes hard budget constraints. Various attempts have been made to guess where Hungary's comparative advantage might lie in the short run. These considerations usually start from an evaluation of the country's relative factor endowments. The finding is that labor and land are relatively abundant in Hungary, whereas capital and natural resources are in short supply. The pre-reform pattern of trade with OECD countries however exhibits a specialization in resource-intensive products due to distorted resource prices in the CMEA (Böhnlein/Heitger 1991, Landesmann 1991, Hare/ Hughes 1991). Short-term reallocation of production could be to land-intensive and labor-intensive goods. Unfortunately, the association agreements with the EC include restrictions to market access precisely in some products where Hungary's comparative advantage might lie, such as textiles and agricultural produce (Langhammer 1992). Although the limited size of our sample does not permit to generalize about whether the Hungarian economy has been reallocating resources in accordance with comparative advantage (or indeed whether the guesstimates about where comparative advantages might lie are correct), it is still apposite to check if reallocation according to presumed comparative advantage can explain performance differences in our sample.

Apart from starting conditions, *changes* in ownership structure might conceivably influence performance. However, these changes would have to work through changes in internal organization, technology and marketing policies. It will inevitably take time for these reforms to show up in performance measures. Nonetheless, changes in ownership structure may show a highly positive correlation with performance even in the short run. This would be the case if

private investors had been successful, as has been suggested frequently, at picking the best enterprises on offer first. To sum up, ownership status, economic branch, domestic market shares prior to reform, shares of exports (particularly to the West) in sales prior to reform, and firm size are candidates for explanatory variables of short- run firm performance.

5.1.1 Ownership Status

Most of the firms which were in good shape were privately-owned throughout the survey period. Another one of the well-placed firms was privatized at the end of the survey period (table 7). This finding lends support to the hypothesis that the Hungarian privatization method of selling mostly by tender¹⁶ enabled private investors to select firms which were in good shape to begin with.¹⁷ However, it should be noted that this is not true for all the privatized firms. By implication, quite a number of them were selected not because they were instant success stories but because presumably the investors considered these enterprises promising in the longer run. This holds a fortiori for firms with minority private stakes, which did not perform better than the sample total. A closer look at this subgroup reveals that the minority stakes were held by employees in two cases, and by strategic foreign investors in two others. In one case a bank participated in a debt equity swap. Following our argument that investors tend to pick the cherries, the firms with foreign stakes should have performed best within this subgroup. Yet, one of them actually was in difficult condition. To sum up, cherry picking on the one hand has been a factor, since all the firms in good condition either were private or had minority private stakes or were in the process of being privatized. On the other hand, private investors also considered enterprises which were in trouble at the time.

Table 7: *Economic Performance and Ownership Structure*

	good condition	fair condition	difficult condition
total	6	6	27
state-owned	2	5	24
<i>of which</i>			
<i>privatized at the end of the survey period</i>	1	0	3
<i>state firms</i>	0	1	4
<i>self-managed</i>	0	2	6
<i>minority private</i>	1	1	3
<i>majority private</i>	4	1	3
<i>of which foreign stake</i>	2	0	3

¹⁶A detailed account of privatization methods in Hungary can be found in Frydman et al. (1993).

¹⁷By classifying an enterprise as being in good shape, we do not mean to suggest that this enterprise did not need any restructuring at all. Indeed, quite a number of those ranked at the top of the sample reduced their labor forces and invested in new machinery.

5.1.2 Economic Branches

The light industrial sector clearly has an above average share of firms in good and fair condition in the sample. Other sectors doing comparatively well are chemicals and food processing. Metallurgy, electro-engineering, and building materials/ minerals did poorly by comparison. This result is broadly in line with aggregate data for the Hungarian economy. Taking output in enterprises with more than fifty employees as a proxy, engineering, minerals and building materials, and metallurgy suffered the worst declines. Food processing and chemical industries beat the average. Light industry, however, performed slightly worse than the overall industry average. It is interesting to note that calculations by Hughes and Hare (1991) of value-added at world market prices and of domestic resource costs by industries indicated that food processing and metallurgy were least competitive, while light industry, minerals/building materials, engineering, and chemicals were most competitive.¹⁸ To some extent, as in the chemicals, food and engineering sectors, this finding is not in line with predictions derived from the factor endowment concept of comparative advantage. Adding these calculations to our findings implies that in the food industry necessary shrinking had been postponed through 1991 to a greater extent than on average, while in engineering, a relatively large part of the necessary collapse had occurred up front. This assessment is corroborated by aggregate data for the first half of 1993 (Hungarian Business Brief 1993) which show a continuing decrease in output and sales in the food industry and increasing trends in machinery. The question would be *how* the food processing sector in 1991 managed to partly escape the consequences of its lacking competitiveness. Two explanations can be offered. The first is that the calculations of Hughes and Hare assume the output of all sectors to be equally tradeable. However, the fact that a comparatively large part of the food processing sector's output is perishable adds significant costs to shipping it over large distances. Therefore, the sector initially may have remained somewhat more sheltered from world market competition than others. The second explanation derives from observing that a disproportionate number of sample enterprises in the food processing sector showed signs of budget softness in the form of increasing liabilities to either the government or other firms. However, it is difficult to determine if this is an economy-wide trend based on a policy bias towards preserving Hungary's food processing sector.

5.1.3 Enterprise Size

In terms of size as measured by employment prior to the beginning of reforms, a look at the enterprises in good shape seems to confirm that "smaller is better". But for the group of firms classified as being in fair shape, the opposite applies. Since sectors differ markedly in average firm size, market concentration, and average exports to the West, it is instructive to compare

¹⁸Even though in the latter two sectors value-added at world market prices was lower than at domestic prices (see Hughes/ Hare 1991).

firms in good, fair, and bad shape also within individual sectors. The result that smaller firms are outperforming larger ones is thereby corroborated with the exception of the chemicals industry.

