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DEVELOPMENT OF THE MACEDONIAN BUSINESS SECTOR AND ITS INNOVATION ACTIVITIES FROM THE EARLY TRANSITION YEARS UNTIL TODAY (1991-2021)[3]

The paper provides a qualitative assessment of the development of the Macedonian business sector and its innovation activities from the early transition years until today (1991-2021). In this article, firstly is reviewed the development of the Macedonian business sector in the analysed period. In this section, special emphasis is placed on the number of active business entities, their sectoral distribution, the institutional infrastructure in the country to support the private sector, etc. Then, an analysis of the innovativeness of the Macedonian business sector in the early transition period and in the period after 2010 was made. In the paper, data related to the labour productivity of the enterprises are also analysed. The analysed data on the innovativeness and productivity of the Macedonian enterprises is compared with the European average. This analysis points to a significant lag in the Macedonian business sector in terms of innovativeness and productivity compared to the EU average. At the end of the paper, conclusions that summarise the weaknesses and achievements of the Macedonian business sector in the past 30 years are given and there are noted areas in which special action should be taken in order for the current situation to be improved.
Keywords: transition; privatisation; business sector; innovation; productivity.
JEL: O3

1. Development of the Macedonian Business Sector

1.1. Macedonian business sector in the early transition years

After the secession from the Yugoslav federation and the declaration of independence in September 1991, major transformations took place in the economic and political system of the Republic of North Macedonia.

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Macedonia, within the federation, "was the second poorest part of Yugoslavia" (World Bank, 2018, p. 8), whose income per capita in the mid-1980s was about 65% of the Yugoslav federation's average, creating 5.6% of the total production of the federation and participating in the total population of the federation with only 7%. Shortly after independence, the country faced major problems and challenges: high inflation (hyperinflation), whose average annual rate in 1992 reached a staggering 1664%; high unemployment rate, which in the early transition years approached 30%, and peaked in 2005, when it reached 37.3%; high domestic and external debt, which in the early transition period exceeded $ 1 billion, i.e. $ 1.5 billion, respectively; high budget deficit, which in 1993 reached -13.4%, etc.

The challenges of the country that emerged after independence can generally be synthesised into several categories: facing a long and difficult process of transition to a market economy; the need for economic recovery from the long recession; loss of the single Yugoslav market, which has shrunk from about 20 million to 2 million after independence; and high domestic debt arising from the so-called frozen foreign currency savings of about $1.2 billion.

The process of transition that began in the early 1990s took place in the following order: macroeconomic stabilisation, microeconomic liberalisation, privatisation, etc.

The long transition process, marked by the privatisation process in which many large industrial facilities were closed mainly due to their unsustainability and the rapid rise of the unemployment rate, has initiated the process of *spontaneous entrepreneurship* in which numerous small and medium-sized private enterprises were formed. Such trends contributed to the number of business entities in the Macedonian economy at the end of the 1990s to reach 110.000 enterprises, i.e. 172.000 enterprises in 2004, within the most (about 97%) fall into the category of SMEs (Fiti et al., 2007). However, the official data of the Agency for Promotion of the Entrepreneurship (APPRM, 2005) shows that out of the total of 172.000 enterprises registered in 2004, only about 30% or 49.678 enterprises were active, while the remaining enterprises were registered in court, had ID number, tax number and a bank account, but de facto they were not active.

According to the data of SSO (1996), most of the enterprises in the early transition years were located in the field of trade (61.2%), followed by industry and mining (9.8%), financial and other services (6%), etc. The establishment of enterprises in this period took place predominantly with domestic capital, with a share of 96% and the share of the mixed foreign capital was 1.4% and 2.6%, respectively.

Among the key explanations why the most of the private enterprises in this period were formed in the trade stand out (Nenevski, B., Stojanova, V. and Josifovska, A. 1997):

- Purchasing equipment and products for performing production activities were very difficult due to the weakness of local banks, the uncertainty of the denar and the distrust of foreign banks; as well as the unfavourable conditions given by domestic banks for purchasing equipment – high-interest rates of over 10% per month, repayment period of three months and requesting a high share of the pledge (fixed assets in the form of buildings, etc.). All this has made the modernisation of technology in the existing enterprises almost impossible and has hampered the entry of new enterprises into the manufacturing sector.

- Non-compliance of the level of tax rates with the level of development of the Macedonian economy, e.g. the tax rate on imported used equipment in this period was 42%.
- Lack of appropriate state incentives to stimulate domestic production, etc.

As already stated, an immanent feature of the Macedonian business sector in the early transition years is the spontaneous process of creating SMEs (spontaneous entrepreneurship). In this process, entrepreneurs were left to choose the area they would invest in, the way to provide funds to start a business, etc.

Hence, in the absence of an appropriate macroeconomic policy to support SMEs' development, and especially their engagement in the manufacturing sector, in the absence of a central institution to coordinate the activities of SMEs on a national level, in extremely unfavourable conditions for providing financial support to SMEs, in the absence of local and regional agencies to support the process of creation and promotion of SMEs at a local and regional level and to provide training for entrepreneurs, etc., it can be concluded that the intensive dynamics of SMEs creation, even within an economic system that in this period is not fully developed in terms of the existence of essential institutions for the functioning of the market economy, is strong evidence of the existence of entrepreneurial ideas and entrepreneurial spirit in the Macedonian economy since early transition period.

