Zoran Kovačević, Ph. D.
Associate Professor
Faculty of Economics
Zagreb

STRUCTURAL CHANGES OF CROATIAN MANUFACTURING

Summary

The first part of this paper analyses the theoretical basis of structural changes that developed countries went through, especially the process of tertiarization and deindustrialization. The second part of the paper analyses the basic aspects of structural changes that happend in Croatian manufacturing in the period between 1996 and 2003. Two aspects of these structural changes have been analysed: a) the size of the enterprise (small, medium, and large), and b) the aspect of different industries within manufacturing - classification based on the National Classification of Economic Activities. Variables taken into account are employment, total revenu and salaries.

Key words: structural change, manufacturing; enterprise; employment; revenue;

1.   INTRODUCTION

Three processes marked changes in economic structure of developed countries in the last thirty years or so (since mid-1970s): a) deagrarization, b) deindustrialization and c) tertiarization.[1] The process of deagrarization in most developed countries was slowed down when number of people employed in agriculture dropped down below 5%, employment in industry dropped down to 30 percent or less than 30% while the share of tertiary sector increased to 70% or more. Since relatively dynamic growth of total production was achieved at that

---

[1] Very detailed and good display of structural changes in OECD countries was given in the paper of Landesmann – Stehrer (1999)

time, reduction of structural employment shares did not automatically mean reduction of production – production increased in sectors whose structural shares were reduced (agriculture and industry), which means that these sectors experienced a relatively high growth of labour productivity.[2]

The pattern of structural changes, i.e. evolution of economies in different countries is to be established on several levels. First, countries can follow one pattern of structural changes but at a different time – e. g. first comes deagrarization then deindustrialization and at the end comes tertiarization. Second, patterns of changes can be different but final structure can be the same or very similar (structural convergence) i.e. tertiarization before deindustrialization etc. Third, countries can develop in completely independent directions and have significantly different economic structures.[3]

Structural changes in economy are usually measured and displayed by joining on the sector level (primary, secondary and tertiary). But with the start of transition process in Eastern Europe, structural changes began to be measured also with alternative measures as the degree of privatization (public, private and mixed sector), according to time of existing (old and new sector) or market orientation of the enterprise (internationally exchangeable, i.e. inexchangeable goods). Regardless of the methods of measuring structural changes, process of deindustrialization, i.e. alternatively seen, process of tertiarization are one of the most obvious contemporary development tendencies.

Economic structures of undeveloped and developed countries have always been clearly distinctive. Economic structures of undeveloped countries had been predominantly agrarian until the beginning of 1980s. Economic structures of developed countries were predominantly industrialized. The process of economic growth and development was relatively easy to implement through fast industrialization and at the same time tolerating or even encouraging the process of deagrarization. Problems appeared when people realised that economic structure of developed countries evolved mostly towards service sector, i.e. when tertialization was noticed (or alternatively deindustrialization) as a global development tendency of developed countries. The evolution from industrialization to tertiarization seems to be much more complex and demanding than the change from an agrarian into an industrialized country. The role of industry in this process, i.e. the speed and intensity or desirability (or even disadvantage) of deindustrialization process is not easy to determine.

---

[2] Even the hypothesis of above-average productivity growth of sector whose structural shares are dropping, as in agriculture during deagrarization or industry during deindustrialization. For details see Baumol (1987) or Baumol – Blackman – Wolf (1989)

[3] Typical example of third development pattern is Iceland – due to sophisticated and developed fishing the country stimulated even stronger deagrarization. So the question of time horizon in observing structural changes comes naturally as the influence of coincidence because one strong industrial crisis is enough to change the picture and conclusions drastically. See details in Landesmann – Stehrer (1999: 12 and 13)

Deindustrialization process of developed countries has been explored in a relatively detailed and thorough way. It seems that structural changes are the result of two processes: a) different growth rates and productivity levels among sectors (the lowest one being in the tertiary sector) and b) difference in the level of income elasticity of demand (demand for the products of primary sector is not income elastic.)[4] These processes can induce the process of dynamic structural evolution that was first done through industrialization process (industry and tertiary sector develop to the detriment of agriculture), and in the last 20 years or so it is manifested through deindustrialization process i.e. tertiarization (tertiary sector develops to the detriment of the secondary sector.)

Different degrees and rates of change in productivity among sectors are fundamental driving force of structural changes. If I accept this view, it turns out that a predominantly agrarian country is poor not because it has a disproportionate share of people employed in agriculture but because of the productivity level in its agriculture is so low that it demands or alternatively tolerates this high share of employment in agriculture. Enhancing productivity increases income per capita, income per capita works through demand structure, i.e. through income elasticity of demand influences the development of industrial sector and later on service sector.

This shows that structure of production is a mirror picture of structure and changes of domestic demand. Here we need to take into consideration three facts: a) a big part of the service is not internationally profitable, b) income elasticity of demand for service is significantly higher in comparison with other two sectors (primary and secondary) and c) productivity of the service sector enhances slowly (after reaching some 'normal' i.e. expected level.)

All this shows that an economic structure is a product of factors from generated offer and demand, i.e. that reallocation of employment into tertiary sector (tertiarization) is a product of enhancing productivity structure and an answer to changes in the demand structure. Relatively low productivity level of service sector implies more than proportional growth of that sector share in the economy in the process of economic growth and development, i.e. in the income growth of a country (because of the effect of relatively high income elasticity of service demand.)[5]

---

[4] For details see Rowthorn – Wells (1987) or the application of their model (concerning first of all the explanation of deindustrialization phenomenon in developed economies) on European economies in transition in works of Mickiewicz – Zalewska (2001) and (2002).