5.1.4 Market Structure

Let us now turn to the hypothesis that market structure can explain differences in performance across firms. Half the firms in the sample either operated on monopolistic markets or were dominant players in their domestic markets. A further quarter were typical oligopolists, while the rest were facing a truly competitive environment.¹⁹ As it turns out, there is no clear correlation between market structure and performance. In the overall sample we do find support, though, for the presumption that firms which had below-average market shares tended to be in a favorable position in the new market environment. However, at the sectoral level, it turns out that firms in good shape frequently had cornered a higher share of their markets than the average. The exception again is the chemicals industry. All in all, a negative correlation between market share and performance can thus neither be refuted nor confirmed.²⁰

5.1.5 Export Shares

The last of our possible explanatory variables, the pre-reform share of hard currency exports in a firm's sales, shows the predicted relationship for the sample as a whole. Firms classified as being in good shape had clearly higher hard currency exports than the average. However, in individual industries the relationship comes out less clear-cut.²¹ For the firms classified as being in fair shape, it is even reversed. Therefore the alternative hypothesis that distorted exchange coefficients may have allowed exporting firms to be as inefficient as non-exporters cannot be rejected either. One may speculate that exporting firms did have a starting advantage, but that it did not lie in a generally more rational production schedule or a less distorted factor combination. Rather, the advantage may have been that exporting firms benefitted from market knowledge and contacts to the West. Those exporting firms which - by coincidence - found themselves with relatively undistorted production programs and technologies at the beginning of the reform would then have been able to take advantage of economic liberalization more fully than firms which had little prior experience with western

¹⁹This classification of firms is based on market shares and number of competitors.

²⁰It should be noted also in this respect that the link between market structure, as proxied by market shares, and firm conduct is known to be generally the weaker the lower entry barriers are in the market concerned, i.e. the higher the degree of contestability. It is difficult to assess the extent to which contestability may have varied across the firms in our sample.

²¹On an industry-wide basis in 1989, the share of hard currency exports in sales was highest for metallurgy, followed by chemicals and light industries (Landesmann 1991; own calculations).

markets. Conversely, those exporting firms which had been heavily subsidized before would experience the same troubles as non-exporting firms in the short run.²²

5.2 Adjustment

To sum up, the short-run economic performance of the sample firms has been found to vary significantly across sectors. There is also ample evidence to the fact that private investors succeeded in identifying the best firms. However, it was not only firms in good shape which attracted private owners. No simple relationship between performance and either enterprise size, market structure, or pre-reform export shares could be determined. In the next section, we move on to the analysis of the determinants of adjustment efforts in enterprises.

Due to the distortions present in the old system, the starting conditions of firms at the beginning of the reforms varied substantially. In the short run, firm performance cannot be expected to be highly positively correlated with adjustment efforts, as it will take time for these latter to translate into measurable improvements. To the contrary, the immediate need to adjust is lowest for those firms which, due to their lucky initial situation, showed a satisfactory overall performance early on. Nonetheless, many of the factors which can be expected to cause firms to engage in market-oriented adjustment efforts are similar to those predicted above as determinants of short-run performance.

First, *product market competition* is a potential explanatory variable of adjustment efforts. While monopolists may enjoy part of their rents in the form of a quiet life, competition forces firms to either become efficient or to leave the market. This is true of course only if budget constraints are hard. The existence of competitors may also make it easier for firms to find ways to improve their efficiency (by doing as their more efficient competitors do).

Second, *initial firm size* may play a significant role. It is argued that the internal organizational structure of firms will have to change considerably if they want to be able to shift from being good at fulfilling pre-set targets to being good at satisfying the ever-changing exigencies of the market in pursuit of profits (see e.g. Murrell 1992). Large enterprises are typically more hierarchical than smaller ones. They may thus find it harder to adjust to a new environment, because they tend to embody more organization-specific human

²²Our findings parallel those of Estrin et al. (1993) who find for Poland in 1990 that state-owned firms which had been heavily involved in hard currency exporting prior to the onset of reforms were not adjusting their sales to price changes any more rationally than other firms. However, ignoring potential effects of cuts in firm-specific subsidies, these authors interpret their result as indicating no advantage of export-oriented firms in terms of "experience with markets".

capital than smaller firms, a substantial part of which is made obsolete in the reform process. Learning, i.e. building up new human capital, takes time. Uncertainty as to the persistence of the economic regime switch and lack of economic competence may create additional behavioral inertia as it can be rational for economic agents to continue following old routines for a while which had proven useful under the previous regime (Swaan/ Lissowska 1992b). In particular, large firms which were used to being cuddled by the state may take longer to realize that the regime change is here to stay, and may for a while prefer to continue lobbying the state for favors and shelter from the competition, rather than embarking on an all-out adjustment effort.

Finally, *ownership change* may be crucial. As ownership involves the right to the residual profit, private owners can be expected to pursue this goal vigorously. By contrast, the state as owner may pursue a whole range of other objectives simultaneously (Hartley/Parker 1991). In addition, private owners will generally enforce profitability more stringently than the state would, because they tend to face hard budget constraints themselves, i.e., in contrast to the state, they cannot rely on tax income to finance losses from inefficient operation of their enterprises. Therefore, private owners should be more likely than the state to introduce measures aimed at adjusting their firms to market conditions. However, if management is separated from ownership and if private ownership in a firm is excessively dispersed, the costs of collecting the information necessary to monitor management may be larger than the gains any individual owners could hope to reap from it for themselves. Attempts at free riding may thus stifle efficient corporate governance. Therefore, private ownership can be expected to foster adjustment efforts only if ownership is either concentrated so that the stakes of owners are sufficiently high to warrant considerable expenses on information gathering and monitoring, or if other instruments of corporate governance operate properly. These other elements include the market for corporate control (i.e. a lively stock market), proxy control by financial intermediaries (via proxy voting in shareholder assemblies and via seats on the boards of directors), performance-related pay packages for managers (coupled with rigorous independent auditing procedures), boards of directors, bankruptcy enforcement, and the market for managers, i.e. career concerns as a disciplining device. Competition in product markets can provide an important yardstick against which to measure the performance of managers (see e.g. Tirole 1991). A final reason why privatized firms could be expected to be more active than state-owned ones is that many firms which are notionally owned by the state may actually suffer from property rights uncertainty. This uncertainty can arise not only from claims to restitution, but also from the fact that managers and employee councils had acquired unofficial property rights under the old regime (Wiseman 1991). Privatization thus amounts to a redistribution of property rights. Not knowing whether they will remain with the enterprise in case of privatization, managers might find it rational to abstain from investments into restructuring.