1.2. Macedonian business sector today

Within the business sector of the Republic of North Macedonia, today, there are more than 70.000 active business entities, which according to their size, are divided into micro-enterprises, small, medium-sized and large enterprises.[4]

The Macedonian business sector in 2020 consists of a total of 73.061 active business entities (Table 1).

Table 1

Number of active business entities, according to the number of persons employed

Year	Total	0[1)]	1-9	10-19	20-49	50-249	250 +
1990	7 234	/	/	/	/	/	/
1999	109 378	/	/	/	/	/	/
2010	75 497	10 756	59 276	2 483	1 568	1 211	203
2015	70 139	7 329	56 261	3 032	1 947	1 339	231
2018	72 315	8 221	57 184	3 142	2 129	1 399	240
2019	75 914	7 565	61 265	3 211	2 237	1 404	232
2020	73 061	6 036	59 977	3 207	2 198	1 410	233

Source: SSO, 2020, 2021.

1) Including business entities with an unascertained number of persons employed.

This data shows an increase in the number of active business entities in 2020 by 4% compared to their number in 2015, a decrease by 3.2% compared to 2010 and a tenfold increase in the

[4] Law on trade companies ("Official Gazette of the Republic of Macedonia", No. 28, 30.4.2004).

number of the active business entities in the country, compared to a total of 7.234 enterprises registered at the end of 1990.

Today in North Macedonia, micro-enterprises, small and medium-sized enterprises create almost 99.7% of the total business population in the country. Among them, the largest group consists of micro-enterprises (up to 10 employees) which in the total active business entities participate with about 90%, while the smallest share in the Macedonian business community, of only 0.3 %, have large enterprises with over 250 employees (SSO, 2021).

Micro-enterprises, small and medium-sized enterprises in the country, create 75.4% of total employment in the private sector (within this, 32.6% belong to micro-enterprises) and 65.8% of the value added in the economy, in which micro-enterprises account for 22% (European Commission, 2018).

In terms of the sectoral distribution, the largest share in the structure is given to the sectors of Wholesale and retail trade; repair of motor vehicles and motorcycles and manufacturing. These two sectors, in 2020, account for 30.4 % and 11.0 % of the overall economic structure, respectively (SSO, 2021). Such data shows positive trends compared to the situation in the early transition years, especially in terms of reducing the number of SMEs in trade, while increasing their share in the manufacturing, construction and modern services sectors. A concrete example of this is the share of only 30.4% of active enterprises "located" in trade in 2020, compared to 67% in 1993.

In North Macedonia, in the early transition years, the process of establishing institutions to support SMEs, entrepreneurship and technology transfer has been started. Among these institutions as institutions with the highest importance in this context should be noted: the National Agency for Development of Small and Medium-sized enterprises (NEPA), established in December 1997, which in 2002 grew into the Agency for Promotion of Entrepreneurship of the Republic of Macedonia (APPRM), today APPRSM; Macedonian Development Bank, established in 1998, today Development Bank of the Republic of North Macedonia; Fund for Innovation and Technology Development, established in December 2013, etc. During this period, also were established numerous research and development departments within the enterprises, regional business centres, regional agencies for entrepreneurship support, technological-industrial development zones, business start-up centres, business incubators, centres for technology transfer and innovations etc.

Hence, compared to the early transition years, today, there is a solid institutional infrastructure in the country to support the business sector.

In North Macedonia in the past period, and especially after 2008, the process of intensive reforms has begun. This process was mainly aimed at improving the business climate and creating conditions for building the innovation capacity of the enterprises, strengthening the role of SMEs in the economy, attracting FDI, fostering R&D and strengthening the competitiveness of the private sector on a national, regional and local level.

During this period, numerous strategic documents were adopted, among which the following are particularly important: National Innovation Strategy 2012-2020, Industrial Policy 2009-2020, National Strategy for Intellectual Property 2009-2012, Strategy for Regional Development 2009-2019, National Small and Medium-sized Enterprises Strategy 2002-

2013, revised in 2007, Entrepreneural Learning Strategy 2014-2020, Regional Innovation Strategies for eight Planning Regions for the period 2016-2018, Competitiveness Strategy 2016-2020, Industrial Strategy 2018-2027, National Small and Medium-sized Enterprises Strategy 2018-2023, etc. In 2018, the Plan for Economic Growth was adopted, as one very serious attempt of the State (Government) to establish a more comprehensive system to support the innovativeness and competitiveness of the Macedonian business sector. In 2018, the Republic of North Macedonia has also launched the process for Smart Specialisation Strategy (S3) development, as a comprehensive model for sustainable economic growth based on the capacities of the endogenous industry, science, and society. S3 should be linked and add value to the Industrial Policy, Competitiveness Strategy, Innovation Strategy, R&D Strategy, etc[5]. The objective of S3 is to identify the areas of specialisation where the Republic of North Macedonia could build comparative advantages, in order to maximise the effects of public investments. The S3 development process is scheduled to be completed in 2022.