[5] Rowthorn – Wells model can be successfully formalized and it helps us explain processes of industrialization (i.e. deagrarization) and deindustrialization, i.e. tertiarization. Aggregate production, employment and demand are seen as a unity of production, i.e. employment and demand in three sectors (primary, secondary and tertiary) with different productivity levels, shares in production, i.e. employment and with different levels of income elasticity of demand, i.e. with changes in structure of aggregate demand for products of these three sectors in time, i.e. during economic growth and development. For details see the works of Mickiewicz – Zalewska (2001) and (2002).

Transition process in Central and Eastern Europe is easy to fit within the universally applicable theory on the evolution of economic structure. One of the most distinguished features that all transitional countries have in common was extremely high degree of industrialization (in comparison with other countries of the same or similar level of development, i.e. countries of medium development) - so the situation of structural incompatibility of aggregate offer (production) and demand was not unusual here. Logical and expected consequence of the regime change (from predominantly planned into predominantly market economy) was deindustrialization. This process appeared but what is surprising are three facts that arose from comparison of economic structures in transitional countries. First, deindustrialization process is the strongest in relatively unsuccessful transitional countries (like Russia, Ukraine etc.) and it is much slower in successful ones (Hungary, Czech Republic, Poland etc.) Second, degree of tertiarization, i.e. growth of the service sector is much higher in successful transitional countries and unsuccessful countries have either relative stagnation or very modest growth of the service sector. Third, most of the relatively unsuccessful transitional countries have both fast agrarization and drastic deindustrialization as also stagnation or modest growth of tertiary sector.[6]

Analysis of structural changes on macroeconomic level is instructive and shows us some basic tendencies and possible medium-term, i.e. long-term solutions, whereas analysis on the industrial level is usually more detailed and informative but also relatively unfit for generalizations. This conclusion is even more acceptable if the observed economy and/or industry is smaller, because in this case one or several enterprises are determined also by this structure and the speed of structural changes. This paper will look more closely into some aspects of structural changes that occurred in manufacturing in The Republic of Croatia from 1996 to 2003.[7]

---

[6] It seems that the evolution of sector economic structure is a great indicator of success (efficiency) of the transition process. In their two papers Mickiewicz – Zalewska (2001) and (2002) tested and confirmed a few interesting hypothesis. They concluded that the post-reform share of agriculture is in negative correlation with the quality of transition (growth of this share only in relatively unsuccessful transitional countries) and that the intensity of deindustrialization is also in negative correlation with the success of transition (the more stronger deindustrialization process is, the more unsuccessful is the process of transition), whereas the growth of tertiary sector is in positive correlation with the success of transition.

[7] Due to relatively significant changes in the methodology of statistical data processing (change from the so-called United Classification of Economic Activities to National Classification of Economic Activities – compatible with the international practice, i.e. with NACE Review 1 which is a statistical standard of the EU and with ISIC Review 3 standard of the UN) period before 1996 was not included in the analysis. For details see Kovačević (2001).

2.   MANUFACTURING IN THE REPUBLIC OF CROATIA

Total number of employed in Croatian manufacturing had been constantly decreasing in the period from 1996 to 1999.[8] From around 300 thousand, the number of employees dropped to 256 thousand, i.e. for around 45 thousand people. Reduction of employment was not equally spread during one period of time but most it happened in 1997 (21 thousand) and 1999 (15,5 thousand). Year 2000 brought certain recovery (growth of 4 thousand employees) but after that, in 2001 and 2002, the trend of employment reduction continued so that year we had an absolute minimum of 250 thousand employees. In 2003 the situation got better and 256 thousand were employed in manufacturing (see chart 1).

Chart 1
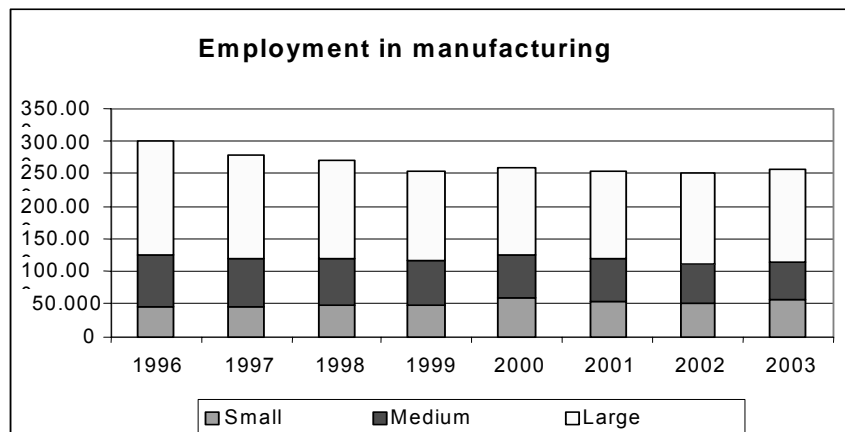
Source: FINA (ZAP) – annual reports

Tendency in employment was significantly different in enterprises of different size (see chart 1). This is no surprise because business strategies and segments of the market that are covered by the enterprises of different size are divergent. Bigger enterprises are more comfortable with stable conditions of doing business and smaller enterprises prefer fast changes because they are more flexible. In the second half of 1990s Croatian economy adapted its legislation and

