

Intensifying Efficacy of the Industrial Sector in the Function of Acceleration of Economic Growth in Bosnia and Herzegovina

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Abstract – This paper provides a critical aspect of the position of the industrial sector in the transition economy of Bosnia and Herzegovina. If we observe sectors C-exploitation of coal and stone, D-processing industry, E-production and distribution of electric power, gas and steam, as per NACERev.1 classification, and sectors B-exploitation of coal and stone, C-processing industry, D-distribution of electric power, E-water, sanitation and recycling as per NACERev.2 classification, then from 2007 until 2012, their participation amounts to: 14.49%, 14.37%, 14.20%, 14.02%, 13.80%, 12.75% respectively. The paper observes the internal and the external reasons of the poor state of the industrial sector, and determines a possibility of its strengthening through recommendations that sum up results of the conducted research.

Keywords: economy, growth, industry, transition, accounting

1. Research area and goals

In this paper, we have presented the analysis of the state of the industrial sector in B&H, limitations and causes of the poor position that is also reflected on the operational indicators, and we also considered the perspective of intensifying the industrial sector in the function of multi-dimensional positive effects on economic growth. According to the subject of this research, we have set the following goals in this paper:

G1: Consider possibilities of contributions of strengthening the industrial sector in economic growth of B&H;

G2: Identify internal and external causes of poor state of the industrial sector in the scope of transitional economy of B&H;

G3: Determine the intensity of their effects on economic growth of the national economy through the accounting analysis of operational indicators;

G4: Provide series of recommendations for intensifying the industrial sector in the function of economic growth of B&H.

2. Research methods

The research is achieved by using next methods: induction and deduction, analysis and synthesis, comparison, descriptive statistics, accounting dynamic analysis of operational indicators of certain industrial sectors, for the time period from 2006 - 2013., for all legal entities in Federation B&H.

For the analysis, we used data from the Federal Agency for Computer Processing of Data – AFIP [1], where cumulated balances by sectors of all legal entities are presented. On the basis of those reports, authors have conducted a dynamic analysis of operations of the industrial sector. In this research, secondary data of Statistics Agency of B&H and the EU have been used as well, and numerous reports of the World Bank on the position of transitional economy of B&H.

3. Research results

3.1. The Significance of the Industrial Sector in the Economic Growth of Bosnia and Herzegovina

Bosnia and Herzegovina, after the World War II, has had the slowest growth rate in comparison to surrounding countries. Therefore, for example, in the period from 1952 to 1968, the Gross National Product has increased 2.7 times, and the average one in Yugoslavia 3.3 times, while the average annual growth rate of the Gross National Product averaged at 6.48 in B&H, and 7.70 in Yugoslavia [7]. GNP, in Bosnia and Herzegovina, was estimated to 10.6 billion USD in 1990, that is, 1980 USD GNP p.c., which was much lower than in other surrounding countries. The above mentioned implies that growth in B&H, even while it was a part of Yugoslavia, was far behind the growth of the other republics, its members. War destructions in the 90s struck B&H in every sense, and they negatively affected the trend of shifting of the growth rate. After the war and after B&H was declared a sovereign country and entered the transitional processes towards market economy, the situation has not gotten better significantly.

In the period from 2000. to 2008. the GNP recorded a positive trend (5.5; 5.7; 6.6; 8.3; 10.0; 10.9; 12.5; 15.4; 18.7 billion USD, respectively). But after 2008, the effects of the global recession had a negative impact on its movement. In 2009. there was a negative GDP growth rate (-2.9 %), which after 2009. oscillates, and in 2013 recorded a positive result (2.5 %) [8].

The mentioned crisis not only negatively affected the GDP growth, but also other macroeconomic performances, in the first line unemployment, then, foreign trade of Bosnia and Herzegovina. Besides the crisis, a decrease of growth rate also results from inadequate financing of development, considering that the international help has decreased and it wasn't adequately compensated by private institutions.

The mentioned negative trends have surely affected the industrial sector of B&H. Therefore, we ask the question of how to contribute to the strengthening of the industrial sector in order to largely accelerate the economic growth of this country. Namely, the theory has shown that, on the basis of rational use of domestic resources, the country builds its comparative advantages. As Kniivilä states: "industrialization is often of core value to the economic growth of a country, but also for the decrease of poverty. The form of industrialization surely affects the benefits that poor countries receive from the economic growth." [6].

The data about participation of the industrial sector in the GDP are shown in the following Table, along with the indicators of industrial manufacturing.

