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The Puzzle of Industrial Enterprises in Romania over a Century: 1918-2017

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CONTENTS

Introduction 3
1. The inter-war period, the arms industry, and the post-war reconstruction period, 1918-1947..... 6
2. The Centralised Economy Phase (nationalisation, collective farming, planned economy), 1948-1989 14
3. The Phase of Transition to a Market Economy and European Union Integration, 1990-2017 18
Conclusions 25
Appendix 26
Bibliography..... 31

The Puzzle of Industrial Enterprises in Romania over a Century: 1918-2017

LUMINIȚA CHIVU[1]

Abstract: *The configuration of industrial enterprises in Romania, in terms of numbers and structure, in relation to their characteristics, mirrors the Romanian economy and society at large, in their chronological development. Marked by the changes in the technological and economic paradigm, by the legal-institutional framework and changes in the ownership regime, by the commercial policy guidelines on the background of the dominant economic doctrine, but also by the characteristics of the communities in which they were operating, in turn the "architecture" of the industrial enterprises put a special footprint on the economic and social development. Our analyses are focusing on three major historical periods: a) the inter-war period, the arms industry, and the post-war reconstruction period of 1918-1947; b) the period of centralised economy (with nationalisation, collective farming, and planned economy as its corollary), 1948-1989; c) the period of transition to a market economy and the European Union integration, 1990-2017.*

Keywords: *industrialization; industrial restructuring; privatization; deindustrialization*

JEL: *D23; L11; L16; L22; L25; L52; N14*

Introduction

The configuration of industrial enterprises in Romania, in terms of numbers and structure, in relation to their characteristics, mirrors the Romanian economy and society at large, in their chronological development.

The characteristics of industrial enterprises reflected, along the past century, the major changes of paradigm with regard to mainstream technologies and materials and the existence, in parallel, of different generations of technologies and materials: from the structures specific for the first industrial revolution (which began at the end of the 18th century), when the stress was placed on coal and metallurgy, on steam and the textile industry, to the structures characteristic of the second industrial revolution (the beginning of the 20th century), the core of which consisted of electricity, mechanics, petroleum, chemistry, the telegraph, the telephone, collective transport by rail and steamships. They were followed by a third revolution (mid-20th century), triggered by the discovery of semiconductors and their use in transistor devices, which boosted electronics, telecommunications, information technology, audio-visual technology, nuclear techniques, going further to robots, automation, space technologies, biotechnologies, and flourishing into the new structures specific to the 4.0 industry, considered to be the fourth industrial revolution (brought along by the beginning of the 21st century), which generated commotion among established technologies due to the Internet, and the new technologies for the processing, storage, and communication of information (Chivu, Ciutacu, Georgescu, 2017). Along the past two centuries of evolution, a theory of industrialisation emerged, with its ups and downs, which brought to the fore new concepts such as deindustrialisation – in the 1990's – and, recently, reindustrialisation, frequently talked about in the past decade.

All these developments have left their mark on the domains of production and the size of industrial enterprises, their distribution by sectors, branches and sub-branches, the interdependence and the relations among them, and, equally, the institutional and administrative structures designed to support, coordinate and/or inspect them.

In Romania, the time between 1918 and 2018 witnessed periods of continuity and discontinuity, arising from approaches dictated by times of peace or times of war that caused losses of territory, that brought along fluctuating economic policies arising from a wide spectrum of ideologies and priorities, each of them accompanied by a specific legal, institutional and administrative framework. Some of these caused

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abrupt changes in the structure of property and the distribution of capital, and these changes involved the rules governing the acquisition, transfer or dissolution of property, nationalisation, retrocession, privatisation, green-field investment, relocation, outsourcing, with the entire array of economic doctrines and economic outlooks attached to them. These changes affected the whole range of economic concepts affiliated with independent individual or private enterprise structures, companies based on a majority foreign capital, or domestic capital companies, or state-owned companies; they acted as hubs irradiating the development of industry along value-added chains, from mining of resources to the final product, to the aggregation of industrial activities in large industrial areas, formerly known as industrial platforms, now called industrial parks, then, after the free initiative boom, the changes took a reverse turn towards the fragmentation of the value chains, towards the prevalence of multinational companies and the local subsidiaries of transnational companies, and further to the emergence of modular, mobile, and adjustable production units, with the inherent redefinition of the workplace, all of which have radically changed the concept of factory and of the communist era industrial platforms/areas.

The geographical distribution of industrial sites, acting, inter alia, as a drive to urbanisation, often played an important part in the physical planning of the country, leading to the emergence of human settlements on the map of Romania, having at the core an industrial establishment, or to the disappearance of others.

Industrial enterprises fulfilled not just an economic function, working as an engine for other (subsidiary) types of business, but they also performed various social functions, most important of which was the creation of jobs for a large number of persons, who, as wage-earners, could support their families. Industrial establishments generated other (complex) social functions, the educational function being the most prominent. They required qualified personnel, which triggered the opening of new schools, encompassing all levels of training, from comprehensive to vocational, higher and academic. They also served as places for students of all levels to acquire the skills for future professions/trades. They extended their effects to the life of the local communities through partnerships between trade unions, employers and local authorities, for the benefit of local development and a greater care for the protection of the environment.

Without underestimating the importance of the factors that have played a part in the configuration of the industrial landscape during the past century, 1918-2018, its evolution was closely determined by the size and the features of the markets surrounding it. They fluctuated from total openness to the world economy to economic nationalism; from the prevailing concern for the internal market to the rush to penetrate the best export markets as main sources of hard currency needed to pay off the country's external debt; from the strictly nationally-oriented approaches to a vision of regional and continental integration, in close inter-dependence with the dominant international economic relations and trade policies.

As an appendage to the above-mentioned, one can include protectionist policies, free trade agreements, most favoured nation clauses in bilateral relations, legislative compliance with world or regional organisations, and the four freedoms characteristic of a common market, competition rules, and state aid regulations.

All the afore-mentioned elements must be viewed as having caused effects on the complexity and quality of the products made in these industrial enterprises, which had to adapt to the requirements dictated by economic competitiveness, to battle to stay on, or conquer, segments of the domestic market, and to identify export opportunities.

Domain-specific literature is vast and reveals the role and place of enterprises in the communities and economies in which they operate, their multiple functions, etc. using multidimensional and multidisciplinary approaches.

Some authors (Hannah, 1996), analysing the evolution of large enterprises in the 20th century, concluded that long-run differences in national economic performance in the twentieth century, at least among industrial leaders, are rooted in non-industrial sectors of the economy or smaller industrial firms.

More recent analyses (Claver-Cortés, 2019) highlight the relationship between the development of enterprises and the supporting institutions, the need to investigate the relationship between the evolution of enterprises and the local social capital.

Presenting the history of the modern industrial firm (from 1880's) (for 600 enterprises which until the Great Depression produced two-thirds of the world's output of industrial goods), Chandler (1990) concluded that technologies and institutions are co-evolving, impacting on businesses, their role and forms of organization.

In other studies, Chandler (1992) identified four important attributes of the companies in the theoretical literature: "legal entity", "administrative entity", "a pool of physical facilities, learned skills and liquid capital" and "for profit (…) primary instruments in capitalist economies for the production and distribution of current goods and services and for planning and allocation for future production and distribution".

It also provides elements that support the fact that understanding business evolution is fundamental to understanding economic transformation: „Only by focusing on the firm can microeconomic theory explain why the legal, contracting, transacting entity has been the instrument in capitalists' economies for carrying out the process of production and distribution, for increasing productivity and for fuelling economic growth and transformation. Only by focusing on the firm can theory predict the firm's continuing role as an instrument of economic growth and transformation, and assist in developing policies and procedures for maintaining industrial productivity and competitiveness in an increasingly global economy." (Chandler, 1992).

Some authors (Ruiz, 2001), through their research, provide evidence of the determined role that certain industrial sectors have played, in the whole economy, the key role in economic development and modernization, reflecting the structural changes that accompanied them.

Others studies (Kapas, 2008) analyse from a historical perspective the industrial revolutions and the evolution of the firm's organization, borrowing from an evolutionary theory the term of "mutant" and rely on a model of the co-evolution of physical and social technology that allows the author to analyze which kinds of technological advance affect which elements of social technology and vice versa.

In the context of the new re-industrialization trend, various studies analyze the possible forms that it will embrace, and attempt to estimate its effects (Krawczyński, Czyżewski, Bocian, 2016; Chivu, Ciutacu, Georgescu, 2017).

The sources of information identified, not without strenuous effort, for the period 1918–2017 would have enabled us to reconstruct sequential stages of the evolution of industrial enterprises in Romania, based on annual statistics showing the number of industrial ventures and their specific indicators, but the abundance of documentary evidence has determined us to structure the presentation of the industrial landscape by historical stages. The wide variety of information includes: enquiries and censuses of industrial establishments (conducted either as investigations per se, or as part of population censuses), annual statistical surveys (starting in 1922 and continuing, with minor interruptions, to this day), other relevant studies regarding the manufacturing sector, the industrial enterprises, and their role in the country's economic development, as well as surveys made, closer to our times, by reputed researchers into the history of economics. It also includes technical literature that encompasses the legal background governing industrial businesses, the definition and scope of the statistic indicators (ranging from territorial affiliation to classes of ventures by size and other features), as well as sometimes biased approaches, and the methodologies of data collection, etc.). We have strived to lay emphasis on the accuracy of the definition of indicators, and on contextual analyses.

Our analyses focuses on three major historical periods: a) the inter-war period, the arms industry, and the post-war reconstruction period of 1918-1947; b) the period of centralised economy (with nationalisation, collective farming, and planned economy as its corollary), 1948-1989; c) the period of transition to a market economy and European Union integration, 1990-2017.

1. The inter-war period, the arms industry, and the post-war reconstruction period, 1918-1947

To better understand the evolution of industrial sites in respect of quality, we have directed our research of the 1918-1947 historical stage towards a decade-by-decade approach, and a study of their features (Pavelescu, 2016). We shall examine the 1919-1928 decade, the dominant macroeconomic policy of which was based on the ”by ourselves” doctrine; the 1929-1939 decade, when the power was taken, alternatively, by governments which encouraged the open economy concept, or instituted protectionist measures for the benefit of large industrial enterprises; the decade 1940-1947, with all the turbulence brought about by the World War II: territorial losses, and protectionist policies, particularly for the large industrial ventures.

The beginnings of the industrial evolution in Romania started early, with the household devices designed to make hard work easier. ”The foremost industry, coming down from immemorial times, that spread over an immense territory, and featured original ideas of tremendous value that speak volumes of the intelligence with which our gifted people dealt with the challenges of life, is the very technicality of so many crafts skilfully developed to help the daily chores of a household.” (Iorga, 1927)

To quote Virgil N. Madgearu, an established authority in Romanian economics, the transition to a higher level of technicality ”failing the existence of national capital and qualified labour as main economic drives, at the beginning of this next stage of the Romanian economy, the capitalisation of the country’s natural resources was only possible with the participation of foreign capital and skilled labour. The transition to the more advanced form of industrial production, in factories, was slowed down by a relatively narrow range of national technical crafts and by an almost complete lack of manufacturing workshops in the Old Kingdom of Romania, which made it difficult to find local labour.”(Madgearu, 1940)

The legislation passed in 1887 and 1912 to boost industry gave an impetus to industrial development.