---

[8] Before the process of transition, i.e. in the 1980s, industry and mining in Croatia employed around 560 thousand people which means that around 520 thousand of people were employed in manufacturing. First big wave of reduction in the number of employees happened in the beginning of 1990s, i.e. between 1990 and 1995 when the number of people employed in manufacturing dropped from 520 to 300 thousand. Most of the changes happened in 1991 and 1992 when the number of people employed in manufacturing was reduced for another 20 thousand people. Source: Statistički ljetopis RH 1996, page 107

institutions to market conditions relatively fast (liberalization and deregulation), process of privatization was not completely finished, specially in bigger systems, Croatian banking system was undergoing a very intensive process of recovering (followed by the bank crisis). All this influenced a relatively drastic change in the conditions of doing business. It seems that smaller enterprises adapted to these turbulent conditions much better. As soon as the conditions for doing business improved, large enterprises enhanced their business performance significantly.

During the period of reducing the total number of employees in manufacturing (1996 – 1999), employment in medium and large enterprises dropped by 48 thousand (12, i.e. 36 thousand people), whereas the number of employees in small enterprises increased by 3 thousand. In the year 2000 increase of the total number of employees was the result of increased employment in small enterprises (by 10 thousand) because employment in medium and large enterprises kept dropping (by 1, i.e. 5 thousand). In 2001 and 2002 Croatian economy experienced a change of trends and employment in small enterprises dropped (by 6, i.e. 2 thousand), in medium enterprises it was slightly increased (by 120 people) but after that it dropped in the year 2001 (by 8 thousand people). In large enterprises employment stagnated in 2000 and was increased in 2002 (by 6 thousand). In 2003 employment increased in small (by 3 thousand) and large enterprises (3 thousand) and it stagnated in medium enterprises.

At the end of this period small enterprises had increased employment in comparison with the forst year of the period, whereas medium and large enterprises experienced reduction in employment. In the given period, small enterprises increased employment by only 8 thousand people (to 54,8 thousand) which resulted in relative growth of 17%. In the relative sense, medium enterprises lost a lot because their employment dropped by 25% (by 20 thousand, i.e. 58 thousand), whereas in large enterprises employment dropped by 18%, i.e. by 32 thousand and came to where it is now: 143 thousand employees.

Classification of enterprises according to their size is just one of the aspects (and a less important one) of diversifying enterprises in manufacturing. Differences in their activity, i.e. field of production, are much more significant. Since the total employment in manufacturing dropped during the given period, what we can expect of typical Croatian industry is tendency towards reduction of employment. Of 14 industries that manufacturing consists of, these trends are seen in 10 (see chart 2). Only in 3 industries employment at the end of the period stagnated on the starting level (employment usually dropped between 1996 and 2000 and it was increased later on): in food production (DA), wood industry (DD) and in metal production (DJ). Transport equipment industry is the only one where employment at the end of the period was higher than at the beginning.

Chart 2

Number of employees in industries within manufacturing
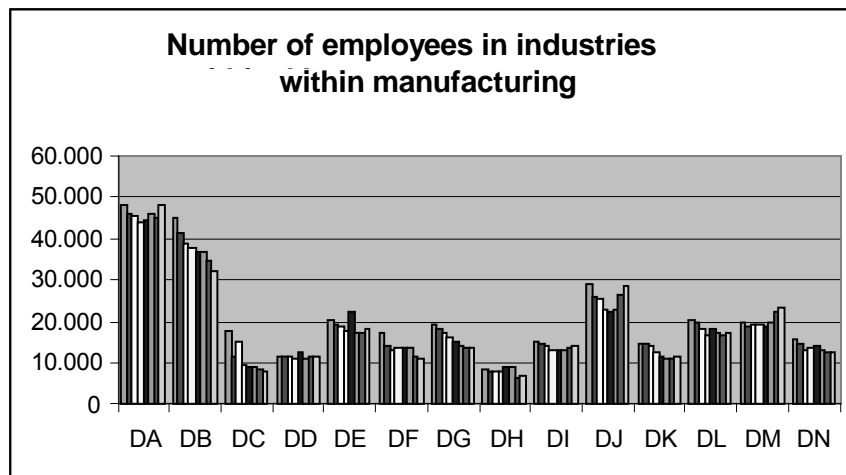
Source: FINA (ZAP) – annual reports

Food products, beverages and tobacco industry (mark DA according to National Classification of Economic Activity) is the most important for generating employment in Croatian manufacturing. In 1996 it employed 48 thousand people which was reduced to a minimum of 43,7 thousand in 1999. This was followed by two years of employment growth, one year of reduction, then again growth to the same level as in the beginning (48 thousand of employees). Since the level of employment in food products, beverages and tobacco industry had not changed and the over-all employment of manufacturing dropped, this industry experienced an increased share of employment in manufacturing (from 16% to 18,7%).

Second in generating employment is textiles and textile products industry (DB). Its employment was constantly dropping from 44,6 thousand employees in 1996 to 32,1 thousand in 2003 (net loss of 12,5 thousand people). Until 2002 this industry followed general trends in manufacturing so the share of textiles and textile products industry in employment did not change (around 14%). But in 2003 it continued to reduce employment, contrary to increased overall employment in industry which resulted in reduced share in employment (12,5%).