However, despite the started process of intensive reforms aimed to support the SMEs sector and to strengthen their role in the economy, some of the immanent challenges for the early transition period remain relevant until today. These challenges are related to: low level of expenditures on R&D relative to GDP (R&D intensity), which for a long period amounted to 0.22% of GDP, and in the recent period are fluctuating within the range of 0.3% to 0.4% of GDP; low level of R&D expenditures by the business sector ranging from around 0.02% to 0.1% of GDP, especially compared to the EU business sector, whose average R&D expenditures amounted 1.3% of GDP (Eurostat, 2020); a small number of R&D departments (research cores) within the enterprises, as well as a small number of people employed in these sectors; low share of high-tech industrial products in the total export of industrial products in the country; difficult access of SMEs to financial resources, etc. All this determines modest innovativeness, limited competitiveness and low productivity of the Macedonian business sector.

2. Analysis of the Innovation Performance of the Macedonian Business Sector

2.1. Innovation activity of the Macedonian business sector in the early transition years

Given that in the early transition years, most of the active enterprises were with low financial status, primarily founded out of necessity, they could hardly be labelled as entrepreneurial firms – they had low innovation capacity, low export performance and low ability to grow fast. Due to the fact that the statistical data for innovative businesses for this period is very poor and almost non-existent, the only alternative sources for assessing the situation are some regional surveys conducted by the European Commission (European Commission, 1998), which show that in the 1990s only about 5% of the total SMEs in the region have the potential for rapid growth, which means that "they were able to introduce innovation in their operations and to improve their own competitive position in the domestic market and the international markets" (Fiti and et al., 2007, pp. 229).

[5] http://konkurentnost.mk.

The official statistics on the innovative business entities in the Republic of North Macedonia in the later period also remain poor, due to the analyses of researchers in this area are mainly based on their own research, i.e. surveys.

The situation in the field of statistics of entrepreneurial firms had significantly improved after 2010, when the State Statistical Office (SSO) started publishing data on innovative firms in North Macedonia, mainly at a national level, based on a special survey conducted according to Eurostat methodology.

2.2. Innovation activity of the Macedonian business sector according to the State Statistical Office surveys

Starting from 2010 until today, the State Statistical Office has conducted four surveys and has published four reports with summary data on the innovative business entities on a national level:

- Survey 2010-2012, published in 2014;
- Survey 2012-2014, published in 2016;
- Survey 2014-2016, published in 2018;
- Survey 2016-2018, published in 2020.

The SSO surveys are based on a representative sample of over 2.000 business entities weighted on the total number of business entities in North Macedonia. Micro-enterprises are not included in the SSO surveys, which is in line with the Eurostat methodology, although they participate with more than 90% of the total population of active business entities in the country, because they are considered to be enterprises with a low impact on innovation and growth dynamics.

According to the definition of the State Statistical Office, innovative business entities are defined as "entities that have introduced a product, process, organisational or marketing innovation in the reference period" (SSO, 2014, p. 1). In the latest SSO survey, for the reference period 2016-2018, in accordance with the new methodology of Eurostat, innovative enterprises are defined as: "… enterprises that in the reference period have introduced product innovation and/or business process innovation and/or have abandoned/suspended or ongoing innovation activity" (OECD and Eurostat, 2018, p. 20).

According to the data presented in Table 2, the share of innovative business entities in the total number of business entities in the periods 2010-2012, 2012-2014 and 2014-2016 was 42.8%, 36% and 37.4%, respectively. In the last reference period, 2016-2018, more than half, or 55% of the active business entities in the country were innovative.

Table 2

Business entities by innovation and size classes, for selected periods

Business entities by size	Total	Innovative (number)	%	Non-innovatve (number)	%
2010-2012					
Total	**4.818**	**2.060**	**42.8**	**2.757**	**57.2**
Small	3.967	1.583	39.9	2.384	60.1
Medium-sized	719	377	52.4	342	47.6
Large	132	100	75.8	32	24.2
2012-2014					
Total	**2.997**	**1.078**	**36**	**1.919**	**64**
Small	2.333	774	33.2	1.559	66.8
Medium-sized	549	230	41.9	319	58.1
Large	115	75	65.2	40	34.8
2014-2016					
Total	**3.114**	**1.166**	**37.4**	**1.949**	**62.6**
Small	2.448	871	35.6	1.577	64.4
Medium-sized	552	232	42	321	58.2
Large	114	63	55.3	51	44.7
2016-2018					
Total	**3 198**	**1 758**	**55**	**1 440**	**45**
Small	2 516	1 345	53.5	1 171	46.5
Medium-sized	567	336	59.3	231	40.7
Large	115	77	67	38	33

Source: SSO, 2014, 2016, 2018 and 2020.

However, such tendencies should be analysed with caution, for the following reasons:

First, the research for the period 2010-2012, which was conducted for the first time in the country with a relatively low response rate (around 50%), to a large extent, could be a reason for distorting the results obtained, i.e. the reason for getting the wrong picture when the data is extrapolated to the level of the total population of enterprises.

Second, within the first research, in addition to the regular sectors prescribed by the Regulation of the European Commission (995/2012 EC)[6], additional sectors on a voluntary basis were included.

Third, business entities from these additional sectors – Agriculture, forestry and fishing, Construction, Wholesale and retail trade; repair of motor vehicles and motorcycles, Accommodation and food service activities, Real estate activities and Administrative and support service activities are excluded from the surveys conducted in the periods 2012-2014, 2014-2016 and 2016-2018.

