

The Role of Small Firms in the Industrial Development and Transformation of Czechoslovakia

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ABSTRACT. This article presents an analysis of the role of small firms in the formation and reform of the Czechoslovak manufacturing sector. It attempts to give an understanding of the industrial structure formed under the past regime within the framework of the mass production paradigm. As manufacturing productivity gradually declined over the past 25 years and small firms have been virtually eliminated, systemic preference has been given to the development of large monopolies. Consequently, a monolithic coalition structure of enterprise managers, state bureaucrats, and political nomenklatura has arisen and continues to present itself as a serious hindrance to economic transformation. While small firms have the potential to play a critical role in the democratic marketization of Czechoslovakia, current government preoccupation with the rapid privatization of the state sector risks damaging the development of a balanced distribution of firm size and, in turn, the revitalization of the society.

I. Introduction

As Czechoslovakia enters into the uncharted waters of radical economic transformation from a centrally planned economy to a liberalized market economy, serious consideration must be given to the past and current performance, and in turn, to the structure, of the industrial sectors at the firm

level and to the challenges facing future development. More specifically, the decreasing overall efficiency of the Czechoslovak economy, notably in manufacturing, questions the very foundations of a command economy as well as the blind, rigid economic strategy of perverse maintenance of the mass production paradigm.

The paper aims at offering an alternative to the description of firm behavior in the command economy, in this case Czechoslovakia, as a strict government controlled hierarchical structure, a description inadequate as a point of departure for transition into a market economy. It is our belief that a better understanding of Czechoslovak firm behavior can be given within the context of the evolution of economies of scale production and the distorted political-economic paths followed by Czechoslovak economic leaders. Although there has been unquestionable support for the mass production regime, large scale firm size has not aided the performance and competitiveness of Czechoslovak manufacturing firms. Primary attention will be paid to the size of the firm and the conditions needed for creating a harmonic size structure of firms in the transitional economy.

The second section analyzes the diffusion of the "law of economies of scale," which was derived as a generalization of the concentration of production processes in market economies over most of the twentieth century. The "larger-is-better" attitude exclusively shaped the Czechoslovak economic policy for almost the last forty-five years. In market economies the mass production regime underwent a crisis towards the late 1960s, yet firms in many regions were able to develop a flexible response. The notable advantages of small firms which have bloomed in the many advanced market economies (i.e., lower MES, high job

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generation, significant innovation rates) indicate that small firms have the potential to play a critical role in the democratic marketization and social transformation of Czechoslovakia.

The third section provides an analysis of the declining productivity and competitiveness and firm size distribution in Czechoslovak manufacturing. In particular, the evidence reveals that after forty-five years of central planning Czechoslovakia is left with an extraordinarily low number of smaller firms, while the system has perpetuated a market dominated by a relatively small group of giant industrial firms.

The fourth section offers a qualitative analysis of the industrial coalition structure that developed over time among entrenched firms and the bureaucratic and political hierarchies, and which grew out of, and then supported, the highly concentrated and rigid structure and behavior of Czechoslovak industry. The fifth section analyzes the current challenges to the transformation process in Czechoslovakia for the development of a dynamic industrial composition. Entrenched state firms maintain a considerable advantage over new private firms due to their ability to manipulate and control the distribution of resources and market information. The current government's reform policy, which emphasizes the formal, rapid privatization of the state sector as the key to firm and capital formation, insufficiently addresses the serious implicit barriers, which are embedded in the concentrated industrial structure and entrenched informal networks and which impede the development of new private firms, particularly in the manufacturing sectors.

Conclusions are presented in the final section. The evidence suggests that the former regime has utterly neglected the development of a harmonic firm-size distribution, which has not aided firm performance in the Czechoslovak export manufacturing sector. The maintenance of large economies of scale gave rise to a corrupting coalition of economic and political monopolists of resources. If necessary measures, beyond the formal privatization of the state sector, are not taken soon to aid the proliferation of new private firms, the development of alternative sources for advanced technologies and the reskilling of labor, in turn the revitalization of the economy can be seriously damaged.

II. Forty-five years of economies of scale

a. *The rise of mass production*

It is widely recognized that most process innovations since the Industrial Revolution involved increasing exploitation of economies of scale, generally associated with "Taylorist" or "Fordist" principles of organization and production (Chandler, 1977). Classicists, as well as Marxists, seemed to have agreed with Adam Smith that large-scale production was the most efficient form of economic development, and any disruption of mass production would be regarded as wasteful, in that it would not contribute to the transformation of the property order into something higher (Piore and Sabel, 1984). The degree of concentration and plant sizes increased while products became more standardized (Blair, 1948; Scherer, 1980). These were the main factors of efficiency and growth. Such a tendency of technological change was reflected as well by Lenin at the beginning of the 20th century (Lenin, 1916). Lenin's findings on the concentration of monopolies were further enriched and developed for socialism by Stalin and his collaborators. Stalinist political economy of socialism and "socialist growth theories," both deeply rooted in the economies of scale paradigm, have governed the economic policy of centrally planned economies.

As mankind crossed its first "industrial divide," industrialization became synonymous with mass production (Piore and Sabel, 1984). Mass production required large investments in highly specialized equipment and narrowly trained workers. Resources became highly particularized; a piece of modern machinery dedicated to the production of a single part could not be turned to another use. As Wheelwright (1985) emphasized, even labor was considered indistinguishable from all other inputs, as long as scientific management was able to extract a full day's worth of energy for a full day's pay. As tasks became increasingly specialized, the required skill level was less important. In the end, this logic of mechanization strove to make human involvement in the production process superfluous.

In both East and West, mass production was seen as the technologically dynamic form, smaller, specialized production as the subordinate. Incre-

mental process innovations, rather than ceaseless product innovations, dictated the limits of creativity. Organized labor would press for higher wages and possible modifications in the hierarchical structure of the firm, rather than consider a reform in the existing organization of production (Piore and Sabel, 1984). Ironically, leaders in socialist economies accepted the subordination of labor and the superiority of large economies of scale, reserving only bargaining over the wage fund for the possible betterment of labor. What mattered most under the mass production regime was the consistency and reliability of each cog (Audretsch, 1989). Moreover, as the minimum size of an efficient plant became larger and larger, instability threatened the firm, internally as well as externally. In the Czechoslovak case, the emphasis on size pertained not only to particular firms but to the state controlling center as well, which could be considered as one large conglomerate (Triska, 1990). Certain responses predicated its survival.

So-called "scientific management" structures became the standard for the internal organization of firms. The essence was "command and control of effort" and the masses of raw materials and capital resources. The importance of management and stability was stressed, rather than creativity. A particular equation for production was implemented into the corporate structure, with each parameter predetermined, and a very specific use of resources was achieved. As Reich (1983, p. 87) points out, detailed planning was developed to guide the firm's internal operations and could be applied generically toward other companies in the same industry:

The tools used to plan and coordinate various lines of production within a single firm could in principle be extended to encompass an entire industry. Instead of each firm's responding in isolation to economic upturns and downturns by expanding or contracting its capacity — resulting in cycles of overcapacity or undercapacity — industry-wide coordination could enable each to accommodate its investment and production plans to the plans of every other firm . . . Strategic planners in major firms and within the government strove to 'rationalize' each industry as a whole.

Controlling external volatility, that is, the stability, continuity, and reliability that constituted the core of successful mass production, was attempted in three main ways: collusion, consoli-

dation, and government regulation. Collusion, or the creation of "pools," provided agreements either to fix price or restrict output, enabling prices to rise. This process was formally institutionalized under the direction of trade associations (Audretsch, 1989). Coordination also entailed bargaining among firms. It required expert knowledge of the needs of the industry and pending changes in supply and demand. Bargaining implied "accommodation and consensus; expertise suggested technical fact finding." In practice, these two processes were often indistinguishable from each other (Reich, 1983, Ch. 5).

The drive for stability next found the form of consolidation. Mergers, horizontal and vertical, attempted to amass larger market shares as well as stabilizing the inflow of supplies and distribution of outputs. Alfred D. Chandler (1977) has emphasized the integration of mass marketing and mass production as one of the basic organizational innovations. Also, backward integration, through inventory accumulation, was designed simply to ensure a steady supply of raw materials of the requisite quality.

As stabilization attempts through collusion and consolidation met with marginal success, industries increasingly turned toward the federal government for help. Ultimately, the government was able to provide a stable environment for planning and coordinating investments among industry participants (Reich, 1983). Firms were besieged by increasing competition within the market as well as by "democratic ferment." As Kolko (1963, p. 6) notes, government intervention was responding not necessarily to the need to control monopoly power. "It was not the existence of monopoly that caused the federal government to intervene into the economy, but the lack of it." It was a move to stabilize industry.

Over time, a network of government-managed advisory boards, trade associations, and regulatory agencies was established, enabling companies and industries to coordinate investment and production, as well as pricing, both formally and informally. A "working oligopoly" partnership between government and the corporation, especially in the American manufacturing industry, evolved, making industry wide cooperation practically obligatory (Audretsch, 1989). Simply stated, collusion, yet this time aided by the federal

government, was brought to a greater height. This so-called "regulation movement," which lasted through 1970, seemed to aid greatly the prominence of mass production in the United States (Audretsch, 1989). This was the world of "countervailing power," so aptly described by Galbraith (1967), where virtually every major institution in society acted to reinforce the stability needed for mass production. In fact, the unprecedented growth during this period has been attributed less to the outcome of technology than to the result of prevailing political and social forces working to provide the market stability required for the corporation to thrive (Piore and Sabel, 1984).

b. *Czechoslovakia follows suit*

Mass production was profitable only with contrived markets that were large enough to absorb an enormous output of a single standardized commodity and stable enough to keep the resources involved in the production of that commodity continuously employed (Piore and Sable, 1984, Ch. 3). Czechoslovakia, along with its socialist brethren, followed the mass production model to its logical economic as well as political extremes. Before we discuss the development of the socialist mass-production regime, it is important to note the structure of Czechoslovak industry before the fateful annexation by Hitler in 1938.