Table 1: Participation of the Industrial Sector in the GDP of B&H

*Source: Statistics Agency of Bosnia and Herzegovina, B&H in numbers 2013. [2]
http://www.bhas.ba/tematskibilteni/BH_u_brojokama2013_HR.pdf, BiH u brojokama 2012,
http://www.bhas.ba/tematskibilteni/BH_u_brojokama_hr.pdf (September 2014). [3]*

Year	2006	2007	2008	2009	2010	2011	2012
Participation (%)	20.1	20.4	21	20.2	21	21.1	20.8
Physical Scope of Manufacturing Index (2010=100)	87.3	92.9	102.5	95.8	100	103.5	98.9

In the observed period, it comes to indifferent oscillations in the movement of participation of industrial manufacturing in the GDP. In 2011, this participation is the greatest and it amounts to 21.14%, however, it comes to a drop in 2012. If we compare this data to the average participation of the industrial sector in the GDP EU Member States, it shifts between 30-40%, and it is obvious that B&H is

significantly behind, that is, that the industrial sector does not contribute to the GDP in the amount that it could.

Bosnia and Herzegovina has natural resources (forests, water, arable land, coal, etc.) that make up a significant potential for the development of the industrial sector. If we consider the relationship of the total forest area to the total area of the state, Bosnia and Herzegovina is one of the most forested countries in Europe. Under the forests is 2,709,769 hectares or 53% of the total land area. According to official data for 2003, only the FB&H has about 1161 thousand hectares of the total farmland, where arable land covers 717 thousand ha or 61.7%, pastures 441 thousand ha or 38.0%. Our country possesses significant resources to produce energy from renewable sources (hydro potential and biomass). Energy sources are coal and hydropower potential, while gas and oil are imported. Estimated hydro potential of Bosnia and Herzegovina is close to 6,800 MW. From that in used is 35% of its capacity, which is close to 38% of the possible maximum energy production. This is the lowest rate of exploitation of hydropower in Europe. The total technical potential of biomass energy in Bosnia and Herzegovina is about 33,518 PJ. Solar irradiation ranges from 1,240 kWh/m² up to 1600 kWh/m² and on average allows 1840.9 hours of sunshine. The theoretical potential of solar energy in Bosnia and Herzegovina is 67.2 PWh which exceeds the total energy consumption in the country. Notwithstanding the foregoing, our country recorded a very low utilization of hydropower in Europe (among the countries with the lowest rates of hydropower potential utilization). Besides the hydro potential, as a primary energetic recourse, B&H has available significant reserves of coal, close to 4 billion tons [9]. Also, the domestic reserves have been estimated to cca 50 million tons of crude oil, but after the war, activities in research and exploitation have not been continued [9]. The current geological research on oil finding sites in our country, and according to estimates from oil giant Shell (who is interested in a concession provision), the greatest reserves are located under Dinaridi, and that there are more located on somewhat smaller locations. However, B&H owns a great potential to develop its industrial sector which, in an adequate amount, does not contribute to economic growth, because, as data in this paper shows, the industrial companies progressively fail and their participation in the GDP is far below the average of the EU. It is necessary to gain a better usage of potentials which will contribute to the strengthening of the industrial sector, so this sector will better contribute to the GDP growth.

By following positive examples from the world about the accelerated growth of the industrial sector,

and economic growth of countries generally (for example, China, Taiwan, India, Indonesia, etc.), this paper will start from the thesis that by prevention of failure of industrial companies, and by strengthening of this sector, we can achieve a greater growth of GDP in B&H. This is possible to accomplish in a way to have improved operations of industrial companies which will lead to:

- Better use of industrial capacities, which will enable increase of employment,
- Increase of manufacturing in the industrial sector, which will contribute to the total output, that is, increased GDP,
- Greater export of industrial goods, which will contribute to the improvement of foreign trade balance,
- Increase of government income through collection of direct and indirect taxes due to the increase in the number of employees,
- Development between sectors (increase of activities in the sector of processing industry requires greater quantities of raw materials that are provided by mining, forestry, agriculture, etc.), which leads to multiple synergic outcome,
- Increase in cooperation with other suppliers from the sector of transport, services, information technologies, banking sector, and such, and not only with the suppliers of raw materials and materials,
- Increase of possibilities for a more intensive accumulation of capital and knowledge,
- Increase of possibilities for a greater specialization and differentiation in the function of realization of competitive advantages.

In order to determine recommendation for improvement of the industrial sector, we have to primarily consider the current state, and then determine the internal and the external limitations in operations.

3.2. Causes for the Poor Position of the Industrial Sector in the Transitional Economy of Bosnia and Herzegovina

The causes of the current state of the industrial sector in B&H can be divided into external and internal. From the external limitations, we firstly need to emphasize the poor competitive position of B&H. According to the Global Competitiveness Report for 2013, “Bosnia and Herzegovina has taken the 87th position, for total competitiveness, from the total of 148 countries, and with the result of 4 (from the maximum 7)” [13] data shows that “the greatest

growth has been recorded in the area of innovation (from the 80th place last year to 63rd place this year), institution (from 85th to 71st), infrastructure (from 94th to 83rd) and efficiency of the labour market (from 99th to 88th). The greatest fall of indicators has been recorded this year also in the area of macroeconomic stability (from the 97th place to 104th place). B&H is still graded the worst in the area of development of the financial market (113th place), operational sophistication (110th place) and also in the area of the efficiency of goods market (104th place). The area of development of the financial market was poorly graded in 2013 primarily due to the availability of financial services (131st place), availability of funds to credit entrepreneurs (125th place) and approval of financial funds (110th place). In the area of operational sophistication, B&H has been poorly graded due to the development of clusters (148th place) and competitive advantage (146th place). In the area of efficiency of the goods market, the poor grade is gotten primarily due to the intensity of the local competition (143rd place), sophistication of customers (139th place), number of procedures to start a business (126th place), number of days necessary to start a business (120th place), discernment of trade barriers (107th place), taxation effect level (119th place), level of market domination (111th place), and costs of the agricultural politics (76th place)” [10], [11], [13].

