Productivity, Firm Size and the Process of Transition

Zoran Kovačević*

Faculty of Economics, Zagreb

Abstract: The importance of different sized firms in the process of development is significantly determined by different firm types. In order to detect the changes in industry character the author assumes that the differences in productivity among different sized firms indicate the very character of the industry. Small Croatian firms have been positioned predominantly in the service sector. Limited domestic market size and the so called structural changes, continuously limit the ability of small firms to generate large employment. Thus, in order to reduce the growing unemployment and for expansion of export, Croatian economic policy will have to rely more on the larger firms.

JEL Classification: L 16, L 11

Key words: Productivity, firm size, transition, cohorts

Introduction

Transition process has significantly influenced the productivity of small, medium and large firms in Croatia. Change in productivity has resulted in a series of changes in the character of the sector and in consequential straightening of the service sector in the national economy. This paper is an attempt to measure differences in the characteristics of the sector by comparing differences in productivity between firms of different size.

The first part of the paper presents the importance of a firm size in economic development. The second part offers methodological explanations. The third shows changes in productivity of different sized firms at the sectoral level, and the last

* Zoran Kovačević is Assistant Professor at the Faculty of Economics, Zagreb.
section of the article check the relationship between the goals of economic policy and firm size.

**Relevance of the Firm Size in Economic Development**

In the past four decades industrialisation based on development of large companies, was the fundamental orientation of economic policy as in most countries so in Croatia. The revealing characteristics of past decades (in 1950s, 1960s and the first half of 1970s) was that accelerated development was based on large production systems, which were capital-intensive and equipped with modern technology (for more details on strategies of development (see Sharma, 1992; and on the importance of different firm size in development see Anderson, 1982; Mead, 1994; OECD, 1995a; OECD, 1995b; Spath, 1993; Steel-Webster, 1992; and Young, 1994).

Development and social problems were efficiently solved by large firms. They employed a large number of employees, accelerated urbanisation process (goal being the enhanced level of urbanisation in the shortest possible time), gave rise to dynamic growth of production, productivity and the technological level of the country. Because of its relative overcapacity (in relation to the size of the national market and export capabilities of those firms and countries), large firms demanded a relatively high degree of protection. The strategy was that of industrialisation based on import substitution.

Such a development required relatively high capital investment, which stimulated countries to import capital and technology, usually based on sizable loans. The oil crises at the end of the seventies and in the beginning of the eighties, followed by a recession in industrialised western economies and the so-called debt crises of the emerging economies, have strongly changed the attitude towards different sized firm in development.

At different stages of development and at different degrees of development the role of small, medium, and large firms has been changing. From the differences in the distribution of employment in industry among countries at different levels of development a model has evolved, according to which countries go through 3 different development phases in the process of industrialisation (Anderson, 1982: 920). In the first phase of development the most important source of employment in the industry was household manufacturing. The second stage presents the development of small manufacturers and factories, while the importance of household manufacturing decreases. In the last phase large firms dominate on dual basis: a) through growth of successful small manufacturers and factories; and b) through expansion of large firms, both domestic and foreign. Since this model was
developed in the early eighties it could not have incorporated the fourth stage, which evolved in the course of the 1980s.

During the eighties the share of small and mid sized firms in the growth of employment in the developed western countries was significant, and the so called V-pattern was formed (OECD, 1995b:12-19; Pyke-Sengenberger, 1992; Sengenberger-Loveman-Piore, 1990). According to this V-pattern the importance of small and medium firms in employment generation in developed western countries, lost its importance in the 1960s and the 1970s. But during the 1980s this trend changed (among other things the trend was also manifested in an increase of production concentration). The share of small and medium firms in employment was significantly increased, especially in the so-called ‘new employment’ (Birch, 1983).

Naturally, that process could be observed in different manners based on the type and characteristics of the new founded small and medium sized firms. Small and medium sized firms could also be classified by the character type which has influenced their creation. In that case we could divide them into two different groups of firms.

The first group is made up of small and medium firms that are supply driven and represent a basis for the relatively low quality development (Mead, 1994:1882). Those types of firms are mostly established in times of recession, when they reflect country’s development failure. Such an employment increase is called soft employment (Young, 1994:5). The process is characterised setting up of a large number of micro-firms (usually with only one or two employees), low level of productivity and wages, while unemployment is quoted as the leading motive for establishing those firms. Expansion of that employment type could rather be quoted as a sign of stagnation than of health, vitality and the development potential of the country.

