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LARGE CORPORATIONS UNDER YUGOSLAV SOCIALISM

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EXECUTIVE SUMMARY

LARGE CORPORATIONS UNDER YUGOSLAV SOCIALISM

by

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The work done under this contract is part of a broader study of the structure of large corporations under Yugoslav market socialism. This report is comprised of three parts, which eventually will be chapters 1, 4, and 7 of the completed project. Very briefly, their message is as follows:

(1) Contrary to theoretical predictions, the labor-managed economic system in Yugoslavia has produced numerous enterprises which are very large, both relative to the size of the Yugoslav economy and by international standards.

(2) The corporate structure of large Yugoslav firms allows them to achieve the transaction cost advantages of firms in capitalist systems while at the same time granting extensive autonomy to self-managed subunits of the firms.

(3) The same multidivisional corporate form which was first developed
in the United States in the 1920s and which is evident in Yugoslav enterprises is also beginning to appear in the Soviet Union and Eastern Europe. If properly implemented, this multidivisional form can reduce transaction costs and thus improve the efficiency of the Soviet-type economies.

The major contribution of the first section ("Giant Corporations in Yugoslavia") is that it demonstrates that substantial concentrations of industrial power do develop in a labor-managed system. Apparently, Yugoslav firms do experience an impetus to grow and to control a sizable portion of the market. This could be a serious problem in an economy which relies on competitive markets to ensure efficiency. On the other hand, data which deal not with whole enterprises but with autonomous subunits show an increase in number of competitors and a decrease in the variance of their size distribution. On this basis the prospects for effective competition look brighter. The critical determinant of the overall efficiency of the system will be the mix of competition and collusion among the subunits of enterprises. The evidence suggests that there is at least a moderate amount of competition among them.

The structure of Yugoslav corporations is analyzed in the second section of this report ("The Efficiency of the Organizational Structure of Large Yugoslav Enterprises"). The outstanding feature of Yugoslav enterprise structure is the extensive autonomy of its subunits, and the major question it raises is whether implementation of their principle of self-management by small work units will be costly in terms of economic efficiency; that is, are they atomizing their firms into inefficiently small fragments? The evidence shows that subunit autonomy is quite real, and hence this concern is not purely academic.
In order to evaluate the impact on efficiency, in the second section of this report I consider why firms exist at all. The analytical approach used was developed by Oliver Williamson and focuses on transaction costs. I use this approach to show that the nature of the relationship among Yugoslav divisions is such that they avoid the major obstacle to the efficient use of a market mechanism within the firm. Williamson tells us that the efficiency advantage of bringing transactions into the firm rather than leaving them to the market lies in the fact that this solves the problem of contractual incompleteness: that is, bounded rationality makes it impossible to specify contracts completely and opportunism makes incomplete contracts hazardous and possibly socially inefficient. In Yugoslavia the enterprise does not eliminate the contracts, but rather it constitutes a shell within which the market can operate with incomplete contracts. By reducing opportunistic behavior, it allows autonomous work units to relate to one another through long-term contracts despite the contractual incompleteness which is inevitable, given bounded rationality. With opportunism considerably reduced, sharing clauses can be used to allow adaptive, sequential decision making as uncertainties disappear with the passage of time. Thus, more complicated and longer-term coordination can take place.

The third section of this report ("The Significance of Yugoslav Experience for Other Socialist Countries") is designed to show that many of the problems dealt with in previous chapters are not unique to Yugoslavia. On the contrary, the same matters have been the focus of attention in the Soviet Union and the other socialist countries of Eastern Europe for much of the past two decades. While most of these countries have not yet made any fundamental change in the relationship between the center and the periphery, they have experimented with changes in the size of basic economic units and with their administrative
organizational structure. Most of the concepts of divisionalization developed in connection with large Yugoslav firms have implications which are relevant to the efficiency of the associations, trusts, kombinats, etc. which are increasingly important in the Soviet Union and Eastern Europe.

In the first part of this section I review the dramatic changes in industrial structure which have taken place in the Soviet Union and Eastern Europe and some of the conventional explanations for these changes. Then I examine their significance from the point of view of transaction costs. I argue that these changes can be viewed as first tentative steps in the direction of the multidivisional corporate structure which was adopted first in the capitalist countries and later in Yugoslavia. Like western firms, these socialist associations result from the process of weighing the cost of decision making within an economic unit against the cost of using some external mechanism. In the west that external mechanism is a market and in the Soviet-type economies the alternative to putting transactions into the firm is leaving them to the central planners. But in both cases the decision as to whether to put more transactions into the basic economic unit is largely a matter of transaction costs. An essential feature of organizational development in the Soviet Union and Eastern Europe over the last 20 years is the effort to reduce costs by creating a basic economic unit which encompasses more transactions. Similarities with organizational structures in western firms (i.e. multidivisional form) suggest that this is a step in the direction of greater overall efficiency.
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GIANT CORPORATIONS IN YUGOSLAVIA
"... forces inherent in labor-management are infinitely less likely to lead to inordinate concentrations of industrial power... and a labor-managed industrial conglomerate is as likely an occurrence as the apocalyptic beast with seven heads and ten horns."

Jaroslav Vanek

Introduction

The above quotation is the most dramatic of several statements which Vanek makes to the effect that there "is a far lesser danger of gigantism -- and a corresponding far greater likelihood of competitive conditions -- in labor-managed market structures than in just about any other economic regime." The purpose of this paper is to examine empirical evidence from the Yugoslav economy to determine whether that labor-managed economy does in fact behave according to this prediction.

We begin with a brief review of Vanek's theoretical basis for his assertion that "the equilibrium size of a labor-managed firm is considerably smaller than
that of a capitalist firm."  

Then there follows a brief discussion of the importance of enterprise size for the functioning of a market economy. The bulk of the paper consists of presentation and discussion of the empirical evidence. That evidence at first appears to be seriously self-contradictory, but the apparent confusion can be explained if we clarify what we mean by the concept of an enterprise or firm.

Theory of Firm Size

Vanek's theoretical analysis is built on the, by now well known, principle that a labor-managed firm will hire workers up to the point where the marginal revenue product of labor falls just enough to equal the average income per worker. At lower levels of labor input an additional worker would add more to enterprise income than he takes as his share of the total; thus, adding a worker would raise the income of the other workers. Conversely, at higher levels of labor input reducing the labor force by one worker would reduce total revenue by less than the income share that would have gone to that worker; thus, reducing the labor force would raise the average income of the remaining workers. An important characteristic of this optimum level of labor input is that it corresponds to the bottom of the short-run average cost curve, or what Vanek calls the point of maximum physical efficiency because it maximizes output per worker for the given fixed amount of capital.

By contrast, a capitalist "twin" with the same amount of capital might choose to hire more workers and produce more output. It will continue to hire until the marginal revenue product of labor falls to the price of labor, which, if there is excess profit being made, is lower than the income share of a worker in the labor-managed firm. That is, a declining marginal revenue product curve
will intersect the price of labor curve to the right (i.e. at a higher level of labor input and hence of output) of its intersection with the curve which represents total income of a worker who gets profit share as well as wage. That it has gone beyond the bottom of its average cost curve does not matter to the capitalist firm, which is interested in maximizing not average or marginal profit but total profit.

Vanek expands this analysis of input and output decisions to the case where the amount of capital as well as labor is variable. The concept of maximum physical efficiency now corresponds to a locus of capital-labor combinations, corresponding to the bottom points of different long-run average cost curves, representing various factor price combinations. This locus can be projected as a contour on the production function surface, where it marks the separation between the region of increasing returns and the region of decreasing returns. Just as in the case where the quantity of capital is assumed fixed, the labor-managed firm, being interested in maximizing the value of output per worker, will not expand beyond the locus of maximum physical efficiency. The capitalist firm, however, being interested in total profit, may choose to produce at an output level beyond that locus; that is, it may go beyond the minimum point on its average cost curve. In fact, the capitalist firm will operate at the bottom of its average cost curve only under perfect competition. If the price of the product and the capitalist's cost of labor are such as to allow the capitalist firm to earn excess profit, then it will choose a higher output level than the labor-managed "twin." Vanek's conclusion is that "the impetus to grow indefinitely, and thus to control a sizeable portion of the market, in the labor-managed firm can be expected to be considerably less than in the case of its capitalist equivalent."
The Significance of Large Firms

Before turning to the empirical evidence concerning the size of Yugoslav firms, we consider briefly some of the reasons for believing that firm size is important to the operation of market socialism. It is true, although perhaps not obvious, that concern with the influence of large corporations on the effectiveness of competition is no less relevant in a socialist than in a capitalist framework. Regardless of who owns the banks and the means of production and regardless of how profits are distributed, if an economy relies on market forces to ensure technical and allocative efficiency, then effective competition is necessary for proper functioning of the system. Whether the socialist firm maximizes total profit, profit per worker, or some Galbraithian maximand like size or stability, if the system is designed to rely on the discipline of competition it will work less well in the presence of large firms if they are free of that discipline. Similarly, regardless of their own optimization rules, if socialist firms learn that relatively large size confers advantages in the competitive process, then they, as well as capitalist firms, may expand beyond the size necessary to exhaust physical economies of scale in production.

While the vigor of competition is not necessarily proportional to the number of competitors, effective operation of any market system does require at least a few firms, and for a given size market the presence of larger firms means there is room for fewer others. This is particularly important in a country where the total size of markets is small.

In addition to the obvious effect on the number of competitors, there are other considerations. Hart and Prais,\(^7\) for example, discuss the influence of relatively large firms on the effectiveness of competition, emphasizing
certain advantages they have over their smaller competitors, such as easier access to capital and lower per unit costs of advertising and distribution, as well as economies of scale in direct production costs. These advantages reduce the pressures that, in the microeconomic theory of the market system, drive average cost down toward its minimum and price down toward average cost. As relative size differences decrease, however, these advantages tend to disappear. Hence, effective competition (i.e. competition that does in fact reduce the gap between price and average cost) is more likely among firms of approximately equal size. The essence of this argument is that the market mechanism works best when every firm perceives a threat that other firms will lure away customers by selling at a lower price, and that this threat is less credible to firms with cost advantages due to size. There are, of course, many other influences on price-cost margins.

The significance of large firm size for effective competition is clearest in cases where firms are large relative to other firms in a particular market -- i.e., where their size gives them a large share of a well-defined market. However, size relative to all other firms (not just those in the same industry) also has significance for the effectiveness of competition. The two most important ways in which large absolute size interferes with competitiveness involve access to capital and what is called "reciprocity." In an ideally functioning market system a firm's ability to attract capital suppliers and customers depends entirely upon the price and quality of the product or service it sells. However, banks often are more willing to lend, or to lend at a lower interest rate, to a large conglomerate simply because it is large (perhaps because banks believe that the risk is lower when the borrower is large or diversified). This puts smaller
firms or potential entrants at a disadvantage. Reciprocity refers to a situation where a division of a large conglomerate acquires customers, not because of the prices or quality of its products, but because other divisions (or customers or suppliers of other divisions) have been pressured to buy from it. For example, the U.S. Department of Justice accused Ling-Temco-Vought of pressuring General Motors to buy steel from an LTV-owned steel producer under threat that an LTV-owned car rental agency would buy its cars from Ford or Chrysler.