Fourth, from a methodological point of view, in the second, third and fourth survey, changes were made in relation to the sector Professional, scientific and technical activities. The first survey includes the entire sector with all its division, while the next three surveys include

[6] European Commission (2012), Commission Implementing Regulation (EU) No. 995/2012 https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:299:0018:0030:EN:PDF.

only three of its division – Architectural and engineering activities; technical testing and analysis, Scientific research and development and Advertising and market research.

Fifth, in the last, fourth survey, methodological changes were made, related to the type of innovation, i.e. this survey recognises two main types of innovation – product innovation and process innovation. According to the latest research, innovative business entities include enterprises that in the reference period have introduced only product innovation, only process innovation, product innovation and process innovation, as well as enterprises that do not have innovation but have abandoned/suspended or ongoing innovation activities.

For the reasons mentioned above, the reduced share of innovative enterprises in the total enterprises in the second and third reference periods (2012-2014 and 2014-2016) compared to the first period (2010-2012) could be largely attributed to such or similar methodological changes. Also, the highest registered share of innovative enterprises in the total enterprises (55%) in the fourth reference period (2016-2018) could be related to the methodological changes. Such changes include a new category of innovative enterprises that in the reference period do not have innovation, but have abandoned/suspended or ongoing innovation activities. These enterprises in the total innovative enterprises in 2018 participated with 1.6%.

The intensity, presence and type of innovation are significantly determined by the sectors in which enterprises operate.

From the aspect of the sectoral distribution, in all four periods, the highest innovativeness is shown by the enterprises from the sectors Financial and insurance activities and Information and communications.

The lowest innovativeness, on the other hand, is evident in the enterprises from the Transport and storage sector.

A very low level of innovativeness, according to SSO data, is also observed in enterprises from the manufacturing sector, although a significant feature of this sector is the dominant representation of the open innovation model in the innovation process (Drangovska and Antovska-Mitev, 2020). The share of innovative enterprises in the total enterprises in this sector is 45% in the period 2010-2012, 34.7% in the period 2012-2014 and 36.2% in the period 2014-2016. In the last analysed period (2016-2018), in the manufacturing sector has been recorded some improvements in terms of its innovativeness, i.e. in this period, more than half or 52.9% of enterprises operating in the manufacturing were innovative (SSO 2014, 2016, 2018, 2020).

In terms of the type of innovation, product innovation and process innovation (technological innovation), organisational innovation and marketing innovation (non-technological innovation), the situation in the analysed periods shows variable tendencies (Table 3).

According to the new methodology of the SSO (2020), which is harmonised with the changes in the Oslo Manual from 2018, the analysis of innovative business entities by type of innovation for the period 2016-2018, includes: enterprises that have only product innovation, enterprises that have only business process innovation, enterprises that have product and business process innovation and enterprises without innovation, but with abandoned/ suspended or ongoing innovation activities (Table 4).

Table 3

Business entities by types of innovation, in selected periods

Period	Product and process innovative		Organisational and marketing innovative		Product and process and organisational and marketing innovative	
	Number	%	Number	%	Number	%
2010-2012	509	24.7	956	46.4	374	18.2
2012-2014	400	37.1	386	35.8	206	19.1
2014-2016	396	34	410	35.2	193	16.6

Source: SSO, 2014, 2016 and 2018.

Table 4

Business entities by types of innovation, 2016-2018

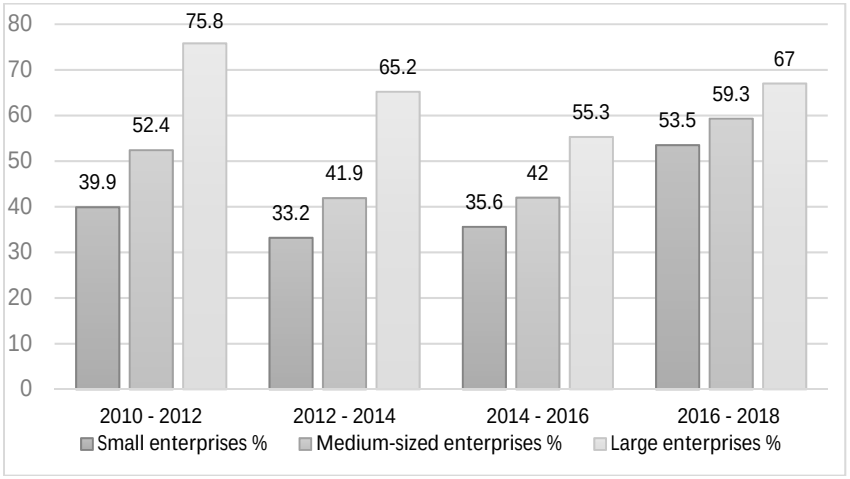
Period	Enterprises that have only product innovation		Enterprises that have only business process innovation		Enterprises that have product and business process Innovation		Enterprises without innovation, but with abandoned/suspended or ongoing innovation activities	
	Number	%	Number	%	Number	%	Number	%
2016-2018	295	16.8	457	26	978	55.6	29	1.6

Source: SSO, 2020.