The Great Union of 1918 was of capital importance for the development of the industrial sector. ”The Romanian economy took a decisive trend towards industrialisation not only as a direct effect of pooling a wider spectrum of national raw material and energy resources (iron and other metal ores, coal, methane gas, etc.), but also by creating a larger domestic market after the country’s territorial reintegration, and by allotting landed property to peasants.”(Madgearu, 1940)

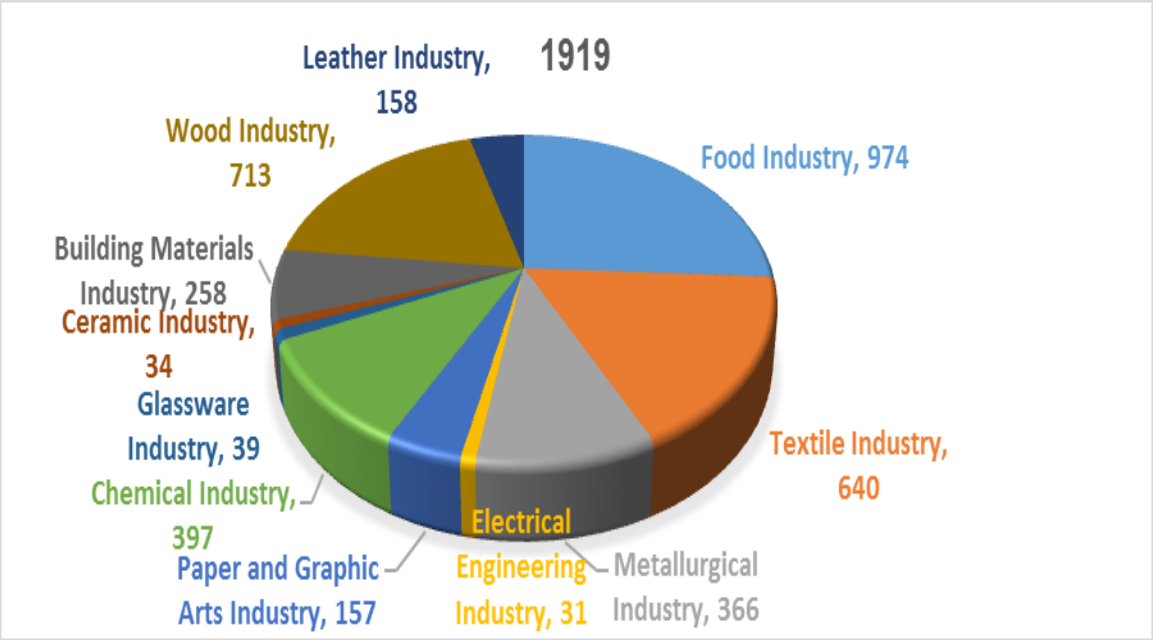
The first comprehensive picture of industrial ventures, by branches of production and output capacities, for the entire territory of Romania, after the Great Union of 1918, was given by the Industrial Survey of 1920, the information contained therein having been collected in 1919. The data regarding the number of industrial units, their capital, and manpower reflect the situation of the large industrial sites[2], as affected by the destructions of the war. It also pointed out the massive depletion of machinery caused by the occupation forces in the South of the country, formerly known as The Principality of Wallachia. Given the circumstances, the industrial sites were producing under their normal capacity in the pre-war years. The Survey does not cover the small and medium-size industries (manual and mechanised production units), the share of which in the overall production capacity and as a segment of the domestic market accounted for some 50% of the big industry. (Axenciuc, 1992)

The Survey shows that, in 1919, Romania had 2,747 large industrial establishments, with an average installed power of 175 HP (steam-driven machinery and turbines; petrol/gas/fuel oil-driven engines; electric motors with electricity supplied by power plants or water turbines), and an average manpower of 57 workers (Figure 1 and 2). Of the total number of employees, some 11% were technicians and white-collar workers, and the remaining share were skilled and non-skilled labour. The factories were categorised in 9 types of industries (equivalent to branches) and in 69 subdivisions (equivalent to sub-branches). First in the classification of industrial branches, based on the criterion of the number of companies, came the food industry (977), which held the top position also in respect of the installed power (98.6 thou HP), while the wood industry featured first in respect of the labour force employed (44.9 thou persons).

[2] The category of large industrial enterprises, the ”big industry”, included, according to the criteria laid down under the Act to Stimulate National Industry, of 14 February 1912, the units with an installed power of over 5 HP or with a number of employees of 20+.

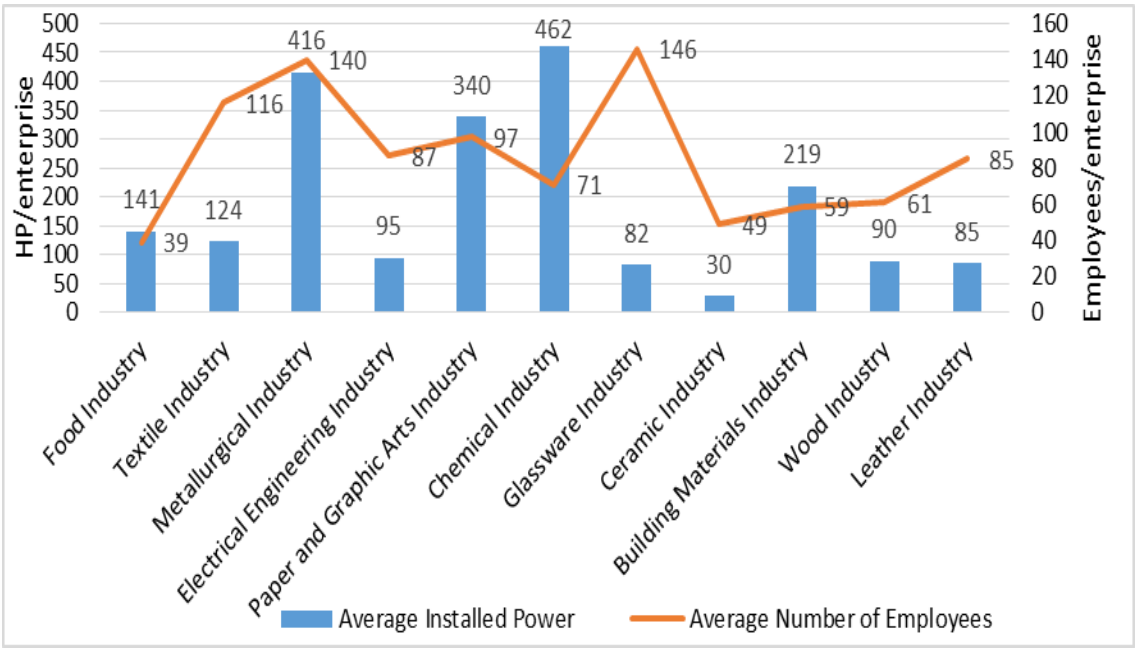
The chart of industrial units reveals the development in this first stage of the consumption-oriented branches (food industry, wood industry, etc.).

Figure 1: Breakdown of large enterprises in the big manufacturing industry by branches - 1919



Source: Author's compilation of data from The Industrial Survey for 1920, General Department for Industries, The Office for Studies and Surveys, 1921.

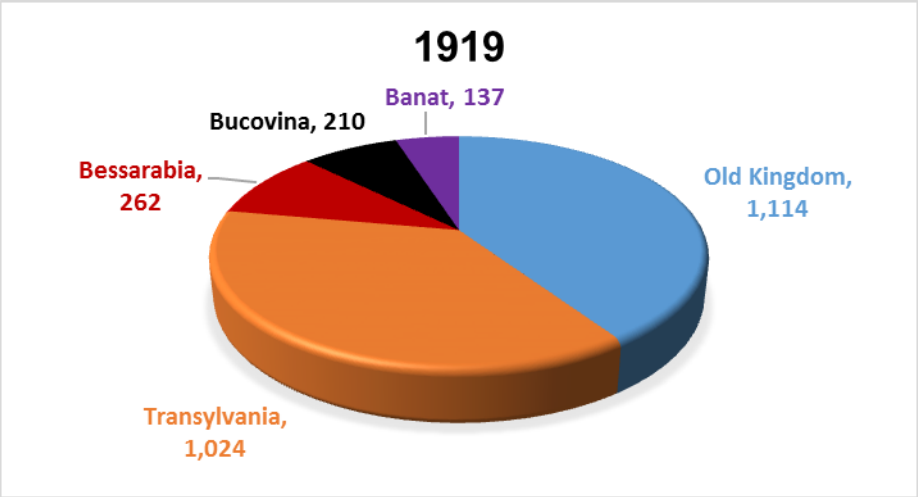
Figure 2: Average installed power and average number of employees in big manufacturing enterprises by branches - 1919



Source: Author's compilation of data from The Industrial Survey for 1920, General Department for Industries, The Office for Studies and Surveys, 1921.

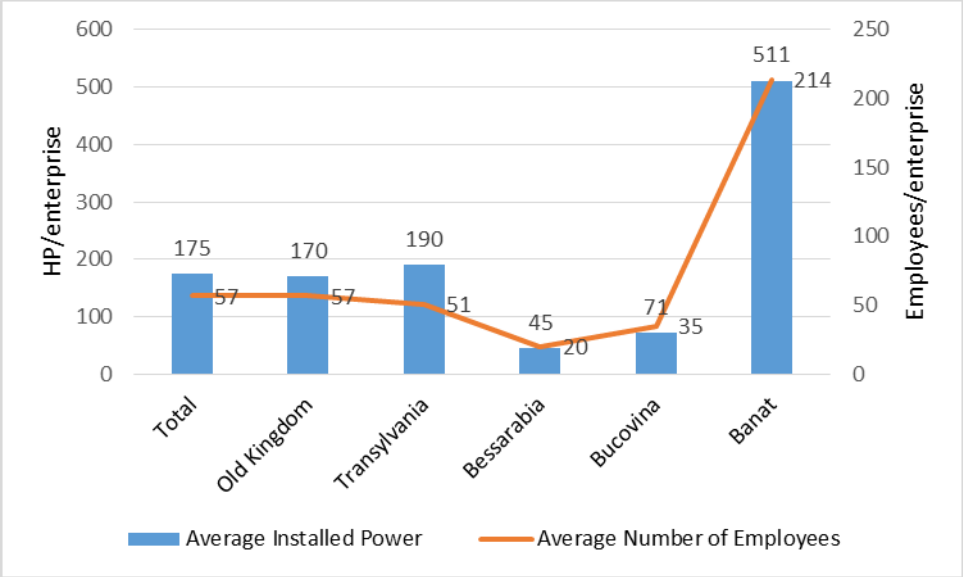
Most of the industrial enterprises were located in the Old Kingdom (approximately 40% of all), but most of the big enterprises, with an average installed power of 511 HP, and an average of 214 workers, were operating in Banat) (Figures 3 and 4).