In a broader sense, large size (which may or may not entail a large share of individual markets) can be said to be important per se, because every firm is a potential entrant to other markets and every product competes for the consumer's dollar. Hart and Prais claim that if "large firms today control a greater part of the resources of the economy in relation to the remaining firms than they used to ... there is a prima facie case for saying that opportunities for monopolistic practices are increasing in individual industries." In the context of socialism the existence of relatively large firms raises a special problem. When economic systems are compared, certain advantages of a competitive market system over command and traditional economies are often discussed. Among them is the fact that society's output mix is more the result of impersonal forces of supply and demand, reflecting a large number of individual consumption and production decisions, than of the decisions of some relatively small group of people. This characteristic is often considered desirable in itself on political grounds (i.e., as a limitation on the concentration of power), as well as for its contribution to the efficiency of resource allocation. One of the advantages claimed for market socialism, over the alternative of centralized (or Soviet-type) socialism, is this broad dispersion of decision-
making power. As firms grow, however, they draw into themselves certain economic transactions that would otherwise be handled in a marketplace by negotiation between separate decisionmakers. In fact, Coase defines firms as "islands of conscious power" distinguished by "the suppression of the price mechanism." Similarly, Arrow defines the firm as an organization bounded by a line across which price-mediated transactions take place. Thus to the extent that growth of giant corporations replaces market forces by a hierarchical command structure, a fundamental principle of decentralized socialism is violated.

One might argue that under the Yugoslav form of socialism the principle of worker self-management so broadens the decisionmaking process within the firm that the number or relative size of firms is unimportant: each worker has a proportionate voice in the decisionmaking of his firm. However, two problems remain. First, the decisions of some workers will have a relatively greater impact on the economy than the decisions of others if sales or assets per worker are greater in large firms than in small firms. Second, while something like a market mechanism is used to govern transactions among the divisions of a single firm, with respect to other firms workers act in their collective interest -- i.e., they may collude. The economy's output mix, then, results from the production decisions of workers acting in collusive groups, rather than independently, and the number of independent decisionmaking teams may be no greater than the number of firms.
Some Empirical Evidence

Empirical data on Yugoslavia's large firms is published annually by Ekonomska Politika, a weekly newsmagazine. This equivalent of the Fortune "500" list provides data on sales, assets, and number of employees for the 100 to 200 largest enterprises in the country. The number of firms covered has increased over the years since the list was first published for 1968.14 The analysis and conclusions which follow are based on the lists for 1969 to 1978 and focus primarily on the 100 largest industrial firms and the 50 largest trade enterprises.

Tables 1 and 2 present some basic data on Yugoslavia's large enterprises which I have calculated using the Ekonomska Politika lists. From table 1a we can see that in 1978 there were fifty industrial firms which employed more than 10,000 workers each. Sixteen of these firms employed over 20,000 workers and five of them had over 30,000 workers. In the trade sector (table 1b) that year there were fifteen firms with over 5,000 employees, of which three firms had over 10,000 workers. Looking across the rows, we see that in virtually every year the number of firms above each size threshold increases, indicating a steady growth in the size of Yugoslav firms.

Tables 2a and 2b show the importance of these large firms relative to the rest of the economy. For example, in 1978 industrial firms with over 10,000 workers employed a total of 940,000 workers or 32% of the total industrial labor force. Exactly half of those workers (470,000 or 16% of the industrial labor force) worked in firms with over 20,000 employees. That year seven percent of the industrial labor force (211,000 workers) worked in firms with over 30,000 workers. In the trade sector in 1978 21% and 8% of that sector's labor force worked in firms with over 5,000 workers and 10,000 workers, respectively.
### Table 1a

**NUMBER OF INDUSTRIAL FIRMS WITH MORE THAN $x$ WORKERS**

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<thead>
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### Table 1b

**NUMBER OF TRADE SECTOR FIRMS WITH MORE THAN $x$ WORKERS**

<table>
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</table>
### Table 2a

**INDUSTRIAL WORKERS EMPLOYED IN FIRMS WITH MORE THAN x WORKERS**

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<tr>
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<td>308</td>
<td>379</td>
<td>436</td>
<td>481</td>
<td>551</td>
<td>680</td>
<td>790</td>
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</tr>
<tr>
<td></td>
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<td>17</td>
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<td>20</td>
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</tr>
<tr>
<td></td>
<td>%</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

n = number of workers (in thousands)  
% = number of workers as percentage of total industrial labor force

### Table 2b

**TRADE SECTOR WORKERS EMPLOYED IN FIRMS WITH MORE THAN x WORKERS**

<table>
<thead>
<tr>
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<td>%</td>
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<td>7</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

n = number of workers (in thousands)  
% = number of workers as percentage of total trade sector labor force
Over the 1969 - 78 decade the percentage of the industrial labor force working in firms with over 10,000 employees quadrupled (from 8% to 32%), while the percentage in firms with over 20,000 workers increased from 1% to 16%. Similar steady increases are evident in table 2b for the trade sector.

A similar picture emerges if we look at the *Ekonomski Politika* data in a different way. Figure 1a shows the share of total industrial sector economic activity accounted for by the largest fifty firms (ranked by sales). Two important characteristics are noticeable immediately: these fifty firms account for a substantial share of the industrial sector, and their share of economic activity has been rising steadily over the ten years 1969 - 78. In 1969 the fifty largest industrial firms accounted for 16% of the sector's workers, 25% of its assets, and 26% of total industrial sales. By 1978 these figures had risen to 31%, 45%, and 49%, respectively. Figure 1b shows the same variables for the entire list of 130 large industrial firms, but covers only 1972 - 78, because the list was shorter in the early years. By 1978 the 130 largest firms accounted for 48% of industrial workers, 65% of all industrial assets, and 70% of sector sales.

Figure 1c shows the largest fifty firms' share of sales, assets, and employment in the trade sector. In this case there does not appear to be the steady increases over the period which are evident in the industrial sector. While the employment and asset shares are considerably higher in 1978 (31% and 35%, respectively) than they were in 1969, their share of sales remains fairly constant, at about 34% of the sector total throughout the period.

What stands out clearly in all three parts of figure 1 is the fact that the large firms' shares of sales and assets are bigger than their shares of
employment. That is, sales per worker and assets per worker are greater for the large firms than for their respective sectors as a whole. Table 3 presents some data on the industrial firms which I calculated in order to quantify these differences. For each firm and for each year I calculated output per worker, capital per worker, and the capital output ratio. Then I calculated the average of each statistic for the 50 and 100 largest firms for each year, and took the ratios of these averages to the corresponding statistic for the entire industrial sector for that year. What is shown in the table is the average over the decade of these ratios.

For example, the table tells us that over the period 1970 - 78 output per worker averaged 73% higher in the 100 largest industrial firms than in the industrial sector as a whole. This is in part explained by the fact that capital per worker was on average 55% higher in these firms. But this is not simply a matter of more capital: their capital/output ratio averages 96% of the sector-wide capital/output ratio. Apparently, either these firms use capital more effectively or there is some input not being taken into account here.

The second row of table 3 shows that if we look at only the largest 50 firms the contrast with the whole sector is even sharper. Output per worker averages 87% greater than the sector-wide figure, and while the capital per worker statistic is even higher than for the 100 largest firms, the capital/output ratio is even better: their capital/output ratio is only 93% of the sector-wide figure. That is, the 50 largest firms average 8% more output per worker than in the largest 100 firms \( \frac{1.87 - 1.73}{1.73} = .08 \) but have only 3% more capital per worker \( \frac{1.60 - 1.55}{1.55} = .03 \) than in those firms.
#### Table 3

**SOME BASIC STATISTICS ON LARGE FIRMS RELATIVE TO THOSE STATISTICS FOR THE ENTIRE INDUSTRIAL SECTOR**

1969 - 1978

<table>
<thead>
<tr>
<th></th>
<th>output per worker</th>
<th>capital per worker</th>
<th>capital/output ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>largest 100 firms</td>
<td>1.73</td>
<td>1.55</td>
<td>.96</td>
</tr>
<tr>
<td>largest 50 firms</td>
<td>1.87</td>
<td>1.60</td>
<td>.93</td>
</tr>
</tbody>
</table>

*a Each element in the table is equal to
\[
\left( \frac{\text{average statistic over the group of large firms in year } i}{\text{same statistic for the entire industrial sector in year } i} \right) \div n
\]

where \( n \) is 9 years for the first row of the table and 10 years for the second row. Notice that by calculating a ratio for each year and then averaging, we get pure numbers and hence avoid any need to adjust for price changes.
In order to measure more precisely the relationship among capital, labor and output, I ran log-linear regressions to fit a Cobb-Douglas production function to the data. The estimated coefficients, which are significant at the 1% confidence level, are .35 for capital and .39 for labor. This is a bit surprising, since the sum of the coefficients is less than one, indicating decreasing returns to scale. How can this be reconciled with the implication of table 3 that large firms get more output from a given amount of capital and labor than the sector-wide ratios would suggest? The answer, I think, is that there are inputs other than capital and labor which are not specified in the regression equation (perhaps land or managerial skill). If other inputs were specified and data were available, quite likely the sum of the coefficients would be higher.

We have already noted that large firms account for a very substantial share of total economic activity in Yugoslavia. In fact, their share is so substantial (the 130 largest industrial firms accounted for 70% of total industrial sector sales in 1978) that if we are interested in changing relative firm sizes we must examine data on subgroups within the Ekonomska Politika list. In figure 2 I have graphed on the same pair of axes the shares of total industrial sector activity for the largest fifty, one hundred, and one hundred and thirty industrial firms. This enables us to think in terms of three subgroups, one consisting of the fifty largest firms, one consisting of the fifty-first through the one hundredth firms, and one consisting of the one hundred and first through the one hundred and thirtieth firms. The fact that the middle and upper lines on the graphs appear nearly parallel to the lower line indicates that the second and third subgroups have retained a fairly constant share of
total industrial activity while most of the increase over the decade noted earlier is attributable to the first subgroup.

Actually, while the distance between the top and middle lines on the graphs (the third subgroup's share) has remained at between five and six percent of industrial sales, assets, and employment, the distance between the middle and lower lines did increase somewhat during the period. In sales and asset terms the share of the second subgroup increased from 10% to 15% and from 10% to 14%, respectively. In terms of employment, the second subgroup's share increased during the 1970-78 period from 8.5% to 12%. These increases are smaller than the first subgroup's increases over the decade: 23% in sales (from 26% to 49% of the sector total), 20% in assets (from 25% to 45%), and 15% in employment (from 16% of the total to 31%). But they are roughly in proportion to the initial relative sizes of the subgroups. Detailed examination of the underlying data shows that the shares of each subgroup relative to the group of giants as a whole have remained quite stable. Furthermore, within each subgroup the increases were fairly uniform.

In the trade sector changes over this period were less dramatic. Figure 3 shows that the top fifty firms' share of trade sector sales remained virtually unchanged at 34% while their share of total sector assets rose from 27% in 1969 to 35% in 1978. Only in terms of employment has their relative importance increased substantially, from 12% to 31%, with much of this increase occurring in the first and last years of the period. If we divide the large firms into three subgroups (the first ten, the next twenty, and the last twenty) their relative importance in terms of total growth over the decade is much like that
seen in the industrial sector. The third subgroup consistently accounted for about 8% of sales and assets and 4% to 6% of workers, while the second subgroup showed small increases in its share of sales (from 12% to 14%), assets (from 11% to 15%), and employment (from 5% to 11%). The first subgroup's share of sales was unchanged (at 13%) but its share of sector assets increased from 8% to 13%. Its increased share of sector employment (from 4% to 14%) is the major reason for the fifty firms' substantial increase noted above.

So far I have argued that the firms on the Ekonomska Politika list account for a large and increasing share of Yugoslav economic activity. At this point it would be interesting to ask how these firms compare in size and relative importance with large firms in other countries. Since international comparisons of sales and assets encounter numerous problems of appropriate exchange rates, relative prices, and differing procedures for valuing assets, I will restrict the comparisons to employment measures of size.