The second group is made up of small and medium firms that are demand driven. That is the situation in which the number of firms and employment increases. Entrepreneurs become aware of new business opportunities and either increase the number of their employees or establish new companies. Such an employment growth is called hard employment. It is characterised by: employing people in highly productive and well paid industries, where growth of firms takes place as well as an effective usage of modern technology. Such employment often serves as a base for successful exports expansion (classic example is Taiwan) (Young, 1994).

It seems that the importance of different firms types during development is significantly determined by general characteristics of the firms of different size. Small and medium firms characteristics can best be seen by comparing them to large ones.
The usual quoted basic advantages of small firm are: their ability to react fast to any changes (such a characteristic comes from their usually thin and mostly personalised link with market and market requirements, e.g. consumers); a relatively low level of managerial red tape (the owner is usually the executive manager); co-operative management style (the owner and his employees often do similar or equal jobs, mostly in a narrow working environment); the employees are highly motivated by comfortable environment (OECD, 1995b:16).

The most common basic disadvantages of small firms are: relatively low productivity (in comparison to the large systems); lower wages (small firms usually offer smaller wages than large firms, but the most significant difference are the fringe-benefits: the larger a firms is the more numerous the fringe-benefits); longer average working hours per employee, higher bankruptcy risk of the firm (which means higher risk of loosing the job (Dune-Roberts-Samuelson, 1989; Baldwin-Gorecki, 1991; Boeri-Cramer, 1992; Dunne-Huges, 1994; Mata-Portugal, 1994; Wagner, 1994; Geroski, 1991,1995; Audertsch-Mata, 1995; Mata-Portugal-Guimaraes, 1995); higher unit cost of work (low wages on average do not compensate for lower productivity of small firms in comparison to large ones); limited availability to raising finance (Schmitz, 1982).

Because of those different characteristics a disproportionally large share of small firms can be found in the service industry, while large firms are dominantly located in production (Sengenberg-Loveman-Piore, 1990). Such characteristic differentiation leads to conclusion that small and large firms are not direct or fierce competitors.

The low level of direct competition of small and large firms stems from the differentiation of their characteristics and the market location, but it could also be explained by the established link between the size, age and growth of firm (Evans, 1987:577). From all the studies that analyse the process of firm entrance on market one can conclude that majority of the entrants in developed economies are extremely small and have high mortality rate in the first years (Geroski, 1995). Those new, dominantly small firms, are predominantly competitors only to smaller firms that had entered the market before them. Accordingly, new small firms compete with older equally small firms. Large and on average elder firms do not react to their emergence, neither by price, nor by quantity of supply, and it seems, neither even by promotion activities (Geroski, 1991:150). From the large firm’s reaction one could draw conclusion that they do not perceive the new small firms as their competitors. Their reaction makes sense and is based on the fact that productivity of the entrants is significantly lower than that of incumbents. New entrants requires approximately 10 years to reach the average size and productivity of the incumbents (Geroski, 1995:423).

The situation in Croatia is to an extent rather specific. Distribution of firms among the industries is similar to western experiences (small firms are mostly service
providers, while the larger once are production oriented (Kovačević, 1997a, 1997b), but the productivity of our new entrants is above average.

**Methodological Explanations**

Statistical data presented and used in this paper is from the database of the *Zavod za platni promet* (ZAP), where the size of the firm is defined in accordance with the article 16. of the Law of Accounting (NN, 90/1992). According to the said Law a small firm is defined as a firm which does not exceed two of these three criteria: a) book value of the firm up to 2 million Deutschmark, b) income in 12 months before completing the balance sheet less than 4 million Deutschmark, and c) annual average of 50 employees. A medium size firm is the firm that does not exceed two of the following three criteria: a) book value of the firm up to 8 million Deutschmark, b) income in 12 months before completing the balance sheet less than 16 million Deutschmark, and c) annual average of 250 employees. If a firm exceeds two of these three criteria, it is classified as a big firm.