Employment in basic metals and fabricated metal products industry (DJ) was similar to the pattern of food products, beverages and tobacco industry. It means that it dropped between 1996 and 2000 (from 28,9 thousand people to 22,4 thousand) and then it increased to the beginning level in the last three years (28,3 thousand). Share of metal products industry in employment of Croatian manufacturing in the given period increased from 9 to 11%.

Fourth from the aspect of employment share and the only industry that increased employment in comparison with the beginning level is transport equipment industry (DM – production of transport equipment: shipbuilding, railway, car engines, motorcycles, bicycles etc) In 1996 it employed 19,6 thousand people, in 2000 it was 18,6 thousand. After that, in the last three years employment was constantly increased to 23,3 thousand people that we had in 2003. In the employment structure of manufacturing that brought the increase from 6,5 to 9,1%.

In 1996, pulp, paper & paper products, publishing and printing (DE) and electric and optical equipment industry (DL) employed around 20 thousand people. In 2003 they employed 18,2 thousand (DE), i.e. 17,3 thousand (DL) people, i.e. they made 7,1%, i.e. 6,8% of total employment in manufacturing. Since electric and optical equipment industry (DL) includes many different products like office machines and computers, electrical engines and transformers, wires and cables, light bulbs, batteries etc. and due to the fact that in more successful transitional countries like Hungary, Czech Republic, Slovenia or Slovakiait usually employes more than 11% of people employed in manufacturing (in Hungary even more than 19%), its contribution to employment in Croatia is not as high as it could be.

Chemicals, chemical products and man-made fibres industry (DG) had been reducing employment constantly thoroughout the whole period (from 18,9 thousand to 13,4 thousandin 2003) whereas the industry of other non-metallic mineral products (DI, like glass, ceramics, brick, cement, plaster, concrete etc.) in 2003 employs the same number of people (13,9 thousand) but also experiences a trend of (mild) increase in employment.

Two industries which had the biggest employment reduction in the given period are leather and leather products industry (DB) and coke, refined petroleum products & nuclear fuel (DF). Leather and leather products industry (DB) employed 17,6 thousand people in 1996, 9 thousand in 2000 and 7,9 thousand in 2003. Coke, refined petroleum products & nuclear fuel (DF) employed 16,9 thousand people in 1996 and continued to reduce employment during the whole period to where it is today – 10,9 people.

Machinery and equipment n.e.c. (DK) in 1996 employed 14,9 thousand people and reduced empoyment constantly (but relatively mildly) until 2002 (10,8 thousand people), whereas in 2003 the industry experienced small growth to 11,2 thousand employees.

Wood and wood products (DD) kept a stable level of employment during the whole period (11,8 thousand people). That resulted in the growth of its share in employment from 3,9 to 4,6%. Other manufacturing (DN – which includes very different products like furniture, kitchen, music instruments, sport equipment, toys and recycling) reduced employment from 15,4 in 1996 to 12,6 thousand in 2003.

Value of the created production is more important than tendencies in employment. Total revenue can be a general and relatively imprecise measure of production value. In 7-year period observed in this paper, total revenue of manufacturing increased from 79,3 billion kuna to 118,6 billion kuna, i.e. by 50% (see chart 3). This shows that average growth rate of production value in manufacturing was around 6% a year. If we adjust it to the average inflation rate of about 3%, we see that real production value was increased by 3% a year.

Chart 3

Total revenue in manufacturing
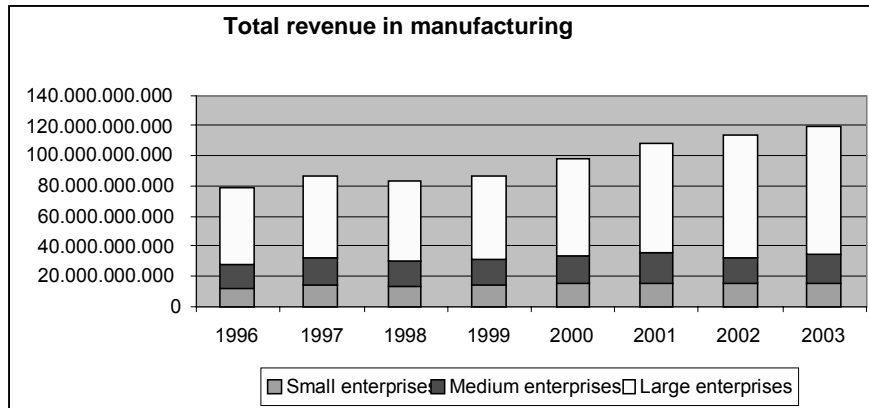
Source: *FINA (ZAP) – annual reports*

Total revenue growth was not linear in time. Growth rate of total revenue in 1997 was high and around 10,5%. After that, in 1998 we had a negative growth rate of 4,5%, then positive rate of 4,2% in 1999 and the highest rate of 13% was in 2000. Since 2001 manufacturing experienced gradual slowdown of growth rate during time: 9,7%, 5,6% and 4,2%.

Total revenue growth was very divergent among enterprises of different size. Revenues of small enterprises increased in the given period by 32,8%, revenues of mediu enterprises increased by 27,4% and large enterprises experienced the biggest revenue growth (by 60%). Small and medium enterprises reduced their share in total revenue of manufacturing whereas large enterprises increased them. In 1996 small enterprises had 15,7% and in 2003 they had 14%, medium enterprises reduced their share from 18,8% to 16% whereas large enterprises increased their increased their shares from 65,5% to 70% of revenue in manufacturing.