According to the total *doing Business 2013* rank, B&H is placed in the 126st place, from the total of 185 ranked countries. This indicator measures and monitors 11 regions that affect company operations: “foundation of a company, licensing for building, electrification, registration of property, indebteding, investor protection, paying of taxes, trade over border, execution of contracts, solving insolvency, and staffing.” [12].

The main causes of such low level of competitiveness of B&H economy, which also represents a stumbling stone for efficient operations of domestic legal entities, are: financing approachability (availability of financial services, difficulties accessing loans, availability of entrepreneurial capital, legislation, stock exchange, and such), political instability (organised crime, biased government officials, burden of government regulations, non-efficiency of the legal frame and such), poor taxing system in the country (too many obligatory direct taxes), government instability, non-efficiency of government administration, and such.

Companies in B&H need a more advantageous operational ambiance that will make development of current and foundation of new companies easier. The number of registered business subjects is inadequate in the sense of adequacy to generate gross national product. There are many problems that characterize

B&H economy, and that are also factors that make development of companies more difficult. They can be mainly seen in the following [4]:

- Tens of material payment obligations based on taxes, most of these payments are to be made monthly.
- In order for a company to operate without disturbances, it has to comply with over 20 laws regarding payments of various fiscal and par-fiscal fees, and about 30 laws with which there are sanctions if a company does not comply.
- Company is obligated to hand in over 150 various applications and forms during a year.
- Rigorous conditions for loan applications.
- Interest rates on loans are double the rates in the EU.
- Taxes and benefits on personal income are equal or larger than the ones from the surroundings.
- More expensive tariffs of utilities (water, heat) by 50% than for households.

Besides the low level of competitiveness and disadvantageous business ambience, some of the problems of further development of the industrial sector in B&H are privatization or bankruptcy in which government property is robbed. Namely, all large industrial companies are in the process of transition from a socialist to a capitalist market system, therefore privatized, in the process of privatization or in the process of bankruptcy.

During the pre-war period, the economy of Bosnia and Herzegovina consisted of large companies, while the sector of small and medium companies was neglected, and its social acceptance is gained after the crash of socialism, and war and post-war destruction of large companies. The process of privatization is infamously conducted, with significant material and financial losses, which significantly burdened the sector of large, as well as small and medium companies.

Poor privatization politics has been conducted through buying of large industrial companies at prices significantly below their real prices. Namely, most often, a contract with canton agencies for privatization states that investors need to start the manufacturing process, keep as many employees as possible and invest an adequate amount of money to start operations. The practice shows that investors invest part of the money, start the manufacturing process and sell the final products to their companies in other countries at cost price or lower. In this way, the profit is flown into other countries. Such company, instead of being a carrier of economic growth in B&H, operates negatively, does not pay its liabilities, and sales income is flown into other

foreign companies. After the liabilities for salaries, taxes and benefit to the government pile up, investors negotiate with canton governments, revenue agencies and other government institutions about the possibility of restructuring or debt write-offs. They black mail government institutions of B&H with laying-off a large number of employees that represent possible triggers of social riots (a worker strike that turned into vandalism and resulted in millions of damage).

Across from such devastating process of privatization, there is also an inadequate bankruptcy practice. In accordance to the Law on bankruptcy, one bankruptcy manager can lead maximally two bankruptcy procedures. However, practice shows that one bankruptcy manager leads many more bankruptcy procedures at a time. In each company, bankruptcy manager receives a salary over 1,500 KM a month until the bankruptcy procedure is finalized (two salaries on average). On the other hand, the time to finish the bankruptcy procedure is long due to inadequate operations of the courts. Namely, bankruptcy manager has to file a complaint against all debtors, and these complaints get finalized in several years' time. During all this time that takes the court to finalize all these complaints, the bankruptcy manager receives his salary. This time period last 3.3 years on average. However, the peak of the bankruptcy robbery is seen in the fact that not one bankruptcy manager tries to revitalize the company, but they directly start actions of selling the property and paying off debtors in accordance with priorities of paying bankruptcy creditors.