In order to ascertain the difference in the dynamics of productivity between different sized firms, productivity ratios are created. The share in total income related to the share of employment estimates the productivity ratio. If the productivity ratio is larger than 1, that group is unusually productive. Which mean also that share in total income is larger than share of employment. If the ratio is smaller than 1, productivity is below the average level.

**Different Sized Firms Productivity at the Industry Level in Croatia**

Productivity could be observed on three levels. First at the industry level (compared to an average firm in the industry). Second among the same sized firms (compared to average same size firm). Third at the economy level (compared to the average firm). Productivity of a group doesn’t have to correspond at all levels because the base of comparison is different. In this case we shall study more productivity differences of the different sized firms at the industry level.

Distribution of total income between different sized firms has been radically modified during the transition process in Croatia. The market position of small firms has been significantly improved, while market position of medium and large firms has deteriorated.

Small firms have increased their share in total income by 25.5 points (from 9.6 to 35.1 per cent) in 1990-1995 period. Acquiring market position of the large firms accounts for most of that change (decline by 20.2 points, or from 67 per cent to 46.8
per cent), as well as medium ones (decline by 5.4 points, or from 23.5 per cent to 18.1 per cent). Rapidity of change is best illustrated by the fact that at the very beginning of the transitional process large firms had 7 times bigger market share compared to small ones, while in 1995 they made up only 10 per cent of larger share (Kovačević, 1997a:393).

Market position of the different sized firms mostly depends on the character or the industry. Differences in productivity between different sized firms (productivity ratio) should accordingly point to the industry character. In the service dominating industry high productivity of small firms, somewhat lower productivity of the medium ones, and the lowest of the large firms should be excepted. In the dominantly productive industry, quite a reverse situation can be expected.

As can be inferred from the analysis (see table 1) there were three dominant service industries in Croatia in 1995: crafts, trade and constructing, and one dominant production industry: housing and utilities. Other industries could be divided into three groups. The first group includes service-production industry. In these industries productivity of small firms is the highest, while productivity of large firms is higher than in medium size firms. In 1995 service-production industry is made of transport and communications, forestry¹, and catering and tourism industry.

The second group includes production-service industry. In these industries productivity of large firms is the highest, while the productivity of small firms is higher in comparison to the medium ones. This group includes manufacturing and water management. The third group is made of two remaining industries: agriculture and financial and other services. In these industries productivity of medium firms is the highest but they are differently positioned. Productivity of small firms in agriculture is much higher than in large firms, while large firms productivity in the financial and other service industries is higher than in small ones.

In the process of transition the service segments of Croatian economy have strengthened, while the production segments has weakened. There was only one service dominated industry in 1990 in Croatia (construction), one service-production industry (trade), while there were two production industries (forestry and housing-utilities) and six production-service industries (manufacturing, water management, transport and communication, catering and tourism, crafts and trades, financial and other services).

But in 1995 the number of dominant service segment was increased by two industries (to three), the number of service-production segment grew by two (to three), while the number of dominant production industry decreased by one (to one) and the number of production-service segment decreased by four (to two).

At the macro level of economy, productivity of small firms has been continually improving, while the productivity of large firms has been continually decreasing (with the exception of 1993, due to hyperinflation). In 1995 the share of small firms
in the total national income was 32 per cent above their share in employment (productivity ratio 1.32), while the share of large firms was 7 per cent lower (productivity ratio 0.93).

High productivity of small firms in Croatia is the consequence of a large increase of their market share. The fact is that small Croatian entrants occupy approximately 4.5 per cent of the market share in the first year (average 1990-1995), employing at that point 3.5 per cent of the total national work force (Kovačević, 1997a:402).

Table 1: Productivity ratio* at the industry level

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Productivity ratio* = share in total income / share in employment
Source: ZAP documentation

Since the market penetration rates in developed countries are modest (Geroski, 1995: 438), in this respect Croatian entrants differ significantly from entrants in developed countries.

Difference in the market penetration could be explained in at least five ways. Firstly, transitional deregulation and liberalisation combined with drastic decrease of domestic production protection in the early 1990s provided work to majority of small entrants in the international trading. Through inexpensive and imported goods of relatively good quality they became a competition to domestic producers (the exchange rate of Kuna being appreciated and domestic margins of profit in commerce are still high).