From its formation upon the break-up of the Austro-Hungarian Monarchy in 1918, by the 1930s Czechoslovakia ranked as a major European industrial country, enjoying a strong tradition of craftsmen skilled in producing machinery and other manufacturers and of businessmen adept in exporting these goods. Incomes were high, and the well-developed economy had succeeded in forging close financial and industrial links with the rest of Europe. Although the Second World War amputated one third of the nation's territory and subjected the remainder to foreign domination, it did not inflict on Czechoslovakia the wholesale destruction of property, plant, and infrastructure that devastated Poland and Germany.

During the interwar years, the importance of the industrial sector for Czechoslovakia's economy increased constantly. As early as 1921, 33.8% of the working population was employed in industrial occupations. Estimates indicate that, by

1938, the industrial sector accounted for 65% of the total value of Czechoslovak production and that, in 1937, it contributed 35% of the national income. Moreover, until 1929, the increase in Czechoslovakia's industrial production was greater than in the majority of European countries, even four times greater than the increases of Germany and Austria and seven times greater than that of Britain (Teichova, 1988, p. 33).

Czechoslovakia was the only country in Central and South-east Europe where industrial development resembled West Europe, with the producer goods industries being strengthened in relation to the consumer-goods industries. Although the share of the iron and steel, mechanical engineering and chemical industries in Czechoslovak industrial production lagged behind that of the West European countries, the rate of growth of the producer-goods industries in Czechoslovakia was higher than that of overall production in these countries (Teichova, 1988).

The initial rapid rise in industrial production was accompanied by moves to introduce labor-saving devices in the production process, to reduce the costs of production and to improve profit margins which gave renewed impetus to the trend to rationalization and concentration in Czechoslovak industry. However, this process had differing effects on individual branches of industry, ranging from an effective oligopolistic structure in iron and steel to widespread dispersion in the food-processing, textile, and clothing industries. We find, in fact, that Czechoslovakia had a substantial base of small and medium sized firms. According to the 1930 census, a total of 378,015 mining and industrial enterprises were counted. The great majority — 336,577 firms employing between one and five people — consisted of hand-craft workshops or small specialist establishments, mainly in food-processing, wood, clothing, and leather industries, while most of the mechanical engineering industry was based in small and medium-sized firms. As Teichova (1988, p. 37) points out, this 89% of industrial firms used only 10.5% of all power produced, whereas the 41,438 establishments with six or more employees (11% of all industrial firms) consumed 89.5% of all power used by Czechoslovak industry.

Although self-employment and small firms continued to play a significant role, many of the

Czechoslovak workers were employed in the medium-sized to large-scale enterprises. As Table I reveals, enterprises with more than 501 employees represented only 1.1% of all undertakings but employed 29.4% of all industrial workers while firms with greater than 250 employees accounted for 42.1% of total industrial employment. However, as is shown below, when we also take into consideration the fact that firms with less than 250 employees accounted for over 50% of industrial employment, the level of concentration through the 1930's pales in comparison with the extremely high degree of concentration and centralization established during the forced rationalization of entire industries by the communist regime.

While this gradual process of concentration and centralization of industry may be relatively similar to that occurring in the West, after 1948 the communist authorities took centralization and mass-production to its new economic and political extremes. Market demand was subordinated to the will of the state center, consequently, largely to the prerogatives of enterprise directors. Shortages ensued under the planned price system, in turn, the demand necessary to absorb and support the mass production regime was created. Similar to a "Catch-22" situation, the only way the political authorities saw fulfillment of sufficient supply was through manipulation of mass production, once again exacerbating the shortage (see below). Stabilization went hand-in-hand with increasing

returns to scale. The exploitation of such paradigms with extensive political and administrative control allowed for the monopolization of whole industries as well as the whole economy. Such an economy as that of Czechoslovakia can be viewed as one large administrative body with the state center as the proposed decision-making headquarters (Hlavacek and Triska, 1988).

The Soviet model emphasized "expansive" growth principles, collectivizing and controlling production inputs and outputs through large administrative bodies (Vrabec, 1991). Nationalizing the economy effectively brought industries under the control of one body of ownership — the state. Small enterprises were either liquidated or integrated into larger enterprises. During the fifties, the private sector was almost completely liquidated, while several hundred thousand enterprises were merged into approximately 1400 centrally controlled firms, 60% of which are accounted for by the manufacturing sector (Zemplerova, 1989b), thus stabilizing the development of the size structure of firms. As can be seen in Table II, even by 1960, 93.4% of Net Material Product (NMP) was under state domination (for all practical purposes, cooperatives behave and are regulated like state firms). The non-farming private sector had dropped its share of NMP from 33.34% to 1.6% in only the first twelve years after WWII. As the mid 1980's approached, Czechoslovakia found itself with 96.7% of its NMP dominated by the state sector and only 0.7% of

TABLE I
Czechoslovak industrial enterprise size distribution according to number employed, 1930

Enterprise employment size categories	Number and shares of enterprises		Number and shares of workers employed	
	No.	%	No.	%
6—20	28,612	69.0	262,326	15.6
21—50	7,020	17.0	223,538	13.3
51—100	2,905	7.0	202,617	12.2
101—250	1,833	4.4	281,144	16.8
251—500	622	1.5	213,667	12.7
501 and over	446	1.1	492,160	29.4
Total	41,438	100.0	1,675,272	100.0

Source: Teichova (1988).

TABLE II
The percent share of the net material product produced by individual sectors, 1948–1983 (current prices used)

	1948	1960	1970	1980	1983
Total net material prod.	100.0	100.0	100.0	100.0	100.0
Individual farms	1.1 ^a	5.0	3.5	2.1	2.6
Private sector	33.4	1.6	0.9	0.5	0.7
Socialist sector	65.5	93.4	95.6	97.4	96.7
state owned enterprises	62.9	81.8	85.1	87.5	86.4
cooperatives	2.6	11.6	10.5	9.9	10.3

^a one man or one family.

Source: *Historical Statistical Yearbook of CSSR*, FSU, SNTL, Prague, 1985.

NMP contributed by the non-farming private sector.

Hlavacek and Mejstrik (1991) argue that the abrupt reorientation of foreign trade from the West to the East via CMEA agreements was critical to the systemic restructuring of domestic industries. Czechoslovakia was designated to fulfill the large demand in the USSR and its neighbors for heavy industrial products. The “law of development of heavy industry and manufacturing” aimed at exploiting available resources as well as creating the largest economies of scale possible for the country, vertically integrating all metallurgical production within a few firms — from base to final products (Komarak, 1974).

In Czechoslovakia, industry made massive investments in highly specialized equipment and narrowly trained workers. “Command and control” planning became the rule of thumb, where the only serious management discussions concerned the level of inputs and outputs possible for the production equation over the medium term. Through government regulation (i.e., restrictions on ownership, absolute price control, CMEA), five-year plans were thought to be given some of the needed stability to function predictably. Detailed planning was required not simply of a firm but of the whole economy as well. Where attempts at providing internal and external stability over-

lapped was in this planning. The various industry ministries and the instituted planning commission planned to the last “koruna” each firm’s level of investment, production, pricing, and “earnings,” providing consistency of production for each firm, in turn, a somewhat reliable “market.” In reality, targets and plans were redrawn within a planning period, often succumbing to the demands of the state firms.

Concurrent to the nationalization period of the fifties, with its organizational restructuring and concentration of production, the growth of organizational units gradually accelerated over time. As an attempt to more easily manage the centrally planned economy, in turn better coordinate industries, economic authorities decreased the number of enterprises while increasing the size of the firms. As can be seen in Table III, firms with over 2500 employees constituted only 4.7% of the total number of manufacturing enterprises in 1956.¹ However, we also observe that after 1960 through the present, this share stabilized at about 25%, while the share for firms of 500–2500 employees stabilized at about 65%. In contrast, the share of the total number of enterprises for firms with less than 500 employees fell from 49% to 10.2% between 1956 and 1988. By 1988, the average industrial firm size was 3400 employees (Zemplerova, 1989a).

As consolidation increased over the years, membership to industrial trade associations (VHJ) became largely obligatory. The associations acted as middle level management or bureaucracy, creating a network to translate basic indices from the center into detailed directives for firms within their branch and to control the distribution of resources. If an industry was not formally vertically integrated under one firm, these associations provided the conduit for sometimes informal, yet absolutely rigid, integration. VHJ’s were created in the late 1950’s to decentralize planning, yet as firms lost much of their autonomy to such “trusts,” concentration of industry as well as the administrative and technical monopolistic power of VHJ’s grew. In 1958, 383 VHJ’s were created, which controlled 929 firms, while 316 firms remained under direct control of the center. By 1980, the number of VHJ’s were reduced to 101 but controlled 1050 firms (Kalisova and Gregus, 1991). Just as Reich (1983) noted that in the U.S.