According to the size of enterprises, in the last analysed period (2016-2018), as well as in the previous three reference periods, the highest innovativeness is observed in large enterprises (67%), followed by medium-sized enterprises (59.3%) and, on the end, are the small enterprises (53.5%) (Figure 1).

Figure 1

Business entities by innovation and size classes, in %



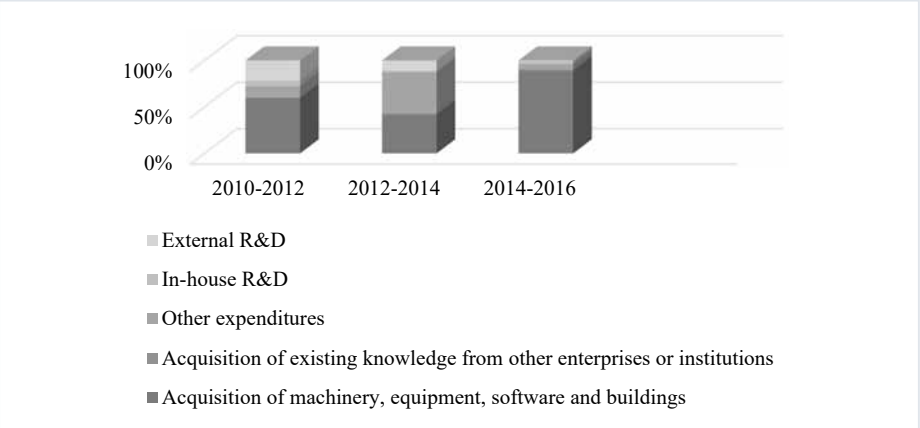
Source: SSO, 2014, 2016 and 2018.

Another indicator that is very important for the analysis of the innovation capacity of Macedonian businesses is the expenditures for innovation activities (Figure 2).

The data summarised in Figure 2 shows that within expenditures for innovation activities, the expenditures for the acquisition of machinery, equipment, software and buildings have a dominant share.

Figure 2

Expenditures for innovation activities, for selected periods

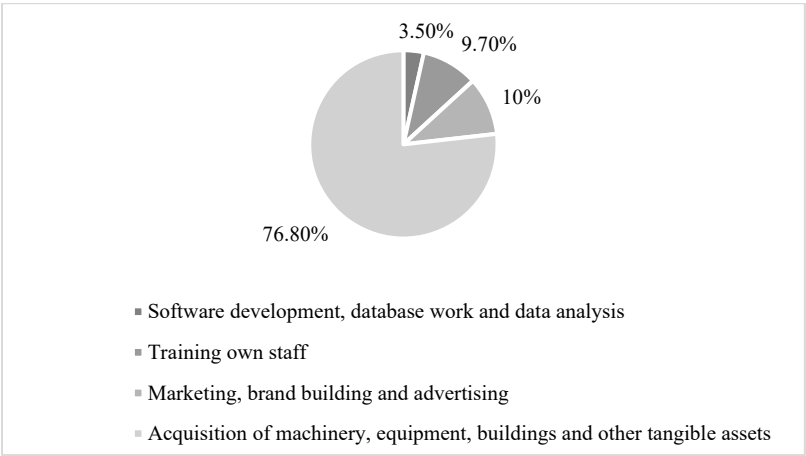


Source: SSO, 2014, 2016 and 2018.

According to the data from the latest SSO survey for the period 2016-2018, in the structure of investments by activities in the enterprises, again, a dominant share of 76.8% was recorded by the activities related to the acquisition of equipment, machinery, buildings or other tangible assets, followed by investments in marketing, brand building and advertising (10%), training own staff (9.7%) and investments in software development, database work and data analysis (3.5%) (Figure 3).

Figure 3

Structure of investments by activities in the enterprise in the period 2016-2018



Source: SSO, 2020.

3. Comparative Analysis of the Innovativeness and Productivity of the Macedonian Businesses and the EU Average

The data presented in Table 5, for the periods 2012-2014 and 2014-2016, shows that North Macedonia, with the innovativeness of business entities of 36% and 37.4%, is lagging behind the EU average by about 13 and 14 percentage points, respectively.

In the last analysed period (2016-2018), North Macedonia, in terms of innovativeness of business entities compared to the EU average, has been recorded an advantage of 4.7 percentage points.

Table 5

Share of innovative business entities in selected countries and the EU average

Share of innovative business entities, 2012-2014, in %		Share of innovative business entities, 2014-2016, in %		Share of innovative business entities, 2016-2018, in %	
EU-28	**49.1**	**EU-28**	**51**	**EU-28**	**50.3**
Germany	67.0	Belgium	68.0	Estonia	73.1
Luxembourg	65.1	Portugal	67.0	Cyprus	68.2
Belgium	64.2	Finland	65.0	Belgium	67.8
Ireland	61.0	Luxembourg	64.0	Germany	67.8
Great Britain	60.2	Germany	64.0	Italy	63.2
Austria	59.5	Austria	62.0	Sweden	63.1
North Macedonia	**36.0**	***North Macedonia***	37.4	Austria	62.6
Estonia	26.5	Slovakia	31.0	Finland	61.9
Bulgaria	26.1	Latvia	30.0	***North Macedonia***	**55.0**
Hungary	25.6	Hungary	29.0	Bulgaria	30.1
Latvia	25.5	Bulgaria	27.0	Hungary	28.7
Poland	21.0	Poland	22.0	Poland	23.7
Romania	*12.8*	*Romania*	*10.0*	*Romania*	*14.6*

Source: Eurostat, 2019, 2021.