On the basis of the above mentioned, it is evident that external factors are the ones who affect conditions in which legal entities in B&H operate, and these are extremely disadvantageous. In accordance with named main external limiting factors of the industrial sector in B&H, there are also the internal limiting factors. In sector C—exploitation of coal and stone, a large problem are piled up liabilities for taxes, benefits, and fees. Namely, the generally known fact is that the greatest debtors in the country, on the basis of taxes from income and on income, are the mines, and that all pending salaries are paid out only to employees who are retiring in order for them to have their service accrual trusted. In this way, current liabilities pile up and override the value of the current assets. Namely, on the official web-site of the Revenue Agency of FB&H, the list of greatest debtors for direct taxes, benefits, fees and other fees has been published (currently to date of 31.8.2014), and on top of the list are the following: „Rudnik Breza“ d.o.o. PU Zenica 41,456,766.64 KM; RMU „Zenica“ d.o.o. PU Zenica 34,168,682.59 KM; RMU „Kakanj“ d.o.o. PU Zenica 29,378,027.98 KM; RMU „Abid Lolić“ d.o.o. PU Novi Travnik

12,272,981.64 KM; „Granit“ d.d. in the bankruptcy procedure PU Mostar 8,357,616.00 KM, RMU „Banovići“ d.d. PU Tuzla 8,109,288.02 KM, RMU „Đurđevik“ d.o.o. PU Tuzla 4,318,767.01 KM, and many others. This creates a large problem considering that mines employ 99 workers on average which is above the average in other sectors of industrial manufacturers. An interesting fact is that not one mine has their transactional accounts blocked, regardless of the multimillion debts. It is like the government protect them ensuring social peace of a large number of miners.

The study by the energy sector in B&H, is financed by the World Bank, and it points to a problem of obsolete technology. Namely, most mines use equipment that has been depreciated over 70%. This is the main reason for low productivity. In the study, it is stated that there will be lots of money funds needed for capital investments in order to sustain and/or expand the production capacities of the mines in B&H.

In the sector of the processing industry, there still is a large problem of technological inferiority, however, in this sector, the entrepreneurial spirit is present the most. The competitiveness is usually achieved with low cost of labour force (average salary is much lower against the other two sectors). Also, a large problem in operations is insurance of loan assets for current and also investment activities. Due to rigorous bank requests, this sector is not too much in debt. It is evident that management of these companies does not have enough knowledge about modern ways of managing profitability. Namely, positive operational result is achievable through management of profitability by products, and not by management of profitability by customers. When making business decisions, they are mostly depended on data gained from accounting informational system. Considering that in B&H practice, management accounting function is not developed, it is not the same for timely or correct data that a management has available. However, even besides all the limitations, legal entities from this sector realize the best operational results and they have the greatest potential for growth and increase of participation in the GDP. In contrast to sector D, sectors C and E are in good part under the government protection. Within the frame of sector E, two greatest companies in B&H, in the manufacturing business and distribution of electric power, are the Koncern „Elektroprivreda Bosne i Hercegovine“ d.d. Sarajevo and JP „Elektroprivreda Hrvatske zajednice Herceg Bosne d.d. Mostar. Concern „Elektroprivreda Bosne i Hercegovine“ d.d. Sarajevo consists of: hydroelectric power plant on Neretva, Jablanica; thermoelectric power plant „Kakanj“; thermoelectric power plant „Tuzla“;

branches „Elektrodistibucija“ Bihać, Sarajevo, Tuzla, Mostar, Zenica and ownership rights over coal mines: „Kreka“ Tuzla, RMU „Kakanj“ d.o.o.Kakanj, RMU „Zenica“ d.o.o Zenica, RMU „Breza“ d.o.o. Breza, RMU „Đurđevik“ u Đurđeviku, d.o.o. , RMU „Abid Lolić“ d.o.o Travnik – Bila, RU „Gračanica“ d.o.o Gornji Vakuf – Uskoplje. Mines in the Koncern EPB&H have kept their current frame (d.o.o.–limited) and other independent legal subjects, while JP Elektroprivreda B&H d.d. – Sarajevo, on the basis of the ownership, conducts ownership and other management rights in mines. JP Elektroprivreda B&H d.d. – Sarajevo has gained the status of leading entity of Koncern EPB&H. JP Elektroprivreda Hrvatske zajednice Herceg Bosne d.d. consists of hydroelectric power plants on Vrbas and Neretva. When we discuss distribution of gas, the greatest company is BH-Gas d.o.o. Sarajevo with its distribution branches. In the frame of distribution of oil, „Terminali Federacije“ d.o.o. Sarajevo have been formed and FB&H has a 100% ownership over them. This entity received Energopetrol’s property to use, but it has been omitted from the process or recapitalization by INA/MOL d.d. The legal entities from sector E are, for the greatest part, in majority ownership of the government bodies and they have a great monopoly power. Sector analysis has shown that companies from this group are the most liquid. The main problems, risks, and unpredictability in operations of EPB&H Koncern are: “large debt and low product ability of labour in mines that are part of the concern, problems with collecting receivables due to paying ability of residents and illiquidity of business subjects, growth of prices of other raw materials as oil and gas, long-term security of necessary licenses and consents for project realization, solving the property-legal relationships and public procurement procedures; insurance of financing sources of future capital investments; liberalization of markets and increase of competition” [5].