TABLE III
Enterprise size distribution of Czechoslovak manufacturing firms between 1956 and 1988

Year	Share of total number of enterprises					
	in absolute terms			Employment size categories		
				in relative terms (%)		
	< 500	500–2500	> 2500	< 500	500–2500	> 2500
1956	763	721	73	49.0	46.3	4.7
1960	137	523	181	16.3	62.2	21.5
1970	109	560	204	12.5	64.1	23.4
1980	80	562	218	9.3	65.3	25.4
1988	91	586	213	10.2	66.8	24.0

Source: *Historical Statistical Yearly CSSR*, Prague, SNTL, 1985; *Statistical Yearly*, 1989.

bargaining within government aided regulatory institutions was more of a limited exchange of information for the sake of industry coordination, in Czechoslovakia plan-bargaining between the firm and center, and more often the firm and VHJ, evolved similarly into a perverse collusion of various high level government bureaucrats, firm directors, and the regional Party bosses, where the state became dependent as well on the firm for coordinating information (Triska, 1989; Mlcoch, 1989). (A fuller discussion of the problems and nature of this collusion is given in Section IV.)

The expectations associated with the law of economies of scale (with little consideration for optimal plant size) represented a technical reason for the steady increase in plant size, which led the small and functionally closed Czechoslovak economy to the artificial formation of an indivisible single plant with an economic monopoly. The hierarchical structure of the centrally planned economy constituted institutional reasons for the formation of an administrative monopoly. The consolidation of branches under the VHJ's decreased the number of directives, yet large firms and associations possessed both an economic and administrative monopoly, which allowed them to act without respect to economic efficiency (Triska, 1990). As mentioned above, producers could count on state subsidies, price interventions, priority credits, tax exemptions, etc.² By not reflecting actual market costs, prices reveal little objective evaluation of performance. Thus, the distorted price system of Czechoslovakia further complicates the empirical identification of effi-

ciency and competitiveness by plant-size in the centrally planned economy.

c. Crisis for the regime and adjustment in the West

Beginning in the mid-1960s, a series of disruptions began to wreak havoc on the fragile mass production order in the West, notably in the U.S. External shocks jolted the much cherished stability, while the institutional structure was incapable of accommodating the spread of mass production technology. The much needed consistency and reliability of inputs, materials as well as labor, was greatly hampered, rapidly increasing the costs of production. The economy started to experience shortages of labor, food, and fuel, while increased global competition and deregulation exacerbated the uncertainty in the market. (See Piore and Sabel, 1984, chapter 7; and Shepherd, 1982.) The inflexibility of the corporation paralyzed it from adequately responding to greater competition, in turn, questioning the very nature of its production and marketing strategies. The confusion led to the breakup of mass markets for standardized products, that is, reducing sufficient demand to support long-term, stable production cycles.

This instability pushed industry toward more flexible restructuring of economic agents. The re-emergence of small, flexible firms in the developed market economies has been recognized as a critical element in recent industrial adjustment (Piore and Sabel, 1984; Acs and Audretsch, 1990; Fitzroy, 1990). However, such a restructuring was absent from the Czechoslovak economy as it

continued to slide into industrial stagnancy (see Section III).³

Blair (1948) argued that due to particular innovations and fundamental shifts in technology, the trend towards increasing size was being replaced by the opposite trend towards smaller size. He reasoned that it was the "decentralizing" effects of these new technologies which were reducing scale economies, and leading to smaller sized plants and firms. Piore and Sabel (1984) suggest that the emergence of this flexible mode of production represents, in fact, an "industrial divide" where firms and society are confronted with a choice of technological modes. In referring to the Italian example, where an increased reliance on small-scale production has resulted from underlying technological and institutional changes, Piore and Sabel (1983) argue that flexible production will tend to promote the relative viability of small firms. They argue that the flexible production firm thrives on the same factors that are debilitating to firms applying mass-production technologies. Rather than trying to control the path and direction of markets and technological change, as is customary for mass-production firms, the flexible-production firm needs to create new market niches by continuously innovating and redesigning the product to serve changing consumer tastes.

While the recent shift toward flexible, small firms has been attributed to several additional factors, besides market turbulence,⁴ three elements have been given considerable attention. First, recent technological changes, such as those that have decreased the computer and re-programming costs, may have reduced the optimal size and the minimum scale of entry (Shepherd, 1982; Carlsson, 1989). Acs, Audretsch and Carlsson (1991) suggest that the application of flexible-production technology, particularly NC machines, has tended to shift the firm size distribution towards small firms, notably in manufacturing industries which historically have been dominated by large firms. Second, we appear to be in the midst of "creative destruction," Schumpeter's (1950) description of the process by which entrepreneurs develop new products and processes which remove and replace the traditions of the past. Acs and Audretsch (1989a, 1989b) show that innovative activity is a strategy which small

firms have been using to enter industries and remain viable in industries in which they would otherwise experience an inherent cost disadvantage. Carlsson (1989) argues that many firms, large and small, have divested themselves of activities of businesses which they do not consider to be part of their "core" business.

Third, in a world of increasing turbulence, success depends more and more on flexible relations within and among firms (Sabel, 1989). This has led to a re-evaluation and reorganization of the role of government at the regional level and its capacity to facilitate cooperation and adjustment — between firms and their competitors, customers and suppliers, between management and labor — in order to enhance and share the risks of high value-added investments in human resources and technological innovations. Familiarity breeds cooperation; autonomy allows each to benefit from the novel experience of the other. Start-up and long-run development costs are reduced because an important by-product of the production is the knowledge about resource availability and potential new products and processes. The superior knowledge of such a network spreads risk and minimizes transaction costs.

d. Implications of small firm dynamics

Market economies appear to be producing new technological and organizational innovations which allow a much greater flexibility of production in terms of (a) acceptable variance of inputs and outputs (defined in terms of the number of cost-effectively produced homogeneous items per unit of time); (b) acceptable variances of product varieties; and (c) a decreased minimum scale of efficiency. Dosi (1988) has discussed two major consequences. First, these new technological and organizational innovations increase the efficiency of small scale production (Shepherd, 1982). Second, they are likely to reduce the importance of plant related scale economies, which were one of the main sources of both productivity growth as well as production rigidity exemplified in "classical" Fordist automation.

In trying to analyze the role of small firms and competition, be it in the U.S. or Czechoslovakia, the observed intra-industry size distributions of firms are affected by sector-specific technologies

and opportunities of scale as well as the trade off between scale and production flexibility (White, 1982). Indeed, there may be a certain number of technology-specific size distributions, by plant and firm, which represent, "evolutionary equilibria" (Dosi, 1988). That is, a variety of firms and plants coexist at roughly similar performance levels (Mills and Schumann, 1985) by exploiting more economies of scale with less flexibility, more economies of scope with less economies of scale. However, the distribution of firms or plants, coexisting with similar levels of efficiency, applies not only to technological variety but also to the behavioral diversity of firms within identical environmental incentives (Acs and Audretsch, 1989a). The firms use different strategies related to innovation, pricing, R & D, and investment (Freeman, 1982). Further, the coexistence of firms is not only a result of this process but also of the very form of competition among firms (Geroski and Pomeroy, 1987).

The emphasis here is that scholars increasingly realize the multiple possibilities for innovative, competitive structures of production organization, in turn a broader effective distribution of firm size. As a result of the processes mentioned above, market economies, as opposed to the Czechoslovak economy, have often been able to develop a size distribution of firms, i.e., the coexistence of firms with different sizes and behavioral patterns, which has greatly contributed to technological change and the satisfaction of increased consumer tastes. The critical implications for economic transformation in Czechoslovakia of this relationship between technology, start-ups, and the development of a harmonic distribution of firm size is discussed in Section V.

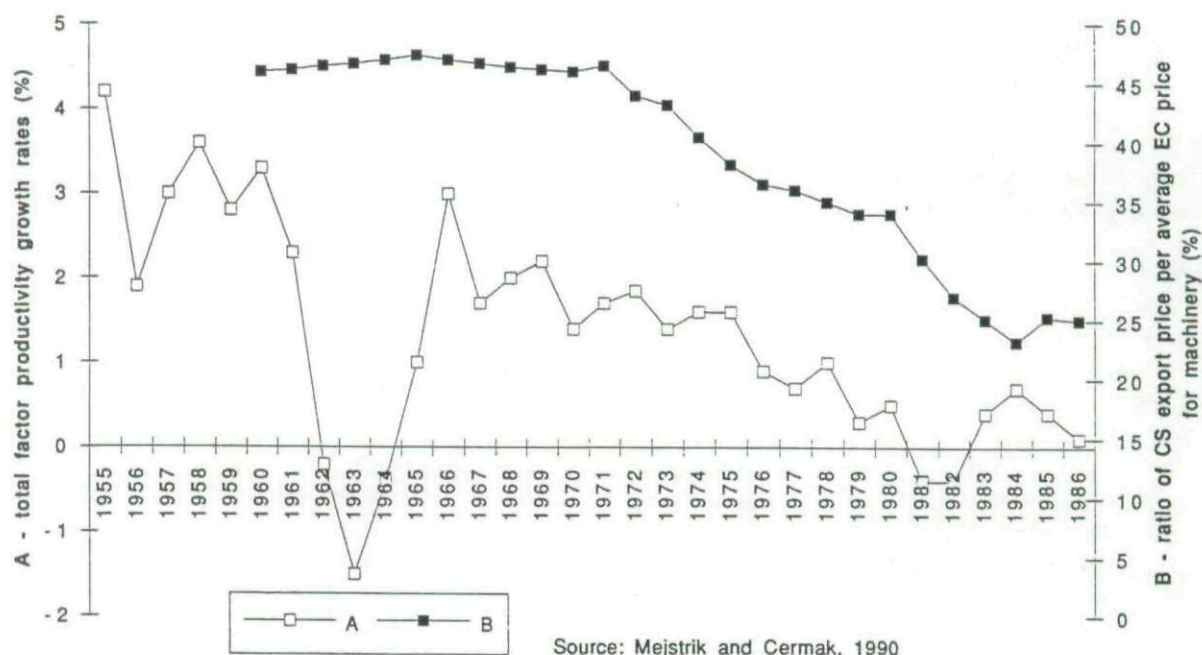
III. Decline and firm size in manufacturing

a. *Decline of productivity and competitiveness*

The generally accepted range of Czechoslovak GDP is between 53% and 83% of Austrian GDP for 1985 (Zamrazilova, 1990). These figures demonstrate Czechoslovakia's overall lead in economic level (GDP) by nearly 50% over Poland and 20% over Hungary. However, the "mature" Czechoslovak economy over the last decade has approached the lowest average figures of total

factor productivity (TFP) growth rates among the European CMEA countries. Following the production function theory (Brown, 1971), TFP growth captures the macro effects of economies of scale production. A drop in TFP growth, when not compensated by product and process innovations (as has been the case of Czechoslovakia), represents a decrease in the benefits derived from economies of scale production. Thus, the drop in TFP growth, which can be seen in Figure 1, led to the gradual deceleration of average annual rates of growth of the net material product (Mejstrik, 1990).