The obtained results within the State Statistical Office's surveys, especially those from the last survey, which show relatively higher innovativeness of the Macedonian business sector compared to the EU-28 average, indicate certain illogicalities, especially in terms of absence of correlation between the obtained results and the factors with high impact on the innovativeness of the business entities. These are the following factors:

The R&D intensity indicator, i.e. the share of gross domestic expenditures on R&D (GERD) relative to GDP. This indicator is important because the country's investments in R&D cause positive externalities – benefits of this type of investment have all scientific institutions, corporate research centres, etc. (Fiti et al., 2020). One of the above mentioned illogicalities is connected to the fact that North Macedonia with the R&D intensity indicator, which for a long time in the transition period was at the level of about 0.22% of GDP, and in the recent period is fluctuating within the range of 0.3% to 0.4% of GDP, shows higher innovativeness (55% for the period 2016-2018) compared to the EU-28 average (50.3% for the period 2016-2018), whose average ratio of GERD to GDP, after 2012, is higher than 2% (Table 5 and Table 6).

Table 6

Gross domestic expenditures on R&D, relative to GDP, in selected years

	2007	2010	2011	2012	2013	2014	2015	2016	2017	2018	2020
EU-28	1.77	1.92	1.97	2	2.02	2.03	2.04	2.04	2.06	2.12	2.32
North Macedonia	0.17	0.22	0.22	0.33	0.44	0.52	0.44	0.44	0.35	0.37	:

Source: Eurostat, 2019, 2020.

The discrepancy is even more pronounced if it is taken into account the indicator of the ***participation of different sectors in the gross R&D expenditures, and especially the participation of the business sector.*** It is logical to be assumed that the link between this factor and the number of innovative enterprises is much stronger and more direct. In the case of the EU average, there is a high correlation between the distribution of innovative businesses and the percentage share of the business sector in total R&D expenditures. This indicator, in the case of EU-28, is 66.71%, as opposed to the significantly lower share of the Macedonian business sector, of about 30.57%, in the total R&D expenditures (Table 7).

Table 7

Gross domestic expenditures on R&D by sectors of performance, 2018
(Relative to GDP and by sectors of performance, in %)

	Business enterprise sector		Government sector		Higher education sector		private non-profit sector		Total relative to GDP in %
	% of GDP	Share (in %)	% of GDP	Share (in %)	% of GDP	Share (in %)	% of GDP	Share (in %)	
EU-28	1.41	66.71	0.23	10.74	0.46	21.78	0.02	0.76	2.12
North Macedonia	0.11	30.57	0.04	9.82	0.21	58.01	0.01	1.61	0.37

Source: Eurostat, 2020.

A similar discrepancy, when it comes to the Macedonian business sector, is pointed out by other factors with a strong impact on the innovative activity:

Market size – the Macedonian business sector has a market of about 2.000.000 inhabitants with purchasing power, i.e. income per capita that barely exceeds 1/3 of the European average.

Competitive pressure – the Macedonian market shows characteristics of low competitive pressure, i.e. existence of companies operating in a pronounced oligopolistic market structure, determined by the relatively small economy, insufficient efficiency of institutions for competition protection, etc.

Difficult access of Macedonian enterprises to funds for financing growth and innovation activity – this factor has a significant limiting effect on the innovativeness of our enterprises, especially given that there is a high degree of absence of alternative sources of business financing in the country – venture capital (business angels and official venture capital funds), further: factoring, leasing, etc.

At the same time, the reality of the indicators for the Macedonian business sector's innovativeness, obtained from the State Statistical Office surveys, is significantly impacted

by certain methodological challenges that were previously mentioned, as well as the subjectivity of enterprises representatives in responding to the survey questions.

All this shows that it is necessary continuously to be followed the methodological changes related to the survey of innovative business entities (initiated by the EC), but that it is also necessary to be increased the analytical approach capacities in answering the questions provided in the surveys, as well as in the processing and summarising of the answers, i.e. the obtained results.

This conclusion is further confirmed in the analysis of the innovativeness of the Macedonian business sector in the international reports.

3.1. European Innovation Scoreboard

The annual European Innovation Scoreboard (EIS), as a Report of the European Commission, provides a comparative assessment of the research and innovation performance of the EU Member States and selected third countries and the relative strengths and weaknesses of their research and innovation systems. This EC Report, whose one of the main aims is to help countries to assess areas in which they need to concentrate their efforts in order to boost their innovation performance, was officially introduced in 2001 (European Commission, 2017). North Macedonia, as the third country, has been included in EIS since 2010.

The innovation performance within the EIS is measured using a composite indicator – the Summary Innovation Index – which summarises the performance of a range of different indicators. Actually, the EIS measurement framework distinguishes between four main types of activities, capturing ten innovation dimensions and, in total, 27 different indicators. Framework conditions capture the ***main drivers of innovation performance external to the firm*** and cover three innovation dimensions: Human resources, Attractive research systems, as well an Innovation-friendly environment. ***Investments*** capture public and private investment in research and innovation and cover two dimensions: Finance and support and Firm investments. ***Innovation activities*** capture the innovation efforts at the level of the firm, grouped into three innovation dimensions: Innovators, Linkages, and Intellectual assets**.** ***Impacts*** cover the effects of firms' innovation activities in two innovation dimensions: Employment impacts and Sales impacts (European Commission, 2020).