The energetic sector, in comparison to other sectors, has the greatest participation of immovable assets in the total assets of a company. Considering the large value of immovable assets in the assets of the balance sheet of sector E, it has a great participation of capital in the liabilities as a result. On average, the energetic sector is not a credit overdue. Even though, these are companies that have monopoly or oligopoly position on the B&H market, the operational indicators point to the fact that in 2013, the income has been greater than the expenses for the first time. The 2014 floods have weakened the economic activity in sectors C and D but they have contributed to sector E. Hydro power plants had maximal usage of their capacities due to great rainfalls.

3.3. The Analysis of the Industrial Sector and its Effects on the Economic Growth of Bosnia and Herzegovina

The indicators of cost-efficiency of legal entities' operations by individual industrial sectors for the observed period of 8 years are not at a satisfactory level. This is seen, before all, in the indicators of cost-efficiency of operations for sectors C and E, where, in the observed period, their total income was not higher than total expenses (except for sector E in 2013). Sector D had not covered its expenses with income for years 2006, 2009, and 2012, while in the other years, total income covered total expenses. The relationship between total income and total expenses of industrial companies of FB&H in the period from 2006 to 2013 by sectors has amounted to:

- In sector C (exploitation of coal and stone) – 92.73%, 98.08%, 94.29%, 93.86%, 89.41%, 92.62%, 93.23% and 92.00% respectively;
- In sector D (processing industry) – 98.73%, 102.20%, 103.24%, 99.33%, 102.06%, 101.35%, 99.72% and 100.69% respectively;
- In sector E (power energy) - 96.46%, 93.65%, 99.83%, 98.74%, 99.05%, 96.05%, 95.00% and 101.95% respectively.

For the purpose of comparison, average gross profit margins for industrial companies of the EU (28) for 2011 amount to: for sector B – coal exploitation 27.20%, for sector C – processing industry 8.7%, for sector D – distribution of power 11.20%, while for sector E, this data is not known. On the other hand, the gross profit margin for 2011 in FB&H, for sector C – exploitation of coal and stone and E – power energy (where E includes classifications D and E for the EU) is negative, while for sector D – processing industry is minimal and it amounts to 4.09%.

Unfavorable ratio of income and expenses affects the structure of the realised net operational result. In Figures 2, 3, and 4, values of realised net profit and net loss in operations are presented by sectors for the observed period. Even though, in sector C, in all years, net loss is greater than net profit, this relationship was the worst in 2010, and (conditionally said) it was the best in 2007. For sector D, the greatest realised net profit and relationship between net profit and loss was in 2008, while in 2009, this relationship was the worst. The occurrence of the economic crisis has drastically worsened operational results, and it had the highest effect on the sector of the processing industry. In sector E, generation of net loss was the greatest in 2007 and 2012, while in 2013, it came to a drastic improvement. The above mentioned is consistent

with the indicators of coverage of expenses by income from operations. Considering the mentioned position, we cannot discuss about indicators of profitability by sectors.