One way to get some sense of the general magnitude of these firms is to consider the very largest ones and see where they would fall on the Fortune "500" list of giant American firms. Table 4 shows the five Yugoslav firms which in 1978 had over 30,000 workers. The largest employed 66,800, which would give it a rank of 45th on the U.S. list. The second largest Yugoslav firm (by employment) had 38,800, which would place it 111th on the U.S. list. The other three, with 34,000 to 36,000 workers each, would rank on the U.S. list in positions 121, 130, and 131. We can take the same five Yugoslav firms and compare their employment size with Fortune's list of the 500 largest industrial firms outside the U.S. The last column of the table shows that in this case they would rank between 69th and 140th. These fairly high rankings for 1978 are
### Table 4

**YUGOSLAVIA'S FIVE LARGEST FIRMS AS MEASURED BY EMPLOYMENT**

**1978**

<table>
<thead>
<tr>
<th>firm</th>
<th>workers</th>
<th>rank (by employment) among Fortune's 500 largest U.S. firms</th>
<th>rank (by employment) among Fortune's 500 largest non-U.S. firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Šipad (wood products)</td>
<td>66852</td>
<td>45</td>
<td>69</td>
</tr>
<tr>
<td>Crvena Zastava (motor vehicles)</td>
<td>38774</td>
<td>111</td>
<td>122</td>
</tr>
<tr>
<td>Rudarsko Kombinat Zenica (mining-metallurgy)</td>
<td>36124</td>
<td>121</td>
<td>135</td>
</tr>
<tr>
<td>Energoinvest (conglomerate)</td>
<td>34634</td>
<td>130</td>
<td>139</td>
</tr>
<tr>
<td>Makedonija (agroindustrial)</td>
<td>34296</td>
<td>131</td>
<td>140</td>
</tr>
</tbody>
</table>
quite consistent with some early work done by Rockwell and Pryor, both of whom found Yugoslav firms to be large by international standards.\textsuperscript{16}

It is difficult to find comparable data which allow us to make international comparisons of the relative importance of large firms in different countries. In table 5 I have gathered together a collection of miscellaneous pieces of information dealing with different numbers of large firms. These allow us to make seven separate comparisons of Yugoslavia with one or two other countries. In six of these comparisons the share of the large firms is higher in Yugoslavia than in the other countries. In the other comparison we see that Yugoslavia's fifty largest firms have the same share of total social sector employment as Sweden's fifty largest firms have of total private sector employment.

There is some question about the appropriateness of comparing Yugoslav concentration figures for 1978 with figures for other countries for the early 1960s. Indeed, if we were to use earlier Yugoslav data we would get quite different results. But Pryor claims that in other countries "the share accounted for by the largest enterprises does not show a general pattern of increase,"\textsuperscript{17} while in Yugoslavia the increasing trend is unmistakable. The very point to be made here is that by 1978 Yugoslavia had exceeded the level of aggregate concentration characteristic of developed capitalist countries in the early 1960s. Whether there have been significant changes in the capitalist countries since then is a matter of some debate, but in any case not of great importance here. Of course, we should keep in mind that the total size of the Yugoslav economy is smaller than those it is being compared with. If Pryor were correct in suggesting a negative relationship between the size of the domestic market and the degree of concentration, then we might expect the share of the
Table 5

AGGREGATE CONCENTRATION IN SEVERAL INDUSTRIALIZED COUNTRIES

<table>
<thead>
<tr>
<th>number of firms</th>
<th>country</th>
<th>share of total industrial employment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>United States</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>20</td>
</tr>
<tr>
<td>33</td>
<td>United States</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Germany</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>24</td>
</tr>
<tr>
<td>37</td>
<td>United States</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Japan</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>26</td>
</tr>
<tr>
<td>50</td>
<td>Norway</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>31</td>
</tr>
<tr>
<td>50*</td>
<td>Sweden</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>20</td>
</tr>
<tr>
<td>53</td>
<td>United States</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>United Kingdom</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>31</td>
</tr>
<tr>
<td>100</td>
<td>Germany</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>United States</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Yugoslavia</td>
<td>43</td>
</tr>
</tbody>
</table>

*The figure for Sweden is the share of total private sector employment, which we compare in this case with the Yugoslav figure for share of total social sector employment.

Source: the Yugoslav data are calculated from the Ekonomska Politika lists. Data for most other countries are from Scherer, Industrial Market Structure and Economic Performance (Chicago: Rand McNally, 1970), pp. 40, 44, and 45. The figures for Norway, Sweden, and Germany (100 firms) are taken from Pryor, op.cit., p.183. Data are for 1978 for Yugoslavia and for 1963 for all other countries except Norway (1948), Sweden (1964), and Germany (100 firms) (1961).
giants to decline as the Yugoslav economy grows. However, these data do not support that hypothesis.

Some Different Empirical Evidence

The empirical evidence presented so far was calculated from the Ekonomsk Politika lists of large firms. We turn now to a different source of information about the size of economic units in the Yugoslav economy, the Statistical Yearbook. Table 6 shows that during the six-year period 1971-77 the total number of economic units doubled. In the industrial sector the number more than tripled, after having held constant between 2350 and 2800 since 1960.

This is surprising, given our earlier evidence and an impression from the Yugoslav press that mergers are quite common. We would expect to find that the total number of firms has declined as the larger firms absorbed smaller ones. Nonetheless, the fact of a substantial increase in the number of economic units does not in itself necessarily conflict with the implication of the Ekonomsk Politika data that large firms are playing an increasingly significant role in the economy. We could imagine that the additional units are mostly at the small end of the size distribution and cumulatively do not account for much economic activity. Indeed, in figure 4, which shows for selected years size distributions for the economic units in the Statistical Yearbook data, it is clear that the largest increases in numbers of units have been in size categories three through six. Because of the way the Statistical Institute defines the size categories, these units are quite small (between 30 and 500 workers) compared to the enterprises on the Ekonomsk Politika lists.

At the same time there has been some decrease in the number of units in the largest two size categories (those with over 1000 workers). Again, this is
Table 6

TOTAL NUMBER OF ECONOMIC UNITS

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>total economy&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11817</td>
<td>11100</td>
<td>11102</td>
<td>12583</td>
<td>13119</td>
<td>14933</td>
<td>21414</td>
<td>22109</td>
<td>22929</td>
</tr>
<tr>
<td>industrial sector&lt;sup&gt;b&lt;/sup&gt;</td>
<td>2435</td>
<td>2374</td>
<td>2398</td>
<td>2773</td>
<td>3217</td>
<td>4100</td>
<td>6495</td>
<td>7320</td>
<td>7731</td>
</tr>
<tr>
<td>trade sector&lt;sup&gt;c&lt;/sup&gt;</td>
<td>3132</td>
<td>2901</td>
<td>2968</td>
<td>3683</td>
<td>3689</td>
<td>3881</td>
<td>5423</td>
<td>5150</td>
<td>5269</td>
</tr>
</tbody>
</table>

<sup>a</sup>Does not include the private sector
<sup>b</sup>Includes mining
<sup>c</sup>Includes catering and tourism

Source: Statisticki Godisnjak Jugoslavije for the years 1971 through 1979. In each yearbook there is a section titled "Opsti pregled privrednih delatnosti" from which these data are taken.

Table 7

RELATIVE SIGNIFICANCE OF INDUSTRIAL SECTOR ECONOMIC UNITS WITH OVER 1000 WORKERS

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>share of total industrial sales (%)</td>
<td>63</td>
<td>64</td>
<td>65</td>
<td>63</td>
<td>29</td>
<td>50</td>
<td>24</td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>share of total industrial assets (%)</td>
<td>63</td>
<td>62</td>
<td>57</td>
<td>52</td>
<td>42</td>
<td>24</td>
<td>19</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>share of total industrial empl. (%)</td>
<td>60</td>
<td>61</td>
<td>63</td>
<td>61</td>
<td>57</td>
<td>46</td>
<td>22</td>
<td>19</td>
<td>16</td>
</tr>
</tbody>
</table>

Source: calculated from data on size distributions in Statisticki Bilten numbers 695, 734, 769, 825, 883, 955, 1025, and 1080 and Statisticki Godisnjak Jugoslavije 1979, p. 259
surprising but not logically inconsistent with the increasing relative importance of large firms. We would have expected, on the basis of the Ekonomska Politika data, to find an increasing number of firms in the largest size categories, but mergers among the giants could explain the decrease in their number while still allowing them to account for a growing share of total economic activity.

The only thing that could definitely contradict the implications of the Ekonomska Politika data is a measure of the aggregate relative weight of the units in the largest size categories. Such data are not available for the trade sector nor for the entire social sector but they are available for the industrial sector. Table 7 presents aggregate sales, assets, and employment data for the sum of all firms in size categories 8 and 9 (i.e. for all firms with over 1000 workers). The data are given as percentages of the total industrial sector. Now the conflict with the Ekonomska Politika implications is undeniable. Whether we look at sales, assets, or employment, units with over 1000 workers account for a sharply declining share of total industrial activity. The downturn begins in 1972 or 1973 and by 1977 their share is about a quarter of what it had been in 1969. By 1976 the figure for employment is lower than the corresponding figure for any of the 9 western countries or 7 eastern countries studied by Pryor, except Portugal.

Reconciling the Conflict

How is it that two sources of data lead to such opposite conclusions, one suggesting that large firms are increasingly important and the other suggesting that they are of diminishing significance? The answer is that they are measuring different phenomena. Ekonomska Politika has consistently dealt with what is regarded in the business world as an enterprise or firm. This reflects
the view common among Yugoslav businessmen that the firm is a meaningful economic unit and is appropriate for statistical analysis, despite the emphasis which the constitutional amendments of 1971, the new constitution of 1974, and the Law on Associated Labor of 1976 have placed on the autonomy of the subunits of enterprises. The Federal Statistical Institute, on the other hand, has shifted its statistical focus onto the subunits of enterprises. Beginning with 1972 they treated as separate statistical units those enterprise divisions which had the status of a legal person, and beginning in 1973 their "number of units" refers to Basic Organizations of Associated Labor, or BOALs which is the official term for the divisions of enterprises. Only in cases where an enterprise is not structured as a collection of BOALs does the Statistical Institute count the entire enterprise as a single statistical unit. 19

Thus what we see in table 6 is not an explosion in the number of firms, as that word is normally used by both Yugoslav and western businessmen. (In Yugoslavia the term poduzeća (enterprise) has been replaced by other terms, usually radna organizacija, but the concept of the firm remains important.) Rather, what is happening is an active implementation of the process of divisionalization which was mandated by various legal changes of the 1970s. There is no reason to doubt that this process could occur simultaneously with the increasing relative importance of large firms which is indicated by the Ekonomski Politika data. The two trends are logically quite compatible.
Conclusion

The substantiation or refutation of Vanek's predictions depends entirely on which body of data we point to. If we think in terms of the traditional firm, that is, a cohesive body which generally acts as a single unit, or at least as a collection of units which act collusively, then it is the Ekonomska Politika data which seem appropriate. In that case the behavior of the Yugoslav economy does not support his analysis. There have developed what one might reasonably call "inordinate concentrations of industrial power" and conglomerates are considerably easier to find than the apocalyptic beast with seven heads and ten horns. The danger of gigantism is very real and competitive conditions could be said to be deteriorating as the discrepancy in size between the largest firms and the others increases. An impetus to grow and to control a sizeable portion of the market is apparent.

On the other hand, if we think in terms of a different economic unit, the division which recently has dramatically increased its importance and autonomy, then it is the Statistical Institute's data which we should rely on. In this case the behavior of the Yugoslav economic system does indeed support Vanek's predictions. There has been a sharp increase in the number of actors and a decrease in the variance of their size distribution. The very strong movement toward economic units of under 500 workers, each with a homogeneous type of activity, is undeniable.