Figure 3: Breakdown of large enterprises in the big manufacturing industry by provinces - 1919



Source: Author's compilation of data from Romania's 1922 Statistical Yearbook, Royal Printing House, F. Gobl FII, 1923.

Figure 4: Average installed power and average number of employees in big manufacturing enterprises, by provinces - 1919



Source: Author's compilation of data from Romania's 1922 Statistical Yearbook, Royal Printing House, F. Gobl FII, 1923.

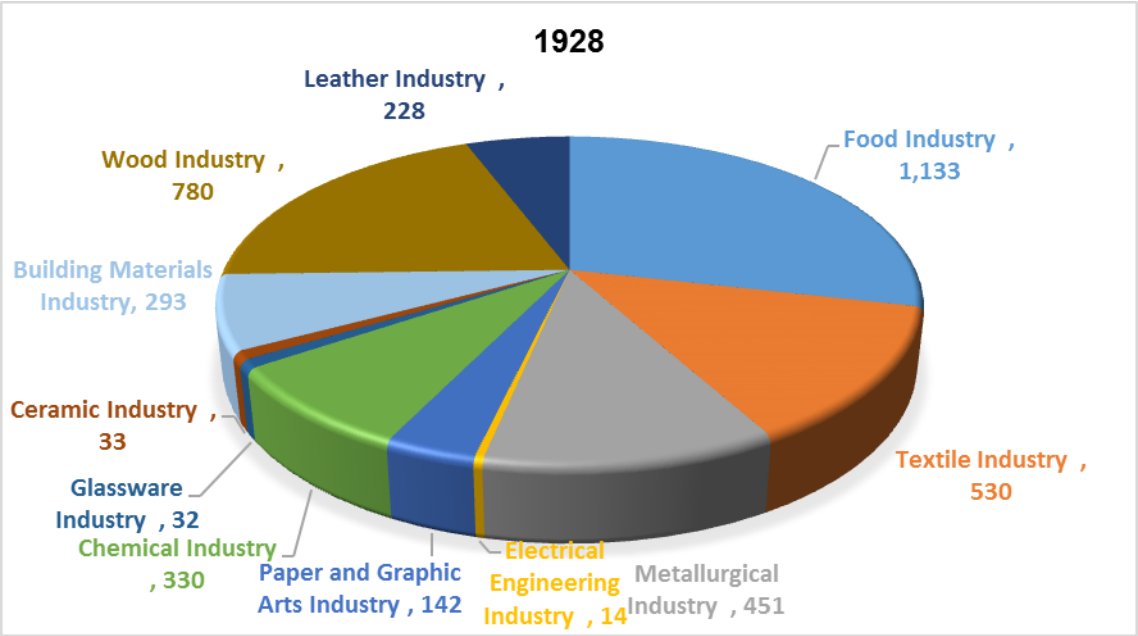
The industrial enterprises had a higher density in Bucharest (17.2% of overall industrial production) and other large urban areas with intensive consumer demands, such as Timișoara, Sfântu Gheorghe, Arad, Galați, Brăila, Cernăuți, Cluj and Iași), and prominently in 8 regions (Prahova Valley, Reșița, Turda, Baia Mare, Ferdinand and Nadrag, Hunedoara, Cisnădie and Piatra Neamț-Bacău – Buhuși), most of them existing in the vicinity of the sources of raw materials.

The following decade, that brought economic growth, was marked by the effort made to revitalise industry after the losses caused by war, with an aim to reach the proficiency of the pre-WW I phase (1919-

1924) (Axenciuc, 2008), and to consolidate national unity by way of economic and social reforms (1925 - 1928) (Figure 5 and 6). During the period 1923-1924,"the strong trend towards economic autarchy, summed up in the slogan by ourselves, led to legislative measures aimed at encouraging and favouring Romanian capital and labour"(Gusti, 1943, p. 814).

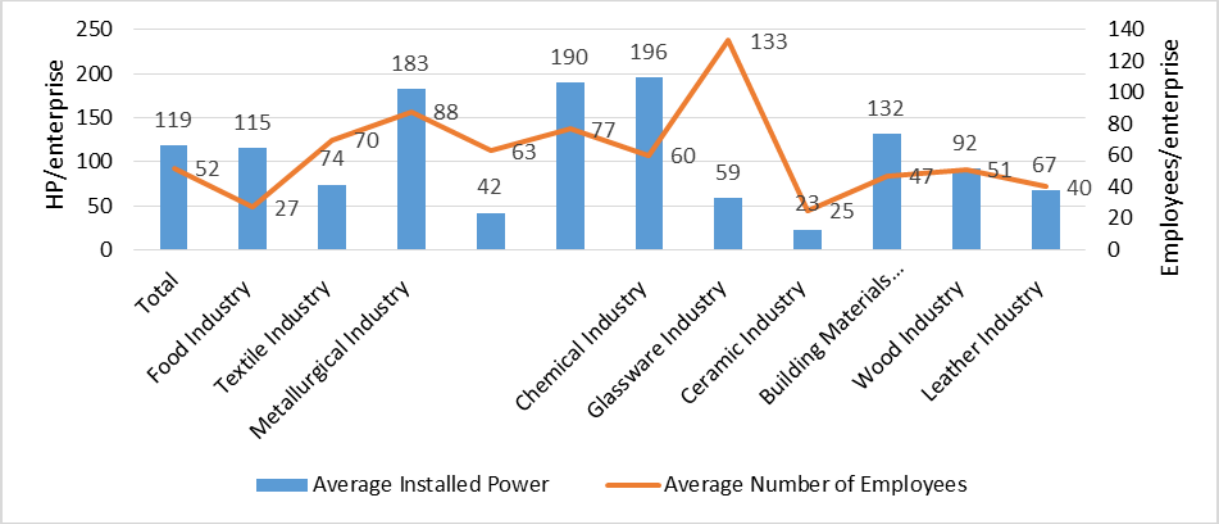
As a whole, the entirety of large industrial processing enterprises in the timeframe 1919-1928 grew by over 40%, the number of workers in this industrial segment grew by more than 30%. New branches emerged, for example the building materials industry, the electrical engineering industry, etc.

Figure 5: Breakdown of large enterprises in the big manufacturing industry by branches - 1928



Source: Author's compilation of data from Romania's Statistic Yearbook for 1939 and 1940, National Printing House, Bucharest, 1940.

Figure 6: Average installed power and average number of employees in big manufacturing enterprises, by branches - 1928



Source: Author's compilation of data from Romania's Statistic Yearbook for 1939 and 1940, National Printing House, Bucharest, 1940.

In 1929, the companies producing consumer goods accounted for 52.0% of the net worth generated by industry, and provided employment to 45.2% of the labour force (Madgearu, 1940, p. 1962).

By the end of 1930, despite the deep economic crisis that bereaved Romania's economy (the big economic crisis of 1929-1933), the general population census was seen as an opportunity to collect relevant data regarding the country's industrial landscape (Axenciuc, 1992). Unlike the 1920 Survey, the focus of which was laid on the large processing industries, the census was the first record to include "any factory, industrial manufacturers, craftsmen's workshops, mechanical spindles, filling machines, felting mills, reeling devices, sawing mills, irrespective of size", from individual craftsmen's workshops to the large industrial sites. The census revealed the existence of a much wider range of industrial activities, and this generated a new classification of enterprises into 12 classes and 113 clusters of industries (Table 1).

In 1930, 133,788 industrial ventures of a total of 140,948 (i.e. 94.9%) were sole proprietorships, 2,580 (1.8%) were partnerships, 1,648 (1.2%) were joint stock companies, 224 (0.2%) were cooperative associations, 447 (0.3%) were state/county/communal-owned enterprises, and 2,261 (1.6%) were organised in other various forms. With the exception of the mining industry, where joint stock companies held 50.5% of the number of enterprises, and excluding the power, gas, and water plants, a branch in which the joint stock companies, and the state/county/communal-owned enterprises held each 34.5% of the total, the rest of the industrial branches were in the hands of individual owners.

Table 1

Average Number and Size of Industrial Enterprises – 1930

Industry/Class	Number of Enterprises	Average Number of Employees (persons/enterprise)	Number of Enterprises Powered by a Form of Energy	Average Installed Power (HP/ powered enterprise)
Total	**140,948**	**4**	**13,515**	**88**
Mining	539	99	317	676
Metallurgy and Metal Working	22,734	4	1,231	106
Wood Processing	20,622	5	1,509	49
Constructions and building materials	4,389	8	320	124
Textile	3,111	13	909	46
Clothing	47,111	2	524	25
Food	37,497	3	7,524	39
Paper	110	57	51	523
Graphic Arts	2,455	7	388	14
Chemical	1,854	13	496	127
Power, Gas and Water Plants	287	31	218	1306
Miscellaneous	239	3	28	30

Source: Author's compilation of data from The 1930 General Census of Industrial and Commercial Enterprises, *The Official Gazette*, National Printing House, Bucharest, 1938.

Approximately 58% of the companies in operation in 1930 were established in the period 1919-1930. Most of them (66.4%) were paper mills, and 37.3% of them were power, gas and water plants (over 52% of them established prior to 1914). The overwhelming share of enterprises (92.5% of all) had 1–5 employees, but this category of workers represented just 38.0% of the overall industrial personnel.

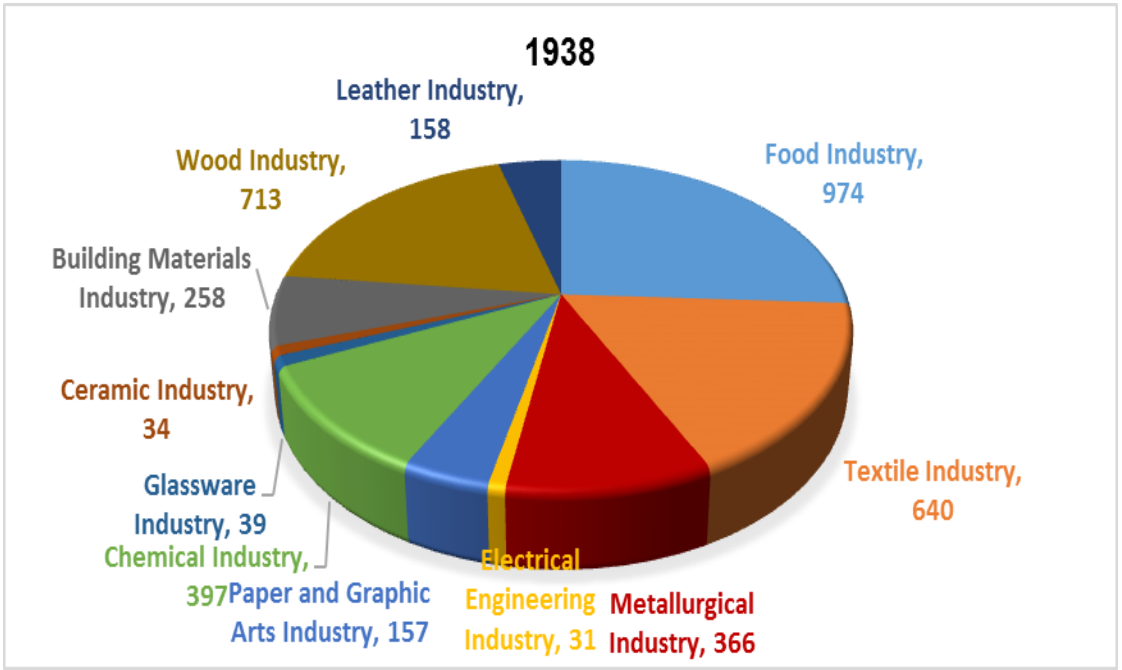
In 1932, manufacturers of commodities accounted for 58.2% of the net worth generated in industry, and provided jobs to 53.3% of the industrial workers. It was the year when, in the opinion of the then economic analysts, the industrialisation of Romania shifted from the phase of world economy (Madgearu, 1940, p 162) (1919-1932), when the national economy had been almost entirely open to the world, to a phase of nationalistic economy, more visibly so starting in 1933. The transition from a global to a national approach to economy is not specific only to Romania; it is the effect, in a wider context, of the world economic crisis that took its toll on industries and industrial ventures, which determined most of the countries to take protectionist measures.