The analysis of the relationship between ownership changes and adjustment intensity is somewhat complicated by the fact that it is conceivable that the effects of ownership changes might not be confined to firms where private owners hold majority stakes. Indeed, the effects might even precede their cause.²³ The reason is that privatization usually involves negotiations between investor and enterprise and possibly the State Property Agency. The investor may require certain changes to be implemented in the enterprise beforehand as a condition for buying it (or for acquiring a controlling stake through an infusion of fresh capital). Also, once it becomes clear during negotiations that the firm will be privatized soon, it may become rational for managers and employees to start behaving as if it were private already.²⁴ In the following it will be assumed that privatization *plans* could have had an impact on the behavior of a state-owned firm in 1991 only if that firm was indeed privatized within the first half of 1992. Otherwise it will be assumed that privatization plans had been too unspecific to induce changes at the firm level. Nonetheless, a distinction will be maintained also between firms privatized before or early in 1991 and firms privatized in late 1991 or early 1992. Similarly, new owners may be able to influence firm behavior even if they do not or not yet hold majority stakes. This could be expected particularly if the minority stakeholder is a strategic investor who plans to acquire a majority through infusions of capital at a later stage.²⁵ Before looking at the relevance of the three characteristics market structure, firm size and ownership status as determinants of adjustment efforts, we now briefly discuss the actual governance structures in the sample firms, because it must be through these governance structures that the differential influence of alternative owners, if any, asserts itself.²⁶

²³A necessary condition for the effect to precede its cause is of course that the announcement of imminent privatization be credible. Dunsire (1991) has found evidence for internal adjustment efforts triggered by privatization plans in the case of the UK. Andreff (1992) even reports that efficiency improvements in France have been achieved without privatization by replacing managers of state enterprises and prescribing profit-orientation as the goal against which the performance of the new management will be measured. To which extent however policy makers in Hungary are able to draw on their credibility to support enterprise restructuring is open to question given the history of halfway reforms and soft budget constraints.

²⁴On the contrary, it could be argued that incumbent managers who see their positions threatened by imminent privatization will engage in myopic behavior such as asset mining (Winiecki 1992). In this case, perverse adjustment, if any, would be observed in the phase preceding privatization.

²⁵Apart from this, Apathy (1993) reports a case where the management of a state-owned enterprise pursued active restructuring and availed itself of the necessary means by issuing new shares to the public, thereby turning itself into a state-owned company with minority private stake. Although this behavior is in line with the history of spontaneous privatizations until early 1990, the opportunity to go public has been open only to a small minority of well-placed state-owned companies.

²⁶Another major reason for the relevance of ownership of course is that different owners can be expected to differ in the goals they prescribe for the enterprise to attain (as opposed to differences in the efficiency of governance, i.e. in the means to impose the goals of the owners on the management of the organization; see e.g. Hartley/Parker 1991).

5.2.1 Governance Structures

Although there have been some public floatations on Hungary's fledgling stock market in the framework of the first centralized privatization program, the focus of privatization in Hungary has been on sales to investors. A form of mass privatization is only now being contemplated. The privatized firms in our sample were not part of the first privatization program and thus had rather concentrated ownership (although two firms are cooperatives).²⁷ This concentration of ownership to some extent obviates the need for a market for corporate control. Management remuneration in most firms includes a sizeable performance-dependent part. These incentive pay packages are mostly tied to measures of period performance, such as profits or sales. Yet, managers mostly did not receive a direct share in profits, but pre-determined bonuses which are being paid out at year-end subject to satisfactory performance of management. By contrast, it was very rare that managers owned shares in their firms or received stock options as a part of their compensation (of course, stock options have not usually been available due to the fact that the stock market has been but in its infancy).

It should be noted, however, that recent studies have found stock ownership and stock options in developed market economies to actually play a far less significant role as part of incentive pay schemes than theory would predict. For the US, the sensitivity of overall CEO compensation to changes in the market value of the firm has been found to be very low (Gibbons/ Murphy 1992). The same holds for the sensitivity of CEO remuneration with respect to changes in period accounting profits. Furthermore, relative performance evaluation does not seem to cause much variation in CEO remuneration either. Finally, the sum of salaries and pre-determined bonuses of CEOs does not fluctuate significantly more than the salaries of other employees. All this indicates that incentive pay packages in general are not the main tool applied to align the interests of managers and shareholders in the US. However, the US evidence on CEO dismissals in connection with unsatisfactory firm performance is also rather weak (although some recent, highly publicized cases may indicate a change in this respect; see The Economist 1993), indicating that reputation effects working through the market for managers are weaker than one would expect (Jensen/ Murphy 1990). In addition, the control exercised by boards of directors is frequently criticized as being weak because boards tend to be dominated by managing directors who command inside information (Tirole 1991). A satisfactory explanation for this apparent reluctance to write CEO contracts with strong incentives is still lacking. It would seem, however, that in public corporations in the US the main disciplining devices would be competition in product markets and in markets for financial capital with shareholders protecting their interests largely through exit rather than through voice (Hirschman 1970).

²⁷The first privatization program which envisaged British-style public floatations for twenty enterprises deemed to be in good condition was a complete failure. One of the firms in our sample was scheduled to participate in it, but both attempts at public floatation and at private placement were unsuccessful.

This of course applies to publicly held corporations only. Under the Hungarian circumstances, where the stock market is extremely thin, where most corporations are closely held, and where many firms are organized as limited liability companies rather than corporations, incentive pay packages, close monitoring of management, and career concerns should be expected as the main devices used to align the interests of managers and owners. However, the effectiveness of market-based, high-powered incentive²⁸ pay schemes is limited for several reasons (Tirole 1991). First, given the absence of meaningful measures of long-term firm value, the only observable measures to which incentive pay schemes can be tied are period accounting variables such as profits, sales, market shares etc.. Reliance on these variables instills a short-term bias into the incentive structure of managers and may make long-term investments look comparatively unattractive.