It is impossible to say which of these two is the "correct" way to analyze structural changes in the Yugoslav economy, and hence it is impossible to say whether or not Vanek was right. But we might consider further the likely implications for the viability of competition in Yugoslavia. Certainly if we
focus on the Statistical Institute data on divisions, the prospects for effective competition are promising. But even if we focus our attention on the Ekonomskaja Politika data the prospects are not bad. First of all, it is important to remember that the increasing discrepancy in size is between the group of 100 or 130 giants taken as a group and the rest of the economy. Within the group of giants (which collectively account for 36% of total employment in the economy), relative shares have remained fairly stable. Competition within this large segment of the economy shows no sign of lessening over time.

Even more important for the effectiveness of competition in the Yugoslav labor-managed economy is the nature of these corporate giants. Mergers are common in Yugoslavia (in 1975 there were 72 mergers in the industrial sector alone). The question is what is the nature of the relationship among the constituent components of the merged firm? If divisions continue to maintain their identity and autonomy, then competition may not be significantly reduced. Indeed, competition among divisions within a single firm is often quite keen (e.g., among the divisions of the Zagreb Brewery). Whether the merger is vertical, as when a Slovenian food processor merged with a chain of supermarkets to take 29th place on the list of giants, or horizontal, as when three makers of liquor and confections merged to take 42nd place, there is the possibility of continued competition. If these supermarkets are not forced to buy all of their vegetables from a sister division, if the divisions making various brands of cognac continue to try to outsell one another, then the economic discipline of competition need not significantly diminish.

There is some evidence that there is at least the possibility of continued competition. Data are available on the number of producers for each of several hundred specific industrial products. Of the 410 items which are identically
listed in both 1969 and 1977,12 162 had an increase in the number of producers, 141 had a decrease, and for 107 products there was no change in the number of producers. These are figures one would expect from a normally dynamic market economy. Certainly there is no evidence of a decline in the number of potential competitors. That is, mergers have not led to a general disappearance of competitors. This is consistent with Vanek's assertion that in a labor-managed oligopoly "market structures will tend to be more competitive than in the capitalist situation."23 But the question of conduct, as opposed to structure, depends on whether the divisions are autonomous decision makers and whether they collude.

We conclude with a few words regarding why these two types of structural changes are occurring. The increase in numbers of divisions (BOALs) is clearly a response to political decisions incorporated into major pieces of legislation adopted during the 1970s. Thus a full explanation requires an analysis of political forces rather than of the logic of the theory of the labor-managed firm. The other major change, the increasing relative importance of large firms, is probably to be explained by the economic benefits which accrue to those workers whose firms become large. When a group of divisions merge to form a large enterprise they not only begin to acquire some control over the price of their product, but they also improve their access to capital. Perhaps if the Yugoslav banking system were better able to estimate future profits of borrowers (or if it were replaced by a financing scheme proposed elsewhere by Vanek), then this would not be the case. But at present in Yugoslavia the fact is that large firms do have easier access to capital, and this is likely to be a powerful incentive for the growth of large firms.
FOOTNOTES


2. Vanek, General Theory, p. 119

3. Vanek, General Theory, p. 105


5. If the firm has some monopoly power it will stop expanding before reaching that locus, i.e. within the range of increasing returns.

6. General Theory, p. 34


9. Hart and Prais, op. cit., p. 152


13. This concern is more prominent in socialism but not unique to it. The famous study by Adolf Berle and Gardiner Means, The Modern Corporation and Private Property, rev. ed. (New York: Harcourt, Brace and World, 1968) is an example of concern about concentration of power in a capitalist system.
During these years the number of industrial sector firms listed was 53 in 1969, 100 in 1970 and 1971, 130 for 1972 through 1977, and 140 in 1978. The number of trade sector firms is 50 for all ten years. The industrial sector is defined very broadly and includes large-scale agriculture, forestry, and construction, as well as manufacturing and mining. The trade sector includes tourism and catering (mainly hotels) as well as wholesale, retail, and foreign trade.

The standard form of the Cobb-Douglas production function is \( Y = A K^\alpha L^\beta \), where \( Y \) is output, \( K \) is capital, and \( L \) is labor. Taking logs of both sides yields \( \ln Y = \ln A + \alpha \ln K + \beta \ln L \), which can be estimated using a standard least squares regression technique. In order to avoid the need for price adjustments, I ran a separate regression for each of the ten years and averaged the results. Each year except the first had 100 or 130 observations.


Just when they started to count divisions instead of enterprises is not entirely clear. Until 1972 data on number of enterprises was published in Statistički Godišnjak Jugoslavije under the column heading "Ukupan broj privrednih organizacija" (total number of economic organizations). Beginning with the data for 1972 (which appeared in the 1974 Yearbook), the column heading has been "Broj jedinica" (number of units), and a footnote has specified that what are being counted are OOURs (i.e. BOALs) and those OURs (work organizations or enterprises) which are not broken up into OOURs. For the 1977 data (i.e. the 1979 Yearbook) the footnote has been dropped. However, the following paragraph, taken from Statistički Bilten, number 1086, titled "Industrija 1977"("Clarifications and notes," pp.7 and 8), suggests that the change was several years later. In the hope that it may be of some help to other researchers, I have translated the entire paragraph:

Radna organizacija was the basic statistical unit through 1974. All data related to the organization as a whole, without regard to whether some of it had territorially separate units (pogone) or a large number of different activities. ... Beginning with 1975 the statistical system was adapted to the forms of associated labor, and in place of radna organizacija (previously preduzeca) [i.e. enterprise], the OOUR became the basic statistical unit (jedinica). However, although for 1975 the data were collected by OOUR, in order to be comparable with data for earlier years, they have in processing been reduced to the level of the former radna organizacije. Data for 1976 and 1977 are processed according to the activities of the OOUR and not according to the activities of the radne organizacije.

It should be kept in mind that during these years most enterprises were in the process of restructuring themselves in order to meet the requirements of the new laws which encouraged increased divisionalization. Thus during the middle years of the 1970s both the counting method and the items being counted were in a process of change.
20. For a discussion of the extensive autonomy of the divisions of the Yugoslav firm see Sacks, "Divisionalization in Large Yugoslav Enterprises," J. of Comparative Economics, June 1980

21. This 36% figure is found by dividing the total number of workers in the 130 industrial firms plus the 50 trade firms (1,621,215 in 1978) by the total number of workers in both the social and private economic sectors (4,461,000 in 1978). However, Yugoslav statistics on workers do not include those who are self-employed. In data on industry and trade the difference is negligible, but if we are interested in the total economically active population we should recognize that nearly 3,000,000 private agricultural "workers" are not being counted.

22. Statistički Bilten, numbers 627 (August 1970) and 1086 (June 1978), both titled "Industrija."

23. General Theory, p. 123
THE EFFICIENCY OF THE ORGANIZATIONAL STRUCTURE
OF LARGE YUGOSLAV ENTERPRISES
Introduction

In industrial organization literature an assumption is sometimes made that new institutional forms are always more efficient than those they replace; indeed, it is argued that we can learn what is efficient by watching what evolves. But in Yugoslavia, where the organizational structure of corporations results not from an unrestricted search for efficiency but from decisions based at least in part on political ideology and expediency, such an assumption is unwarranted. Instead, we must carefully examine the changes and analyze the likely outcomes.

A fundamental principle which underlies the philosophy of the entire Yugoslav economic system is that wherever possible small work units are to be organized as separate, independent entities. As I have shown in the previous chapter, this principle goes beyond the independence of enterprises from central control, and establishes the independence of divisions within the enterprise. Within the firm a modified market mechanism is to be used rather than a command hierarchy. Even planning is to be done by joint decision among equals.

In this chapter we consider whether this divisionalization of Yugoslav enterprises reduces efficiency by defeating the very purpose of creating firms. In order to answer this question, it is necessary to consider why firms exist at all. We shall see that the nature of the relationship among Yugoslav divisions is such that they avoid the major obstacle to the efficient use of a market mechanism within the firm.

The analytical approach used in this chapter is based on Oliver Williamson's book Markets and Hierarchies: Analysis and Antitrust Implications in which "the transaction is the ultimate unit of microeconomic
This approach is particularly appropriate in the study of an economic system in which the very nature of the enterprise is undergoing a fundamental transformation.

One of the things that makes the study of the Yugoslav economy so interesting is the fact that while some of its characteristics are those of the textbook capitalist economy, some are quite different. Application of standard neoclassical analysis leads to some standard results (e.g., non-labor inputs are used up to the point where marginal cost equals marginal value product) and some surprising results (e.g., supply elasticity may be very low or even perverse). Similarly, application of Williamson's transactional analysis to Yugoslav institutions leads to a number of interesting similarities and contrasts with capitalist economies. Virtually all of the interesting results which come out of neoclassical analysis of the Yugoslav economy are ultimately traceable to the assumption that the firm maximizes profit per worker rather than total profit. From the point of view of Williamson's approach, the interesting results are ultimately dependent on the extraordinary autonomy of the subunits of the Yugoslav enterprise.

Theory of the Firm

We begin with a brief theoretical explanation of why firms exist at all, and then proceed to apply this explanation to Yugoslav firms. Williamson and others have argued that in principle all economic activities could be market coordinated, with every individual related to every other by market transactions. Even in the classic case of the blast furnace and rolling mill, where cost depends heavily on keeping the steel hot, one could imagine adjacent but independent enterprises concluding a contract in which one is committed to delivering to the other the hot molten steel. Indeed, we have actual
examples of what might be considered extraordinarily extensive use of the market mechanism in Stigler's description of early nineteenth century gunsmiths in London and Buttrick's description of the "inside contract system" at the Winchester Repeating Arms Co., also late in the nineteenth century. Both involved independent firms performing a series of closely related but technologically separable tasks. At the Winchester Co. the autonomous producers of various parts were even under the same roof and yet bought and sold among themselves and outsiders at market prices.

Why then are some transactions brought inside the organizational structure of the firm? Coase argued that the answer is that under certain circumstances the cost of market transactions is high, and Williamson's approach is essentially an elaboration of this explanation. The costs of market-governed transactions include (1) information costs (finding potential partners and conveying prices), (2) negotiation costs, including drawing up contracts, and (3) enforcement costs, including the inspection needed to ensure that the terms of contracts are being met. Williamson emphasizes that these costs might be relatively small were it not for the fact that in a changing world they must be borne over and over again. In his terminology market contracts encounter two types of problems which together justify the existence of firms, i.e., the by-passing of the market: bounded rationality and opportunism.

Bounded rationality is a human characteristic. Specifically, it refers to the limit to people's ability to absorb and process information, which is the essence of decision making. In relatively simple circumstances this limit poses no significant problem, and coordination of activities between independent economic actors is achieved through market transactions. However, in a world of complexity and/or uncertainty, market transactions become more
difficult and hence more costly in terms of the effort necessary to conclude unambiguous contracts. A complex set of activities may be difficult to describe precisely in writing. Uncertainty requires elaborate contingent claims contracts which specify the rights and obligations of all parties in each possible state of the world. In such cases, bounded rationality makes it difficult, if not impossible, to write the contracts which could in principle be made between independent economic actors. Specifying the full range of contingencies would be, if not impossible, then prohibitively costly.  

In the simple world of tic-tac-toe it is fairly easy to specify in advance the full decision tree, but in the complex world of chess, while theoretically conceivable, it is in practice impossible to specify the tree. Often economic activities are more like chess than they are like tic-tac-toe; hence coordination by market transactions is costly. Suppose, for example, that a firm which is buying a component from another firm asks for a minor design change which becomes appropriate because of unforeseeable external circumstances. From the point of view of social efficiency, the change should be made if the increased costs to the supplier (including any transition costs) are more than offset by the resulting increased earnings of the buyer. If this is the case, it should be possible to fully compensate the supplier for his higher costs. The problem is that the change could not have been foreseen and hence could not be specified in the contract. Therefore, the decision to make the change and the price for the modified component must be negotiated. The cost of those negotiations may swamp the potential gain and hence either the design change is not made or it is made but the gains are dissipated in the form of transactions costs.