In the context of the world crisis (which started in 1929) and of the difficulties affecting industrial enterprises, the state put in place regulations regarding foreign economic exchanges, industrial investment, and production facilities to meet the country's national defence requirements. (Madgearu, 1940, p. 132)

In 1937, the consumer goods companies accounted for 52.6% of the net worth generated by industry, and employed 52.6% of the country's employees. (Madgearu, 1940, p. 162)

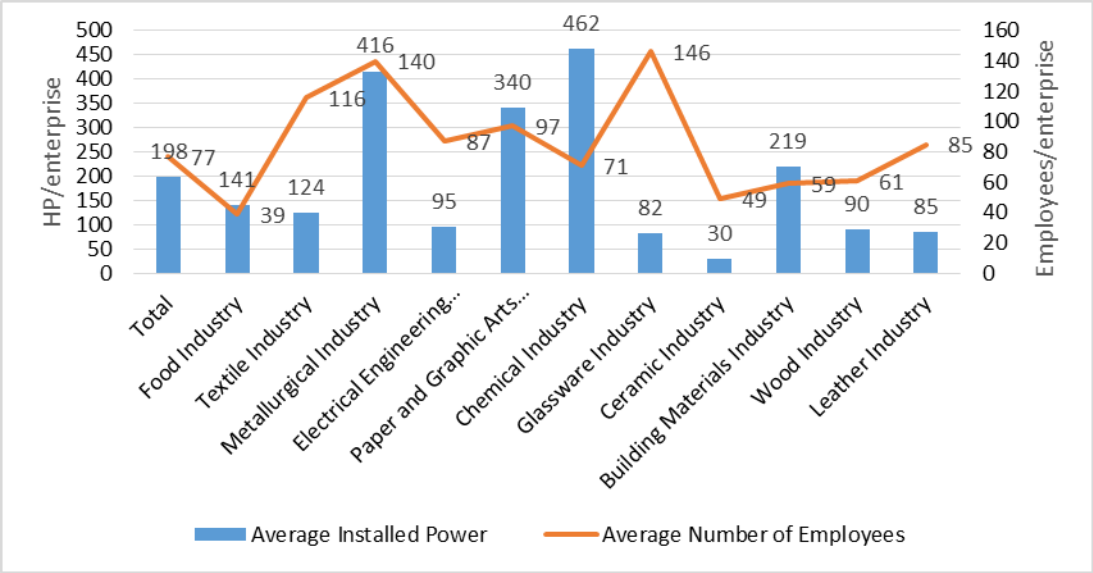
The number of industrial ventures was the effect of their concentration, which reverberated into the growth of manpower and installed power per production unit (Figures 7 and 8).

Figure 7: Breakdown of enterprises in the big industry by branches – 1938



Source: Author's compilation of data from Romania's 1939 and 1940 Yearbook, National Printing House, Bucharest, 1940.

Figure 8: Average installed power and average number of employees in the big industry, by branches - 1938



Source: Author's compilation of data from Romania's 1939 and 1940 Yearbook, National Printing House, Bucharest, 1940.

"Although, during the inter-war period, Romania continued to be an underdeveloped country, its industry flourished and diversified in a remarkable way. It was the mining industry that largely contributed to the growth of the industrial production, providing the primary energy, ores, and raw materials the other branches needed, and providing large quantities of petroleum products for export."(Platon, Dobre, 1991)

In September 1939, the Government established the new Ministry of Public Wealth Inventory, which operated until September 1940.

The 1940-1947 decade brought along the nefarious consequences of the Ribbentrop – Molotov Pact (23 August 1939) and of the Vienna Award (aka the Vienna Diktat, 30 August 1940), and the disruptions caused by World War II (1940 – 1944), and, in the wake of it, the change of political regime, and the post-war economic reconstruction policies (1945-1947) (Pavelescu, 2016).

The Pact caused the loss of one third of Romania's territory, and, with it, one third of the Greater Romania's population and economic strength.

One of the first statistic surveys of industrial enterprises in that period, along with a population census conducted in April 1941, collected data of the economic ventures with the aid of a form. It encompassed all the industrial units, and grouped them into big industry units (with more than 10 skilled employees or with an installed power of more than 20 HP), and craftsmen's workshops. Enterprises were divided into two major sectors – mining industry and processing industry, and into 10 branches.

In 1941, 32,066 (32.2%) of all the 99,510 industrial companies were large units, and 67,444 of them were craftsmen's workshops. As for the number of employees, the average manpower of large enterprises ranged from 161 workers in the metallurgical and metal working sector to 152 workers in the paper industry, 3 workers in the food industry, and 11 workers in the wood industry.

The mining and the food industries were the branches in which the large enterprises were dominant (100% each), followed by the textile industry (68.5%) and the chemical industry (65.9%). In the other branches, the large enterprises accounted for less than 35% of the total.

A natural selection process causes more than 27% of the enterprises to go into dissolution. The surviving enterprises in the big industry become stronger. Although their number had decreased from 3,767 in 1938 to 2,752 in 1941, one can see that the remaining ones had grown in respect of size, both on the side of the installed power (240 HP), and on the side of the number of employees (89 workers).

During the first part of the time segment in discussion (1941-1947), the country channelled its efforts towards two major requirements: to cope with the demand for war supplies, and to help the national economy recover. To reach these goals, the industrial sector was jointly coordinated by the minister of

national economy, the minister for army endowment and arms production, and the minister of public works and telecommunications.

" World War II and the peace negotiations that followed until 1947 threw Romania into the Soviet sphere of influence, and left the problem of Bessarabia, Northern Bucovina, and Herța Region unsolved."(Buzatu, 2009) Despite the efforts of the Romanian diplomats of the time, the unfavourable terms in which the negotiations were concluded (burdening debts to be paid, the obligation to grant the most favoured nation clause to a quite large number of countries, etc.) took a heavy toll on the Romanian economy for many years to come.

Along with other agreements, Romania signed, in Bucharest, on 17 and 19 July 1945, the agreement for the establishment of the first Romanian–Soviet joint companies: Sovrompetrol and Sovromtransport. Other two agreements, for the formation of Tars and Sovrombanc, were signed on 8–14 August 1945. Other joint companies with the Soviet Union continued to be set up between 1946 and1952.

Soon after their establishment, these joint companies were brought to a prime position in the Romanian–Soviet exchanges, each of them in its branch of activity. For example, after only two years of operation, Sovrompetrol came to trade 36.5% of the entire production of refined crude, 37.7% of all domestic shipments of petroleum products, and 38.2% of the external shipments. Then, on 31 March and 18 September 1954, 12 of the 16 joint ventures with Soviet Union were closed, with Sovrompetrol, Sovromasigurare and Sovromcuarț continuing to operate until 1956. The worth of the Soviet shareholding remained to be repurchased by the Romanian Government (Giurescu, 2008).

In May 1947, industrial offices were established, the purpose of which was to draw up, in cooperation with the Ministry of Industry and Commerce, production plans for each economic branch, and for the large enterprises. These plans laid down the products to be manufactured, the amounts, expressed in natural units, and, for some of the products, also the raw materials needed for the purpose (Malinschi, Moldovan, Rausser, 1964).

In 1947, the authorities made an inventory of the industrial private and local government-owned companies, and took a separate census of the state-owned and budgeted companies. The inventory included all the ventures that had installed power, and all the companies that employed 5 or more persons (including the owner, the apprentices, and the family members involved in production activities). The inventory revealed the existence of 35,543 businesses, of which 17.5% were dormant. In the segment of private ventures, sole proprietorships accounted for 82.7%, general partnerships and limited partnerships held a share of 7.0%, holding companies limited by shares accounted for 6.9%, cooperatives held 1.0%, county and communal ventures held 0.6%, and the remaining share included businesses that had not stated their affiliation with any of the types of business above.

Of all the private ventures, 13.6% had an installed power above 20 HP, and 6.4% of them had more than 10 employees, and an installed power over 20 HP.

As to their length of service, the inventory showed that more than half of them (52.7%) had been set up between 1931 and 1947, and 31.4% during the 1941-1947 time segment alone (Table 2).

Table 2

Private Industrial Enterprises - 1947

		Of which, by Date of Establishment (% of total):				
	Total	**Prior to 1915**	**1916-1930**	**1931-1940**	**1941-1947**	**Date Unknown**
Total	**35,543**	**26.9**	**19.2**	**21.3**	**31.4**	**1.1**
Mining Industry	**1,095**	**34.1**	**22.1**	**25.9**	**16.4**	**1.5**
Manufacturing Industry, of which:	**34,448**	**26.7**	**19.1**	**21.2**	**31.9**	**1.1**
Metallurgical	2,492	7.3	20.5	25.3	46.3	0.7
Materials for Electrical Engineering	256	2.7	16.4	29.7	50.4	0.8

	Total	Of which, by Date of Establishment (% of total):				
		Prior to 1915	1916-1930	1931-1940	1941-1947	Date Unknown
Measuring Devices and Precision Instruments	124	6.5	17.7	25.8	48.4	1.6
Wood	4,745	15.6	21.4	23.5	38.1	1.4
Constructions and Building Materials	987	13.0	18.8	23.2	43.4	1.6
Glassware and Glass panes	76	6.6	15.8	28.9	47.4	1.3
Ceramic	36	5.6	13.9	16.7	63.9	0.0
Textile	3,875	15.3	16.9	24.6	41.6	1.5
Leather and Leather Garments	999	8.8	21.3	27.6	41.7	0.5
Clothing	654	7.6	18.2	35.0	37.9	1.2
Food	18,127	39.8	19.2	17.5	22.4	1.1
Paper and Graphic Arts	602	14.1	23.1	28.2	34.4	0.2
Chemical and Pharmaceutical Products	1,386	4.8	13.0	24.7	56.8	0.7
Petroleum refineries	59	33.9	22.0	30.5	10.2	3.4
Other	30	10.0	13.3	20.0	53.3	3.3

Source: Author's compilation of data from Victor Axenciuc, Romania's Economic Evolution. A Statistical and Historical Research [*Evoluția economică a României*. *Cercetări statistico-istorice 1859-1947*], vol. I, Industry, Publishing House of the Romanian Economy, Bucharest, 1992, and Romania's Industrial, Commercial and Transport Companies [Întreprinderile particulare industriale, comerciale și de transport], Vol I, Bucharest, 1947.