The decline in the competitiveness and performance of Czechoslovak manufacturing can be seen more clearly through its fall in export capabilities. While the vast majority of production was for the domestic and CMEA markets, those products exported to the EC market represent the highest quality goods available in the country. If such goods are unable to compete in the international arena, it is safe to say that the state of production capabilities for those goods not exported to the West is not any better and is most likely far worse (see, Kolanda and Tous, 1983). According to Mejstrik, (1990), in the period 1965–86 in various branches of manufacturing, prices per unit of weight of Czechoslovak exports⁵ into the EC market developed quite differently from those of competing countries (see Figure 1). Essentially, these ratios reflect a general negative relationship between the Czechoslovak prices and those of their competitors. The most notable and prolonged decrease in these ratios of average Czechoslovak export prices per unit of weight to competitor prices has occurred in the engineering industry. The average export prices per unit of weight of such products exported by Czechoslovakia to the EC have dropped from 52% (1965) to 25% (1986) of the prices attained by other countries' exports in the EC. The worst situation has been in high tech industries (i.e., electronics), while the low tech industries (i.e., metallurgy) have fared relatively better. The corresponding figure for metallurgy was 73% in 1986. These trends were accompanied by a decrease of Czechoslovak export shares of trade in the EC machinery market — 0.35% (1965) to 0.14% (1983), a 60% fall in market share. Between 1965 and 1981, Czechoslovakia's share



Source: Mejstrik and Cermak, 1990

Fig. 1. Decline of Czechoslovak factor productivity, 1955–86 (A); decline of Czechoslovak export manufacturing performance, 1960–86 (B).

in imports of manufactured goods into OECD countries decreased steadily by 31.3%, while the shares for newly developed countries and Southern Europe increased by 163.5% and 150%, respectively (Myant, 1989, p. 231).

The fall in export prices per unit of weight also does not represent an improvement in technological innovation. First, a fall in relative prices for goods in a fairly competitive market would represent an increase in efficiency if the market share increased at the same time. The apparent failure for Czechoslovak goods to win a foothold in the market coupled with decline in prices per weight reflects technological backwardness. Second, in Czechoslovakia the production base is often substituted or extended with machines and installations of a similar parameter, yet with goods of the same or higher price. The existence of such trends can be summarized from crude domestic data on innovation rates and new product development, entitled "quality of products and their innovation".⁶ While the share of products of "high technological and economic quality" in industrial gross output increased (from 5.4% in 1976 to 16.9% in 1986), "second class or average quality"

products continued to represent a substantial majority. Moreover, the share of new products introduced yearly from 1981 to 1988 fluctuated around 5% of gross industrial output. In turn, those products considered to be of "high quality" are subject to a fairly low frequency of innovations (Mejstrik, 1989). Myant (1989, chapter 9) adds that not only is the number of inventions and related resources per scientist and engineer much less than the level in advanced capitalist countries, but also attempts to apply new processes or to direct needed resources are frequently distorted by the entrenched interests in the economy. A small number of big projects are selected which are intended to cut through the boundaries between ministries, but they usually end up fragmented or tied to particular interest groups.

Rather than learning from firms in advanced capitalist countries, many of whom developed a more flexible, scaled down production structure (as discussed in Section IIc), Czechoslovakia continued to follow large economies of scale production in export manufacturing (Komarek, 1974).

b. *Manufacturing employment at the firm level*⁷

Table IV indicates that for the smallest 5% of firms in terms of employment in the Czechoslovak export manufacturing sector⁸ in 1988 the average size was still 900 employees per firm and the corresponding quantile was 1232. The emphasis and preference for large scale firms can further be seen in the jump from the 8th decile to the 10th decile in average firm size — from 8,504 to 36,712 employees per firm, respectively. These figures are exceptionally high when compared to contemporary Western developed nations. For example, in Japan in 1983, firms with over 1000 employees comprised only 13.2% of total employment in the manufacturing sector (Sato, 1989). In West Germany in 1986, firms with over 1000 employees accounted for 49.9% of total manufacturing employment (Schwalbach, 1989). By contrast, in 1988 Czechoslovak firms with over 1000 employees had over a 95% share of employment in

their export manufacturing sector and a 91.2% share of employment in the whole manufacturing sector (Zemplerova, 1989). Moreover, Table V indicates that, between 1956 and 1988, the share of total manufacturing employment for firms with less than 500 employees fell from 13% to 1.4%, while firms with more than 2500 employees represent over 55% of the total share.

A further indicator of the priority given to large firms is revealed in shares of total manufacturing sales. As Table IV shows, the 5 firms comprising the 10th decile accounts for 71.5% of total sales in this sector, while the 290 firms in the combined 1st and 2nd deciles account for only 4.4% of total sales. The data confirms of the largely held belief in Czechoslovakia that the system perpetuated the market priority given to large scale production across the manufacturing sector.

The above evidence reveals a very interesting situation in the Czechoslovak export manufacturing sector. While there has been a gradual

TABLE IV
Czechoslovak state export manufacturing sector, 1988

	Firm size distribution by employment quantiles and deciles					
	Employment quantile and decile categories					
	0.0—0.05	0.05—0.1	0.1—0.2	0.2—0.3	0.3—0.4	0.4—0.5
Employees per firm (high end) ^a	1232	1649	2329	2912	3690	4572
No. of firms	114	72	104	79	63	51
Ave. no. of employees	900	1443	1994	2606	3288	4114
Ave. total sales (Kcs)	628310	588823	774871	907124	1386224	136014
	0.5—0.6	0.6—0.7	0.7—0.8	0.8—0.9	0.9—0.95	0.95—1.0
Employees per firm (high end) ^a	5666	7413	11168	23454	41001	41159
No. of firms	41	32	25	14	4	1
Ave. no. of employees	5160	6479	8504	16690	35600	41159
Ave. total sales (Kcs)	1423219	1762791	4082009	7009155	13594068	11324670

^a denotes the high end of the given employment quantile or decile category.

Source: Czechoslovak Statistical Bureau, 1988.

TABLE V
Enterprise size distribution of Czechoslovak manufacturing firms between 1956 and 1988

Year	Share of total manufacturing employment					
	in absolute terms (000's of workers)			Employment size categories		
				in relative terms (%)		
	< 500	500—2500	> 2500	< 500	500—2500	> 2500
1956	193.2	826.2	466.6	13.0	55.6	31.4
1960	154.7	745.4	857.9	8.8	42.2	48.8
1970	37.0	729.0	995.0	2.1	41.4	56.5
1980	26.0	751.0	1052.0	1.4	41.1	57.5
1988	26.0	787.0	1024.0	1.4	42.8	55.8

Source: *Statistical Yearly*, FCU, SNTL, Prague, various years.

decline in the overall economy in Czechoslovakia in its export competitiveness, the economic authorities have emphasized the need to maintain and support large economies of scale production in the export manufacturing sector. However, as Mejstrik and Cermak (1990) confirm, this emphasis on large scale mass production has not aided performance of these firms, even when they have strong negotiation power. In fact, their results suggest a negative correlation between the large size of Czechoslovak firms in export manufacturing and performance.

One explanation for the decline in competitiveness and performance, as discussed in the previous section, is that the large size and domestic monopolistic positions of Czechoslovak manufacturing firms hindered their capacities and incentives to adjust quickly to competitive market demands and improve their innovation rates and applied human resource skills. Administrative convenience encourages enormous production runs with minimum variability. However, this is only a partial, perhaps technical, explanation. More revealing is that the high concentration of industry gave birth to a perverse coalition structure, which tried to maintain its hold on its economic and political monopoly and subsequently presents itself as a serious impediment to the economic transformation of the country.

IV. The coalition structure in Czechoslovakia

As can be seen above, Czechoslovak manufacturing is experiencing serious woes in its inter-

national competitiveness. Both the aggregate and disseminated data reveal that the Czechoslovak manufacturing sector has not been able to recover from its decline while the centralized system has supported increasing economies of scale. It seems that the institutional structure, as previously discussed, can be considered as serious influence on firm behavior and, moreover, has not created any response to this steady fall nor any hope for a future turn around. What is feared is an irreversible, sharp decline in export manufacturing, i.e., decreasing productivity and relative quality, consequently a loss of markets. Therefore, radical measures must be taken to restructure industry and reflect world standards.