In cases of complexity or uncertainty it may be more efficient to postpone specifying the exact obligations of each party (e.g., any possible design
changes in intermediate products) until the passage of time reveals which states of the world obtain. This can be done within firms where an adaptive, sequential decision-making process ("cross your bridge as you come to it rather than crossing all possible bridges you might conceivably come to") is used without the need to reconcile divergent interests nor to renegotiate contracts. The only contracts which need be written are the much less specific agreements to merge or to establish an employer-employee relationship. Thus transactions costs are reduced below what they would be in the marketplace.

Another advantage of internal organization over market coordination in a world of complexity concerns communication. Within the firm there is likely to develop an efficient jargon or code which economizes on bounded rationality by conveying a lot of information at relatively little cost. Communication is, of course, possible between firms, but the need for legally binding preciseness will often raise the cost of transmitting a given amount of information.

The other major reason for integrating technologically separable activities into a single enterprise is to avoid problems of opportunism, which Williamson defines as selfishness combined with dishonesty in making and honoring contracts. In any market transaction opportunism creates the danger that one or both parties will (1) engage in strategic manipulation of information, (2) misrepresent intentions, or (3) attempt after a contract is concluded to extract further benefits. The social cost of opportunistic behavior (either actual or merely the perceived possibility of such behavior) may be substantial: resources are devoted to negotiating and enforcing contracts, higher levels of inventories may be kept, and there may be duplication of facilities. Because of these costs, some market transactions are viewed as hazardous by the participants, and this explains why some firms choose vertical integration over market transactions.
It should be clear that this problem is not significant as long as both sides have numerous alternative business partners to deal with. If so, any opportunistic behavior will result in customers and/or suppliers switching to other business partners, so only firms with a very short time horizon will act that way. Only in an environment of what Williamson calls small-numbers exchange, is opportunism a serious problem. However, once contracts are made and business relationships are developed, the parties to a transaction acquire familiarity, valuable experience, and specific capital which give them important advantages over otherwise similar firms. Thus, what had been a situation of many equivalent alternatives can rapidly turn into an environment of small-numbers exchange.

Strategic manipulation of information results from what Williamson calls information impactedness, a situation where relevant information is available to some parties to a transaction but not to others. Those who don't have the information can get it only at high cost, if at all. Under circumstances of information impactedness, the possibility of opportunistic behavior may make an economic unit reluctant to rely on the market mechanism. Suppose, for example, a firm contracts for the production of some component with another firm whose knowledge of appropriate materials and technology exceeds its own. As prices and availabilities of substitutable inputs change, decisions must be made about whether or not to adjust input proportions, which in turn may or may not affect functional characteristics of the component. But the firm producing it may manipulate the relevant information: for example, it may not call attention to a price reduction of an input or to a superior (perhaps newly available) material or process. In an environment of small-numbers exchange (i.e., very few potential suppliers) the buyer may end up with a product which is in some way non-optimal or may pay a price which exceeds what its own cost of production would be.
Misrepresentation of intentions is another possible result of the self-seeking attitude of participants in a marketplace. A firm may enter a contract knowing that it will not fully meet the expectations of its partner, possibly by not living up to implicit expectations. For example, a buyer may exaggerate the magnitude and stability of his anticipated future demand for some intermediate product. This may lead a supplier to make long-term investments which prove to be unprofitable.

Another manifestation of what Williamson calls misrepresentation of intentions is the problem of verifying the quality of intermediate products. In some cases the difficulty of doing so is the reason vertical integration is chosen rather than contracts between independent firms. A variation on this point is given by Alchian and Demsetz (1972). They suggest that some activities are inherently unmeasurable and hence transactions involving them cannot be governed by a market. They argue that when total production is greater than the sum of individual outputs efficiency requires team production. The firm, then, comes into existence when it is impossible (or very costly) to measure the contributions of cooperating inputs. The essential function of the firm is the "monitoring" of the activities of those inputs. Their analysis is most directly applicable to labor inputs, but they also show that vertical integration might occur when it is difficult to "meter" output for any reason, e.g., when there is no inexpensive way to measure the productivity of the producer of an intermediate good. For example, in order to insure high quality in the production of transistors it might be more efficient (i.e., cost less) to supervise production (i.e., monitor input behavior) than to test the output. Hence a radio assembler may find it desirable to merge transistor production into his own operations.

The problem of post-contractual opportunistic behavior is most clearly presented by Klein, Crawford and Alchian. They argue that an asset may be
worth more to one user than to another, even if the use is the same. The difference between its value to the present user and its value to the second-highest-valuing user is a potentially appropriable quasi rent. Conflict over that quasi rent, or fear of such conflict, may induce the integration into a firm of activities which otherwise would be coordinated by market contract. 

The problem arises from the fact that once investment has been made in an asset which is not easily moved or is very task-specific or is needed in a hurry, it may be very costly to the owner and/or user to find another buyer and/or supplier. If so, either may threaten to cancel the contract unless the price is adjusted in its favor. For example, most firms are willing to rent or lease the box cars needed to ship their goods. If a supplier tries to force the price above the previously agreed upon market price, the shipper can look for another firm with which to do business. However, if the goods are perishable, the disruption may be very costly. Consequently, most meat packers own their own refrigerator cars. It could as well be the buyer who attempts to appropriate the quasi rent of a contract partner. While computer manufacturers are willing to rent their product to users, makers of refinery equipment are not. This is because IBM can much more easily move its product to another customer who values it as highly; that is, a user's threat of contract cancellation is not a powerful lever in any price renegotiation. 

Obviously, refinery equipment is much more specialized and much less easily moved. The same argument explains why firms lease office furniture, airplanes, and cars, but not elevators or bank vaults. Similarly, auto makers contract for the supply of headlights and tires, but not body shells. If an independent firm were to contract to deliver Mustang fenders to Ford and made the necessary investment in dies to stamp the fenders, then both sides would face the danger of an effort to appropriate quasi rent. The independent firm's
investment costs are sunk and are of little value to any buyer other than Ford. Hence it faces the danger that Ford will insist on a lower price. Conversely, because of the sales loss it would suffer while looking for another supplier and waiting for the making of new dies, Ford is vulnerable to a demand for a higher price. The same concern for timeliness explains why newspaper publishers, unlike book publishers, usually own their own printing presses.

Taken together, the possibility of these various types of opportunistic behavior explains much of the actually observed integration of separable activities. Within the firm these problems of opportunism are reduced for three reasons: (1) it is difficult, if not impossible, for divisions to suppress or falsify information; (2) after integration more effective mechanisms exist for settling disputes and for punishing selfish behavior; and (3) the parties to the transactions would not be able to claim for themselves the increased profits which would come from opportunistic behavior and hence have little incentive to engage in such behavior.

Transactional Efficiency of Yugoslav Divisionalization

The essence of Williamson's argument is that it is efficient to bring some transactions inside the enterprise because bounded rationality and opportunism make market transactions costly. The major question to which we now turn is whether the extensive subunit autonomy characteristic of Yugoslav enterprises interferes with that efficiency. That is, how costly is the Yugoslav decision to negotiate transactions which capitalist firms have, for good reason, assigned to administrative decision making?

At the outset it should be clear that transactions between subdivisions of a Yugoslav firm do not exactly fit either of Williamson's two categories.
They are neither the pure market transactions which involve exchange between totally autonomous entities, nor the hierarchical exchange in which "a single administrative entity spans both sides of the transaction, some form of subordination prevails, and, typically, consolidated ownership obtains." Rather, they are a hybrid with some characteristics of each: the transaction is between largely autonomous divisions which are nonetheless part of a single entity which spans both sides of the transaction. Inter-divisional negotiations result in two types of contracts. The more general "self-management agreement" sets out the basic operating rules governing income distribution, planning procedures, and marketing and investment strategies. The more detailed annual plans specify the prices and quantities of goods and services to be traded within the enterprise. In more tightly knit enterprises central management is able to implement unified strategies and procedures. In others the sense of solidarity and reciprocity is weaker and the center exercises less control. But the law requires that in all enterprises final authority rests with the divisions, which must approve all contracts, both the general and the specific. Thus, in every case the process is essentially one of negotiation among separate units. Only in so far as each is legally bound by decisions jointly made is there subordination to the center. The concept of consolidated ownership does not apply since technically it is the divisions not the enterprise which own all assets. There may, however, be a consciousness of joint control over property.

In these circumstances how appropriate is Williamson's claim that bringing technologically separable activities into the enterprise economizes on bounded rationality? If two distinct activities are brought into the Yugoslav firm, does that reduce the cost of transactions between them? The answer to this question is not clear. Since Yugoslav law requires that distinguishable
activities be constituted as separate divisions, and since no higher authority can impose prices, quantities, conditions, etc. on transactions between them, they will still have to bear some of the costs of market transactions. Most important, the costs of periodically negotiating a price remain. This is true even in those cases, discussed in the previous chapter, when the major function of transfer prices is income redistribution. Further, their freedom to buy and sell outside the firm means divisions will incur the expense of finding potential partners and conveying prices. Even if the divisions were to restrict themselves to dealing within the firm, and thus were spared the costs of frequently searching the marketplace for partners, at contract renewal time the divisions are likely to do a certain amount of market searching, if only to get a benchmark for the internal price. Thus, the cost of transactions between divisions does not at first appear to be lower than that of transactions between independent firms.

However, others have argued that in some respects long-term contracts are equivalent to merger. Perhaps in this way divisions of Yugoslav firms get some of the benefits of merger while retaining their autonomy. Before discussing these arguments, it should be made clear that their implications for transactions costs in the Yugoslav firm are not unambiguous. For one thing, inter-divisional contracts, at least those which specify prices and quantities, often are not longer-term than inter-firm contracts (although normally there is a presumption that they will be renewed). And even if they were, some of the arguments would be just as appropriate for long-term business partners which are not part of the same firm as for those which are sister divisions. That is, the fact of bringing two activities into the Yugoslav firm, in and of itself, seems not to increase transactional efficiency. Further, while it can be argued that the longer the period covered by a contract the lower are the
average transactions costs of coordinating those activities (i.e., the transactions costs are spread over a greater volume of goods or services), there is also the possibility that longer-term contracts will have to deal with more uncertainty and hence may be more difficult (costly) to negotiate.

Given these qualifications, the arguments that long-term contracts are equivalent to merger are still worth considering. For example, Kessler and Stern argue that "contract integration" is an alternative to "ownership integration" as a means of achieving vertical coordination. "Contractual arrangements aimed at coordinating the supply of materials or disposal of output frequently affect the contracting firms, as well as the rest of the industry, in much the same way as ownership of suppliers or outlets does." Indeed, in many cases American antitrust law treats certain types of contract (e.g., requirement, whole output, exclusive dealing, franchise, consignment, and agency agreements) as forms of vertical integration.

Kessler and Stern illustrate a typical American business viewpoint by quoting from a text for purchasing agents:

Successful subcontracting ... regards the operations of the supplier as part of a continuous process, leading up to and including the operations in the buyer's own plant ... So far as the subcontracts are concerned, the supplier's operations are a part of his customer's operation, even though they are carried on under a different roof and a different management.

Representative of this attitude is General Electric, which is known to be especially thorough in coordinating the activities of its subcontractors. It sometimes helps them tool up and often provides them with technical assistance. In many cases GE finds that a long-term contract achieves all of the benefits of outright ownership.