Most companies that came into being in the latter time segment, as a proof of the development of certain industrial branches, were in the ceramic industry (63.9% of all the companies in the branch), the chemical and pharmaceutical industries (56.8%), materials for electrical engineering (50.4%), measuring devices and precision instruments (48.4%).

During the 1941-1947 period, the number of companies in the big industry grew by approximately 60%, their installed power by 20.1%, and the number of employees by 47.8%. By the end of that period, the average installed power by enterprise had reached 193 HP, and the average personnel was 88 employees.

The branch ranked on top for the growth of the installed power was the chemical industry, where during the 1941-1947 period the average installed power grew by some 100 HP/unit (from 295 HP to 399 HP).

2. The Centralised Economy Phase (nationalisation, collective farming, planned economy), 1948-1989

At the core of industrial development along the 20th century, and mostly during its mid third, we find the metallurgical industry, and foremost, the steel production. The steel production and metalworking were the drives that generated the configuration of the economies of the developed countries. To ensure the space and the competitive framework for economic development having steel as its centrepiece, several West-European countries created the European Coal and Steel Community (ECSC) in 1951.

Since 1950, the developed European and North-American countries witnessed the "30 glorious years", when the big industrial companies emerged, known as the "national champions", which provided employment to a large number of workers, and offered increasingly higher wages (Ciutacu, Chivu, 2015). It was a benefit not only to the large number of labour employed, but also to the upstream and downstream industries, such as coal and ore mining, production of energy, transport, civil engineering, education, scientific research. The metal produced became an indispensable foundation for the processing industries.

With such arguments in hands, industry received important support from the state authorities, with generally admitted effects that triggered discussions on the probable long-term consequences. The change of paradigm towards an interventionist policy of the state in most of the European countries after 1945, which persisted until the 1990's, played a critical role in the structural changes of the economy, and was very efficient in sustaining high growth rates. Sometimes, however, this policy caused an inefficient long-term allocation of the national resources of many countries.(Grabas, Nutzenadel, 2013)

Otherwise, statistical data are arguments in favour of industrial development.

1948 was the year in which this phase started in Romania, and its landmark was the Act 119/11 June 1948, regarding the nationalisation of industrial, banking, insurance, mining, and transport companies (Nationalisation Act, NA). The purpose of the NA was to transfer to the state property "all the riches of the subsoil that were not state-owned at the time of coming into force of the Constitution of the People's Republic of Romania, as well as the sole proprietorships, the companies of any type, and the industrial enterprises in private ownership", according to the list appended to the NA. The property confiscated as a result of the NA was transferred to state ownership and declared "the joint property of the people"3, and placed under the management of the relevant ministries for each type of property. The ministries were vested with the authority to appoint the management of every business venture.

Another, important, provision of the NA was that, as a general rule, with few exceptions, only the government was entitled to open new enterprises in the branches to which the nationalised companies were subordinated.

The NA brought about a complete change in the capital structure. The statistical data for the first decade of this phase are scanty.

The industrialisation policy, sustained by substantive investment (part of which was possible also by way of foreign loans), was designed both as a vertical integration scheme from base (company) to top (holding company, ministry), and as a horizontal chain of added value, from mining, to primary processing industry, secondary processing industry, trading company, or, in agriculture, from farming to agri-food businesses, and trading companies. The general concept was not necessarily the profitability of every link in the chain, but rather the value added to the whole chain, and the "full employment of the existing labour force."(Chivu, Ciutacu, Georgescu, 2017)

This reorganisation of the entire economic life laid the foundations for the planned management of Romania's industry, and the creation of production plans for each state-owned enterprise in all the 24 big industrial branches.

The results of this policy were, during the 1960–1989 period, the increase in number of industrial enterprises from 1,658 to 2,102, in number of industrial employees from 1.2 million to approximately 3.7 million persons, and in the installed power for production purposes from 3.3 mill. kW to 38 mill. kW. In 1989, the average number of employees per industrial unit was 1,755 persons, and the average installed power per unit was 18.1 thou. kW (Table 3).

Table 3

Number of Enterprises and Their Average Size by Number of Employees and Installed Power, 1960-1990

Branch	Year	Number of Enterprises at End of Year	Average Size	
			Number of Employees /Enterprise (pers.)	Average Installed Power /Enterprise (KW)
Industry, total, of which:	1960	1,658	748	1,968
	1970	1,731	1,154	6,217
	1980	1,752	1,825	15,482
	1989	2,102	1,755	18,130

[3] Act 119/11 June 1948, regarding the nationalisation of industrial, banking, insurance, mining, and transport companies.

Branch	Year	Number of Enterprises at End of Year	Average Size	
			Number of Employees /Enterprise (pers.)	Average Installed Power /Enterprise (KW)
State-Owned Industry, of which:	1960	1,001	1,002	3,014
	1970	1,126	1,447	9,117
	1980	1,321	2,181	20,350
	1989	1,474	2,202	25,461
Fuel	1960	27	2,481	18,296
	1970	54	1,574	28,278
	1980	42	3,333	112,643
	1989	79	2,025	82,013
Ferrous Metallurgy (including mining of ferrous ores)	1960	18	3,722	27,444
	1970	19	4,474	80,368
	1980	27	5,185	175,222
	1989	34	4,706	190,559
Non-Ferrous Metallurgy (including mining of non-ferrous ores)	1960	17	1,941	5,118
	1970	19	3,316	30,842
	1980	20	4,250	78,750
	1989	22	4,273	88,818
Machine Building and Metal Working	1960	199	1,211	3,070
	1970	214	2,154	8,822
	1980	315	3,429	18,622
	1989	335	3,973	27,310
Chemistry	1960	57	807	4,649
	1970	65	1,815	25,431
	1980	80	2,750	57,200
	1989	89	2,326	47,303
Building Materials	1960	65	569	2,200
	1970	68	868	7,088
	1980	65	1,646	23,538
	1989	62	1,565	22,790
Wood Harvesting and Processing	1960	130	1,185	815
	1970	120	1,825	3,975
	1980	79	3,430	16,405
	1989	79	3,772	17,633
Pulp and Paper	1960	16	813	6,750
	1970	18	1,389	22,833
	1980	17	1,882	39,353
	1989	13	2,462	52,846
Glassware, Porcelain, Tiling	1960	19	842	947
	1970	19	1,316	3,737

Branch	Year	Number of Enterprises at End of Year	Average Size	
			Number of Employees /Enterprise (pers.)	Average Installed Power /Enterprise (KW)
	1980	30	1,733	5,500
	1989	30	1,933	6,800
Textile	1960	125	1,016	992
	1970	127	1,496	2,472
	1980	171	1,819	4,298
	1989	188	1,824	4,995
Leather ware, Furs and Footwear	1960	36	944	778
	1970	35	1,571	1,800
	1980	39	2,026	3,154
	1989	38	2,579	4,053
Food	1960	207	382	816
	1970	263	395	1,567
	1980	294	656	3,670
	1989	317	609	4,382
Printing	1960	18	722	778
	1970	24	792	1,208
	1980	17	941	2,176
	1989	16	1,063	2,250

Source: Author's compilation of data from Romania's statistical yearbooks, various editions.

The progress made by industry during this phase is reflected in the remarkable growth of physical production, in the increase of the range, level of processing, and diversity of the industrial products (Annex 1).

In addition to the domestic market, which held an important segment, particularly for the trading of the heavy industry products, most of the other industrial products, including food, textiles, etc., were exported to the other members of the COMECOM, but also to Common Market countries, in order to pay off the external debt of the country.

The Ministry of Industry and Commerce, which, initially, had the task to coordinate industrial activities, was dissolved, and several other ministries were created in its place, each of them designed to manage the activity of a specific industrial branch. Starting in 1955, the government included portfolios for the President of the State Planning Committee, and of the ministers of metallurgy, machine-building, mining and electric power, crude oil and chemistry, light industry, food industry. In 1969, new portfolios were added to the Cabinet: the minister of technical and material supplies and inspection of fixed assets management, the president of the pricing committee, the minister of construction of chemical plants and refineries, the minister of heavy machinery industry, and the minister for the building of machine-tools and electrical engineering. All these ministries operated with minor changes of titles until 1989.

Industry was regarded as an important pillar for the balanced development of the country all over its territory. The location and development of industrial establishments by development regions, and the number of employees of such establishments were a direct reflection of this policy. The territorial distribution of the industrial areas, that often boosted urban development, was also the factor that determined the physical planning of the country's territory, sometimes leading to the appearance of settlements on the map of Romania, having as a core an industrial site, or to the disappearance of others.

In this phase of the national economy, the industrial enterprises became important pillars for the growth of other economic sectors, such as transport, trade, and services for these enterprises.

Industrial enterprises performed not just the role of economic drive for other economic sectors, but also solved the social needs of a large number of people, to whom they provided salaried jobs, which were the main source of income for personal and family upkeep. The large industrial enterprises were the embryos of other social, complex, functions like education (schools training apprentices, skilled workers), and on-the-job training of students of all levels. They participated in the life of the local communities through partnerships with the local administration structures.

3. The Phase of Transition to a Market Economy and European Union Integration, 1990-2017

Since 1990, Romania's economy has switched from a centrally planned structure to one based on principles of free initiative and market relations. The transition from a contribution of the private sector of 16.4% to the gross domestic product (GDP) in 1990 to over 75% in 2015 was the result of complex changes in all the economic sectors, and in the society as a whole. This has been a phase when both the decision-makers, the government entities, the businesses, and every citizen underwent a process of permanent learning and adjustment to new concepts.

At the beginning of 1990, the Romanian economy was overwhelmingly state-owned and centralised; it consisted almost exclusively of companies and cooperatives where the state was the sole shareholder, all of them very large, the production of which was mostly channelled to reinvestment and export. The abolition of the East-European market (COMECON), the collapse of the domestic market, dominated by companies that produced goods for the big investment projects, and had a very narrow margin of flexibility, followed by the liberalisation of prices in October 1990, and the loss of important export markets, all caused a dramatic economic setback.

"During the first decade, the transition to a market economy triggered a specific type of reforms and economic restructuring; the most important of them were privatisation, the deep change of economic organisation, and employment policies. The process was a complex one, a bumpy road with difficulties to harmonise and synchronise the components involved: economic, institutional, legal, social, political, cultural, educational, psychological, etc. Not once the economic changes, or the technical and technological aspects of restructuring went ahead of the counterpart transformation of the institutional, legal, political, social and cultural framework, and caused the sudden downfall of the gross domestic product. The consequence was the drastic change in the gross value added and employment due to the soaring inflation that never seemed to stop, and an ever growing unemployment rate" (Ciutacu, Chivu, 2010).