Second, high-powered incentives such as profit sharing will work efficiently only if the manager's choice of actions indeed has a clear impact on the realization of the variable his or her remuneration has been tied to (Baker 1992). In particular under conditions of substantial uncertainty in the economic environment, as is the case during the early phase of the transition from central planning, the impact of management effort on short-run firm performance may be quite uncertain. Relative performance evaluation, i.e. tying remuneration to the performance of the firm relative to its competitors would be a seemingly obvious solution. Unfortunately in the transition from central planning, this will generally be either unfeasible (if the firm does not have domestic competitors or if reliable information on their performance is unavailable), or unwise (if only measures of short-term performance are available or in the presence of firm-specific shocks).

Management Remuneration

There is some limited evidence which points to substitutability between incentive pay and other elements of corporate control, since the number of firms which do not use performance dependent remuneration schemes is higher in majority privatized companies than in the sample average, and other control elements can be expected to be more effective under private ownership (see below).

As far as the level of management remuneration relative to average pay in the firms is concerned, we find that firms in majority private ownership have been less generous than traditional state enterprises.²⁹ Relative management remuneration was lowest in self-managed

²⁸For the distinction between high-powered and low-powered incentives and an exposition of the systematic limits to using high-powered incentives in firms see Williamson (1985), chpt.6.

²⁹Firms with minority foreign stakes were more generous, though. The same holds for the one firm where a bank had taken on a minority share. By contrast, minority employee ownership was not associated with high relative management remuneration.

firms. The same is true for the variance of this measure. This variance across firms, while generally being quite substantial, was highest within the group of majority private firms. The comparatively low variance in state-owned firms is not surprising given the old regime's bias towards levelling off income differentials. The combination of comparatively high relative pay levels and relatively low variance in traditional state enterprises indicates that control over management was weakest in this subgroup. Two interpretations lend themselves here. On the one hand, relatively generous pay packages in state enterprises may be an attempt to provide managers with incentives where direct monitoring by committed owners or employee councils is absent. On the other hand, high pay packages may indicate that managers in state enterprises have been able to take advantage of slack supervision and to appropriate rents. The fact that the use of performance dependent remuneration schemes is more frequent in state-owned firms than in privatized firms lends support to the first interpretation, but the second cannot be ruled out for individual firms (see below).

Career Concerns

A powerful source of incentives for managers can be career concerns in a functioning market for managers, both inside and between firms (Gibbons/Murphy 1992). Efficiency in this market requires that entry be free, that forced exit be a possibility (i.e. that there is a credible threat for managers to be dismissed in case of unsatisfactory performance), that managers enjoy quasi-rents³⁰ from working as managers as opposed to working as non-managing employees, and that managers can increase their own market value by working hard towards improving the performance of their firms. The fact that the total remunerations of managers in our sample in most cases significantly exceed the average pay in their firms indicates the presence of quasi-rents, although the comparison with the average pay of course exaggerates their extent. The extent to which the external market for managers will honor present effort is unclear because long-run firm performance is difficult to measure, particularly for outsiders, and the contribution of management to firm performance is difficult to separate out. The internal job market has an informational advantage in this respect. Accordingly, the internal job market was by far more important than the external market in our sample, as the overwhelming majority of managers we interviewed had risen through the ranks of their own organizations. However, half of the firms which were completely privatized had since hired an outsider, and three quarters of the firms which hired an outsider were either completely or partly privatized. Thus the external market for managers played a clearly bigger role in privatized firms than in others, and the threat of dismissal was presumably more credible. This finding is in line with the differences in attitudes found with regard to overall employment changes (see above). It also lends support to the thesis that

³⁰See Marshall (1948, p.626) for an early definition and example.

different elements of corporate governance are substitutes, thereby explaining why performance-dependent remuneration schemes were not more frequent in privatized firms.

Monitoring and Supervision

Monitoring the performance of the firm and of the management team is important in essentially two respects. First, it is necessary for any kind of evaluation. For instance, it only makes sense to have management pay depend on firm performance, if owners have access to undistorted information about firm performance. Second, supervision is necessary in order to detect serious problems early on and to intervene before they start to threaten the survival of the organization.³¹ One way to get an idea about the extent to which owners in our sample did have access to undistorted information is to look for firms which have independent audits performed on their books. This measure is imperfect, not least because of the fixed costs of audits which larger firms can bear more easily than smaller ones.³² What we found is that more than half of all sample firms were being audited. The majority of them involved private ownership. By contrast, the majority of state-owned firms failed to produce independent audits. Moreover, the supervision of management remains largely weak in all forms of state-owned enterprises. In self-managed firms, this supervision is the duty of a council elected by employees (in smaller firms), or composed of representatives of employees, management and the founding organ. In both cases management usually dominates the council. Upon transformation into a private law company the rights of employees on these councils are revoked, but the position of management is even strengthened (Frydman et al. 1993). This finding casts doubt on the effectiveness of corporate control in many firms in the state-owned sector. In particular, the combination of weak auditing and supervision with strong pecuniary incentives tied to short-term profits can create moral hazard problems and may thus be quite inappropriate in state-owned enterprises in the early phase of transition (Tirole 1991). In what follows, we will employ ownership status as one of the explanatory variables potentially determining enterprise behavior, partly in order to capture these differences in governance.³³

³¹See Williamson (1992) for an exposition of what he calls a double feedback mode, where day-to-day operations are left to the management, and the supervisory stage intervenes only if problems exceed a certain threshold level.

³²Another problem may have been a lack of qualified auditors.

³³As mentioned above, ownership also matters because a change in ownership status may be associated with a change in the goals of the organization.

5.2.2 Adjustment of employment³⁴

Ownership Status

As can be seen from table 8, privatized firms are over-represented in the group where reductions in the labor force have been very substantial, and in the group which increased employment. This finding confirms that private investors on the one hand tend to pick firms which are in good shape, and that on the other hand, they tend to be particularly rigorous in their restructuring efforts when deemed necessary. Interestingly, neither minority private stakes nor prospects for privatization in the near future seem to have had quite the same impact as majority private ownership.

Table 8: *Ownership Status and Development of Employment*

<i>number of firms</i>	increase	stagnation	down 0 - 10%	down 10-20%	down >20%
state-owned	0	2	10	9	10 ¹⁾
<i>of which</i>					
<i>privatized at the end of the surey period</i>	0	1	0	2	1
<i>state enterprises</i>	0	0	3	2	2
<i>self-managed</i>	0	0	2	1	3
<i>minority private</i>	0	0	2	1	2
<i>majority private</i>	2	0	0	1	5
<i>of which</i>					
<i>foreign stake²⁾</i>	1	0	1	1	2
total	2	2	10	10	15

Notes: 1) Legal form unknown in one case. 2) No data in three cases.