The European Innovation Scoreboard 2020, which assesses the innovation performance of the countries in 2019, in addition to the EU-27 member states[7], includes ten third countries: Iceland, Israel, Montenegro, North Macedonia, Norway, Serbia, Switzerland, Turkey, Ukraine and Great Britain, i.e. a total of 37 countries.

The Summary Innovation Index of North Macedonia in 2019, with a value of 44.5, shows that the country's innovation performance is at a level of only 44.5% of the EU average, which ranks the country on 34th place among 37 countries included in the EIS 2020 (Table 8). Although the summary innovation index in 2019 (44.5%) shows a significant increase

[7] EU-27 member states: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden.

compared to the index from 2012, when it was 33.7% of the EU average, and a slight increase compared to the index in 2017 (44.2%), still, the innovation performance of North Macedonia remains at a level lower than 50% of the European average, due to which the country remains ranked in the group of countries – modest innovators.

Table 8

European Innovation Scoreboard 2020 – North Macedonia

North Macedonia	Relative to EU 2019 in 2019	Performance relative to EU in 2012	
	2019	2012	2019
SUMMARY INNOVATION INDEX*	44,5	33,7	48,5
Numan resources	38,2	29,2	44,0
New doctorate graduates	18,7	22,7	20,6
Population with tertiary education	74,0	35,5	94,2
Lifelong learning	15,5	30,0	16,7
Attractive research systems	81,0	19,3	92,6
International scientific co-publications	17,2	12,6	25,3
Most cited publications	44,8	10,0	44,8
Foreign doctorate students	218,9	44,7	252,3
Innovation-friendly environment	50,8	56,3	88,4
Broadband penetration	47,8	70,0	110,0
Opportunity-driven entrepreneurship	N/A	N/A	N/A
Finance and support	13,1	41,5	15,1
R&D expenditures in the public sector	12,3	33,1	12,0
Venture capital expenditures	N/A	N/A	N/A
Firm investments	61,8	70,9	80,3
R&D expenditures in the business sector	5,3	0,0	6,1
Non-R&D innovation expenditures	113,9	159,7	159,7
Enterprises providing ICT trainings	66,7	69,2	92,3
Innovators	73,9	62,8	66,0
SMEs product/process innovations	73,6	68,6	73,3
SMEs marketing/organizational innovations	72,1	57,4	59,2
SMEs innovating in-house	N/A	N/A	N/A
Linkages	17,1	21,5	17,6
Innovative SMEs collaborating with others	61,1	71,9	60,7
Public-private co-publications	0,0	3,1	0,0
Private co-funding of public R&D expenditures	0,0	0,0	0,0
Intellectual assets	14,3	2,5	13,4
PCT patent applications	28,0	0,0	26,0
Trademark applications	6,2	9,4	6,6
Design applications	1,5	0,6	1,3
Employment impacts	6,7	18,1	7,2
Employment in knowledge-intensive activities	7,5	20,3	8,1
Employment fast-growing enterprises	N/A	N/A	N/A
Sales impacts	54,3	33,4	54,0
Medium and high-tesh product exports	118,2	63,7	131,1
Knowledge-intensive services exports	23,7	31,4	24,5
Sales of new to market/firm innovations	4.1	3,4	3,4

Source: European Commission, 2020.

Lower ranked than North Macedonia in 2019 are Montenegro, Ukraine and Romania, with summary innovation indexes of 43.4%, 32.9% and 31.6% of the EU average, respectively.

Followed by North Macedonia (44.5%) is ranked Bulgaria with a summary innovation index that is 45.4% of the EU average (European Commission, 2020).

According to the latest EIS 2021[8], North Macedonia, with a summary innovation index value of 41.9, is ranged in the fourth group of Emerging Innovators – countries that show a performance level below 70% of the EU average[9]. This group, besides the third countries, includes seven EU Member States – Bulgaria, Croatia, Hungary, Latvia, Poland, Romania, and Slovakia.

3.2. Productivity of the Macedonian business sector

In addition to modest innovativeness, North Macedonia also faces low labour productivity.

The issue related to the impact of innovation on the productivity of the companies, especially in the past twenty years, has attracted much attention due to today there is a rich literature that provides convincing evidence of a significant correlation between R&D, innovation, technological development and economic performance of the companies.

In economic theory, worldwide, there is general consensus on the treatment of productivity as one of the critical factors that determine the level of economic development of the countries, stimulate economic growth and lead to an increase in living standards (Butlin, 2012; World Bank, 2018).

Generally viewed, in economic theory, there are three basic types (indicators) of productivity:

- ***Labour productivity***, which is defined as the ratio of the output to the number of units of labour engaged (workers), or as the ratio of the value added to the number of working hours;
- ***Multifactorial productivity***, which measures the productivity where labour and capital are combined to produce a given quantity of goods or services. Multifactorial productivity is usually measured as a ratio of the value added and the number of units engaged from the respective inputs (labour and capital); and
- ***Total factor productivity (TFP),*** refers to the ratio between value added or output received and all inputs included in the production process (Butlin, 2012). In the total factor productivity, the treatment of inputs receive labour, capital, etc. and, i.e. *Solow*

[8] European innovation scoreboard (EIS) 2021 is based on a revised framework, which includes new indicators on digitalisation and environmental sustainability, bringing the scoreboard more in line with the EU political priorities. Available at: https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/european-innovation-scoreboard_en#european-innovation-scoreboard-202.