In small and medium enterprises very high growth rates in total revenue lasted only one or two years at the most. After that would usually follow negative growth rates. 1998 was especially difficult year for small enterprises (growth rate of total revenue – 8,9%). 2002 was also difficult: - 9,7%. But revenues quickly increased in 1997 (16%), 2000 (10,7%) and 2003 (11,4%). Medium enterprises

211

had negative growth rates of total revenue in 1998 (- 4,5%) and in 2002 (-13%). And they grew very fast in 1997 (17,5%) 2001 (9,3%) and 2003 (9,1%).

In 1997 large enterprises had total revenue growth of 6%, and then negative growth rate of 5% in 1998. After that they had very high growth rates until 2002: 6,5% in 1999, 15,5% in 2000, 10,8% in 2001 and 15% in 2002. Almost all growth of total revenue in 2003 was achieved by small and medium enterprises (11,4% and 9,1%) because the revenues of large enterprises were increased by only 2%.

Revenue of an average small and medium enterprise had not changed significantly in the given period and revenues of an averagely large enterprise increased (see table 1). Averagely small enterprise had between 1,8 and 2 million kuna of total annual income and medium enterprises had around 28 million kuna of total revenue whereas large enterprises increased their average 196 million kuna to 313 million kuna in 2002, i.e. 278 million kuna in 2003.

Table 1.

Total revenue per enterprise in manufacturing – millions of kuna								
	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Small	1.5	1.7	1.6	1.8	2.0	2.2	1.8	1.9
Medium	27.0	30.7	29.5	27.6	30.2	31.8	27.7	27.9
Large	194.6	198.8	199.1	215.0	262.4	293.0	313.3	277.6
Average	8.7	9.4	9.3	9.9	11.4	12.7	12.3	12.0

If we show revenues of enterprises of different size per employee, we will get a measure of movement of labour productivity in manufacturing. Productivity of small enterprises had not significantly changed in the given period (see chart 4). In 1996 averagely small enterprise made 265 thousand kuna per year per employee. In 2000s this increased to 300 thousand kuna. Medium enterprises have increased 190 thousand kuna of revenue per employee in 1996 to 326 thousand kuna in 2003. Revenues per employee mostly increased in large enterprises. In 1996 large enterprises had 295 thousand kuna of revenue per employee and in 1999 they had 400 thousand kuna, in 2000 they had 475 thousand kuna and the last two years of the period they have 580 thousand kuna.

Chart 4

Total revenue per employee in enterprises of different size in manufacturing
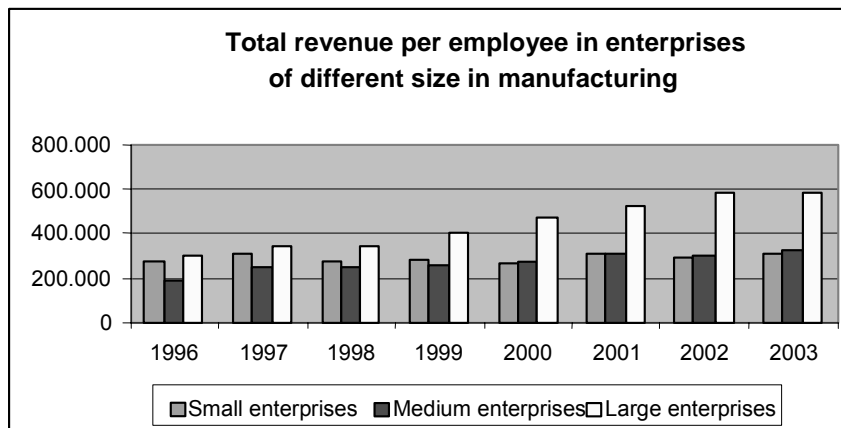
Source: FINA (ZAP) – annual reports

Total revenue of manufacturing in the given period increased by 50%. Revenue growth significantly higher than the average was achieved by 3 industries: transport equipment industry (DM) 118%, electrical and optical equipment industry (DL) 109% and production of other non-metallic mineral products (DI) 105%. Three industries increased revenues to the level of manufacturing average: other manufacturing industry (DN) 53%, coke, refined petroleum products and nuclear fuel production (DF) 53%, food products, beverages and tobacco industry (DA) 47%.

Other 8 industries achieved revenue growth below average. Basic metals and fabricated metal products industry (DJ) and pulp, paper & paper products, publishing and printing industry (DE) increased their revenues by 40%, rubber and plastic products industry (DH) and leather and leather products industry (DC) increased their revenues by 30%, machinery and equipment n.e.c. (DK) increased by 27%, wood and wood products (DD) increased by 25%, textiles and textile products (DB) increased by 19% and the lowest growth was achieved by chemicals, chemical products and man-made fibres (DG) by only 8%.

Similar as was the case with employment, food products, beverages and tobacco industry (DA) is the most important for generating the total revenue of manufacturing. Total revenue of food products, beverages and tobacco industry (DA) stagnated at the level of 21 billion kuna between 1997 and 1999 but then it started to increase and in 2003 it was 28,2 million kuna, i.e. 24% of total revenue in manufacturing (see chart 5).