Yet, a closer look at the motivations of firms (see table 9) not only corroborates the hypothesis on the influence of majority private ownership, but also points to the significance of privatization plans and especially existing minority private stakes. Among the firms showing a clearly active approach, three quarters had majority or minority private stakes, frequently involving foreigners. In the group classified as active with qualifications, a quarter

³⁴As is true for all kinds of adjustment measures, it should be emphasized that this paper does no more than note their presence or absence in the sample firms. A definitive evaluation of the appropriateness of any given measure of adjustment must be left to the markets. Therefore the success or failure of the efforts of firms in the sample will become evident only over the longer term.

of the firms involve private stakes. Another quarter was still state-owned but was in the process of being privatized, as evidenced by the fact that they had become privately owned by early 1992. By contrast, all enterprises exhibiting inconclusive or passive attitudes towards adapting their labor forces were state-owned.³⁵

Finally, two out of three enterprises which did not require reducing the size of their staff had been privatized to foreigners, while the third firm was in the process of being privatized. But as discussed above, this latter fact should not be taken to mean that private and in particular foreign ownership are the *causes* of the good situation these three companies found themselves in. Rather, the finding lends additional support to the presumption that (foreign) investors tend to target for their investments primarily companies which exhibit good prospects even without substantial restructuring. Overall, it follows that privatization has had a strong influence on employment changes at the firm level.

Table 9: *Ownership Status and Approaches to Changes in Employment*

<i>number of firms</i>	clearly active	active with qualification	inconclusive	passive	no change required
state-owned	7 ¹⁾	7	6	10	1
<i>of which</i>					
<i>privatized at the end of the survey period</i>	0	2	1	0	1
<i>self-managed</i>	0	1	3	4	0
<i>state enterprises</i>	1	2	0	2	0
<i>minority private</i>	4	1	0	0	0
<i>majority private</i>	5	1	0	0	2
<i>of which</i>					
<i>foreign stake</i>	3	0	0	0	2
total	12	8	6	10	3

Notes: 1) Legal form unknown for one state-owned firm.

Enterprise Size

As far as firm size is concerned, both in the sub-group of firms which shed more than twenty percent of their labor forces and in the group which increased their employment,

³⁵However, one of these firms had been privatized by early 1992.

average size is clearly below the sample average. However, on the individual industry level, the relationship holds mainly for the electro-engineering sector, while for other sectors it is less clear-cut or even reversed. Therefore, the hypothesis that smaller firms are more flexible and have a less difficult time adapting to the new environment is only weakly supported by the data. It should be noted, though, that above we found a negative relationship between firm size and performance, implying that larger firms tended to be more in *need* of job cuts than smaller ones. From this perspective we would have expected to find that larger firms clearly shed more labor than smaller ones. The fact that this was not the case in turn suggests that inflexibility may have been a factor in bigger enterprises after all. In terms of employment strategies, we find that both firms classified as active and firms classified as passive are comparatively small on average. On balance, the explanatory power of firm size to predict employment policies is thus not very strong.³⁶

Market structure

Conversely, clear patterns emerge from relating market structure and employment policy (see table 10). First, competitive firms were more often active than passive, confirming the impact of competitive pressure. Monopolistic firms were polarized between clearly active and clearly passive attitudes. Upon closer inspection, we find that this polarization coincides with private and state ownership respectively. We may take this as indication for the tendency of the privatization of monopolies to lead to improvements in x-efficiency due to a reinforcement of the profit motive.³⁷ Alternatively, product markets might have become increasingly contestable upon the privatization of the incumbent monopolists. Table 10 also indicates that firms with dominant market positions tended to be more active than firms in small-number oligopoly situations.

Table 10: *Market Structure and Employment Policy*

	clearly active	active with qualification	inconclusive	clearly passive	no need for job cuts
monopolistic	2	0	1	2	0
dominant	5	4	2	3	1
oligopolistic	3	1	1	4	1
competitive	2	3	2	1	1

³⁶It is worth remembering in this context that many of the sample firms used to be rather large even by Hungarian standards. To the extent that there is a size threshold beyond which hierarchical inertia becomes a significant problem (as opposed to inertia being a continuous function of firm size), the low correlation between firm size and adjustment may be due to most sample firms' being beyond that critical threshold.

³⁷ See Börs/Peters 1991 for a formal model to this effect.

5.2.3 Adjustment of technology

Ownership status plays a significant role here as well. Privatized companies, particularly those taken over by foreign investors, were clearly more active than their state-owned counterparts (table 11). Note, however, that firms which were privatized only late in 1991 or early in 1992 as well as those with minority private stakes did not exhibit particular activities in this field. This seems entirely plausible for the former group. While imminent privatization might be expected to lead to preparatory moves like job cuts or divestitures of unnecessary activities (see below), changes in production technology usually require sinking specific investments in physical capital, financial capital, or knowhow. This will typically come about only after a privatization deal has been finalized. As for firms with minority private stakes, the absence of technological adaptation is more difficult to explain.

Table 11: *Technological Adjustment and Ownership Status*

	state-owned	of which privatized at end of survey period	of which state firms	of which self-managed	of which minority private	majority private	of which foreign stake	total
changes in production technology	9	1	2	3	na ¹⁾	5	3 ¹⁾	14

Notes: 1) No data for one firm.

Apart from incentive effects, the higher degree of activity of privatized enterprises could conceivably be explained also by better access to finance of privatized as compared to state-owned firms. This hypothesis is especially compelling for foreign-owned firms because they may have access to finance from abroad or to collateral from abroad for domestic loans.³⁸ It could also be argued that privatized firms have been facing less uncertainty about their market environment. Again, this could be of particular relevance for foreign-owned firms which import marketing expertise from their new owners.