Secondly, the entry has a major effect on the market only at the birth of new product or new market, i.e. at an early stage of industry life cycle (Gort-Klepper, 1982; Nelson-Winter, 1982; Nelson, 1995; Geroski, 1991, 1995). The transitional process has created new needs and new markets, especially in the service sector that was forced to the background.

Thirdly, a turbulent market environment is more small firm friendly than the stable one (Piore-Sabel, 1984; Acs-Audretsch, 1988). The transitional process is turbulent
by definition, especially at its earlier stages, which is another reason for the success of small entrants in market penetration.

Fourthly, it is possible to speculate that these small entrants, by their appearance, change the operating characteristics of small firms on the Croatian market (they were more customer oriented than older and bigger), or we may conclude that these entrants are more ‘innovative’ than the new incumbents.

Fifthly, the process of transition and privatisation among large Croatian firms was conducted very slowly (Bićanić, 1993; Ravlić, 1995; Škrtić, 1995; Teodorović-Vlašić, 1996; Vojnić, 1995; Kovačević, 1997b, for more details on transition and privatisation process). So, smaller, mostly privately owned firms took over the market that used to belong to mixed and/or government owned firms.

**Development Goals of the Croatian Economic Policy and Firm Size**

Goals of economic policy change according to the condition of the economy. Croatian economy in late 1990s compared to early 1990s is drastically different, in particular in number and structure of firms\(^2\). Reduction of high unemployment and export expansion are the top priorities of the economic policy, which proves to be an impossible goal if small firms are to become the foundation of the economy. Ability of small Croatian firms to generate significant employment is limited by the size of the domestic market (especially in the service areas), and by the extent of structural changes.

Even in historically favourable circumstances as proved to be the early 90s, small firms managed to increase employment by only 102,000 employees (1990 – 1995)\(^3\). The result of the nearly seven fold increase of the number of small firms was evident in doubling of the employment.

The size of the service segment of the market, where small firms play dominant role, is considered to be one of the most important limits to their growth. In the life cycle model of the firm, slow downs or even zero growth rate of, by then, growing small firms, is explained by the limited size of some market segment (Churchill-Lewis, 1983:35).

Structural reasons are one of the crucial factors that influence high mortality rate of small entrants. It is well known that earlier entrants presented a barrier to entry to later entrants both directly and indirectly (see Geroski, 1991 and 1995). The earlier entrants directly stop the later entrants by positioning themselves in the market niches which are later to be entered by the later entrants. Also they create a barrier to entry by effecting the behaviour of medium and large firm. The earlier entrants force the medium and large firms to change their business strategy, which make survival of later entrants even harder. We can conclude that these structural changes
accomplished by now, particularly in the growth of number and the market share of Croatian small firms, will significantly increase entry barriers and mortality rates of new entrants.

It is quite unrealistic to use small firms as a basis for significant export expansion. Some of the most notable limits that prevent small firms from penetrating the international market are: absence of the economies of scale, limited availability to relevant information knowledge (concerning international business codes and legal requirements), deficiency in the fields of finance, promotion, and so on (Schmidt, 1996). An additional barrier for export expansion is the sectoral structure of small firms i.e. their service character\textsuperscript{4}.

From above mentioned it could be concluded that economic policy should primarily be based on large Croatian firms in order to meet the goals (reduce unemployment and increase export). And even without any changes in the economic policy, an economical revitalisation of larger Croatian firms is very likely to take place in the mid term. The economic policy should not only support but also accelerate that process.

Two ongoing processes already support the economic revitalisation of larger firms with yet another one to follow. The first one is the process of growth of successful firms and their transition into higher size categories. The second one is privatisation of majority of medium and large firms which should be carried through. And third one are the direct foreign investments.

Medium firms productivity has been continuously growing since 1993. That process has significantly contributed to growth of firms and transformation of the most successful ones among them to higher size category. During 1994 and 1995 a transition of medium firms to the category of large ones has been witnessed, which means that we can expect a further dynamisation of the process in the future.

One of the most significant factors that explains high market penetration of small Croatian firm is the difference in ownership structure in the early 1990s. That was the period of fierce competition between small privately owned firms and larger firms of mixed ownership. Going through the privatisation process larger firms accelerated their business and improved their business strategies. The changes in business strategies of large firms can to a large extent change their market position. That in particular refers to the creation of normative entrance barriers (lobbying through various business associations in law making, etc.), which could influence the market positions of different sized firms.