This type of closeness in the relationship between contracting partners strengthens the effectiveness of contract integration in Yugoslav firms. The specific knowledge which comes from long experience reduces negotiation costs
and facilitates efficient communication. Also, in so far as they expect to maintain long-term business relations, their costs of searching for partners may be reduced.

There is one other consideration which may be more important than any mentioned so far. That is the "good will" which encourages businessmen to run the risk of contractual incompleteness rather than bear the higher transactions costs of complete specification. While this may be relevant to inter-enterprise relations as well, it is especially important within the Yugoslav firm. What the Yugoslavs call "solidarity" within the enterprise may substantially lower transactions costs between divisions. This brings us to the fundamental difference between a long-term contract and merger: the former usually does not allow the adaptive, sequential decision making which economizes on bounded rationality. If Yugoslav divisions not only retained their autonomy, but also agreed in advance on everything that each is obligated to do, they would not benefit from the reduced transactions costs of administrative decision making. But could we not argue that within the enterprise "family" contracts do not necessarily have to specify the full range of contingencies; that, in the absence of complete specification, problems of divergent interests can somehow be reconciled? As long as no higher authority can impose a settlement on a dispute, unforeseen circumstances would seem to require costly haggling and possibly socially inefficient behavior. But is it not possible somehow to write the original contract so as to avoid reopening the negotiations? Certainly any specific changes which may be foreseen can be settled in advance and written into the contract. But the problem of bounded rationality is just that many changes cannot be foreseen. Can there not be some general scheme for adapting to changes without encountering further transactions costs? Williamson suggests a solution and then argues
that it won't work. Perhaps in the Yugoslav environment it will. Indeed, it can be argued that the Yugoslav enterprise's self-management agreement is exactly the solution Williamson seeks.

Suppose a contract specifies that if any proposed change will raise joint profit then the net increase in total profit will be divided between the divisions in proportions specified in the contract. In this case both divisions will have an incentive to go along with any change which is in the interests of the firm. There is in fact some evidence that this will lead to joint profit maximization and a Pareto optimal allocation of resources.\(^{16}\) Indeed, Williamson admits that with complete and accurate information about the effects on both divisions "the incomplete contract does not appear to impede efficiency or occasion costly haggling. Rather a general clause and sharing rule seems to give the parties to an incomplete long-term contract the requisite incentives to adapt efficiently in a joint-profit maximizing way."\(^{17}\) The problem arises in accurately determining the effect of the change on the profit of each division. The buyer is likely to understate the benefit to him and the supplier will exaggerate the cost to him. That is, opportunism interferes.

It seems, then, that it is opportunism, not bounded rationality, which presents the greater obstacle to transactional efficiency in contracts between independent units. If the problem of opportunistic distortion of expected costs and profit were overcome in the Yugoslav firm, then with proper use of sharing clauses it would be possible to organize efficient transactions between divisions using long-term contracts. Therefore, we turn now to an analysis of opportunism in the Yugoslav environment.

In terms of opportunism, Williamson cites three advantages for intrafirm transactions over market transactions. The Yugoslav firm can claim all three,
although some in a modified way. The first concerns the feasibility of opportunistic behavior. When both parties to a transaction are in the same firm it is more difficult to suppress or falsify information. This argument is especially appropriate in the Yugoslav case, where disclosure regulations are quite extensive. Workers in each division know quite precisely the income level of workers in other divisions, and information regarding the expected impact of anticipated actions must be shared. These rules can reasonably be expected to limit opportunistic behavior.

The second of Williamson's advantages for intrafirm transactions is that integration provides effective mechanisms for settling disputes and punishing opportunistic behavior. While the Yugoslav firm does not have the ultimate device found in the hierarchically structured firm, viz., a head office which can impose settlements and fire division directors, there is some pressure of that sort. The central workers' council which attempts to help settle disagreements is perhaps not as effective as the headquarters of a capitalist firm, but it is likely to reduce opportunism below what it would be if the parties to a transaction were not in the same firm. There are also a number of factors which Klein et al., mention as preventing the post-contractual opportunism which they focus on. Several of them fit the Yugoslav firm exactly. For example, they mention that in business relations among members of the same church or country club social sanctions are effective. Certainly this fits the Yugoslav firm, where actions recognized as opportunistic will be subject to substantial opposition from other divisions, the Party, and the community. Similarly, they specify that "depreciation of an opportunistic firm's general goodwill" is an important deterrent because it will disrupt a profitable long-term relationship. Klein et al., also suggest that a
compulsory arbitration clause in the contract can be important. A regular arbitration procedure is a permanent part of the organizational structure of most Yugoslav firms.

Williamson's third argument is the most difficult to apply in the Yugoslav context. It is that integration reduces the incentive to engage in opportunistic behavior because each party is not able to claim for itself any increased profit. In the short run this does not apply to a Yugoslav division, which may well succeed in keeping for itself additional profit which results from its own opportunistic behavior. However, the system of income distribution peculiar to the Yugoslav enterprise is such that in the long run each worker's income depends on both the profit of his own division and the profit of the entire enterprise. The mechanism varies from one firm to another and a number of examples are discussed in detail in Chapter 7; but at this point we need only note that if one division consistently earns incomes substantially higher than those in other divisions of the same firm, then there will be strong, and probably effective, pressure to adjust transfer prices in a way that will result in a more nearly uniform income distribution across divisions. The fact that in the long run a division cannot keep for itself profits which exceed the profits of sister divisions, reduces the incentive to engage in opportunistic behavior when dealing with those divisions.

Obviously, an extremely important empirical question is whether this hybrid system of income distribution can achieve both of its goals, viz., providing incentives for individuals to work hard in the short run and suppressing opportunistic behavior through long-run adjustments. To the extent that it succeeds in the latter, the feasibility of writing efficient long-term contracts is increased.
Finally, we might point out that in the Yugoslav environment there is an additional limit on opportunistic behavior: the freedom of divisions to buy and sell outside the enterprise reduces the problem of small-numbers exchange. Thus, in Yugoslavia, even within the enterprise, opportunistic behavior may provoke sister divisions into finding other partners.

Opportunism and Conflict in Yugoslav Economics

It is ironic that Yugoslavia has developed a corporate structure which reduces opportunistic behavior when in fact there seems to be a widespread belief in the basic harmony of interests within the economy. Both the writing of economists and the actual legislation which determines the structure of enterprises emphasize the common interest of all subunits in reducing costs and increasing sales. This has obscured the underlying conflict which is the focus of much of Williamson's analysis. The Yugoslavs have failed to see, as John R. Commons did, that "cooperation does not arise from a presupposed harmony of interests ..." but rather "from the necessity of creating ... order ... out of the conflict of interests among the hoped-for cooperators .... Hence, harmony is not a presupposition of economics -- it is a consequence of collective action designed to maintain rules that shall govern the conflicts." 20

The legislation which divisionalized Yugoslav firms (especially the Constitution of 1974 and the Law on Associated Labor of 1976) is not very specific regarding the regulation of conflict. With respect to internal transfer prices and other ways of dividing up enterprise profits it says little more than that the parties shall jointly agree on something fair. 21 One might argue that this reflects a conscious decision to leave such operational details to the enterprises themselves, but then we would hope to find
in the economics journals and textbooks considerable attention focused on the
search for concrete procedures for dealing with the conflict. Unfortunately,
in these sources we usually find the same willingness to rely on common
interests, good intentions, and the participants' ability to agree on what is
fair.

What is not adequately recognized is that if one division gets a bigger
slice of the pie there is less left for the others. Of course, it is not
always a zero sum game; the size of the pie need not be fixed. But the need
to find efficient ways to divide up the pie has not received sufficient
attention. The same problem arises in connection with planning, which has
received increasing attention in recent years. Here, too, there seems to be
a belief that if only the parties to market transactions are brought together
to make decisions in advance, then price fluctuations and supply problems will
disappear and an equitable distribution of income will be achieved.

Conclusion

Williamson tells us that the efficiency advantage of bringing trans-
actions into the firm rather than leaving them to the market lies in the fact
that this solves the problem of contractual incompleteness: that is, bounded
rationality makes it impossible to specify contracts completely and opportun-
ism makes incomplete contracts hazardous and possibly socially inefficient.
In Yugoslavia the enterprise does not eliminate the contracts, but rather
constitutes a shell within which the market can operate with incomplete con-
tracts. By reducing opportunistic behavior, it allows autonomous work units
to relate to one another through long-term contracts despite the contractual
incompleteness which is inevitable, given bounded rationality. With opportu-
nism considerably reduced, sharing clauses can be used to allow adaptive,
sequential decision making as uncertainties disappear with the passage of time. Thus, more complicated and longer-term coordination can take place. This means that the scope of the enterprise (i.e., the number and variety of transactions it encompasses) is very important. This is especially true with regard to a particular type of contract, viz., capital flows, which is the subject of the next chapter. At this point the important conclusion is that bringing technologically separable activities together in a single firm can reduce the cost of transactions between them in Yugoslavia as well as in capitalist systems.
Footnotes


2 P. xi. The idea is taken from John Commons.


4 Stigler (1951) and Buttrick (1952).

5 Coase (1937) and (1960).


8 Williamson, Markets and Hierarchies, pp. 9 and 26.

9 Williamson, Markets and Hierarchies, pp. 9 and 26.

10 Williamson, Markets and Hierarchies, p. 31.


12 Williamson, Markets and Hierarchies, p. xi.

13 The Yugoslav firm does encompass some hierarchical relationships which do involve subordination and administrative control. But these are within divisions while our analysis is concerned with the relationship between divisions.


16 Hurwicz (1973, pp. 25-26). See also the literature on bilateral monopoly in which an accepted result is that the joint-profit maximizing quantity will be produced but price will be indeterminant.


18 Klein et al, p. 304.


21 See, for example, *Law on Associated Labor*, article 86.
THE SIGNIFICANCE OF YUGOSLAV EXPERIENCE

FOR OTHER SOCIALIST COUNTRIES
Introduction

The purpose of this chapter is to show that many of the problems dealt with in previous chapters are not unique to Yugoslavia. On the contrary, the same matters have been the focus of attention in the Soviet Union and the other socialist countries of Eastern Europe for much of the past two decades. While most of these countries have not yet made any fundamental change in the relationship between the center and the periphery, they have experimented with changes in the size of basic economic units and with their administrative organizational structure. Most of the concepts of divisionalization developed in previous chapters in connection with large Yugoslav firms have implications which are relevant to the efficiency of the associations, trusts, kombinats, etc. which are increasingly important in the Soviet Union and Eastern Europe.

Concern with the optimal size of enterprises and with the mechanism coordinating them represents a major shift from an earlier attitude. Lenin had said that under socialism the basic organizational task was "the transformation of the whole of the state economic mechanism into a single huge machine." When the task is completed, he said, "the whole of society will have become one office and one factory." Most of the socialist countries took this to mean that all that was needed was a mechanism for communicating commands. The enterprise itself would be no more than a small cog in a well-oiled machine and could be
assumed to operate correctly. Enterprises, it seemed, could be put in the hands of clerks like those who run post offices.¹

For decades the Soviets adjusted and modified their economic system, continually changing managers' quotas and bonus rates, in an effort to ensure that they do what the planners want them to do. Then, after more than 30 years of central planning, they began to see that they needed a mechanism for coordinating decisions rather than just a hierarchy for disaggregating commands.

In the first part of this chapter I review the changes in industrial structure which have taken place in the Soviet Union and Eastern Europe and some of the conventional explanations for these changes. Then I examine their significance from the point of view of transaction costs. I shall argue that these changes can be seen as first tentative steps in the direction of the multidivisional corporate structure which was adopted first in the capitalist countries and later in Yugoslavia.