³⁸Conversely, it has also been argued that state enterprises are usually at an advantage over privatized firms when it comes to securing credits because the bulk of lending is done by state banks which are linked to state enterprises via long-standing business relationships and existing outstanding credits (for Poland see e.g. Winiński 1991). However, this would explain an advantage of both state-owned and privatized firms over newly founded private enterprises rather than a difference in access to credits between state enterprises and privatized enterprises. In addition, state enterprises, even if it were true that they have superior access to

Our surveys indicate that privatized firms in general had fewer problems obtaining bank credit than their state-owned counterparts. While this could be viewed as an encouraging sign of functioning credit markets, differential credit constraints alone cannot explain why some firms did upgrade their technologies and others did not. The reason is that, as can be gathered from tables 12.1 and 12.2, the liabilities to the banking system of those firms having made technological adjustments did not on balance evolve differently from the sample overall. Instead, privatized companies found themselves at an advantage over state enterprises because a number of the former were able to rely on an infusion of new equity capital to ease the liquidity constraint.

Table 12.1: *Ownership Status and Change in Bank Liabilities*

	none	declined	+0-30% ¹⁾	+30-40%	+40-50%	+50-70%	+>70%
total ²⁾	2	13	12	4	2	2	2
state-owned ³⁾	2	11	9	3	2	2	0
of which							
privatized by time of survey	0	2 ⁴⁾	2	0	0	0	0
minority private ³⁾	0	1 ⁴⁾	1 ⁴⁾	2	0	0	0
majority private	0	2	3	1	0	0	2
of which foreign stake	0	2	2	1	0	0	0

Notes: 1) Producer price inflation in industry was 31.5%. 2) No data in two cases. 3) No data in one case. 4) Of which one with foreign stake.

Table 12.2: *Technological Adjustment, Ownership Status and Change in Bank Liabilities*

total with change in technology	1	5	4	1	2	0	1
state-owned	1	3	3	0	2	0	0
of which							
privatized by time of survey	0	1	0	0	0	0	0

finance, could not necessarily be expected to use the funds thereby obtained for technological adjustment measures. Instead, they might just use them to continue their old ways.

minority private	0	0	0	0	0	0	0
majority private	0	2	1	1	0	0	1
of which foreign stake	0	2	1	0	0	0	0

The oft-heard concern that firms with large market shares might fail to adjust because of lacking *competitive pressure* is not confirmed for technological restructuring. Quite to the contrary, in our sample the share of firms reporting activities in this field was highest among monopolists (see table 13). This lends further support to the contestability hypothesis. The high degree of activity among monopolists of course raises the question of whether they had any distinct advantage over other firms in this respect, e.g. in their access to finance. However, their sources of financing new technology appeared to be diverse, ranging from bank credit over new equity capital to retained earnings, and thus not pointing to a clear advantage in a particular area. *Firm size* in turn gives a mixed picture as an explanatory variable, with both very small firms and those with initially between 2,000 and 5,000 employees being more active than the average.

Table 13: *Technological Adjustment and Market Structure*

	monopolistic	dominant	oligopolistic	competitive
Firms reporting changes in technology ¹⁾	80	25.66	30	33.33

Note: 1) In percent of all firms with the respective market structure.

5.2.4 Organizational Adjustment

In order to keep things simple, firms are classified as active, intermediate, and passive, respectively, based on aggregating the information on divestiture, changes in reward systems, management personnel and management techniques. For lack of a less arbitrary method, we simply assign numerical values to the realizations of the above variables and then take the unweighted sum. As was the case for adjustments in employment and technology above, *ownership status* is found to play an important role in determining the degree of activity in organizational restructuring.

Table 14: *Organizational Adjustment and Ownership Status*

	clearly active	intermediate	clearly passive
state-owned	5	20 (19)	6 (5)
<i>of which</i>			
<i>privatized by time of survey</i>	1	3 (2)	0 (0)
<i>minority private</i>	1	3 (3)	1 (0)
<i>majority private</i>	3	4 (1)	1 (0)
<i>of which foreign stake</i>	3	1 (0)	1 (0)

Note: Figures in parentheses are without firms classified as being in good shape.

In particular, table 14 shows that the only passive firms with private involvement were among those previously classified as being in good shape. Their seeming passivity is more appropriately interpreted as efficient behavior of firms not requiring major adjustment. In other words, none of the privatized firms which we found to be in difficult condition failed completely to take adjustment measures. All but one of them even took a clearly active approach. By the same token, firms involving private stakes dominate among those taking an active stance. By contrast, our second possible explanatory variable, pre-reform *firm size*, does not exhibit the predicted relationship with the intensity of organizational restructuring. The hypothesis that structural inertia systematically prevents large firms from making necessary adjustments is thereby not corroborated (see table 15).³⁹

Table 15: *Organizational Adjustment and Firm Size*

	<300	301-500	501-2,000	2,001-5,000	5,001-10,000	> 10,000
clearly active ¹⁾	0	0	3	3	0	1
intermediate ²⁾	3 (1)	0	9 (8)	6 (5)	2	1
clearly passive ³⁾	0	0	3	2 (1)	0	0

Notes: 1) No data in one case. 2) No data in three cases. 3) No data in two cases. - Figures in parentheses are without firms in good shape.

³⁹For possible interpretation see footnote 23 above.

Table 16: *Market Structure and Organizational Adjustment*

	clearly active	intermediate	clearly passive
monopoly	3	1 (1)	1 (1)
dominant	4	8 (6)	3 (2)
oligopoly	0	8 (7)	2 (2)
competitive	1	7 (6)	1 (0)

Note: Figures in parentheses are without firms in good shape.

The relationship between *market structure* and organizational adjustment does not conform to the prediction of the simple structure-conduct- performance model. Quite to the contrary, most of the active firms were dominating their respective markets (table 16). An obvious interpretation of this outcome is that potential competition has been powerful enough in many markets to put pressure on incumbents. This interpretation is supported by the observation that in those markets which were unambiguously competitive no firm adopted an entirely passive attitude.

5.2.5 Demand Orientation

As discussed above, most firms showed some activity in this field. An aggregate index constructed in the manner described in the previous section exhibits a rather low variance, indicating that conclusions on the influence of potential determinants on demand oriented adjustment efforts are difficult to obtain. Table 17 at least shows that among state-owned firms passive attitudes outnumbered active approaches, while for privatized firms the reverse holds. As was the case for organizational restructuring, differences in *firm size* and in the *structure of product markets* fail to contribute significantly to the explanation of differences in demand orientation.