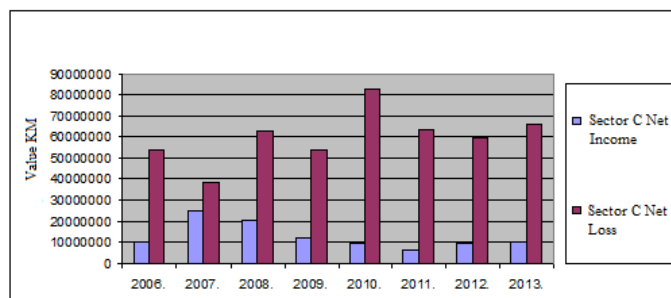


Figure 1: Realised Operational Result - Sector C

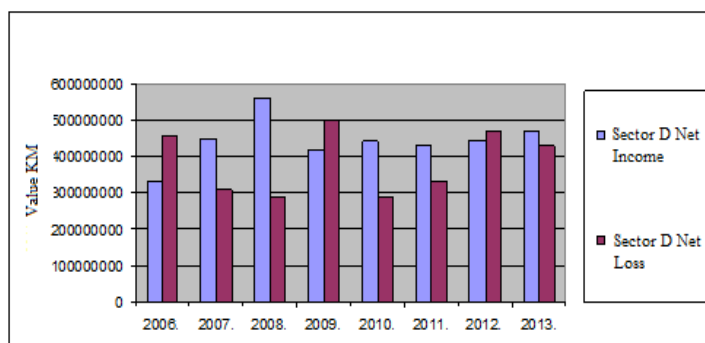


Figure 2: Realised Operational Result – Sector D

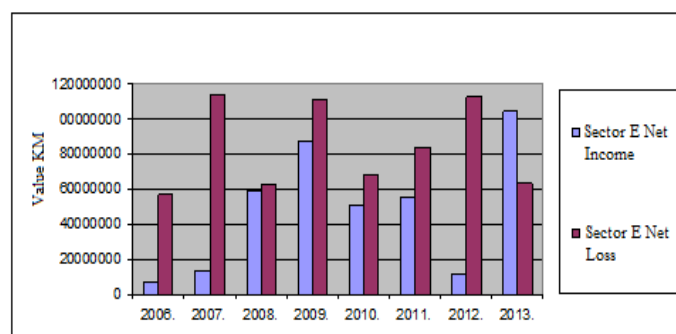


Figure 3: Realised Operational Result – Sector E

Versus sectors C and E the manufacturing industry employs seven times more workers. The average salary in all sectors has a tendency to grow, where salaries in sector E grow the most and in sector D grow the least. We ask question why the salaries in the mining sector and the sector of power energy are higher than average salaries in the Federation even though these sectors are not profitable? Namely, in sector E, from 2008 to present, average salary is over 1,200 KM and it has a tendency to grow. In sector C, there are 15,376 employees currently, which is 99 employees per company on average. Observing the period from 2006 to 2013, we noticed a dropping trend in the number of employees. In comparison to 2006, when there were 16,648 employees, there are 1,272 less of

them today. Productivity in sector C, measured as an added value per employee amounted to, for the period¹ from 2011 to 2013, 24,351, 25,340, and 24,672 KM respectively. Added value per employee in 2013 is decreased by 2.63% in comparison to 2012. Labour costs in the added value for the period from 2011 to 2013 amounted to 72%, 72% and 96% respectively. The great percentage of labour costs in the added value is very disadvantageous from the aspect of future operational results. The value of net profit per employee in sector C for 2013 amounts to 677.55 KM, while the value of net loss per employee is much greater and it amounts to 4,3012.76 KM. In sector D, there are currently 80,900 employees, which is 0.282% more than in the previous year. Observing the number of employees and the number of legal entities, we can conclude that each company has 21 employees on average. The greatest number of employees in sector D was in 2008 (which is consistent with the indicators of the realised operational result) and it was 86,606 employees. After that, in 2009 and 2010, due to the effects of the economic crisis, there was a drastic worsening of operational results, failure of companies and employee lay-offs. Therefore, in 2010, there were 9.87% or 8,547 less employees. After 2010, there was a sharp increase in the number of employees in the sector of the processing industry. The added value per employee, in the period from 2011 to 2013, was 24,843 KM, 24,059 KM, and 24,259 KM respectively. Labour costs per employee in 2013 were 15,459 KM, and this represents an increase of 38.37% or 11,172 KM in comparison to 2012. When we divide labour costs by the added value per employee, we get that the participation of labour costs in the added value amounted to 45%, 46% and 64% for the observed period from 2011 to 2013. We can see that there was a drastic worsening in 2013. In other words, there was a significant drop in the productivity of labour force. Net profit per employee in 2013 was 5,812.05 KM, and it was greater than net loss per employee which was 5,285.63 KM. In sector E, there are currently 12,739 employees, which represent a decrease of 2.42% in comparison to 2012 when there were 13,055 employees. In 2012, there was the highest number of employees (observing the time period from 2006 to 2013), while in 2006, that number was the lowest. On average, each legal entity has 46 employees. The added value per employee for the period from 2011 to 2013 amounts to 46,476 KM, 45,385 KM and 59,244 KM respectively. We can see that in 2013 there was a drastic increase of productivity in comparison to the previous year in the

amount of 30.54%. Labour costs per employee for the observed period from 2011 to 2013 amount to 25,769 KM, 26,123 KM and 31,378 KM respectively. The participation of labour costs in the added value for the same period was 55%, 58% and 53% respectively. The net profit per employee in 2013 was 8,187.91 KM while the net loss per employee was significantly smaller and it amounted to 4,944.49 KM.

If we observe the coefficient of turn-over of operational assets, that is, how every 100.00 KM creates income from operations, the indicators are devastating for all industrial sectors. The growth trend of the turn-over coefficient observed by years would mean that there is a positive trend in operations. It is considered that the coefficient of turn-over is 4 times, that is, that for every 100.00 KM of operational assets, there are 400 KM of income which represents a satisfactory level. However, the position by industrial sectors shows that, for the observed period, not one sector had its operational assets turn-over even once, that is, for every 100.00 KM of operational assets, there is less than a 100.00 KM of income (see Figure 4).

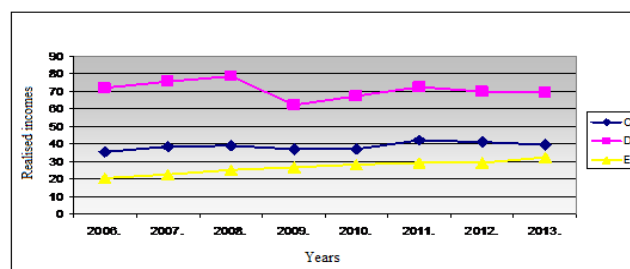


Figure 4: Percentage Indicator of Turn-over of Operational Assets

Sector D – processing industry in comparison to sectors C and E has the greatest turn-over on operational assets. When observing the years from 2006 to 2013, for every 100,00KM of operational assets, there were: 72, 75, 79, 62, 67, 73, 70 and 69 KM income realised respectively. The worst position is in sector E – power energy, where for every 100,00 KM of invested operational assets, there were: 20, 22, 25, 27, 28, 29, 30 and 33 KM income realised respectively. With that, indicators of turn-over of operational assets have a tendency to drop for sectors C and D.