Economic reformers face a market dominated by large state monopolies (Zemplerova, 1989b), which were created and maintained by administrative action rather than economic determination, and almost completely lacking a private sector, even when compared to Hungary or Poland. One could say that Czechoslovakia is home to a double monopoly, that is, a monopoly established simply due to the high degree of market concentration yet combined with a monopolization along the political and administrative power structure:

The enterprise in a non-parametrical environment is a coalition of internal and external participants. The internal participants include the "control group" — the power center of the enterprise, the worker aristocracy, and the administrative apparatus. The main goal of this group is not to improve efficiency and innovation, but rather to establish close links with all members of the external hierarchal superiors, i.e., planning commission, industry

ministries, and regional Party bosses, as well as with key suppliers and customers. These links help to insure the fulfillment of personal interests of the "control group" — their material and political welfare. (Mlcoch, 1989, p. 15)

The coalition structure derives its own system of barter exchange, an informal distribution network of resources, where formal monetary cost plays a secondary role. The trump card in an exchange is the ability to deliver a deficit product, also known as "natural revenues," such as industrial materials in short supply, the inside line on certain consumer goods, or a "natural" bonus system of coveted vacations. Capital is measured not simply in monetary terms but rather in one's access to materials through established informal networks.

While the center may try to assert control over firms directly or through VHJ's, the collusion of formal and informal control groups creates an illusion of "plan struggle." In reality, the collusive monopoly decides on a distribution of resources and benefits primarily for the internal rewards of the "mafia." (This conception was originally discussed by Mlcoch, unofficially published between 1980 and 1983.) The larger the firm, the greater its political and economic power, steering the economic authorities to continue preference for large scale production. Mejstrik and Hlavacek (1991) argue that in monopolized or oligopolized industries producing intermediate goods, the position of the producer via the center and market is strengthened as the government becomes dependent upon such firms for the relative administrative and economic stability. The center has no real alternative in the short-run but to continue support of such firms.

Smaller producers, while also dependent upon the larger coalitions particularly for supplies, derive their power vis-a-vis the center through their relative informational monopoly of their production process and immediate inputs. Hlavacek (1987) and Hlavacek and Triska (1988) have shown that such producers aim at maximizing the reserve (difference) between the real output and the maximal attainable output with given inputs in order to "soften" the tautness of the current or future plan. The result is low production performance in both quantity and quality, with an emphasis on accruing large reserves of material

resources. Moreover, even though the firm may be relatively smaller, its regional monopolistic powers over resources and information allow it to establish coalition ties with regional apparatchiks and nomenklatura. Thus, while a smaller firm's outright bargaining power with the center may be less than that of a larger national monopoly, its relative position in the industrial structure empowers it within regional coalition networks, such as those described above by Mlcoch (1989).

The coalition structure and the manipulation of material and financial resources is deeply rooted in its informal nature, where the behavioral problems can not be easily changed by the abrupt, formal transfer of the economy to a market-based one. The country faces, in turn, a very hostile environment for the introduction of a market framework. Barriers to entry include not only those common in developed market economies⁹ but also a complete lack of guaranteed supply as well as of market and resource information, most of which is controlled by the entrenched state firms.

V. The challenges of the reform process

The principle points of departure for reform are the full or partial privatization of state firms as well as the development of a new private sector of small and medium sized firms. Privatization in Czechoslovakia is divided into "small" and "large" privatization. The former method entails the public auctioning for money of small parts of state firms, services, retail shops, and restaurants with only domestic residents allowed to participate. The latter method concerns 60–70% of assets of all state firms, except utilities, public transportation, primary resource producers (i.e., coal, iron, etc.), health and education institutions, and those included in small privatization. A market for the purchase of shares is created as citizens are allowed to buy shares of firms through the use of vouchers, which are distributed by the government for a nominal fee. State firms are given until October 31, 1991 to prepare the company for such privatization, and the voucher auction begins in January, 1992.¹⁰

Even the formal break up and privatization of these enterprises does not, however, dissolve the coalition structure nor address many of the

barriers facing private start-ups, particularly in light and medium manufacturing. The Czechoslovak privatization plan emphasizes the rapid formal privatization of the state industrial sector. It rests on the assumptions that firm formation will occur principally through the "former" state sector and that once a legal order for market exchange has been established, property rights delineated, and macro-economic monetary institutions created, capital and firm formation will take place in the "best of all possible ways" (see Triska, 1990; and Klausova, 1991). Most economic reformers are demanding that the voucher process be completed by the fall of 1992. The bulk of state firms have been given only five to six months to restructure before the October 31 deadline, and reformers prefer to privatize larger entities for the sake of administrative ease and speed. Whole firms or large divisions are easier to evaluate and prepare for privatization since the separate units of a firm have no individual accounting system (Hlavacek and Mejstrik, 1991). In turn, the pre-privatization break-up has increased the number of state industrial firms to less than 3000. Post-privatization deconcentration is uncertain, because the further sale and restructuring of parts of firms will not be rapid due to the low level of domestic capital and the problems of asset evaluation; and moreover, many firms and units are likely to become bankrupt (Hlavacek and Mejstrik, 1991).

In such a small, closed economy as Czechoslovakia, divisions left intact have a high degree of regional monopolistic or oligopolistic power, particularly in the manufacturing sectors. Thus, Czechoslovakia is faced with a monumental task of creating basic competition — alternative suppliers, in turn, alternative selection of the prices and qualities of goods.

Beyond opening up the market to foreign competition — a necessary measure which is at a primitive stage of implementation and has proven to be initially quite costly — Czechoslovakia can open and facilitate the expansion of a domestic private sector.

Since the legalization of private business activity was enacted in May 1990, enterprises are indeed forming. Data collection on the new private firms is at a rudimentary stage due to the complicated registration process and transitory tax and

commercial codes. Initially, entrepreneurs and their firms are registered as "physical" persons with the subsequent option of registering as "legal" persons. The former status simply declares one's general commercial interest, where revenues generated are recorded in personal tax returns. The latter status demands a detailed tax return by the firm itself, which gives particular information about the firms expenses, sales, profits, employment size, and capital base. Table VIa shows the breakdown of those individuals who have done the general registration, and Table VIb shows the number of new firms registered as legal persons and the number of their employees, stratified according to industry. Since such firms are the only private firms which file a tax return, these are the only private firms that are officially recorded as actually operating.

The most immediate observation from the above data is the disparity between the number of persons registered for undertaking private business (655,023) and the number of operating private firms (1800). One reason for this is technical. Table VIa can be viewed as the number aspiring entrepreneurs in the country. Most of them registered simply to keep their options open to start a firm, others have opted for the time being to be employed in private firms, and still others are operating firms which are registered as physical persons and, thus, are not officially recorded by the government. In fact, preliminary research by the authors and information from the Czecho-

TABLE VIa
Registered private firms in Czechoslovakia as of March 21, 1991

Total number of registered private firms	665,023
Relative industry share of total (%):	
Agriculture, forestry, marine commerce	2.0
Industrial production	28.9
Construction	26.4
Transportation and communications	2.7
Retail trade	14.6
Other production services	0.5
Accommodation and travel services	2.2
Municipal services	8.3
Education, culture, health and social care	2.7
Other services	12.2

TABLE VIb
Number of private firms and employees by industry,
March 31, 1991

Industry	No. of firms	No. of employees	
		Total	ave. per firm
Agriculture, forestry, and marine commerce	37	65	1.76
Industrial production	341	1862	5.46
Construction	230	1962	8.37
Transportation and communications	119	293	2.46
Retail trade	429	1537	3.58
Research and development	8	73	9.13
Real estate management	3	37	12.33
Other services	182	858	4.71
Education, culture, health and social care	22	183	8.32
Other non-production sectors	354	1063	3.0
Unknown	75	421	5.6
Total	1800	8318	4.62

Source for VIa and VIb: Jaroslav Kux, 1991, 'Enterprises and Non-agricultural Cooperatives with a Small Number of Employees' ('Podniky a nezemedelska druzstva s malym pocetom pracovniku'), Statistical paper no. 2, Federal Statistical Bureau, Prague.

slovak Association for Private Entrepreneurs¹¹ reveals that the majority of new firms are registered as physical persons, the reasons for which present an interesting barrier to start-ups and are discussed below. Thus, the actual number of private firms is most likely greater than 1800, yet is unascertainable at this time.

Table VIa shows that 28.9% of aspiring entrepreneurs are interested in starting an industrial production business, and 25.7% are interested in the construction business. The rest opt for various service businesses. Table VIb shows that 341 or 18.9% of officially recorded firms partake in industrial production, and 230 or 12.8% of such firms partake in construction. The 1800 firms officially employ 8318 persons, industrial production accounts for 1862 employees, a 22.4% share of total private employment, and construction accounts for 1926 employees, a 23.2% share of total private employment. Although the average official size of private firms fluctuates between 2 and 12 employees per firm, recent research shows

that the average number of employees per firm is often double since many employees are hired as permanent "sub-contractors" in order to avoid social security payments by the firm.¹²

While the above data show that private firms are starting and will compose the bulk of small firms, there is no overwhelming rush toward establishing new firms. A recent poll of a third of the working population reveals that although many people are interested in establishing private firms, not one mentioned an interest in the manufacturing sectors (Jozifkova, 1991). Indeed, the barriers to private firm generation and survival, particularly in manufacturing, remain high.

One barrier concerns the registration process and commercial codes. If a firm has more than 25 official employees and over 300,000 Kcs profit, it must register as a legal person (the same status as a state firm), at which point the profit tax jumps from 35% to 55%. Moreover, there continues to exist a two-tier price system — the lower tier is subject to a mark-up ceiling for the prices of inputs and equipment. Legal persons, not physical persons, are privileged to buy at the lower level and are allowed to have direct foreign commercial relations. These points present significant implicit barriers to entrepreneurs who wish to expand their firms. The increase in profit taxes and the subjugation to state administrative regulations discourage new small firms from becoming legal persons. In turn, they are hindered from hiring more employees under legal contract and acquiring cheaper domestic resources as well as higher quality foreign inputs and equipment. Aspiring private manufacturers are particularly impeded from starting-up and expanding, since often they require large amounts of inputs (the expense for which is significantly higher when bought at the higher price level), advanced (mostly foreign) technology, and several skilled employees who are now in great demand and liable to walk out at the "next best offer" (especially to a foreign firm). Recent interviews with start-ups reveal that such entrepreneurs feel stifled from investing the necessary time and money in production facilities and a reliable workforce, because their liquidity constraints and the administrative redtape are compounded by the regulations accompanying being a physical person at such an early stage in the life of the firm.