Table 17: *Demand Orientation and Ownership Structure*

	clearly active	intermediate	clearly passive
state-owned	3 (3)	23 (21)	5 (5)
<i>of which</i>			
<i>privatized by time of survey</i>	0 (0)	4 (3)	0 (0)
<i>minority private</i>	1 (1)	3 (2)	1 (1)
<i>majority private</i>	2 (0)	5 (4)	1 (0)

<i>of which foreign stake</i>	1 (0)	3 (3)	1 (0)
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Note: Figures in parentheses are without firms in good shape.

The pricing policies pursued by our sample firms remain a puzzle. From a theoretical point of view, we can derive expectations as to what should determine the output prices of firms operating in competitive, oligopolistic and monopolistic environments, respectively. In purely competitive markets, production costs should guide supply, but the price should be exogenous to the individual firm. Thus, we would expect the level of the world market price, or the prices of competitors, or maybe "market demand" to determine the level of a firm's output price, while costs should be irrelevant. Conversely, in a monopolistic setting, costs together with market demand (i.e. its price elasticity) should be used to determine the output price, while the prices of the competition by definition play no role. In oligopolistic or monopolistically competitive markets finally, both costs, demand elasticity and the behavior of the competition should be of relevance. There are many firms in the sample who fit into this classification, but there are also many others for which a little effort is required to interpret their price setting behavior along these theoretical lines. What is unfortunate, however, is that even after dispensing this effort, we do not generally find firms to behave in accordance with what the structure of their respective market is (as indicated by the number of their competitors and by their market shares). This anomaly is difficult to explain, in particular since neither controlling for the presence or absence of soft constraints nor controlling for the presence or absence of private or even foreign ownership yields any more consistent pattern of pricing behavior.⁴⁰

6. Conclusions

The analysis of the situation in 39 Hungarian enterprises yields a picture of deep crisis for 1991. Moreover, sectoral output changes were not in line with either movements of relative prices or early calculations of relative competitiveness, indicating a lack of market-oriented behavior. However, all has not been bleak. Even early on in the reform process a limited number of firms achieved a good performance. All of these involved private stakes. Private investors thus managed to skim off the cream of our sample firms. Yet, not all firms involving private stakes found themselves in good or even satisfactory shape. Rather, private investors also took over firms which were in trouble but apparently held some promise in the eyes of investors. Apart from this self-selection of firms according to ownership status, initial

⁴⁰However, for Poland in 1990, Estrin et al. (1993) find that output changes in exporting firms were not driven by changes in relative prices. A similar finding can be derived for Hungary in 1991 by analyzing aggregate sectoral data. Estrin et al. attribute their result to a lack of familiarity on the part of enterprise managements with marketing and finance. This might also explain why our sample enterprises failed to take account of their market position in determining their output prices.

starting conditions influenced the short-run performance of enterprises. Relatively small firms tended to outperform their larger counterparts. This conforms with the notion that larger enterprises on average had been the recipients of more favors under the old regime, and were suffering more from their, partial or total, removal in the course of reforms. By contrast, neither the pre-reform structure of output markets nor of export shares contributed significantly to explaining performance differences. Again, we may attribute this to the existence prior to 1990 of discretionary taxation and cross-subsidization which tended to insulate firms from the effects of competition.

Adjustment efforts were relatively vigorous, although still insufficient, in the fields of employment, marketing, and internal organizational changes. They remained poor by comparison with respect to technological adaptation and changes in production profiles. The major variable explaining differential adjustment efforts across firms has been private versus state ownership. Enterprises with a majority of private owners clearly showed above average levels of activity on all counts, with foreign investors being particularly active. To a more limited extent, positive supply responses could also be discerned in firms with minority private stakes and in firms which were in the process of being privatized. Conversely, the hypothesis that large enterprises suffer from excessive behavioral inertia due to their hierarchical structure could not be confirmed. In most respects, a clear negative correlation between size and degree of activity could not be established. However, given the negative correlation between size and performance, organizational inertia may have played a role still, in particular in the field of employment changes. Finally, firms with small market shares and a large number of competitors frequently were no more active than others. In technological restructuring, firms with dominant market positions even showed higher levels of activity. This finding contradicts the hypothesis that high market shares and a low number of competitors confer market power, which in turn allows the firms vested with it to enjoy a quiet life without the need to adapt to new conditions in the short term. Rather, the result points to substantial contestability in many markets. All in all, our survey indicates that private ownership represents the major incentive for enterprises to engage in broad-based adjustment efforts.⁴¹ Dominant market positions inherited from the pre-reform days are not in

⁴¹ Of course, privatization in Hungary is often driven by the initiative of managers and outside investors (see appendix). As a consequence, aggressive adjustment and privatization often spring from the same well, namely the interest of managers to restructure their firms. In these cases, it might seem somewhat inappropriate to give credit to privatization for providing incentives to the management. However, to conclude from this observation that privatization cannot trigger behavioral changes by itself would be to ignore two important aspects. First, the reform-mindedness of managers should not be treated as a variable exogenous to the distribution of property rights. Indeed, treating it as such would amount to disputing the relevance of property rights for economic behavior altogether. In other words, the same managers who today simultaneously pursue restructuring and privatization might not do the former if they were not allowed to do the latter. Second, upon privatization, owners become interested in the long-term value of their property. It follows that even managers who did not show much enthusiasm for reform while their enterprise was state-owned may develop such interest if they are given ownership titles. By the same token, privatization not only creates the legal opportunity but also the incentives for external owners to remove incompetent managements.

general a convincing reason to postpone or even rule out privatization. To the contrary, there is evidence that privatization may be associated with an increase in market contestability. Since adjustment efforts in state-owned firms have remained clearly less frequent than in their privatized counterparts, a widening of the performance gap between privatized and state-owned enterprises must be anticipated. From this perspective, it will be critical for the sustained success of the Hungarian reforms to further speed up the privatization process.⁴²

⁴²This assessment rests on two *ceteris paribus* assumptions. The first is that corporate governance in state-owned enterprises cannot be improved significantly. The second is that corporate governance in enterprises privatized in the future will be at least as effective as it has been in the private enterprises in our sample. Specifically, the efforts of the Hungarian government to speed up privatization by granting subsidized credit to citizens willing to invest in the shares of privatized enterprises will significantly increase the dispersion of ownership in these firms. Like in the former Czechoslovakia, we would expect financial intermediaries to take care of this problem in a spontaneous way. Yet, the effectiveness of these intermediaries in practice was untested at the time of writing.