By observing the relationship between current assets and current liabilities, we get very interesting data. Namely, in accordance with the rules of financing, the general liquidity ratio has a normal 2:1, that is, every 100 KM of short-term liabilities should be covered with 200 KM of turn-over assets. The actual state of indicators of general liquidity by sectors significantly varies, but it does not satisfy the given norm in any sector for the observed time period (except in sector E for 2010 and 2013).

¹Added value per employee can be calculated from 2011 when the new way of creating income statements, by the principle of natural types of costs, was introduced.

Namely, in sector C, the indicator of general liquidity is the worst, while the best one is in sector E (see Figure 5).

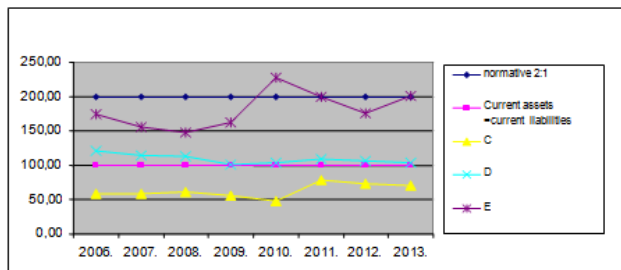


Figure 5: General Liquidity Ratio

In sector C, every 100 KM of current liabilities is covered by cca 55KM of current assets, while in sector D, current assets are slightly higher than current liabilities. Namely, experience points to the fact that the norm 2:1 as an indicator of a satisfactory general liquidity is not adequate in case of operations in Bosnia and Herzegovina. We can determine that the ratio of general liquidity that is somewhat above one represents a limit to sustainability of company's liquidity with a constant management effort to efficiently manage cash flow. Therefore, for sector D, we can say that companies are successful at solving the liquidity issue. The period in which receivables are collected in the sector of processing industry, observed for the period from 2008 to 2013, amounts to 71, 89, 70, 82, 80 and 81 respectively. Sector C is illiquid, partly due to financing immovable assets from short-term liabilities. On the other hand, the period of collection (number of days) of receivables for sector C, observed for the period from 2008 to 2013, amounts to 74, 80, 73, 76, 82 and 96 respectively.

In order to give the final judgment about liquidity state of industrial manufacturers, we need to also consider the indicator for Level 1 liquidity (see Figure 6).

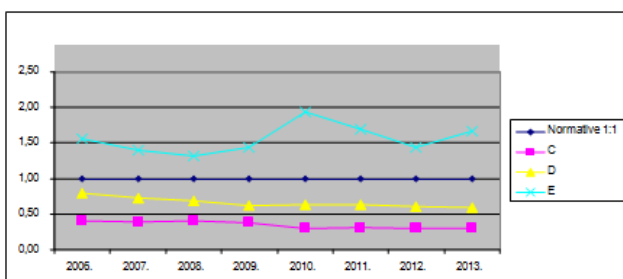


Figure 6: Level 1 Liquidity Indicators

On the basis of Level 1 liquidity indicators, we can conclude that sector E has very little inventory, and that the indicators of general liquidity and acid test are very similar. With that, the period of collecting receivables in sector E, observed for the period from

2008 to 2013, amounts to 104, 88, 92, 92, 97 and 92 respectively. On the other hand, sector C shows again that it has large problems with liquidity. Sector D has a constant problem with liquidity but they are not successful at solving that problem, and realize the "best" operational results in comparison to other sectors. The trend of worsening of liquidity indicators are evident for sector C, as well as, sector D.

On the basis of previous analyse, we can conclude about effects of the industrial sector on the economic growth of Bosnia and Herzegovina. Namely, gross added value in base prices of industrial manufacturing, in comparison to other sectors in B&H, for the period from 2005 to 2012, has amounted to 20-21% of the GDP. For the purpose of comparison, added values of industrial manufacturers in the EU (27) for 2008 amounts to 31.969% (B+C+D) omitting data of added value for sector E. Comparing the indicators of added value of industrial manufacturers in B&H with the EU, we can see that B&H greatly falls behind in the aspect of participation of added value of the industrial sector. Namely, in B&H in 2008, the indicator was 20.98%, while the indicator for the EU (27) for the same period was cca 32%. In 2012, the indicator of added value of industrial manufacturers was worse than in 2008 and it was 20.77%. This gross added value is realized by the industrial sector which participates with less than 13% in the total number of registered legal entities in B&H. With that, very small number of legal entities from this sector realizes positive operational results. Most of them acquire losses and have chronic problems with liquidity and insolvency. The cause for this state, as the analysis has shown, is inadequate manufacturing process and sales by prices that would ensure realizing at least the coverage point.