Changes in the Organizational Structure of Socialist Industry

An important characteristic, common to the reforms which took place during the 1960s and 1970s in Eastern Europe as well as in the Soviet Union, was the creation of industrial associations. Also called firms, trusts, combines, unions and big enterprises, these organizations were formed by the merger of several enterprises. They began to appear in 1958, first in Poland and then in Czechoslovakia and the German Democratic Republic. In 1961 the Soviet Union followed suit. Numerous mergers took place in Hungary and Bulgaria in 1963, and Romania finally followed along in 1969. In most countries the mergers, or a second wave of consolidation, were effected just before or during major economic reforms.
Creation of associations was particularly important in the Soviet Union because of its large number of very small enterprises. In 1968 one third of all industrial enterprises employed fewer than 100 workers and accounted for less than five percent of total output. Fifty-six percent (over 28,000 enterprises) had fewer than 200 workers and accounted for only 12 percent of gross output. In manufacturing alone there were 18,079 enterprises with fewer than 500 workers.²

The creation of associations began in the Soviet Union with the merger of five shoe plants in Lvov in 1961.³ In that particular case the initiative came from the plant managers themselves and from local Party leaders, but the idea was picked up at the national level and an ambitious program of mergers was announced as part of Kosygin's 1965 reform program. By the beginning of 1973 there were 1101 industrial associations encompassing approximately 4500 enterprises, or nine percent of all industrial enterprises. Then in April 1973 all industrial ministries were told to prepare immediately plans to merge all enterprises into several types of associations. The simplest type is called a production association and typically includes four or five production enterprises which produce similar or related products. It has been suggested that the typical size of production associations will be increased to seven enterprises. In some cases an association includes all of the enterprises in a particular industry, in which case it is called an industrial association and includes production associations as some of its members. If a research institute is included then it is called a science-production association. Associations may be organized along geographical lines and/or product lines and may be based on a vertical relationship as well.

In 1973 it was announced that all industrial enterprises would be merged
into associations by 1975, but that goal was delayed until 1980 and still has not been realized. By the end of 1977 there were 3670 associations encompassing 16,515 enterprises, or about one third of the 50,000 industrial enterprises in the Soviet Union. The size of Soviet production associations varies from under 500 workers to over 100,000 workers, but over half employ between 1000 and 5000 workers.

Associations are also being formed in the trade and construction sectors and to combine agro-industrial activities.

Among the East European countries the number and size of enterprises merged to form associations varies considerably. In Czechoslovakia 1417 enterprises were merged into 253 units in 1958 and subsequently further consolidated into 102 "production-economic units," thus averaging about 14 enterprises per association. In Romania the number of enterprises per association ranges from four to sixty-two, with the average number of employees being 30,000. In Poland the number of workers per association varies from 9,000 to 70,000. As a result of the creation of the associations, the total number of separate enterprises fell from about 1300 to under 900 in Hungary and by more than 50 percent in East Germany. In Bulgaria nearly all industrial enterprises were grouped into 120 associations in 1963 and then further consolidated into 65 associations in 1971.
Conventional Explanations for the Changes in Organizational Structure

A number of benefits were expected to result from the mergers. First, the change can be seen as an effort to reduce the amount of information (i.e. the degree of detail) flowing from the center and to shorten the lines of command to the enterprises. Reduction in the number of basic units which the center has to deal with should reduce the amount of calculation necessary at the center and thus lessen the overall planning burden at the center. Of course, there would be a corresponding increase in planning work to be done at the level of the association, but the hope was that executives on the spot would be able to handle the additional work and the combined effect would be a net decrease in administrative personnel. Thus the reorganization was largely an effort to reverse, or at least to slow the rapid rate of growth of administrative personnel, which in the Soviet Union had been nearly twice the rate of growth of overall employment. Between 1966 and 1977 the size of the Soviet bureaucracy had increased by 57 percent while total state employment had increased by only 38 percent.5

In Eastern Europe, too, the associations were expected to achieve substantial economies of scale in management. Woroniak claims that one of the objectives in the creation of associations was conservation of scarce managerial skills. Similarly, in talking about the Polish reform, Zielinski points to the need to achieve economies of scale by concentrating highly qualified personnel, and Keren tells us that reducing the center's cost of allocating funds by reducing the number of peripheral units with which it had to deal was a major factor in the East German reform.6 However, evidence on the actual effect on the number of administrative personnel is conflicting: Gorlin reports several instances
where administrative expenses were reduced by the creation of associations in the Soviet Union, but Balassa cites evidence that the industrial associations in Hungary have encountered diseconomies of scale in management.\textsuperscript{7}

Another purpose of the consolidations was improvement of the process for technological development. In cases where an association includes a research institute as well as production facilities, better coordination should develop between the two. Under the prior organizational structure research was often not directed towards the needs of production, and technological advances were often not put to use. It has also been suggested that associations would be better able to handle foreign trade than either the ministry (which is not sufficiently close to enterprise import needs and export abilities) or the enterprise itself (which may be too small to have much bargaining power). In most of these countries economies of scale in export selling had previously been achieved by concentrating all foreign trade in a single import-export firm for each industry. The associations have now taken over the right to deal directly with foreign firms, since their size makes it practical for them to do so.

One of the most important expected benefits of the mergers is economies of scale in production. Clearly the merger of several enterprises producing similar products may have this effect, although when they remain physically separate, as is often the case, the benefits are less certain. What is interesting is that the greatest economies of scale are likely to result from vertical integration. Because of extreme uncertainties of supply, socialist enterprises have traditionally devoted a great deal of material and labor resources to producing their own inputs. For example, Soviet lifting and transporting equipment is produced by 320 different enterprises, of which 250 are making it for their own use. Only 14 percent is made by the ministry responsible for
supplying it to others. Similarly, only 41 percent of Soviet computers, 32 percent of plastic products, and 67 percent of forging presses are made by the ministries which are supposed to supply them. Thus vertical integration with an enterprise which will reliably supply some input should free another enterprise to specialize in the product it is supposed to produce.

In more general terms, the advantage of vertical integration in a planned economy is that the center is freed from the need to coordinate and supervise production of intermediate products. Instead of formulating output targets and success criteria for each of several stages of production, only the final results need by appraised. It was largely for this reason that many of the socialist associations were created by mergers that were primarily vertical. This was especially true in Bulgaria, Czechoslovakia, East Germany, Poland and Romania, but occurred to some extent in every country.

The existence of these vertically integrated organizations raises some fundamental questions. Firms may be very large in terms of number of employees, assets, or value of output, and still be relatively uncomplicated in terms of the problems of coordinating different economic activities. But when successive stages in the production process are carried out within the same firm there arises the question of how to coordinate those processes. In particular, there arises the question of the appropriate extent of autonomy for the constituent enterprises.

Autonomy of Subunits

The associations were to be given a considerable amount of independence from the central planners. Indeed, that is the essential, novel feature of their creation. But also very interesting is the fact that in some cases the enter-
prises which comprise the associations also retain some autonomy. The degree of independence of the subunits of the associations varies all the way from the complete autonomy of Hungarian enterprises (for whom membership in the associations is voluntary\textsuperscript{10}) to the thorough subordination of East German and Bulgarian enterprises to their associations. In the Soviet Union, Poland, and Rumania there are cases where the members of an association retain a considerable degree of autonomy, including their own bank accounts and separate profit and loss accounting; but many enterprises in those countries lose all or part of their autonomy when the association is formed. In Czechoslovakia and Bulgaria the member enterprises originally had substantial independence but changes in the system (in 1969 in Czechoslovakia and in 1971 in Bulgaria) have deprived them of it. However, according to Gorlin, in the early 1970s "the trend in Eastern Europe ... [was that] the enterprise [was] gaining increased authority at the expense of the association."\textsuperscript{11}

The autonomy of the enterprises which form the socialist associations can be measured in a number of dimensions. Perhaps most important is the so-called khozraschet status. An economic unit on khozraschet maintains separate bookkeeping, has its own bank accounts, and has legal authority to make financial commitments. Further, it is expected to cover all of its costs from its own revenue, to repay bank loans, and to earn a profit. Member enterprises have khozraschet status in some (but not all) industrial associations in the Soviet Union, Hungary, Rumania, Bulgaria (between 1963 and 1971 only), and Czechoslovakia (until 1970).\textsuperscript{12} In some cases (especially in East Germany) member enterprises are judged (and bonuses are paid) in part on the basis of profit earned, despite extensive interference in their operations by the association.\textsuperscript{13} This conflicts with a basic principle of western business practice which states that a subdivision
should not be held responsible for profit when its control over the variables which determine profit is limited.\textsuperscript{14}

Other dimensions of autonomy (which are not necessarily correlated with khozraschet status) concern the right of the association to make investment decisions and to redistribute inputs, capital, and profits among member enterprises.

Subunits may be partially independent of the association but still responsive to directives from the central planning board. In this case it would seem that the purpose of creating the association has been defeated, but this need not be so. Unless the associations have no power whatsoever, they can to some extent serve their intended purpose. Presumably their powers will include those functions most appropriate to the association level. Those functions or stages of production which reach their optimal degree of vertical integration at the size of the subunit do not suffer from lack of association control. Other tasks remain in the hands of the central planners who seem reluctant to relinquish their control. This may be intended to further some national goal which might not be adequately served by autonomous enterprises or associations, or, as Gorlin claims is the case in the Soviet Union,\textsuperscript{15} because of the unwillingness of the ministries to give up their power.

\textbf{Effect of the Associations on Transactional Efficiency}

In the remainder of this chapter I examine the impact on transactional efficiency of the organizational changes embodied in the creation of the socialist associations. If we agree with Oliver Williamson that in most circumstances transaction costs are substantial, then it is evident that these changes can have an important impact.
Williamson does not explicitly deal with planned economies, his emphasis is on the fact that bounded rationality and opportunism can interfere with contracts and hence under certain circumstances it is more efficient to substitute administrative control for the market mechanism. But he does discuss the situation where a firm gets so large that it can benefit from divisionalization. In this form his analysis is quite appropriate for application to the socialist countries, where attention has focused not on the choice between market and administrative coordinating mechanisms, but between what we might call local and central administrative control.

To divisionalize means to create autonomous units. Usually, this involves breaking up some organization into smaller pieces. Indeed, in the socialist countries that is the case if we think of industries as the entities being divisionalized. But at the same time what may be thought of as the opposite is happening: smaller units (enterprises) are being merged to form the divisions (associations). But whichever way we look at it, the principle is the same: the socialist associations, like enterprises in the West, result from a process described by Coase, viz., the cost of decision making and economic coordination within some organization is weighed against the cost of some external mechanism. In the West that external mechanism is a market and in the Soviet-type economies the alternative to putting transactions into the firm is leaving them to the central planners. But in both cases the decision as to whether to put more transactions into the basic economic unit is largely a matter of transaction costs. An essential feature of organizational development in the socialist countries over the last two decades is the effort to reduce costs by creating a basic economic unit which encompasses more transactions. Similarities with organizational structures in Western firms (i.e. multidivisional form) suggest
that this is a step in the direction of greater transactional efficiency.