Liquidity constraints are a serious problem in Czechoslovakia, particularly concerning access to bank credits.¹³ Recent statistics show that although Czechoslovakia has a savings base of approximately 267 billion Kcs, over one third is owned by only 5% of the population (i.e., past nomenklatura, black marketeers, etc.). At best, average savings per household is about 53,000 Kcs or about \$1800 (McDermott and Mejstrik, 1992). This lack of private investment capital, forces citizens to turn to the banking system for start-up and re-investment credit. However, the existing banking system fails to meet the needs of private entrepreneurs for several distinct yet interrelated reasons.

Recent evidence shows that state firms are becoming increasingly insolvent yet not bankrupt. The reasons are threefold (Holman, 1991). First, because of inflationary expectations associated with the price liberalization in January 1991, state firms used most of their liquid assets to increase their input stocks and inventories by 115%, while the average increase for industrial and manufacturing firms was approximately 140%. At the same time, the decrease in 1990 in state subsidies and depreciation allowances from 79% to 32% share of firm disposable financial resources severely constrained the financial capacities of state firms. Total state firm insolvency jumped 45% in January 1991 alone. Second, to avoid primary insolvency, and consequently closure by the Ministry of Economic Affairs, state firms prefer to suffer from secondary insolvency — their customers are unable to pay for the goods already purchased.¹⁴ That is, state firms prefer to sell goods to one another at inflated prices knowing that the customer is unable to make payment, causing secondary insolvency which is officially insufficient grounds for the closure of a state firm. Outstanding inter-firm debt, as indicated by the level of secondary insolvency, increased by 185% between March and September 1990 alone and is one way of financing excessive input stocks. The second way has been through bank credits ((the third reason for the perpetuation of insolvent state firms).

Holman (1991) reveals that the banking system does not have the financial capacity to cancel inter-firm debt nor is it interested in halting credit to state firms and causing massive bankruptcies. Virtually all of bank capital is invested in state

firms, and the bankruptcies of state firms would lead to the closure of the banks themselves. Furthermore, since household savings is the primary source of financing for credits to state firms, the government has refused to cancel state firm debts. Thus, state banks have actually increased short and medium term loans to state firms, primarily used for financing inventories and inter-firm debt, while decreasing long-term loans. Between March 1990 and 1991, short-term credit increased 64.75% and medium-term credit increased 37.32%, while total lending increased only 7.5% (Holman, 1991).

The existing system of state commercial banks has virtually exhausted its financial resources in continued lending to state firms, and, in turn, explicitly as well as implicitly discriminates against lending to private firms. While the insolvency of private firms represented less than 1% of total insolvency in the first year of the legalization of private enterprises, by the end of the first quarter 1991 loans to private firms represented less than 2% of total bank credits (Holman, 1991). Moreover, as of May, 1991 the average interest rate charged on loans to state firms was 15.32%, yet on loans to private firms it was 19.12%. Holman (1991) argues that banks prefer to lend to state enterprises than to private firms, since the banks continue to rely on state subsidies to state firms. For example, *Kommerčni Banka*, which has a 48% market share in Czechoslovakia and handles the majority of private firm accounts, has instructed its subsidiaries not to grant long-term credits but only short- and medium-term credits to private firms. Its credit ceilings are 5 million Kcs for private firms and 100 million Kcs for state firms. Any requests for loans exceeding these limits are subject to negotiations with the headquarters, where entrenched state firms can exploit their previously established "inside lines" on credit (Levitas, 1989).

When banks are not erecting explicit barriers for private firm access to loans, the system establishes implicit obstacles to gain investment capital. First, state commercial banks continue to evaluate requests for loans according to the level of existing capital in a firm. While entrenched firms have little problem with this criterion, private start-ups can offer only a moderate sum of personal savings and perhaps a rebuilt machine acquired from a state

firm as secured assets. In turn, start-up loans tend to fluctuate between 200,000 Kcs and 800,000 Kcs. Second, the average terms of loans are 18%–20% interest rate and 2–3 year payment schedule (Holman, 1991). Private firms are unable to obtain refinancing or further loans until the first loan is paid in full. The result is that private firms suffer from liquidity constraints soon after their establishment. Start-up capital is quickly used for the purchase of a few used machines and materials from the dominant state sector which demands immediate payment upon purchase because of its own liquidity crunch. Any remaining capital and profits are used immediately for loan payments, salaries, and further purchase of inputs. Since private firms depend largely on state firms for customers as well, they often experience great delays in receiving payment from the many insolvent state firms. As tax and commercial codes are not expected to be revised until next year, the only legal penalty against late payment is a 0.05% per diem (1.5% per month, 18.25% per year) finance charge, which is a nominal cost for a state firm and often cheaper than a new loan.

Small privatization was designed to meet many of the needs for start-ups, particularly the opportunity to purchase production space and facilities. However, the pace of the auctions has decreased considerably. Although the government planned to sell about 100,000 objects within 2–3 years, only 7000 places were auctioned in the first six months of the program, indicating that small privatization will take 8–10 years. There are three main criticisms of small privatization (Wurmova, 1991). First, authorities have not complemented small privatization with an adequate reform of the state banking system to provide needed start-up financing, as can be seen above. Only 4% of auction purchases include financing through bank loans. Second, approximately 81% of the facilities auctioned have been for the purchases of only two year leases with no guarantee of renewal. This regulation greatly increases the risk of investing in medium to long-term production facilities. Third, properties auctioned are mostly retail shops and restaurants, rather than facilities and space adequate for production, such as parts of industrial state firms, which further hinders start-ups in the manufacturing sector.

In general, the production of intermediate

inputs and even basic equipment is dominated by, a highly concentrated (soon to be privatized) state sector, upon which private firms are dependent for both suppliers and customers. The problems presented by the combination of complex registration and commercial codes, a discriminatory banking system, and the insufficient opportunities to purchase facilities through small privatization hinder considerably the generation of new firms, particularly in the production sectors and actually allow entrenched firms to continue their preferred access to resources. State firms continue to flex their monopolistic and monopsonistic powers. Since the freeing-up of and creation of alternative financial and material resources appear to rest on the reorganization of the concentrated state sector, the development of new private firms is still largely dependent on entrenched informal networks.

On the one hand, state firms are and will be the principal source for supplies. While they are willing to sell inputs to private firms, the selection and quality of goods are limited, and the terms of contract and payment are still dictated the state supplier. Recent interviews with start-ups reveal that access to choice materials and even second-hand equipment is greatly influenced by an entrepreneur's ability to maintain from past employment personal ties to certain managers at state firms. On the other hand, state firms represent the primary source of customers and market information for the entrepreneur. Often customers are state firms with which the entrepreneur had previously done business as a state employee. Nevertheless, state firms still prefer to sell to and hire one another in order to avoid primary insolvency, as mentioned above, and to receive shortage supplies as part of payment.

While these observations may not seem unreasonable for start-ups in a transforming economy such as Czechoslovakia, the problem is that new firms largely depend on just a few entrenched firms with which they have already ties. Rapid privatization of the concentrated state industrial sector, without previously boosting the formation of private, smaller firms, leaves the nascent private sector with few new options for supplies and customers. As output falls and liquidity tightens in the privatized state sector, start-ups may be faced with poorer selection of goods, rising input prices,

and increasing outstanding debts from customers. Furthermore, such an environment is hostile to the development of alternative production processes which can aid the generation new inputs and equipment as well as the reskilling of workers.

As discussed in Section II, key factors in the birth, development and success of small, flexible firms are the opportunity to develop state-of-the-art technology and various methods of retraining laborers (Acs and Audretsch, 1989a; Sabel, 1989). Given the high costs associated with the purchase of equipment from abroad and the continued reliance on entrenched firms for machinery, manufactured goods, and the training of the labor force, the dynamic growth of small firms, subsequently a more balanced size distribution of firms, as well as of the entire manufacturing sector can be significantly hampered. The effect of such an oligopolistic, perhaps monopolistic, market is a general lack of competition — sluggish productivity and innovation coupled with inflationary pressures.

While the privatization of the Czechoslovak state sector is necessary to the transformation of the economy, adequate support¹⁵ for the development of new small firms is an essential component to the revitalization of the society. As new firms concentrate their efforts on the production of consumer and manufactured goods as well as expand output before the state sector can be more effectively organized, the traditional dominance of heavy industry over the consumer and light industries will be weakened — and with it one of the main structural causes of inflation in CPEs (Kornai, 1986). The proliferation of thousands of new small entrants can help demonopolize the industrial structure and strengthen tendencies toward price competition. Also, since small firms are associated with high rates of job generation (Acs and Audretsch, 1987), they have the ability to absorb much of the unemployed from the bankrupt state factories.

Furthermore, the fairly rapid development of the small firm sector can greatly aid the proposed plans for the reprivatization of state firms, and in turn the trading of shares. The capital accumulated in these numerous start-ups will speed up the selling of the state sector in the secondary market, producing a broader middle class of financially participating owners, other than a concentration of

past nomenklatura or indifferent shareholders (Kornai, 1990).