4. Conclusions and Recommendations for intensifying efficacy of the industrial sector in Bosnia and Herzegovina

Industrial politics should be coordinated at the level of B&H, and not at the level of its components FB&H, RS, and Brcko District, as it is done currently. The main goals of industrial politics must be consistent with other development goals of the transitional economy of B&H, and coordination and inclusion of a large number of government institutions for their realisation is necessary as well. Industrial development in B&H is now left to the market and the state seeks to improve the conditions of functioning of the market. However, the industrial policy of BiH should be vertically oriented. It is a government politics that encourages technological innovations (Triple Helix or Quadruple Helix

concept), and also the increase of productivity and investments, including the infrastructure. The vertical politics would ensure a stable macroeconomic environment, education according to the economic needs, and it would have a positive impact on technological and entrepreneurial innovations. With that, accelerated vertical politics would ensure financial assistance to most of potentially successful companies, rather than to assist failed companies (Konjuh, Dita, Polihem and such) in the function of sustainability of social peace and government position. B&H does not try to determine which industrial branches are the ones who will carry comparative advantages of the national economy, as well as to assist their development. It is known that B&H realises surplus on some final wood products, where we, before all, include furniture manufacturers and shoe manufacturers. In other words, companies from sector D realise most exports, and in most cases, these are profitable companies who use cheap labour force and resource availability, and with that, are successful at realising certain comparative advantages on European and world markets. Government assistance in this sector, through ensuring advantageous investment loans, institutional support, assistance when introducing quality systems, attesting and certifying, would in great part help the growth and development of legal entities in the function of realisation of economy of masses, productivity growth, export increase, re-staffing. All this would indirectly impact the more intensive economic growth of the national economy of B&H. Why do we isolate sector D as key? The reason lies in the fact that the government with its intervention without the need for significant investment of money funds can accelerate the economic growth exactly through the sector of the processing industry. The research results have shown that the mining sector has completely used current capacities but the government regulation provides for prices of raw materials (in accordance with competitive prices) with which the mines are not able to cover all operational expenses. Operations that generate losses from the year continue during the government protection. Considering that mines employ a large number of people on average, the government leads in part the social politics through them. In market economy, survival of these companies would not be possible. Namely, managing operations of mines by the management is not rational or synchronised with game rules of market economy. One of the illogical things that also points to the fact that management in mines does not make rational decisions is also indicated by the level of an average salary. Namely, salaries are far above the legal minimum. The accounting analysis points to the inefficient management of internal processes which is expressed

through height and structure of expenses. On the other hand, not even sector E that is connected into economic wholes with legal entities from sector C generates adequate returns on invested funds. The analysis has shown that sector E had income above the height of expenses only for 2013, even though, it's current capacities are filled. The question is how companies that do not generate positive net profit margin invest into renewal of current technologies that are already greatly depreciated, and also into expansion of capacities through opening up new mines, building new thermoelectric power plants, hydro power plants, and such. B&H, rich with minerals and hydro energetic potential, does not have adequately strong companies that are able to carry on the current market conditions. Currently, sectors C and E in B&H, without foreign investments, are not able to increase the scope of their production or to increase their contribution to the GDP. On the other hand, in the processing industry sector, there is a great potential for increasing the number of companies, for introducing new technologies, for efficient management, and also for realisation of competitive position on the market. Exactly in this sector, there is the greatest number of legal entities, this sector employees seven times more people than the other two, and it realises the greatest surplus in the trade balance. Sector D is key for encouragement of the economic growth in B&H.

The current structural reforms that are conducted in B&H in the function of economic growth are not synchronised with the needs of this sector. Namely, tax reforms, instead going in the direction of tax relief, are becoming greater burden to the operations of legal entities in sector D (considering that other two sectors do not even pay their tax liabilities completely, and do not pay the tax on profit due to their losses). There is not even one current law that protects newly founded companies through various tax reliefs. The legislation also represents a multiple problem. On one side, the process of collecting receivables is slow, and on the other side, there are rigorous legal regulations, especially in the segment of hiring and laying-off workers. The obligation to pay value added tax is created not by invoices payment, but at invoiced deliveries regardless of whether the same will be paid and in what period.

A major problem is the mismatch between the demands of the market and the educational policy which is why we do not have enough innovation and technological advancement. New investments, innovations, patents, investments into development research and invisible assets (intellectual capital, brand capital, value of client portfolios, and such), introduction of modern technologies are key factors for improvement of competitiveness of processing, as well as, the whole industrial production in B&H.

Also, institutional reforms, removing bureaucratic barriers, improving judicial system, acceleration and finalisation of privatization, are key guidelines of successful restructuring and achieving comparative advantages of industry in the function of intensifying economic growth of the national economy. This goal is not attainable in the short term, but gradual effect on improvement of named segments will realise long-term reflexion on statistical indicators of economic growth.

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