213

Chart 5

Total revenue of different industries within manufacturing
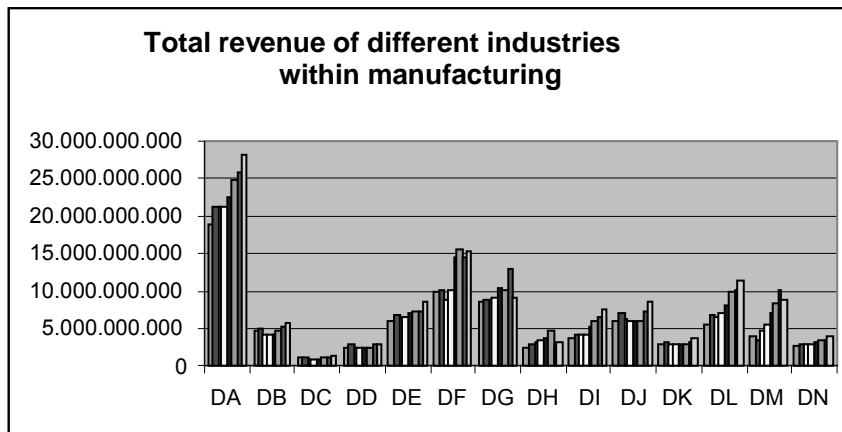
Source: FINA (ZAP) – annual reports

Second highest group revenue is in coke, refined petroleum products and nuclear fuel production (DF). Its total revenue increased from 10,1 billion kuna in 1996 to 15,2 billion kuna in 2003 (13% of total revenue in manufacturing).

Chemicals, chemical products and man-made fibres industry (DG) first increased its total revenue (from 8,5 billion kuna in 1996 to a maximum of 13 billion kuna in 2002) and then suddenly dropped in 2003 to 9,2 billion kuna. Because of that big reduction of revenue in 2003 its share in the total revenue of manufacturing dropped from 10,8% to 7,8%.

Electrical and optical equipment industry (DL) doubled its total revenue in the given periodfrom 5,5 billion kuna to 11,5 billion kuna in 2003. Since the revenue increased faster than the average of manufacturing, its share in it also grew from 6,9 to 9,7%.

In 2003 three industries have a level of revenue of 8,5 billion kuna: pulp, paper & paper products, publishing and printing industry (DE), basic metals and fabricated metal products industry (DJ) and transport equipment industry (DM). At the beginning of the given period industries DE and DJ had a double revenue level (6 billion kuna) and increased it slowly but steadily but industry (DM) grew quite fast from 3,9 billion kuna to 10,2 billion kuna in 2002 but in 2003 it experienced reduction of revenue by 1,3 billion kuna.

Revenues of (DB) industry had not changed significantly in the given period. In 1996 they were 5 billion kuna and in 2003 they were 5,6 billion kuna so their share in the total revenue of manufacturing dropped from 6 to 4,7%. Total revenue of (DC) industry experienced a similar stagnation but their revenue is around 1 billion kuna and (DD) industry which oscillated between 2,7 and 3 billion kuna. (DH) industry also had stagnant total revenue which at first was

214

constantly increased from 2,9 billion kuna in 1996 to 4,7 billion in 2001, but then it dropped to 2,7 billion and 3,3 billion in 2003.

Total revenue of industry (DI) other non-metallic mineral products constantly increased in the given period and doubled from 3,7 billion in 1996 to 7,5 billion in 2003.

One of the stagnant industries is also (DK) – machinery and equipment n.e.c. In 1996 its total revenue was 2,9 billion kuna and with small changes it kept the small level in the next 5 years. Only in 2002 and 2003 there were some changes but they were not important in the relative sense (to 3,3 i.e. 3,8 billion kuna).

Other manufacturing (DN) also increased total revenue in comparison with the beginning of the period. But since it was already 3,1 in 1997, after that it had been dropping for two years and then stagnated at 3,5 billion in 2001 and 2002 so the level of 4 billion kuna in 2003 does not seem to be an important achievement.

Industry ranking from the aspect of productivity movements, measured by revenue per employee positions the industries very differently. Average of manufacturing that in 2003 was 463 thousand kuna revenue per employee is higher than in 7 industries (see chart 6).

Chart 6
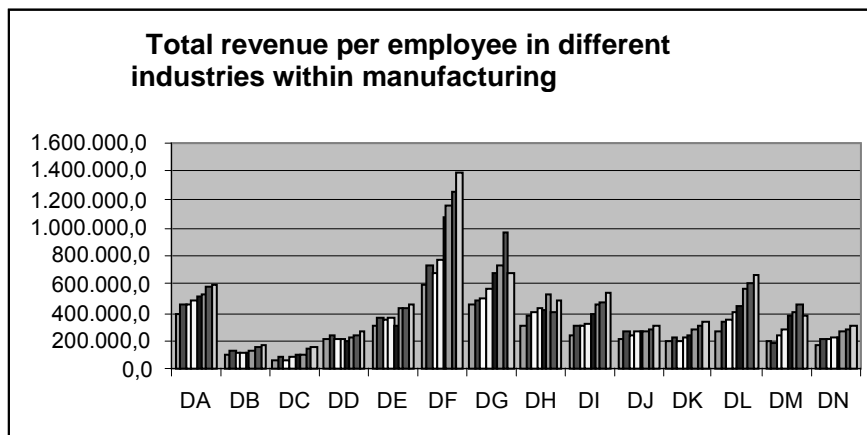
Source: FINA (ZAP) – annual reports

The highest productivity is in oil industry (DF) where revenues per employee were 1,4 million kuna. Production value in the given period increased from 10 to 15 billion kuna and at the same time the number of employees dropped from 16,9 to 10,9 thousand employees.