Bounded Rationality and Opportunism

Many of the problems which led to the major economic reforms in the socialist countries can be viewed as problems of bounded rationality and opportunism. In their efforts to run "the whole of society ... [as] one office and one factory" the socialist planners encountered the limits to their own ability to absorb and process information, and hence the limit to their ability to make efficiently either day-to-day decisions or basic long-run policy decisions. In describing the excessive growth of large capitalist enterprises, Alfred Chandler and Oliver Williamson make statements which fit the centrally planned systems quite well:

... the administrative load on the senior executives increased to such an extent that they were unable to handle their entrepreneurial responsibilities efficiently. This situation arose when the operations of the enterprise became too complex and the problems of coordination, appraisal, and policy formulation too intricate for a small number of top officers to handle both long-run, entrepreneurial, and short-run, operational administrative activities.19

Continued expansion also eventually overcomes the capacity of the office of the chief executive to provide strategic planning and maintain effective control, which is another manifestation of bounded rationality.20

Similarly, bounded rationality interferes with the relationship between the central planners and the directors of enterprises: contractual incompleteness, which normally thought of as a problem of the market mechanism, also limits the ability of the central planners to specify what they want from each enterprise. The traditional problems of assortment and quality are the most obvious examples of this. The contractual relationship governing directors'
remuneration does not encourage efficient decision making: as long as their own earnings depend on meeting targets which cannot be fully specified, they do not have the proper incentives.

To a large extent this is also a problem of opportunism. It has long been recognized that managers of socialist enterprises pursue narrow goals which differ from those of the central planners. Speaking of the capitalist firm, Williamson says that if managers perceive a situation

... as affording them with opportunities for discretion, because information is impacted to their advantage, and if, in addition, managers are given to behave opportunistically, further consequences obtain. Deliberate distortions will be introduced into the hierarchical information exchange process in support of subgoals. Permissive attitudes toward slack may also develop.21

This sounds very familiar to any student of the planned economies.

Another observation of Williamson's regarding opportunism fits the ministers in the Soviet-type economies: he says that often firms decide

... to bring the heads of the functional divisions into the peak coordination process. The natural posture for these functional executives to take is one of advocacy in representing the interests of their respective operating units.22

For many years ministers in the socialist economies have been known to have narrow perspective and to be primarily concerned with the prestige and growth of their own domains.

Multidivisional Structure

The capitalist firms' response to these problems has been to shift from a single unified hierarchy (unitary form) to a structure of at least partially autonomous operating divisions (multidivisional form). As discussed in chapter 3, their reason for doing so is usually to reduce the center's loss of control in
two ways: (1) by correcting faulty or incomplete information flows, both up and down the hierarchy, and (2) by restricting the pursuit of subgoals by various parts of the enterprise. The very same reason can be adduced for the changes in the industrial organization of the socialist countries. Chandler's description of the success which led to the widespread adoption of multidivisional form among capitalist firms would be very appealing to the socialist proponents of the creation of industrial associations:

The basic reason for its success was simply that it clearly removed the executives responsible for the destiny of the entire enterprise from the more routine operational activities, and so gave them the time, information, and even psychological commitment for long-term planning and appraisal ... [The] new structure left the broad strategic decisions as to the allocation of existing resources and the acquisition of new ones in the hands of a top team ... 23

This separation of broad strategic decision making from daily operating decisions is the essence of multidivisional structure. It necessarily implies fairly complete delegation to autonomous subdivisions of authority to make operating decisions. For this reason the Soviet reform of 1965 was not a true transition to multidivisional form, since many ministries subsequently violated the rules by interfering in the daily operations of the enterprises under their jurisdiction. Similarly, the more recent creation of associations in the Soviet Union and similar changes in Eastern Europe is only a half step in the direction of multidivisional structure because the scope of authority yielded to the associations is so restricted. Nonetheless, it is clearly a step in that direction.

But it should be clear that multidivisional form does not mean total and unqualified independence for the divisions. On the contrary, Williamson tells us that this form was developed primarily in order to overcome the problems of loss of control by the center and pursuit of goals other than profit by lower levels of the hierarchy. Therefore, he puts great emphasis on the advisory
and auditing functions of the center, both of which improve its control over the divisions. In the socialist economy, by freeing the center from routine tasks, the new system should allow it to overcome information impactedness and to develop fine tuning techniques so that its control over the important macro variables is improved and so that opportunistic behavior by enterprise managers is reduced.

It is important to make explicit the fact that with multidivisional structure the center does retain important functions. In particular, it is the center which does the long-term planning, which allocates resources among the divisions, and which appraises the performance of the divisions, distributing rewards as it deems appropriate.

Transaction Characteristics

Given the socialist countries' decision to transfer some information processing and decision making to lower levels of the hierarchy, a major question is that of deciding how to break up the monolithic structure, that is, where to draw the dividing lines between the divisions. Here Williamson's analysis is particularly appropriate. He defines governance structures as "the institutional matrix within which transactions are negotiated and executed," and tells us that efficiency depends on matching governance structures with the attributes of the transactions which must be executed. He specifies three critical dimensions of transactions which must be considered when choosing an appropriate governance structure: (1) the frequency with which transactions recur; (2) the amount of uncertainty involved; and (3) the degree to which durable transaction-specific investments (human or physical) are incurred. To the extent that the socialist associations are designed to reflect these
In terms of the frequency with which transactions recur it is clear that the creation of associations is a step towards greater efficiency. Enterprises whose relationship is such that they must repeatedly interact have been brought together in a single organization. Whether the association is a horizontal merger of enterprises which must share common inputs or a vertical merger of enterprises which must continually negotiate the details of the design and delivery of intermediate products, the fact that they are subject to unified administrative command reduces many of the transaction costs which would accompany either longer administrative lines of command or market negotiations. In the case of an association consisting of a number of horizontally related enterprises (which use similar inputs and/or produce similar outputs) the most obvious reduction in transaction costs comes from jointly arranging for supplies and low-cost shuffling of supplies among members. If one enterprise needs something which another has in excess there need be neither a market contract nor transmission of request and command all the way to Moscow and back. A similar reduction in transmission of information comes from having the association director, rather than a more distant planner, assign and, when necessary, redistribute output targets, in terms of both quantities and assortments.

In designing vertical associations, too, the key consideration is the frequency of transactions. Obviously, one could argue for including under common control an entire process from mining raw materials to distributing final products. This is the principle which led to creation of the original ministries. But the idea of the associations is to be more selective, and frequency of transactions is perhaps the most important of the criteria for deciding which
vertical stages to group together. If the characteristics, qualities, and time and manner of delivery of an intermediate product can be settled, say, annually, then there is less need to group supplier and user together. If, on the other hand, quantities, characteristics, etc. of the intermediate product must be adjusted, say, weekly or monthly, then the transaction cost advantage of having local administrative control is greater.

A second major consideration when choosing the structure which will govern a set of transactions is uncertainty. If at the time of a transaction the needs and abilities of two enterprises can be known with some confidence, then the relationship between them (for example, one will deliver to the other a particular quantity of a certain product) can be established by the central planners without much avoidable transaction cost. However, if the transaction inevitably involves uncertainty (for example, if ability to deliver depends on the weather or if the users' specifications cannot be known in advance) then the advantage of local administrative control over central control is greater. For example, a construction enterprise cannot know in advance the quantity and type of concrete it will need on a particular day. By assigning it to an association which includes a cement factory, the cost of coordination can be substantially reduced.

The third of Williamson's transaction characteristics is the extent to which a transaction involves investment which is durable and specific to a particular customer or supplier. Often this is a matter of physical proximity: if two enterprises are located adjacent to one another, and if transportation cost, the danger of spoilage, or, say, heat retention of an intermediate product is important, then, all other things being equal, there is a stronger case for combining them. Regardless of location, if an enterprise has to acquire machinery or build a whole plant in order to supply a specific user,
and could not switch that capital to alternative users (or could do so only after expensive modifications), then again there is reason to combine supplier and user into the same association. It might also be the user, rather than the supplier, who makes the specific investment which suggests that two enterprises be put into the same association. For example, a smelter may be built to process a particular type or grade of ore, an aluminum products fabricator may rely on ingots or sheets which available from only one domestic refinery, or a plastics maker may be able to use the output of only one domestic petrochemical plant. It is also possible that it is human capital which is transaction-specific and thus ties one enterprise to another. That is, it may be highly trained employees, not machinery, which enables an enterprise to provide or use some intermediate product.

It should be clear that these three characteristics of transactions are not, either individually or as a group, sufficient reason to combine enterprises into an association. Each is a matter of degree and to some extent will apply in many, if not most, cases. They are factors to be weighed in deciding where to draw the dividing lines in grouping enterprises, given the decision to relieve the center of some of the burden of planning.

Evidence on the extent to which the socialist countries have been guided by these considerations in their formation of associations is scanty. There are reports of some apparently illogical mergers, but most appear to fit the criteria. Furthermore, Williamson's characteristics make clear that factors other than physical proximity can be important. Hence some of the western criticism of mergers of widely separated enterprises may be unwarranted.
Divisions Within Divisions

When talking about the planned economies in terms of multidivisional structure it is most appropriate to think of the associations as the divisions. However, in some cases the enterprises which are subunits of the associations have themselves maintained some degree of autonomy. Can we in those cases think of them as divisions within divisions? The answer depends on the relationship between the enterprise and the center (i.e., the national central planners, not the association headquarters). If the ministries give orders directly to the enterprises (as sometimes happens in the Soviet Union) then the autonomy of the association is violated and, depending on how specific those orders are, we may be able to view the enterprises as divisions but we cannot consider the association to be a division. The only way there can be divisions within divisions is if the enterprises themselves have extensive decision-making power and if whatever control they are subject to comes from the association rather than from the national center. In those cases where enterprise directors make a wide range of daily operating decisions, subject only to broad planning and resource allocation decisions by the association, we can properly view the enterprises as divisions. If the association directors in turn have wide latitude in their operations, they too can be seen as divisions.

While this nesting of multidivisional structure has not yet actually developed in the socialist countries, a stream of official announcements, combined with the actual formation of associations, suggests the possibility of movement in that direction. While pressure from entrenched interests (both middle-level bureaucrats and Party ideologues reluctant to relinquish day-to-day control) has caused some recentralization, it seems that economic pressures will continue to force the Soviet Union and the countries of Eastern Europe
to search for more efficient organizational structures. Now that they have begun to experiment with associations, they are likely to recognize their advantages in terms of transaction costs.

Conclusion

The socialist associations can be viewed as multidivisional corporations and their development can be seen as an organizational analog to the international diffusion of technology. Just as technological advances made in one country gradually spread to others, so too organizational forms which have transaction-cost advantages over other forms can spread from one country to another. The structural changes described in this chapter constitute a form of organizational diffusion: the socialist countries are adopting structures, already in use in other countries, which they see as useful. There are, of course, important differences between the socialist associations and capitalist multidivisional corporations; they are not abandoning their fundamental principles. But there are important similarities, too. The point is that a particular combination of markets and hierarchies is transferable between economic systems. It is not very remarkable that the idea of multidivisional structure spread from the United States to Western Europe. It is more interesting that it is evident in contemporary Yugoslav enterprise structure. But what is most surprising is that the same fundamental concept shows signs of taking hold in the planned economies of Eastern Europe and the Soviet Union. The same search for efficiency and rationality which leads capitalist enterprises to choose for themselves certain organizational structures leads system designers in socialist countries to impose those same structures on their own enterprises.
FOOTNOTES


3 Actually, the concept of associations goes back to 1929, but in this context we need not trace it back that far. See Abraham Katz, The Politics of Economic Reform in The Soviet Union (New York: Praeger, 1972), p. 17.


8 Gorlin, "Industrial Reorganization...," p. 169 and Smolinski, "Towards a Socialist Corporation...," p. 29.
However, many Hungarian enterprises are themselves the result of earlier mergers. Subunits of the enterprises (as opposed to the associations of enterprises) do not have independence.


Markets and Hierarchies..., chapters 7 and 8.


Williamson, Markets and Hierarchies, p. 135.

ibid., p. 135.

ibid., p. 135.

Chandler, Strategy and Structure, pp. 382-83.

See, for example, Markets and Hierarchies, pp. 137-38.