The public needs to be reassured that their positive future is tied to their direct and local participation in the development of markets. Economic reformers need to offer a concrete vision of how individuals and groups themselves can take advantage of prospective market opportunities, i.e., by creating alternative networks of interdependent, competitive small and medium sized firms as well as new local banks. Moreover, a large body of independent, active economic agents can better assure the maintenance and growth of democratic markets in this volatile period of transformation. Providing more direct economic opportunities in local, smaller firms to those currently without privileges demonstrates to the people that marketization is not just for the privatized nomenklatura, who may try to transfer their former political capital into economic power (Levitas, 1989).

Reformers in Czechoslovakia are gradually realizing the need for an industrial policy which actively fosters the development of private small firms in the manufacturing sector.¹⁶ At the minimum, Czechoslovakia needs a distribution of firm sizes, which would efficiently enhance technological change and the satisfaction of consumer tastes. Small firms can rapidly contribute to the development of a harmonic size distribution of firms. Given the structural barriers described in this section, simply the legalization private business, the implementation of anti-trust policy, and the reduction of bureaucratic red tape are insufficient. The current government's over-emphasis on the privatization of the state sector at such an early stage of industrial restructuring ignores the development of a dynamic private entrepreneurial sector and risks creating only a single ownership and organizational form. As Cui (1991) argues however, the key element which differentiates market economies from socialist economies is the "experimental nature" of market economies that enlarges the opportunity set for the whole society to experiment with new technological and organizational forms. Such opportunities for experimentation were at the core of the adjustment in market economies, as discussed in Section II.d.

VI. Conclusion

This article has attempted to give an understanding and analysis of Czechoslovak manufacturing firms within the context of the economic strategy based on the returns to scale paradigm. This paradigm has been followed to its political and economic extremes in Czechoslovakia yet did not appear to positively influence the performance and competitiveness of firms, contradicting the assumptions by industrial policy-makers and managers.

In spite of a relatively high economic level inherited from past generations, the mature Czechoslovak economy suffered serious drops in total factor productivity growth rates as well as in the ratio of the Czechoslovak export sale price per average price of foreign competitors in the EC market, especially in the manufacturing sector. Furthermore, the Czechoslovak export manufacturing sector is dominated by firms with well over 1000 employees, with small firms virtually absent.

The qualitative and quantitative evidence suggest an interesting reason for the downfall of communist economies in Eastern Europe. Just as Marx declared of capitalist economies, one can say that communist centrally planned economies, as in the Czechoslovak case, "sowed the seeds of its own destruction." As the regime married itself to ever more increasing scales of production, coalitions of enterprise directors, regional Party officials, and deputies of relevant ministries increasingly acquired economic and political power. These coalitions could virtually blackmail the state into financially and politically supporting their economic structure, while maintaining their economic monopoly and, in turn, a "soft" environment for performance. Thus, internal pressure for structural change could be diffused over an extended period of time.

The Czechoslovak manufacturing sector faces a sharp decline in international competitiveness. The transformation process is presented with the challenge of a persisting coalition structure that is deeply rooted in its informal nature, where the behavioral problems cannot be easily changed by the simple, formal transfer of the economy to a market based one. Preliminary analysis of the newly establishing small business sector and of adopted legislation indicate that the complex

commercial codes, the discriminatory banking sector, and the lack of opportunities to acquire production facilities through small privatization present serious obstacles to the development of dynamic capital and firm formation, which is critical to the survival and success of democratic marketization. The government's preoccupation with the rapid privatization of the state sector through the use of vouchers ignores the difficulties facing the development of small and medium sized firms, especially in the manufacturing sectors, and consequently risks damaging the economic revitalization of the country.

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Notes

¹ Czechoslovak statistics record only the number of laborers in firms, excluding the calculation of the number of white-collar employees.

² Kornai (1980 and 1986) has written most extensively on such an environment, terming the problem a "soft budget constraint."

³ In the 1960s, economic and political leaders in Czechoslovakia began to debate and test reform measures in order to reverse the economic decline that the country had been experiencing since 1959. The Warsaw Pact invasion into Czechoslovakia on August 21, 1968 brought an end to Prague Spring as well as any deviation in the traditional model of a centrally planned economy. After 1969, the center began to reassert itself. For an insightful discussion on the reform debates during the 1960s see Batt (1988).

⁴ First, increased labor-force participation of women and the baby boom generation may have increased the supply of exactly those kinds of labor which is most conducive to small firms (Evans and Leighton, 1989). In addition, the decrease in U.S. real wages during the 1970s and early 1980s may have also provided labor intensive smaller with a competitive edge over capital intensive firms. Second, the proliferation of consumer tastes, away from standardized mass-produced goods and towards stylized and personal products, has also been a catalyst for small firms. Third, relaxation of entry regulation in some industries, such as telephone manufacturing and financial services, has increased the opportunities for small firms (Brock and Evans, 1989).

⁵ Relative prices per unit of weight of exports is regarded as the strongest indicator of relative product and technological quality in comparisons with Eastern European economies. This is a subject of considerable interest in Czechoslovakia with a general assumption that a high price per unit of weight of product reflects a high input of "qualified labor." Official statements even refer to this measure as a desirable target for economic policy. The measure has been suggested in British as an indicator of the technological level of machinery, and it does correspond in some cases at least to foreign trade performance of individual products. It seems far more attractive as a measure of comparative product quality of an Eastern European country able to produce and export even uncompetitive products (Myant, 1989, pp. 229–235).

⁶ Statistics are taken from the *Federal Statistical Yearbook*, Prague, respective years. It should be noted that the classification of the level of product quality and innovation is based entirely on domestic administrative (subsequently less demanding) criteria, which often are influenced by local interests. Also, these criteria are predominantly of a technical nature — users have little influence on their evaluation and the assessment of products is done a priori. In turn, low quality products are practically no longer assessed, and a reduction of the prices of poor quality products is hardly ever implemented, even when low efficiency exports are attained (i.e., the ratio of the number of goods with increased prices to those with decreased prices in 1985 was 78:1). Thus, "innovations" fail to register as cost saving measures (Mejstrik, 1989).

⁷ According to Brown and Phillips (1989), the employment measure is a standard criterion to gauge firm size.

⁸ Export manufacturing firms are defined in Czechoslovakia as those which pursue export activities, yet also contribute (often principally) to domestic production. According to Zemplerova (1989a) export manufacturing firms account for 65% of all manufacturing firms.

⁹ Standard entry barriers in leading developed countries are typically high capital requirements, scale economies, advertising, and R & D (Geroski and Schwalbach, 1991). By contrast, entry barriers are vastly more complicated and widespread in Czechoslovakia.

¹⁰ "Small" privatization is implemented through a standard financial auction. "Large" privatization is a "dutch" auction for the shares of state firms that is administered through the use of vouchers, because authorities believe that there is simply not enough private capital in the country for citizens to partake in de-nationalization of 60% of the economy. For 2000 Kcs, a citizen over the age of 18 receives a check book worth approximately 30 000 points. Voucher points are exchanged for shares in firms directly or in mutual funds. Each citizen is allowed only one voucher book, and vouchers are non-transferable. A standard secondary market for shares opens a few months after the close of the second three month round of voucher trading, August 31, 1992. For a more detailed account of the process, see Klausova (1991).

¹¹ Preliminary research on start-ups in the Prague region was conducted during summer, 1991 by McDermott. 30 firms were interviewed and 125 were surveyed. Industries analyzed were industrial electronics repair and manufacturing, energy production, construction, furniture, gas equipment repair and manufacturing, and light metal manufacturing. The best infor-

mation on the private sector is at the Czechoslovak Association for Private Entrepreneurs, established in January, 1990. The Association boasts a membership of 115,000 entrepreneurs. Although a detailed statistical analysis of the activities of its members is still in progress, initial returns indicate that only about 3% of its members are willing to start a manufacturing firm.

¹² It appears that most employees are each officially sub-contracted firms. A person registered as a physical person, or with his "zivnotensky list," is allowed to earn a limited amount of private income from his own business and is responsible for his own social security payments. If a firm hires a person as an official employee, not under sub-contracting terms, the firm must pay the social security taxes for the employee. In order to avoid these taxes, the firm hires people, who have their own "zivnotensky list," under permanent or per-job sub-contracting terms. Thus, a construction firm with 200 employees may only officially have 4 employees, while the rest have their own "zivnotensky list" and are permanently sub-contracted.

¹³ Evans and Jovanovic (1989) have shown that liquidity constraints are a serious impediment to the formation of firms.

¹⁴ The Ministries of Industry and Economic Affairs are allowed to close a company only if it suffers from primary insolvency, not secondary insolvency. Primary insolvency is defined as insolvency due to the outright inability of a firm to sell the good it has produced. Secondary insolvency is defined as insolvency due to the purchase firm's inability to pay the bill. Theoretically, a firm suffering from secondary insolvency is able to produce marketable goods but is not fully responsible for the fact that the purchaser can not pay the outstanding debt. Therefore, in order to avoid formal bankruptcy, state firms collude to sell to one another, increase inter-firm debt, and suffer from secondary insolvency. At the same time, they demand payment upon purchase from private firms.

¹⁵ For example, Anthony Levitas (1989, 1990) has argued for the formation of local institutions in Poland which would improve the flow of resource and market information, the skill level of workers and the provisions of credit for new firms.

¹⁶ For concrete policy recommendations in developed market economies, see Storey and Johnson (1987). The government in the Czech Republic has recently submitted a support program of 3-year interest-free loans for certain classes of private start-ups, yet the program will not be implemented before January, 1992, at the earliest.