Among the basic elements contributing to the architecture of the rule of law were the institutions specific to a free market economy. In a brief recount, they were: the abolition of the centralised economy, with the first measures taken to this effect by the first, provisional, government, which reorganised the former State Planning Committee into the Ministry of National Economy.

Also in the first stage of transformations, in 1990, a decree was issued to permit entrepreneurship and Act 31, which converted the state-owned enterprises into commercial companies (free business entities); in 1991, Act 58 meant green light to the privatisation of commercial companies. This was then followed by a long series of regulations (Act 77/1994, Act 55/1995, etc.), which generated fundamental changes in the ownership structure of business ventures. As a complement, in agriculture, the Land Act 18/1991, put in place a dual mechanism of the land reform, enabling the former land owners to be reinstated to their landed ownership rights.

The multi-faceted transformation of the economy found its reflection in the evolution of the institutional framework. New administrative entities emerged: The Romanian Agency for the Promotion of International Investment and Technical Assistance (1990), later renamed The Romanian Agency for Foreign Investment, and, since 2014, The Department for Foreign Investment and Public-Private Partnership, as an entity subordinated to the Government; The National Agency for Privatisation and Development of Small and Medium-sized Companies (1991), The Department for the Reform Strategy and Economic Integration (1991), later renamed the Council for Economic Coordination, Strategy and Reform, and the European Integration Department (1992), which later became the Ministry of Integration; the Department for Local Public Administration (1991), which later became the Ministry of Administration and Interior Affairs, and then the Ministry of Internal Affairs; the State Property Fund, converted, in 2001, into the Authority for the

Privatisation and Management of State Shareholding, and, in 2004, amalgamated with the Authority for the Capitalisation of Bank Assets (initially established in 1998), and then renamed the Authority for the Management of State Assets; 5 regional Private Property Funds, all of which were converted into 5 financial investment companies in 1996; the Romanian Development Agency, which in 2000 merged with the National Agency for Small and Medium Enterprises, and with the National Agency for Regional Development, and the Restructuring Agency (1994); The Competition Council, The National Authority for Consumer Protection, etc.

The institutional structure designed to instate the rule of law and the market economy covered two distinct stages in what concerns the architecture of institutions, and mechanisms, contents, and functions.

After 1 February 1995, when the Agreement for Romania's Accession to EU came into effect, and after 22 June 1995, when Romania formally submitted the request for accession, with the coalesced agreement of all the political parties, the pace, the orientation, and contents of the reforms changed considerably. In December 1999 Romania was invited to negotiations for integration into the EU. Between 2000 and 2003, all the negotiation chapters were opened.

This course required not only a tremendous efforts to transpose the Community acquis, but also a different type of transformation and restructuring, especially on the side of administrative, management, and anticipation capacity.

Romania, in compliance with the schedule of the European Commission, signed the Accession Treaty recognising her capacity as a member of the European Union with effect from 1 January 2007. Romania had also been accepted as a full member of the NATO on 1 April 2004. Looking back at all the transition measures and economic reforms in Romania, we notice that the strategy pursued its goals by stages, with less pain and more bearable costs during the first years, and with increasing suffering over the subsequent years.

This meant that the thorough changes of institutions and mechanisms that the market economy required went along simultaneously with the effort to conduct the political, institutional, and legal reforms required by the integration into the NATO and the EU.

Although academic researchers produced an important amount of analyses, and developed strategies to serve the decisive moments in the evolution of the economy in general, and of industry in particular, they often remained dead letter, theory papers that did not arouse any interest in decision makers. This had a detrimental effect on the long-term strategies.

During the first decade of the transition phase the gross domestic product dropped drastically. In 2000, the GDP reached, in real terms, the level prior to 1989, but this time with a radically different sectoral structure. Since 2000, the economy has been growing, sometimes at very fast rates. Consumption, encouraged by loans, followed a sharp upward curve until 2008. The year 2009 carried with it the effects of the world economic and financial crisis, which revealed how fragile the macroeconomic ties were. To restore macroeconomic mechanisms, the authorities resorted to severe restructuring in certain sectors, which entailed personnel redundancies (Chivu, Ciutacu, Georgescu, 2016)

All of the above combined with the consequences of the four types of freedoms of the EU domestic market, for which the Romanian economy, through its economic operators, were not prepared to face. The result was the rise of the country's public and private foreign debt, which generated permanently higher trade deficits (mostly in relation to the other EU member states), also as an effect of the loss by Romanian companies of substantive segments of the domestic market; the migration of large cohorts of Romanian citizens (particularly young, active and highly trained population) caused a deficit in qualified labour force in many economic sectors of the country (Ciutacu, Chivu, 2008).

In recent years, the economic indicators resumed their ascending trend. Since 2013, macroeconomic statistics have shown that the Romanian economy has overcome the crisis, and that investors' perception is that it is safer to place their money in Romania.

Restructuring and privatisation of Romanian economic, and especially industrial, enterprises have left their marks in the number and size of the companies.

From a formerly vertically and horizontally integrated network of economic units, the new legal framework laid the foundations of a market based on competition, where each link, each company, and each person were free to run a business as they deemed fit. (Chivu, Ciutacu, Georgescu, 2017) However, despite the enthusiastic welcome to the entrepreneurship, the lack of experience, the shortage of ready financial

resources, the absence of supporting alternatives made the massive privatisation of the economy one of the drives to dramatic redundancies, to the loss of valuable assets, and even to the dissolution of many companies. One may say that in most of the countries undergoing transition from a centralised to a free economy "large scale privatisation caused dramatic consequences on the distribution of wealth, revenues and on the social structure" (Chilosi, 1996).

The radical changes in the structure of property are reflected in the number of business entities: from a total of 197,000 in 1989, to 553,936 corporate ventures in 2017 (of which over 99% were small and medium enterprises). In addition to these, in 2017, the economic landscape included 287,982 private entrepreneurs, comprising 21,277 family companies, and 266,705 sole proprietors.

This course of events overlapped the concomitant tendencies to deindustrialisation, and the effects were specific not only for Romania. The first signs of the increasingly lower contribution of industry to the gross value added became visible in the OECD countries, in the early 1980s, at rates varying in each country.

As expected, deindustrialisation – defined as "a generalised process of disinvestment in the production capacities of nations" (Bluestone, Harisson, 1982) – has been the object of research of numerous studies. Real life has provided plenty of arguments illustrating the validity of this concept in the vast majority of the world's countries, including Romania.

An analysis of the shrinkage of employment in the manufacturing industry of Denmark in the 1994-2007 period demonstrated that it "was not just a story about the disappearance of certain industries and the failure of some companies, but an important stage of evolution in the developed modern societies, in the process of shifting the stress from the manufacturing industry to services." (Bernard, Smeets, Warzynci, 2017, p. 31)

Statistical studies indicate that, in 1991, industry was formed of 1,712 companies, which employed 3,052,000 workers. This meant an average of 1,783 employees per company. In 2011, the statistic records showed a number of 47,084 industrial companies, which employed 1,259,000 persons, this coming down to an average of 27 employees per company. In 2017, the total number of industrial ventures was 52,057, with an overall 1,835,000 employees, and an average of 35 workers/business. (RSY, INS)

For example, in 1991, only 79 companies had less than 100 employees, and 127 companies had on average 130 workers. The Act 31/1990 for the reorganisation of business entities into commercial companies had spawned, by 1995, 27,566 industrial entities with less than 9 employees, and 4,014 entities with a number of workers between 10 and 49. In 2017, of the then 52,057 industrial companies, 92.6% numbered less than 50 workers, and 74.0% of them counted under 10 workers (Table 4).

Table 4

Distribution of Industrial Companies by Size Classes

	Year		Size Classes by Number of Employees			
		Total	0-9	10-49	50-249	250 and over
Industry, Total	**1995**	**34,850**	**27,566**	**4,014**	**1,653**	**1,617**
	2001	**43,454**	**29,162**	**9,046**	**3,851**	**1,395**
	2011	**49,715**	**34,299**	**11,051**	**3,496**	**869**
	2017	**52,057**	**38,477**	**9,681**	**3,080**	**819**
Mining Industries	1995	170	74	32	14	50
	2001	321	151	88	42	40
	2011	1,108	800	240	51	17
	2017	1,114	708	250	42	14
Manufacturing Industry	1995	34,404	27,455	3,946	1,523	1,480
	2001	42,787	28,950	8,897	3,678	1,262
	2011	45,052	30,914	10,184	3,223	771
	2017	49,837	36,751	9,321	2,994	771
Electric Power, Steam, Gas, Water	1995	276	37	36	116	87
	2001	346	61	61	131	93

	Year		Size Classes by Number of Employees			
		Total	0-9	10-49	50-249	250 and over
	2011	3,555	2,580	616	238	121
	2017	1,206	1,018	110	44	34
Economy, Total	**1995**	**304,359**	**283,997**	**13,400**	**4,384**	**2,578**
	2001	**311,260**	**271,713**	**29,888**	**7,702**	**1,957**
	2011	**430,608**	**375,479**	**45,221**	**8,335**	**1,573**
	2017	**525,660**	**469,778**	**45,823**	**8,354**	**1,705**

Source: Romania's Statistic Yearbook, INS, Bucharest, various editions, and Results and Performance of Industrial and Construction Companies, INS, Bucharest, various editions.

Spectacular changes were also caused in the capital ownership of companies**.** In 2017, the majority shareholding in 99.7% of the industrial business entities was in private hands, and only 0.3 % of them had the state as a majority shareholder; of the same total industrial ventures that year, 7.8% were 100% held by foreign capital; 90.0% of the entire number of industrial employees were working in companies with a foreign majority shareholding, and 10.0% of them were working in companies with a majority state-owned capital.

In 2016, the foreign capital held important shares in many of the industrial branches, and the share held by the foreign capital in the turnover of industrial companies ranged from 39% to 100%. The largest shares of foreign capital held in the turnover of industries were in the tobacco industry (100%), crude oil and gas extraction (98%), processing of crude oil, and car manufacturing (97%), manufacturing of electrical equipment, and the production and distribution of electric power, steam, gas, hot water and air conditioning (84%), etc. (Table 5).

Table 5

Structure of Turnover by Nature of Shareholding, 2016 (%)

	Foreign Capital
Manufacture of tobacco products	100
Extraction of crude oil and gas	98
Manufacture of coking coal and crude oil derivatives	97
Manufacture of cars, trailers and semi-trailer s for road transport	97
Manufacture of electrical equipment	84
Production and distribution of electric power, steam, gas, hot water and air conditioning	84
Metallurgical industry	82
Manufacture of beverages	81
Manufacture of machines, equipment and machinery	81
Manufacture of computers, and electronic and optic products	79
Manufacture of other means of transport	76
Manufacture of chemical products	72
Manufacture of textile products	72
Manufacture of rubber and plastic products	71
Tanning and finishing of hides	69
Manufacture of pharmaceutical products	67
Manufacture of paper and paper products	64
Wood processing, without furniture	60
Manufacture of other products from non-metallic minerals	59
Industry of metal structures and metal products	52
Manufacture of clothing	52
Manufacture of furniture	42
Food industry	39

Source: Romanian Private Capital, PIAROM, 2018.