Second in productivity is chemical industry (DG) where revenues per employee were 686 thousand kuna in 2003 (965 thousand in 2002). Contrary to oil industry, chemical industry achieved productivity growth almost exclusively by reducing the number of employees with stagnating revenue. Number of employees in the industry dropped from 18,9 to 13,4 thousand (by 30%) and the revenues increased from 8,5 to 9,2 billion kuna (only 8% in 7 years.)

Third by the size of revenue is electrical and optical equipment industry (DL). In 2003 they had the revenue of 663 thousand kuna. Number of employees in the industry dropped from 20 to 17,3 thousand people and the revenues of the industry increased from 5,5 to 11,5 billion kuna.

Fourth, with 587 thousand kuna per employee is food products industry (DA). With the same number of employees (48 thousand) their revenues increased from 19 to 28 billion kuna.

Fifth is manufacturing n.e.c. (DN) with 567 thousand kuna per employee. Number of employees dropped from 15,5 to 12,7 thousand whereas revenues increased from 2,7 to 4 billion kuna.

Production of other non-metallic mineral products (DI) had 543 thousand kuna per employee. Number of employees dropped from 15,2 to 13,9 thousand and the revenues increased from 3,6 to 7,6 billion kuna.

Production of rubber and plastic products (DH) in 2003 had 481 thousand kuna revenues per employee. Number of employees in the given period dropped from 8 to 6,8 thousand people and their revenues increased from 2,5 to 3,3 billion kuna.

Production of pulp, paper & paper products, publishing & printing (DE) had the revenue of 465 thousand kuna per employee. Number of employees dropped from 20,2 to 18,2 thousand thousand people and the revenues increased from 6 to 8,4 billion kuna.

Production of transport equipment (DM) in 2003 had 383 thousand kuna per employee (461 thousand in 2002). That is the only industry within manufacturing which managed to increase the number of employees in the given period (from 19,5 in 1996 to 23,3 in 2003). And the revenues increased from 3,9 to 8,9 billion kuna.

Production of machinery and equipment (DK) in 2003 had 338 thousand kuna per employee. Number of employees in the industry dropped from 14,9 to 11,2 thousand but their revenue went from 2,9 to 3,8 billion kuna.

Other manufacturing n.e.c. (DN) had 316 thousand kuna per employee in 2003. Number of employees in the industry dropped from 15,4 to 12,6 thousand. The revenues increased from 2,7 to 4 billion kuna.

Metal industry (DJ) had 296 thousand kuna per employee in 2003. Number of employees in the industry in 1996 and 2003 was around 28 thousand

people (it dropped constantly until 2000 when it was 22,4 thousand but then it constantly increased) whereas the revenues increased from 6 billion in 1996 to 8,4 billion in 2003.

Competitiveness in microeconomic sense can be measured by unit labour costs. They tako into account salary (or its growth rate) and level (or growth rate) of production productivity. So by comparing salaries and productivity we can get the indicator of competitiveness of an industry.

Between 1996 and 2003 there were 4 industries that marked higher productivity growth in comparison to salaries, i.e. in the theoretical sense they enhanced their competitive position: leather and leather products (DC), oil industry (DF), production of other non-metallic mineral products (DI) and production of electrical and optical equipment (DL) (see chart 7).

Chart 7

Rates of salary and labour productivity growth 1996 - 2003
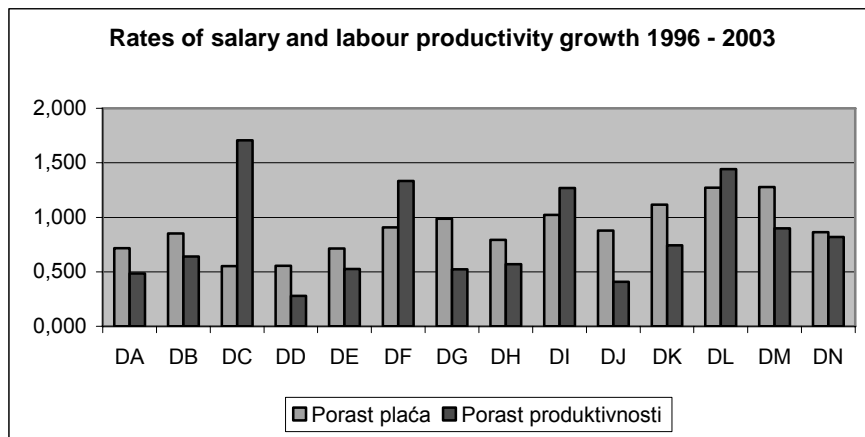
Salary growth   Productivity growth

Except leather industry (DC) other three industries proved the enhancement by relatively fast growth of their revenues. The enhanced position did not help the leather industry (DC) in making higher revenues and some industries that had very fast revenue growth like: transport equipment industry (DM), or other manufacturing (DN), at the same time have higher salary growth in comparison with labour productivity, it seems that unit labour costs are not crucial for successful business. But conclusions can be changed depending on the period of following the phenomenon.