Imbalances in the Croatian balance of payments are likely to cause greater openness for foreign capital and direct investments. Foreign investment dynamics should further enhance the position of large firms on the Croatian market.
Conclusion

The importance of different sized firms in the process of development is significantly determined by different firm types. Smaller firms are one of the most efficient mechanisms that influence changes in the operative characteristics of the firms on the market. That task was successfully accomplished by small Croatian firms.

High productivity (and market shares) of small firms have accelerated the restructuring process on all levels. At the firm level the restructuring is mirrored in large decrease in employment in larger Croatian firms, while at the industry level it is mirrored in the transformed character of many industries. Service have significantly gained, while production has weakened its market position.

In order to detect the changes in industry’s character we have assumed that the differences in productivity among different sized firms indicate toward the very character of the industry. In the predominantly service industries high productivity of small firms is expected, and so is the lower productivity of medium and large firms. In predominantly production industries quite the opposite is true. Service-production industries are characterised by the highest productivity ratio of small firms, and higher productivity of large ones in relation to medium, while the production-service industries are characterised by the highest productivity of large firms, as well as by higher productivity of small firms in relation to the medium ones.

The number of service industries in Croatia during 1990-1995 increased from 1 to 3 (crafts, trade, constructions); number of service-production industries extend from 1 to 3 (catering and tourism, transport and communications, forestry); the number of production-service industries declined from 6 to 2 (manufacturing and water management); and production industries from 2 to 1 (housing, utilities and public services).

An important contribution to accelerated economic revitalisation of larger firms will be the process of growth of successful firms and their transition into a higher categories, along with the ultimate of privatisation of majority of medium and large firms and foreign direct investments.

NOTES

1The Croatian forestry was centralised in 1991. Since then the entire industry has been organised through 1 large firm and about 10 small firms. For details see Kovačević (1997b:258).

2 The total number of the active firms in Croatia increased 5.5 times during 1990-1995 (from 10.859 to 59.922). The total increase is the consequence of the small firms’ activity. The number of medium and
large firms decreased (medium from 1.444 to 1.335, and large from 600 to 528). In the employment distribution there is a significant increase of the trade industry (from 12.8 per cent to 17.1 per cent) and financial and other services (from 2.1 per cent to 5.6 per cent), while manufacturing's share declined (from 45.6 per cent to 41.8 per cent). The structure of total income register better trade position (increased from 27.9 per cent to 32.5 per cent) and financial and other services (from 2.2 per cent to 6.2 per cent). See Kovačević (1997b)

3 At the same time employment in the medium and large sized firms decreased by approximately 500,000 people. See Kovačević (1997b).

4 Among small and medium Croatian firms the most significant are trade and financial-service firms, while manufacturing firms lost significance. In the total number of small firms manufacturing decreased its share from 15.4 per cent in 1990 to 11 per cent in 1995. If that process is observed dynamically (in cohorts of the firms founded same year) the share of manufacturing firms in cohorts of small sized firms went down from 13 per cent in group of 1991 to 9 per cent in group 1994. But trade firms increased their share from 40.5 per cent in 1990 to 48 per cent in 1995. The biggest number of the small sized firms cohorts over 50 per cent are made up of trade firms, and if we add to that financial-service (average share in cohorts is 17 per cent), hotels, restaurants and tourist firms, and crafts and trades firms, the share of the service firms is almost 80 per cent. A similar situation can be found in the employment structure of small firms, but the dominance of service firms is most evident in the structure of total income. Manufacturing firms participate 13 per cent in the total income of small companies in 1995, while trade firms participate 55 per cent, and financial-service 11 per cent. If viewed through the cohorts, the share of production firms in the total income continuously decrease (from relatively high 21 per cent, to 16 per cent, then 14 per cent, 13 per cent, and at the end to 14 per cent in cohorts 1991 through 1995). The share of trade is very high. It is about 56 per cent in all cohorts, exceptions is group 1991 (48 per cent) and group 1994 (62 per cent). See Kovačević (1997b: part 7) for more details.

REFERENCES