Industrial competitiveness depends, *inter alia*, on the company's size by turnover and market segment. Analysts and political decision-makers know the obstacles the small and medium companies stumble over in trying to access sources of finance, research development and innovation, penetration to and endurance on specific markets, information regarding the developments on the market, and competitive requirements, etc. (Chivu, Ciutacu, Georgescu, 2016).

An examination of the distribution of industrial companies in Romania by size brackets indicates that their economic size is still far from the average size of the companies in the other member states.

The information provided by the INS for the years 2008 – 2016 indicates that the average number of employees per company in industry as a whole dropped from 27 to 26 persons; in micro-enterprises from 3 to 2 employees per company, and in the companies with 250 employees and over, the average number went up from 799 to 805 (Table 6).

Table 6

Average Number of Employees by Size Classes of Industrial Companies, 2008-2016

	Size Classes of companies	2008	2016
Industry, Total	**Total**	27	26
	0 – 9 employees	3	2
	10 – 19 employees	14	13
	20 – 49 employees	31	31
	50 – 249 employees	105	107
	250 employees and over	799	805
Mining Industry	**Total**	79	37
	0 – 9 employees	3	2
	10 – 19 employees	14	14
	20 – 49 employees	30	29
	50 – 249 employees	115	106
	250 employees and over	3,271	1,754
Manufacturing Industry	**Total**	24	25
	0 – 9 employees	3	2
	10 – 19 employees	14	13
	20 – 49 employees	31	31
	50 – 249 employees	105	106
	250 employees and over	699	749
Production and Distribution of electric power, steam, gas, hot water, and air conditioning	**Total**	176	52
	0 – 9 employees	2	1
	10 – 19 employees	14	14
	20 – 49 employees	34	29
	50 – 249 employees	129	108
	250 employees and over	1,460	1,782

Source: Author's computation based on data from Results and Performance of Industrial and Construction Companies, INS, Bucharest, various editions.

The tendency to diminish the average number of employees per company continued in 2016 in the mining industry, and the processing industry; the production and distribution of power, steam, gas, hot water and air conditioning displayed a process of concentration translated into the decrease of the number of employees in the small companies, the increase of their number in the large companies.

From a European perspective, the 2016 data provided by the Ministry of Public Finance show that the average size companies by turnover in the Romanian industry, and economy, for that matter, places the overwhelming majority of them in the category of micro-enterprises, or small enterprises, at most. An INS classification of all industrial enterprises by size of turnover shows that the average was 1.4 mil. euros in 2008, 1.7 mil. euros in 2011 and 2016. Companies with a manpower of 50-249 employees had reported, in 2016, and average of 5.4 mil. euros, and the companies employing more than 250 workers reported, the same year, 67 mil. euros in turnover (Table 7).

Table 7

Average Turnover by Size of Industrial Enterprises (thou Euro/enterprise), 2008-2016

	Size Classes of companies	2008	2016
Industry, Total	**Total**	1,424	1,774
	0 – 9 employees	86	131
	10 – 19 employees	552	687
	20 – 49 employees	953	1,437
	50 – 249 employees	4,098	5,697
	250 employees or more	56,427	67,922
Mining Industry	**Total**	7,012	4,317
	0 – 9 employees	126	215
	10 – 19 employees	736	1,049
	20 – 49 employees	1,836	1,571
	50 – 249 employees	6,168	6,339
	250 employees or more	311,165	241,013
Manufacturing Industry	**Total**	1,101	1,555
	0 – 9 employees	67	100
	10 – 19 employees	457	578
	20 – 49 employees	892	1,136
	50 – 249 employees	3,823	4,886
	250 employees or more	42,142	63,156
Production and Supply of Electric Power, Steam, Gas, Hot Water and Air Conditioning	**Total**	26,013	9,445
	0 – 9 employees	2,439	1,068
	10 – 19 employees	13,957	9,777
	20 – 49 employees	7,757	8,497
	50 – 249 employees	22,504	58,687
	250 employees or more	189,061	199,681

Source: Author's compilation of data from Results and Performance of Industrial and Construction Companies, INS, Bucharest, various editions.

The above table indicates that the average size by turnover of an enterprise in the manufacturing industry is 4 to 6 times smaller than the size of mining or power engineering companies. It also shows that the average size of producers and suppliers of power and steam was 3 times smaller in 2016, down from the 2008 level. This is especially true of micro- and small enterprises. In companies with more than 50 employees, the turnover per company grew visibly.

After the increase, by fragmentation, of the number of industrial enterprises, starting from 1996 one may notice a tendency to concentrate industrial ventures, reflected in the growing size of the turnover of the top 5 companies, and the growing number of employees in the top 20 companies. The highest growth rates for these two indicators were scored in the manufacture of coking coal, and the processing of crude oil. The top five accounted for 85.6% of total turnover in 1996, for 97.8% in 2011, and for 99.1% in 2017. The same top five held a 81.6%, 83.6%, and 88.1% of all employees in the sector, considering the same reference years.(Chivu, Ciutacu, 2014) (Table 8).

Table 8

Concentration of Enteprises in the Manufacturing Industry

Sub-branch	Year	Total Number of Enterprises	Share of Total Turnover (%)		Share of Total Employees (%)	
			Top 5	Top 20	Top 5	Top 20
Food Industry	**1996**	8,636	10.3	16.5	7.4	15.7
	2001	9,920	8.1	17.3	5.1	12.7
	2011	7,508	10.1	26.0	5.7	13.1
	2017	8,077	4.7	17.0	5.8	13.3
Manufacture of Textile Products	**1996**	2,462	6.3	23.2	8.8	24.5
	2001	4,930	3.7	13.9	4.8	14.0
	2011	1,317	24.5	51.1	12.7	33.3
	2017	1,316	15.7	48.7	17.0	41.6
Manufacture of Clothing	**1996**	3,479	7.2	23.4	11.5	29.9
	2001	1,732	6.0	16.3	8.8	23.9
	2011	4,111	15.2	27.7	3.7	11.9
	2017	4,812	6.9	20.2	4.1	12.7
Manufacture of Coking Coal and Petroleum Products	**1996**	14	85.6	100.0	81.7	100.0
	2001	25	90.1	100.0	82.8	100.0
	2011	40	97.8	100.0	83.6	98.7
	2017	37	99.1	100.0	88.1	99.2
Manufacture of Chemical Products and Substances	**1996**	811	31.9	62.4	24.4	59.1
	2001	1,024	28.3	56.6	27.9	61.8
	2011	827	48.3	71.7	37.3	63.7
	2017	851	28.3	52.5	24.1	50.7
Manufacture of Other Products from Non-metallic Minerals	**1996**	959	23.4	47.9	16.4	41.7
	2001	1,593	20.7	40.5	12.3	39.8
	2011	2,359	31.3	50.9	11.1	28.0
	2017	2,352	17.1	42.3	12.8	30.8
Metallurgical Industry	**1996**	322	51.2	80.0	46.6	75.9
	2001	412	48.9	82.7	51.6	77.8
	2011	426	50.2	83.2	44.8	74.1
	2017	370	52.8	75.8	43.3	71.3
Manufacture of Machinery, Machine-tools and Equipment	**1996**	674	24.9	48.0	25.7	49.2
	2001	1,016	3.9	32.1	19.7	46.6
	2011	1,270	39.2	58.2	20.1	41.4
	2017	1,190	33.8	59.5	20.4	42.5
Manufacture of Road Transport Vehicles, Trailer and Semi-Trailers	**1996**	152	67.1	87.5	56.0	85.2
	2001	311	56.6	75.1	44.1	74.9
	2011	425	50.0	76.0	31.2	64.4
	2017	464	38.0	63.5	24.9	59.0
Production and Supply of Electric Power, Steam, Gas, Hot Water, and Air Conditioning	**1996**	146	92.5	95.6	73.3	84.6
	2001	151	80.5	96.3	68.7	85.4
	2011	924	29.3	63.3	27.9	65.2
	2017	1,350	14.4	43.8	44.1	78.8

Source: Romania's Statistic Yearbook, INS, Bucharest, various editions.

The de-concentration tendency can be also noticed in the road transport automotive industry, due to the emergence of new automotive spare parts manufacturers, which made the top 5 in the branch to hold a progressively diminishing share in total turnover: 67% in 1996, 50% in 2011, and 38.0% in 2017).

A noteworthy aspect of the development of industrial production in Romania is the growth of the share of foreign capital, which controls some 70% of the overall industrial turnover.

In the first decade of this phase, the physical production shrank dramatically in all industrial branches (Annex 1). Despite the rising production in the second decade of the phase, in very few of these branches (automotive tires, lumber, meat, meat preparations, edible oils, etc.) the production figures caught up, in 2017, with the output of the year 1989.

Conclusions

In each of its phases, the Romanian economy had a specific architecture of the industrial enterprises, which was both the result and the agent for the decision-makers' industrial strategies and policies, all of which bore the mark of the economic, political, and social context surrounding them.

Technologies and institutions follow their course to advancement, and the people of the present cannot design new industrial strategies and policies while ignoring the past.

The enterprises of our times and of the future are completely different from those that flourished during the three industrial revolutions. Information and computerised technologies have fostered the booming of a fourth industrial revolution, bringing about a resettlement of forces between the secondary and tertiary sectors of the economy, and the emergence of a new industrial order. We have entered the era of smart development. Businesses are rethinking their structures, their supply-delivery schemes, and the entire economic concept, because they need to become part of globalised value chains, to join deregulatory cooperation. For this, they need to acquire a new industrial and organisational culture, in which the human factor is playing an ever greater part.

The decisive pivots of the future are not so much the technical or financial components, but the soft, intangible elements, such as strategies, innovation and anticipation enabling businesses to be competitive and stay on the market. Strategies and policies of our times can only bear fruit if they respond to the current state of affairs, and this means dialogue, cooperation and the partnership between the public and the private sectors. (Chivu, Ciutacu, Georgescu, 2016)

It is now incumbent on the companies themselves to forge their own strategies empowering them to cope with competitiveness, to foster research, development and innovation, to update their know-how and products, to introduce the new, generic and advanced technologies that save resources, to switch to renewable sources of energy that cut energy consumption and reduce the greenhouse effect, to create conditions generating new, well paid, quality jobs. The general framework in which the companies are expected to conduct their business, modelled to the economic pattern society is aiming to, cannot ignore the challenges of the future in a globalised economy.