[9] The group of Moderate Innovators includes less Member States as in previous EIS reports as the threshold with the next performance group has been increased. The group of Emerging Innovators, which in previous EIS reports was referred to as Modest Innovators, includes more Member States for the same reason. Available at: https://ec.europa.eu/info/research-and-innovation/statistics/performance-indicators/european-innovation-scoreboard_en#european-innovation-scoreboard-202.

residual, which refers to the part of the output growth that is result of education, knowledge, and technological progress in the broadest sense of the word.

In 2011 labour productivity in North Macedonia, measured as GDP per person employed, represented only about 57% of the EU-27 average (OECD, 2013). In 2015, the annual Macedonian SMEs productivity, calculated as the ratio of the created added value to the employment, was around EUR 8.800 per person employed, which is almost 80% lower than the EU average. Annual SMEs productivity in North Macedonia in 2017, measured as value added per person employed, is EUR 9.360, which is almost five times lower compared to the average of EUR 43.604 achieved by EU SMEs. Also, SMEs of North Macedonia employ an average of 5.3 people, significantly more than the EU average of 3.9. (European Commission, 2019). In the recent period has been noted a further deterioration in labour productivity in the country. The deterioration in labour productivity in 2020 reflects to a large degree the economic impact of the pandemic and the government's job-retention measures (European Commission, 2021).

Conclusions

The paper, based on a comprehensive analysis, provides a qualitative assessment of the development of the Macedonian business sector and its innovativeness from the early transition years (the 1990s) to the present day.

In the long and difficult transition process, marked by the privatisation process, many large industrial facilities were closed, which contributed to the rapid growth of unemployment in the country. This has moved the process of spontaneous entrepreneurship that resulted with a rapidly forming of small and medium-sized privately-owned enterprises. Within the spontaneous entrepreneurship process, entrepreneurs were left to choose the area they will invest, the way of providing funds for starting a business, etc. Furthermore, during this process, businesses were predominantly formed to ensure own livelihood of entrepreneurs and were mainly located in trade.

From the early transition years until today, the Macedonian business sector has improved both quantitatively and qualitatively.

Thus, the number of active business entities from 7.234 enterprises in 1990, has increased to 73.061 enterprises in 2020. Positive trends are also evident in terms of the sectoral distribution of enterprises, i.e. the share of active enterprises located in trade in total enterprises today is 30.4%, compared to 67% in 1996.

Compared to the early transition years, in North Macedonia today, significant progress has been achieved in the statistics for innovative business entities, as well as in the development of institutional infrastructure to support the SMEs sector and in the progress of its innovativeness.

Unlike the early transition years when there was not any official statistical data for innovative businesses in the country, so alternatively as data sources were used some regional surveys and own surveys of the researchers, from 2010 the situation has been improved significantly.

Starting from 2010 until today, the State Statistical Office has conducted four surveys and has published four reports with summary data on the innovative business entities on a national level:

- Survey 2010-2012, published in 2014;
- Survey 2012-2014, published in 2016;
- Survey 2014-2016, published in 2018;
- Survey 2016-2018, published in 2020.

Furthermore, starting from the early transition period until today, a significant institutional infrastructure has been established to support SMEs in the country, among which the main institutions are: the Agency for Promotion of Entrepreneurship of the Republic of North Macedonia, the Development Bank of the Republic of North Macedonia, Fund for Innovation and Technology Development, etc. In the recent period, also, numerous laws, acts, strategies and other documents have been adopted in order to act in the direction of improving the business climate in the country, increasing the capacity for enterprise innovativeness and strengthening the role of SMEs in the national economy.

Unlike the early transition years when most of the new formed private enterprises were with low financial status, primarily founded out of necessity and could hardly be labelled as entrepreneurial firms, today, the participation of innovative businesses in the overall business community in the economy, according to the SSO data, is fluctuating in the following ranges: 42.8% in the period 2010-2012, 36% in the period 2012-2014, 37.4% in the period 2014-2016 and 55% in the period 2016-2018.

However, despite the evident qualitative progress in the development of the Macedonian business sector and its innovativeness in the past 30 years, North Macedonia still remains in the group of countries – modest innovators, with innovation performance lower than 50% of the EU average, and extremely low labour productivity, which to this day remains almost five times lower than the European average.

To improve the situation in terms of innovation and productivity of the business sector in the Macedonian economy, it is especially important to be taken measures in the following areas:

- Increment of the total R&D expenditures, especially R&D expenditures of the business sector;
- Improvement of the enterprises' access to funds for supporting of innovation activities and R&D;
- Harmonisation of the Macedonian formal education system according to the labour market requirements;
- Continuing education of the employees in the business sector;
- Increment of the entrepreneurial awareness of the importance and benefits of introducing innovation;
- Increment of the competitive pressure on the Macedonian economy etc.

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