Rate of salary growth in manufacturing as in the whole Croatian economy was slowed down from the year 2000 onwards. That is compatible with noticeable revitalization of revenues in manufacturing. Comparison of salary and

217

productivity in the period from 2000 to 2003 changes the picture of competitiveness of industries (see chart 8.)

Chart 8

Unit labour costs 2000 - 2003

Salary growth   Productivity growth
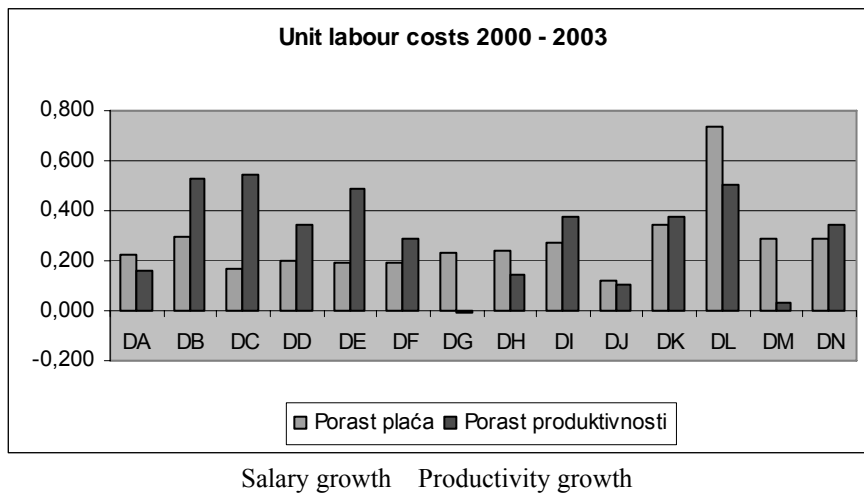
In the period between 2000 and 2003, eight of observed 14 industries have significantly higher productivity growth in comparison to salary growth, i.e. enhancing competitive position. That is the most probable reason of relatively high revenue growth in manufacturing achieved in that period.

CONCLUSION

Deindustrialization process is most probably a development necessity in contemporary conditons of rich and developed countries. Level of social security of the population, salary and level of education of population as also the quality of the whole social infrastructure enables them this process. Contrary to them, economies of transitional countries will not be able to afford that luxury for at least several decades. Fast deindustriliazation in transitional conditions is one of the most reliable indicators of reform failure. Transitional liberalization and deregulation, followed by constant currency appreciation and fast, often uncritically done privatization are some of the strongest factors at work.

Condition of manufacturing in the Republic of Croatia fits the above described scenario. But tendencies in the last two years of the given period are encouraging. As soon as the conditions of doing business stabilized, large enterprises that are fundaments of development have improved their business performance significantly. In 2002 and specially in 2003 there came to a halt in reducing employment in manufacturing which was going on since 1989 and we

experienced a mild employment growth. Similar thing happened to production level which is increasing since 2001. In the last two given years average size of small and medium enterprises measured by total revenue began to drop but large industrial enterpeises began to grow.

On the level of some industries within manufacturing the state of affairs is not static. Relatively high salary growth rates are seen between 1996 and 2000. After two or three years they began to catch up with high productivity growth rates. Net result of these tendencies is a certain improvement in competitive position of most industries which manifests itself in constant growth of total revenue. Productivity growth in most industries is to a lesser extent achieved through production growth and to a greater extent through the process of reducing employment. Crucial question of future industrial development in Croatia is production growth achieved with the present or higher number of employees.

BIBLIOGRAPHY

Baumol, W. (1987), «Macroeconomics of unbalanced growth», American Economic Review, No. 53, pages. 941-973.

Baumol, W. – Blackman, S. – Wolf, E. (1989), «Productivity and American Leadership: The Long View», MIT Press.

Kovačević, Z. (2001), "Restrukturiranje hrvatskih poduzeća", Politička kultura, Zagreb.

Landesmann, M.A. – Stehrer, R. (1999), «The European Unemployment Problem: A Structural Approach»,The Vienna Institute for International Economic Studies (WIIW).

Mickiewicz, T. – Zalewska, A. (2001), "Deindustrialisation and Structural Change During The Post-Communist Transition", William Davidson Institute Working Paper, br. 383.

Mickiewicz, T. – Zalewska, A. (2002), "Deindustrialisation – Lessons from the Structural Outcomes of Post-Communist Transition", William Davidson Institute Working Paper, br. 463.

Rowthorn, R. – Wells, J. (1987), "De-Industrialization and Foreign Trade", Cambridge University Press.

Dr. sc. Zoran Kovačević
Izvanredni profesor
Ekonomski fakultet
Zagreb

STRUKTURALNE PROMJENE U HRVATSKOJ PROIZVODNJI

Sažetak

U prvome dijelu članka analizira se teoretska osnova strukturalnih promjena kroz koje su prošle razvijene zemlje, naročito proces tercijarizacije i deindustrijalizacije. U drugome dijelu se analiziraju osnovni aspekti strukturalnih promjena što su se dogodile u hrvatskoj proizvodnji u razdoblju između 1996. i 2003. godine. Navedene promjene se analiziraju s dva aspekta: a) veličine poduzeća (veliko, srednje i malo), i b) aspekta različitih industrija u okviru proizvodnje - klasifikacija se zasniva na osnovi Nacionalne klasifikacije gospodarskih djelatnosti. Varijable koje su uzete u obzir su zaposlenje, ukupni dohodak i plaće.

JEL classification: L60