References

- Acs, Zoltan, and David Audretsch, 1987, 'Innovation, Market Structure, and Firm Size', *Review of Economics and Statistics* 69, 567–576.
- Acs, Zoltan, and David Audretsch, 1988, 'Innovation in Large and Small Firms: An Empirical Analysis', *American Economic Review* 78, 678–690.

- Acs, Zoltan, and David Audretsch, 1989a, 'Small Firms and Technology', *Beleidsstudies technologie/economie*, Ministry of Economic Affairs, The Netherlands.
- Acs, Zoltan, and David Audretsch, 1989b, 'Entrepreneurial Strategy and the Presence of Small Firms', *Small Business Economics* 1, 193–213.
- Acs, Zoltan, and David Audretsch, 1990, *Innovation and Small Firms*, Cambridge: MIT Press.
- Acs, Zoltan, David Audretsch, and Bo Carlsson, 1991, 'Flexible Technology and Firm Size', *Small Business Economics* 3, 307–319.
- Audretsch, David, 1989, *The Market and the State*, New York: New York University Press.
- Batt, Judy, 1988, *Economic Reform and Poland Change in East Europe*, London: Macmillan Press.
- Blair, J., 1948, 'Technology and Size', *American Economic Review* 38(2), 121–152.
- Brock, William, and David Evans, 'Small Business Economics', *Small Business Economics* 1(1), 7–20.
- Brown, H. S., and B. Phillips, 1989, 'Comparisons Between Small Business and Data Base (USEEM) and Bureau of Labor Statistics (BLS) Employment Data 1978–1986', *Small Business Economics* 1(4), 273–284.
- Brown, Murray, 1971, *Technological Change and the Production*, New York: New York University Press.
- Carlsson, Bo, 1989, 'The Evolution of Manufacturing Technology and Its Impact on Industrial Structure: An International Study', *Small Business Economics* 1(1), 21–37.
- Chandler, Arthur, 1977, *The Visible Hand: The Managerial Revolution in American Business*, Cambridge: Harvard University Press.
- Dosi, G., 1988, 'Sources, Procedures of Microeconomic Effects of Innovation', *Journal of Economic Literature* XXVI(3), 1120–1171.
- Evans, David, and B. Jovanovic, 1989, 'An Estimated Model of Liquidity Constraints', *Journal of Political Economy* 97(3), 808–827.
- Evans, David, and Linda Leighton, 1989, 'The Determinants of Changes in US Self-Employment, 1968–1987', *Small Business Economics* 1(2), 111–120.
- FitzRoy, Felix, 1989, 'Firm Size, Efficiency, and Employment: A Review Article', *Small Business Economics* 1(1), 75–80.
- FitzRoy, Felix, 1990, 'Employment, Entrepreneurship and 1992: Microeconomic Policy and European Problems', *Small Business Economics* 2(1), 11–24.
- Freeman, C., 1982, *The Economics of Industrial Innovation*, London: Francis Pinter.
- Galbraith, John, 1967, *The New Industrial State*, Boston: Houghton Mifflin.
- Geroski, Paul, and R. Pomeroy, 1987, 'Innovation and the Evolution of Market Structure', London Business School, Working Paper Series No. 36, November.
- Geroski, Paul, and Joachim Schwalbach (eds.), 1991, *Entry and Market Contestability: An International Comparison*, Oxford: Basil Blackwell.
- Hlavacek, Jiri, 1987, 'Homo se Assecurans', *Politická Ekonomie*.
- Hlavacek, Jiri, and M. Mejstrik, 1991, 'Preconditions for Privatization in Czechoslovakia in 1991', CEU Working Paper, Prague.
- Hlavacek, Jiri, and D. Triska, 1988, 'Producer's Criteria in Centrally Planned Economy', Working Paper, Institute of Economics, Prague.
- Holman, Robert, 1991, 'Insolvency of State Enterprises: 1990–1991', CEU Working paper, Prague.
- Jozifikova, Bohumira, 1991, 'Verejne mineni: soukrome podnikani' ('Public Opinion: Private Enterprising'), *Profit* 32.
- Kalisova, Lenka, and Miroslav Gregus, 1991, 'Economic Reforms and Enterprise Behavior in Czechoslovakia: 1945–1989', CEU Working Paper, Prague.
- Klausova, Livia, 1991, 'Privatization in Czechoslovakia — Key Element of Economic Reform Process', mimeo.
- Kolanda, M., and O. Tous, 1986, 'Average Prices per Unit of Weight of Engineering Products in Czechoslovak Exports to EEC in 1960–1983' (in Czech), Research Memorandum No. 47, VUVEV.
- Kolko, Gabriel, 1963, *The Triumph of Conservatism*, New York: Macmillan.
- Komarek, Valtr, 1974, *Efektivnost Hospodarskeho Rozvoje* (Effectiveness of Economic Development), Prague: SNTL.
- Kornai, Janos, 1980, *The Economics of Shortage*, Amsterdam: North Holland.
- Kornai, Janos, 1986, *Contradictions and Dilemmas*, Cambridge: MIT Press.
- Kornai, Janos, 1990, *The Road to a Free Economy*, New York: Norton.
- Leibenstein, Harvey, 1976, *Beyond Economic Man*, Cambridge: Harvard University Press.
- Lenin, Vladimir, 1939, *Imperialism, the Highest Stage Capitalism*, New York: International Publishers.
- Levitas, Anthony, 1989, 'Strategic Choices and Democratic Marketization' ('Solidarnosc i Rynek'), *Res Publica*, May.
- Levitas, Anthony, 1990, 'Solidarity Banks: Infrastructure from the Bottom up', *Communist Economics* 2(1).
- McDermott, Gerald, and Michal Mejstrik, forthcoming 1992, 'Small Firms in Czechoslovak Manufacturing', in Zoltan Acs and David Audretsch (eds.), *Small Firms and Entrepreneurship: An East-West Comparison*, Cambridge: Cambridge University Press.
- Mejstrik, Michal, 1989, 'Productivity and Innovations in Czechoslovakia: Trends and Possible Policy Responses', presented at the British-Czechoslovak Symposium, Newcastle, England, February 23–25.
- Mejstrik, Michal, 1990, 'Czechoslovak Transition to a Market Economy', NBER Lecture, Cambridge, Mass.
- Mejstrik, Michal, and Jan Cermak, 1990, 'Analysis of Size and Performance of State Industrial Enterprises', Research Report, Institute of Economics, Prague.
- Mills, D. E., and L. Schumann, 1985, 'Industry Structure with Fluctuating Demand', *American Economic Review* 75(3), 758–767.
- Mlcoch, Lubomir, 1990, 'The Behavior of Czechoslovak Enterprises', Research Paper No. 348, Institute of Economics, Prague.
- Myant, Martin, 1989, *The Czechoslovak Economy 1948–*

- 1988: *The Battle for Economic Reform*, Cambridge: Cambridge University Press.
- Nelson, R., and S. Winter, 1977, *An Evolutionary Theory of Economic Change*, Cambridge: Bellmap Press.
- Piore, Michael, and Charles Sabel, 1983, 'Italian Small Business Development: Lessons for US Industrial Policy', in John Zysman and Laura Tyson (eds.), *American Industry in International Competition*, Ithaca: Cornell University Press, pp. 391–421.
- Piore, Michael, and Charles Sabel, 1984, *The Second Industrial Divide*, New York: Basic Books.
- Pryor, Z. P., and F. L. Pryor, 1975, 'Foreign Trade and Interwar Czechoslovak Economic Development 1918–1938', *Vierteljahrschrift für Sozial und Wirtschaftsgeschichte* 62.
- Reich, Robert, 1983, *The Next American Frontier*, New York: Times Books.
- Sabel, Charles, 1989, 'The Reemergence of Regional Economies', in Paul Hirst and Jonathan Zeitlin (eds.), *Reversing Economic Decline*, Oxford: Berg, pp. 17–70.
- Scherer, F. M., 1980, *Industrial Market Structure and Economic Performance*, Chicago: Rand McNally College Publishing Co.
- Schumpeter, Joseph, 1950, *Capitalism, Socialism, and Democracy*, New York: Harper and Row.
- Sheperd, W., 1982, 'Causes of Increased Competition on the Economy, 1939–1980', *Review of Economics and Statistics* 64(3), 613–626.
- Storey, David, and S. Johnson, 1987, *Job Generation and Labor Market Change*, London: Macmillan.
- Teichova, Alice, 1988, *The Czechoslovak Economy 1918–1980*, London: Routledge.
- Triska, Dusan, 1990, 'Bargaining and Search in Imperfect Markets: A Centrally Planned Economy', in Richard Quandt and Dusan Triska (eds.), *Optimal Decisions in Markets and Planned Economies*, Boulder: Westview Press, pp. 27–40.
- Vrabec, Vaclav, 1991, 'Znarodni 1945' ('Nationalization 1945'), *Dejiny a soucasnost I*, Prague.
- Wheelwright, S. C., 1985, 'Restoring Competitiveness in US Manufacturing', *California Management Review* 27, 26–42.
- White, L. J., 1982, 'The Determinants of the Relative Importance of Business', *Review of Economics and Statistics* 64, 42–49.
- Wurmova, Anna, 1991, 'Jak si vede mala privatizace?' ('How Goes Small Privatization?'), *Profit* 29, 2.
- Zamrazilova, Eva, 1990, 'International Comparisons of Economic Development Levels Between East and West European Countries', *Jahrbuch des Ost-Europa Wirtschafts*, November.
- Zemplerova, Alena, 1989a, 'Monopoly in a Centrally Planned Economy', Research Paper No. 333, Institute of Economics, Prague.
- Zemplerova, Alena, 1989b, 'Monopolization of the Czechoslovak Economy', presented at the EARIE Conference, Budapest, 1989.

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