APPENDIX:

Table A1: The structure of the economy and the sample by number of firms

	economy 1988		sample	
	absolute figure	%	absolute figure	%
number of firms	1,143 ¹⁾	100 ²⁾	39	100 ³⁾
electro-engineering	470	41.1	11	28.2
light industry	220	19.2	10	25.6
food industry	187	16.4	7	17.9
metallurgical industry	43	3.8	2	5.1
chemical industry	72	6.3	4	10.3
building materials	58	5.1	2	5.1
mining	23	2.0	1	2.6
electrical energy supply	21	1.8	1	2.6
miscellaneous	49	4.3	1 ³⁾	2.6

Notes: 1) State industrial enterprises only. 2) Errors due to rounding off. 3) This firm is involved in manufacturing, maintenance and construction activities.

Table A2: The structure of the economy and of the sample by sales

	economy 1988, %	sample, %
sales total	100	100 ¹⁾²⁾
electro-engineering	24.9	28.2 (27.6)
light industry	12.9	3.0 (3.4)
food industry	16.9	8.3 (7.3)
metallurgical industry	9.0	1.0 (2.7)
chemical industry	19.1	36.1 (32.0)
building materials	3.2	1.6 (1.4)
mining	6.3	na (6.3)
electrical energy supply	6.8	21.8 (19.3)
miscellaneous	0.9	nil (nil)

Notes: 1) First figures are calculated without correction for missing data in six cases. 2) Figures in parantheses are calculated under the assumption that missing values equal the sample average of sales in the sector concerned, and that the sample share of the mining sector concurs with the economy-wide share of that sector.

Table A3: The structure of the economy and of the sample by share in employment

	economy 1988, %	sample, %
employment total	100	100
electro-engineering	30.7	51.6 (46.8)
light industry	19.8	9.0 (9.8)
food industry	16.7	8.6 (7.3)
metallurgical industry	6.6	0.7 (1.8)
chemical industry	7.7	21.7 (18.4)
building materials	5.2	3.2 (2.8)
mining	9.0	na (9.0)
electrical energy supply	3.2	4.3 (3.6)
miscellaneous	1.1	0.7 (0.6)

Note: Figures in parentheses calculated as in table 2.

Table A4: The structure of the economy and of the sample by size classes of employment

	< 300	301 - 500	501 - 2,000	2,001- 5,000	5,001- 10,000	> 10,000
economy ¹⁾ , %	40.9	9.9	34.7	11.7	2.0	0.8
sample ²⁾ , %	11.8 (10.3)	0.0 (0.0)	47.1 (51.3)	32.3 (25.6)	5.9 (7.8)	2.9 (2.6)

Note: 1) Manual workers only. 2) Figures in parentheses calculated as in table 2.

Table A5: The Ownership Structure

number of firms	Joint stock company	Ltd	Cooperative	State Enterprise	Self-managed Enterprise	total
state-owned ¹⁾	12	5	0	5	8	31 ⁶⁾
of which						
minority private	3	2	0	0	0	5
privatized at the end of the survey period	3	1	0	0	0	4
private ²⁾	5	1	2	0	0	8
of which:						
foreign stake	3 ³⁾	1	0	0	0	4
employee ownership	2 ⁴⁾	0	2	0	0	4
other private stakes	3 ⁵⁾	1	0	0	0	4

Total ⁶⁾	17	6	2	5	8	39
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Notes: 1) Majority state ownership. 2) Majority private ownership. 3) No data in one case. 4) No data in two cases. 5) No data in two cases. 6) The column does not sum up to this total because one state-owned firm failed to disclose its legal form.

Table A6: Initiators of Ownership Changes¹⁾

	manage- ment	employees	external investors	SPA	according to law on cooperatives	no privatization efforts
total ²⁾	26 ³⁾	1	10	3	2	6
state-owned	20	1	6	3	0	6
<i>of which</i> state firm	4	1	2	0	0	0
<i>of which</i> self- managed	7	0	2	1	0	2
<i>of which</i> minority private	4 ⁴⁾	0	2 ⁵⁾	1 ⁵⁾	0	1
majority private ⁶⁾	6	0	4	0	2	0
<i>of which</i> foreign stake	3 ⁴⁾	0	2 ⁴⁾	0	0	0

Notes: 1) In addition, the founding organ was involved in three cases. 2) Frequently several initiators. 3) Legal form unknown for one case (empty shell). 4) No data in another case. 5) Foreign stake.

Table A7: Large-scale Privatization in Hungary

	1990	June 1991	December 1991	June 1992	December 1992
1. Accepted transformations					
enterprises	27	52	218	373	602
book value	26.19	53	345.07	572.46	645.5
transaction value	41.47	67.4	465.20	1,295.49	1,364.4
<i>of which</i> self- privatization					
enterprises	---	----	20	97	257
book value	---	----	1.15	9.44	28.5
transaction value	---	----	1.56	11.41	26.3

<i>of which</i> initiated by enterprises and investors					
enterprises	27	na	180	232	na
book value	26.19	na	193.49	203.98	na
transaction value	41.47	na	281.48	362.94	na
<i>of which state</i> initiated					
enterprises	---	na	18	44	na
book value	---	na	150.43	359.04	na
transaction value	---	na	182.16	921.14	na
2. transforma- tions under review					
enterprises	---	96	636	576	443
book value	---	145.9	304.47	276.22	65.8
<i>of which self-</i> privatization					
enterprises	---	---	353	336	443
book value	---	---	18.58	24.60	65.8
<i>of which</i> initiated by enterprises and investors					
enterprises	---	na	176	147	0
book value	---	na	129.70	116.10	0
<i>of which state</i> initiated					
enterprises	---	na	107	93	0
book value	---	na	156.19	135.36	0

Source: Szonda Ipsos (199!); Institute for World Economics of the Hungarian Academy of Sciences.

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