Appendix 1

Physical Output of the Main Industrial Products

	UM	Maximum Output	Year of maximum output	1938	1948	1950	1960	1970	1980	1989	1996	2000	2006	2008	2011	2013	2017
Electricity	mil. Kwh	75,851	**1989**	1,130	1,500	2,113	7,650	35,088	67,486	75,851	61,350	51,935	62,696	64,956	62,216	58,888	64,296
Steam	mil. Kcal	182,407	**1988**		…	…	…	…	162,666	181,706	103,986	68,474	48,334	43,847	38,876	32,973	28,960
Coal, total extracted	thou tonnes	66,462	**1989**	2,826	2,946	3,893	8,163	22,835	37,814	66,462	47,774	30,924	35,404	36,690	37,342	25,923	26,016
Bituminous coal, including hard coal (anthracite)	thou tonnes	11,693	**1987**	…	…	2,733	4,481	8,087	9,686	11,583	6,965	4,042	2,587	…	…	1,875	757
Lignite	thou tonnes	53,980	**1989**	…	632	811	3,145	14,044	27,448	53,980	37,204	26,576	32,754	33,658	35,220	24,048	24,995
Brown coal	thou tonnes	910	**1988**	…	…	349	537	704	680	899	605	306	63	…	…	…	…
Coking coal	thou tonnes	5,870	**1989**	80	80	72	820	1,070	3,033	5,870	3,153	1,613	1,790	…	0,32	0	0
Crude oil, total extracted	thou tonnes	13,337	**1970**	6,594	4,149	5,047	11,500	13,377	11,511	9,173	6,626	6,042	4,777	…	…	3,984	3,538
Petroleum Products	thou tonnes	1,289	**1960**	1,141	736	736	1,289	969	868	512	185	266	461	555	502	465	493
Diesel oil	thou tonnes	8,471	**1988**	858	507	731	2,376	5,049	7,475	8,435	4,197	3,354	4,484	4,679	3,828	4,173	5,609
Fuel oil	thou tonnes	10,231	**1980**	2,186	1,410	1,681	3,824	4,249	10,231	10,172	2,405	1,433	1,303	48	0,07	400	182
Mineral oils	thou tonnes	664	**1980**	65	…	125	317	606	664	516	217	112	85	…	…	18,7	35.8
Methane and other, associated, gases	mil. cu. m	40,764	**1980**	2,026	2,345	3,422	10,530	25,309	35,171	32,951	18,162	14,607	12,422	11,586	11,174	11,169	11,071
Iron ores, raw	thou tonnes	2,482	**1989**	139	209	392	1,460	3,206	2,333	2,482	860	116	123	…	…	…,	…
Cast iron	thou tonnes	9,329	**1986**	133	186	320	1,014	4,210	9,012	9,052	4,025	3,066	3,946	…	…	…	…

	UM	Maximum Output	Year of maximum output	1938	1948	1950	1960	1970	1980	1989	1996	2000	2006	2008	2011	2013	2017
Steel	thou tonnes	14,411	**1989**	284	353	555	1,806	6,517	13,175	9,052	6,083	4,672	6,266	5,039	3,811	3,073	3,443
Rolled steel products, finished	thou tonnes	9,319	**1980**	319	315	402	1,254	4,504	9,319	10,263	4,479	3,687	5,696	4,757	4,073	2,935	3,572
Steel pipes	thou tonnes	1,464	**1980**	0,6	…	58	338	767	1,464	1,360	591	465	580	885	820	479	700
Aluminium	thou tonnes	417	**2000**	…	…	…	…	104	259	282	145	417	277	…	…	…,	…
Lead	thou tonnes	44	**1970**	5	…	8	24	44	41	25	14	25	20	…	…	…,	…
Copper (converter, non-refined)	thou tonnes	41	**1986**	2	…	2	9	32	40	40	33	16	22	…	…	…	…
Internal combustion engines	thou pcs.	308	**2006**	…	…	5	35	95	233	220	120	107	308	…	…	…	…
Electronic computers	pcs.	512	**1989**		…	…					…	…	…	…	…	…	…
Electric motors	thou Kwh	19,187	**1980**	2	11	94	559	2,834	10,067	6,945	1,987	1,704	1,502	1,234	700	298	172
Electric generators	thou KwA	1,111	**1980**	3	0,2	16	83	747	1,111	664	2	108	…	…	…	…	…
Electric transformers	thou KwA	15,939	**1980**	11	30	205	1,577	8,775	15,939	6,856	1,664	2,068	3,262	…	5,384	2,712	3,863
Radio and TV sets	thou pcs.	1,404	**1980**	…	…	40	167	735	1,404	1,101	351	32	43	…	…	…	…
Machine-tools (lathes, milling, planing machines, etc.)	pcs.	12,958	**1980**	…	…	199	2,261	5,479	12,958	7,399	1,197	654	365	252	71	…	…
Machinery and equipment for oil exploration and	thou tonnes	166	**1986**		…	…	42	52	125	142	21	9	24	49	…	…	…

	UM	Maximum Output	Year of maximum output	1938	1948	1950	1960	1970	1980	1989	1996	2000	2006	2008	2011	2013	2017
drilling																	
Machinery, equipment and tools for industrial use	thou tonnes	689	**1986**		…	…	78	216	700	462	293	69	68	15	12	…	…
Excavators, road rollers	pcs.	1,612	**1980**		…	…	428	1,384	1,612	1,207	139	73	6	…	…	…	…
Tractors	thou pcs.	71	**1980**	…	0.79	4	17	30	71	17	13	5.4	3.3	…	…	…,	…
Electric and Diesel railway locomotives	pcs.	276	**1980**	47	…	…	10	265	276	152	1	2	0	0	2	…	c
Freight rail cars	pcs.	14,060	**1987**	378	1,935	1,875	4,622	11,158	13,244	11,213	38	1,128	2,593	4,184	842	c	c
Passenger rail cars	pcs.	601	**1980**	…	21	40	97	197	601	203	23	…	32	…	…	…	c
Cars, light utility vehicles, buses and trolleybuses	thou pcs.	213	**2006**	…	…	…	4	32	97	206	120	77	213	…	c	c	c
Lorries, powered tractors, tip-up lorries	thou pcs.	35	**1970**	…	…	„	8	35	32	14	3.1	0.8	0.5	…	0.1	c	c
Sea- and river-going vessels	pcs.	144	**1996**		…	15	25	34	44	33	144	41	36	…	…	…	…
Ball bearings	mil. pcs.	143	**1996**		…	0.2	5	24	102	143	97	88	75	79	81	79	94
Bicycles	thou pcs.	881	**2011**		…	…	243	201	214	190	19	4	137	…	881	908	…
Sulphuric and chlorhydric acid	thou tonnes	2,437	**1986**		…	56	243	1,095	2,045	2,140	594	328	147	136,7	188	111	111
Chemical fertilisers (100% active substance)	thou tonnes	3,097	**1985**		1	1	71	785	2,451	2,805	1,464	1,054	1,142	1,787	1,288	743	…

	UM	Maximum Output	Year of maximum output	1938	1948	1950	1960	1970	1980	1989	1996	2000	2006	2008	2011	2013	2017
Fibres and chemical yarns	thou tonnes	303	**1986**		…	2	4	77	206	276	78	30	13	…	…	…	…
Plastic materials and synthetic resins	thou tonnes	834	**2008**		…	0	12	206	579	640	322	331	791	835	658	…	…
Synthetic rubber	thou tonnes	173	**1986**		…	…	492	6,152	19,660	14,622	37	20	2	…	…	…	…
Car tires	thou pcs.	28,013	**2011**		81	217	743	3,444	5,254	6,793	3,739	3,226	15,330	18,687	28,013	28,177	35,576
Detergents (100% active substance)	thou tonnes	207	**2011**		…	…	1	6	20	15	6,0	11,0	148,0	164	207	230	237
Varnishes and dyes	thou tonnes	217	**2017**	…	1	5	20	85	182	168	44	36	110	155	136	141	217
Cement	thou tonnes	14,607	**1980**	510	657	1,028	3,054	8,127	14,607	12,225	6,956	6,058	8,253	10,660	8,087	7,451	8,441
Glass (2 mm thick)	thou sq. m	77,504	**1980**	2,586	4,398	…	18,817	45,215	77,504	76,199	37,000	30,000	16,000	…	…	…	…
Glassware	thou tonnes	398	**1986**	21	25	38	94	244	391	377	216	129	126	…	…	…	…
Timber and lumber	thou cu. m	5,115	**2011**	2,238	2,176	3,559	3,928	5,305	4,593	3,788	1,924	1,405	3,126	3,509	5,144	5,836	5,140
Paper and cardboard	thou tonnes	822	**1980**	61	64	97	170	514	822	709	327	359	434	400	362	399	575
Cotton and cotton-like yarns	thou tonnes	183	**1980**	17	21	29	52	109	183	158	62	27	29	15,9	18	12	17
Wool and wool-like yarns	thou tonnes	76	**1987**	7	8	13	19	36	74	67	32,0	19,0	24,0	23	29	31	27
Linen and flaxen yarns	thou tonnes	46	**1980**	2	2	6	13	27	45	34	7	4	2	1	…	1	…
Woven textiles	mil. sq. m	1,154	**1980**	130	111	193	329	608	1,154	1,115	342	194	154	81	44	65	87
Knitted apparel	mil. pcs.	296	**1980**	…	…	13	41	134	296	260	110	38	39	29,7	28	23	20

	UM	Maximum Output	Year of maximum output	1938	1948	1950	1960	1970	1980	1989	1996	2000	2006	2008	2011	2013	2017
Footwear, of which:	mil. pairs	118	**1989**	5	…	11	30	66	113	118	47	38	69	53	46	50	44
leather-made	mil. pairs	59	**2006**	3	…	9	20	40	64	40	36	27	59	48	40	43	36
Meat	thou tonnes	993	**1980**	170	51	140	270	425	993	699	607	259	322	458	580	632	793
Meat preparations	thou tonnes	368	**2008**	7	3	10	48	104	279	279	150	127	330	368	350	326	369
Fresh milk	thou hl	5,925	**1980**	…	197	365	1,210	3,692	5,925	5,628	3,491	1,608	1,665	2,029	2,239	2,181	2,826
Edible oils	thou tonnes	392	**1987**	18	20	36	118	274	369	248	236	253	338	158	204	193	293
Sugar	thou tonnes	716	**1989**	95	99	87	391	377	509	716	396	476	605	490	384	456	422
Canned meat	thou tonnes	77	**1980**	2	0.22	2	11	39	77	37	18	11	28	34	26	30	29
Canned fish	thou tonnes	25	**1980**	0.3	0.25	1	1	14	25	37	2	1	10	10	10	c	0,1
Tinned fruit and vegetables	thou tonnes	540	**1980**	2	11	34	75	286	540	374	163	104	71	80	70	80	73
Salt	thou tonnes	5,395	**1987**	368	352	416	1,045	2,862	5,056	5,038	2,689	2,308	2,621	c	c	c	c
Tobacco products	thou tonnes	49	**2011**	11	11	15	21	27	33	33	25	33	30	45	49	48	65
Soap	thou tonnes	66	**1980**	9	8	17	37	42	66	31	10	2	2	5	4	6	7

Source: Author's own compilation of data from Romania's Statistic Yearbook, INS, Bucharest, various editions. N.B.: c – confidential information; … - not available.

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