

# IMPACT OF DIRECT GERMAN INVESTMENTS ON BULGARIAN ECONOMY

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**Abstract:** The impact of foreign direct investments on the economy of the host country is indisputable. They affect national production, its volume and structure, trade (imports and exports), the local market and competition, employment and income, innovation and technological development, etc. Their effects are evident at company (micro), state (macro) and regional levels. The article analyzes the significance of Germany and the direct investments of German origin for our economy, as well as the impact of Aurubis Bulgaria as the largest German investment through direct, indirect and multiplier effects on the metallurgical industry in Bulgaria and the company's role in the economic growth of the country.

**Keywords:** FDI, effects of FDI, economic growth

**JEL:** F21, E22, O1.

## Introduction

Foreign direct investments have a significant impact on the economy of the host country. They increase labour productivity, improve product quality and competitiveness, promote job creation, increase employment and have a positive impact on labour market competition, contribute to the transfer of knowledge, technology and know-how, and stimulate consumption. Foreign direct investments affect the host economy through a combination of direct and indirect effects, which can have both positive and negative impact depending on the channels of influence. However, their effects do not occur

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automatically and immediately, they manifest themselves in the medium and long term at different levels.

The **research problem** in the article is the impact and effects of German direct investments on the Bulgarian economy. The **research area** is the realized investments of German origin in the metallurgical industry after the example of Aurubis Bulgaria. The **main goal** is to identify and assess the direct and indirect effects of these investments at national (macro-), company (micro-) and regional levels.

The following **tasks** are set to achieve the goal:

1. To analyse foreign direct investments of German origin in Bulgaria and to assess their impact on the economy of the country;
2. To analyse the activity of Aurubis Bulgaria as the largest German investment in the country;
3. To study the effects of the impact of German investments at micro-, macro- and regional levels after the example of the metallurgical industry and Aurubis Bulgaria in particular.

### 1. The role of Germany in the Bulgarian economy

The growth of the Bulgarian economy after 2009 is largely due to modernization and restructuring of the industry. This process includes both increasing individual productivity in particular enterprises as a result of more investments and the introduction of new technologies, and the relative contraction of sub-sectors at the expense of expanding production based on capital and transfer of technology and knowledge. Bulgaria is gradually attracting significant foreign direct investment (FDI) mainly from the Netherlands, Austria, Germany, the United Kingdom, Greece and Cyprus. In the 2010-2020 period, more than half of foreign direct investment in non-financial enterprises was concentrated in industry and originated in the EU.

The Federal Republic of Germany is among the leading investors in our country and is a large trading partner. In recent years, Germany ranks among the first major countries investing in Bulgaria. Trade between the two countries has been growing steadily since 2015 (except for 2020, when there was a slight decline due to the effects of the coronavirus pandemic). Forecasts show that in 2022 it will reach a record EUR 10 billion (see Table 1).

Table 1

Exchange of goods between Bulgaria and Germany for the 2015-2021 period

Year	Exchange of goods (million EUR)	Growth %	Exports (million EUR)	Growth %	Imports (million EUR)	Growth %	Balance
2015	6 288	7.2	2 893	9.0	3 395	5.7	-502
2016	6 638	5.6	3 216	11.2	3 422	0.8	-206
2017	7 294	9.9	3 590	11.7	3 703	8.2	-112
2018	8 153	11.8	4 174	16.2	3 979	7.5	<b>194</b>
2019	8 462	3.7	4 410	5.6	4 052	1.8	<b>358</b>
2020	8 202	-3.1	4 466	1.7	3 715	-8.3	<b>771</b>
2021	9 801	19.5	5 267	17.9	4 534	22.1	<b>733</b>

Source: Ministry of Economy and Industry

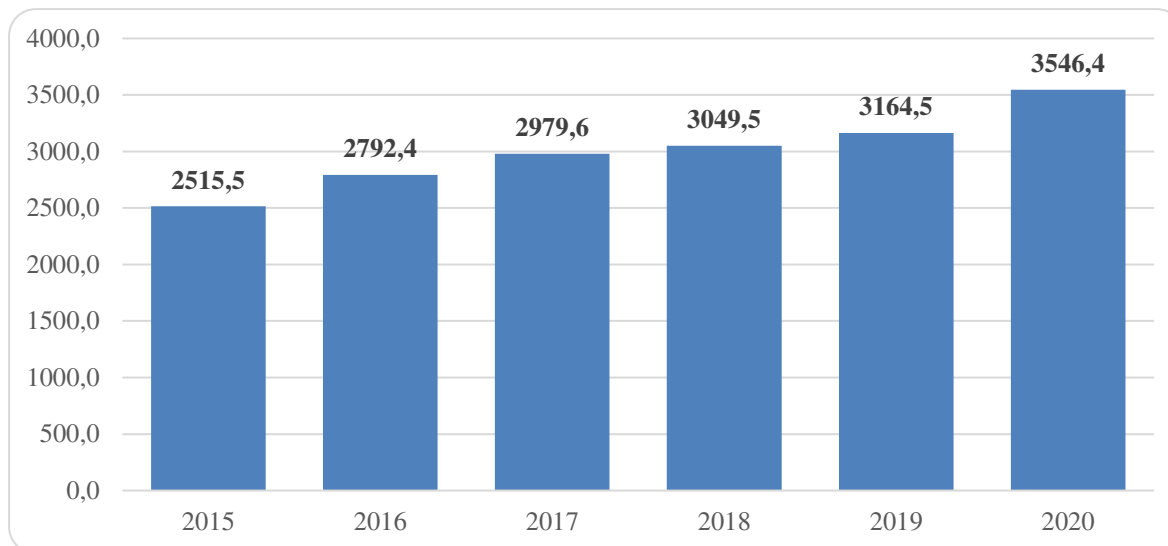
German companies intending to invest in Bulgaria and to open new production sites show great interest. Some of them are even expanding their existing production facilities in Bulgaria or opening production facilities at new locations in the country. Recent studies carried out by the German-Bulgarian Chamber of Industry and Commerce (GBITC) in Sofia show that 95% of the foreign companies that have already invested in the country would make the same choice and are even willing to expand their investment (Yearbook, 2021). According to the BNB, German FDI stocks are constantly growing and in 2020 amounted to EUR 3,546.4 million. (see Fig. 1).

According to data given by the InvestBulgaria Agency (IBA, 2021) for the 2004-2021 period, 51 projects with German participation were certified, covering class A, class B and priority class investments with a total value of BGN 4,436.45 million and 12, 336 new jobs were created respectively. It should be noted that an investment project can be certified more than once (for example, in case of expansion or diversification of the activity).

In 2019, the Institute for Market Economics (IME) conducted an analysis of German investments in Bulgaria under the instruction of the German Bulgarian Chamber of Industry and Commerce (GBITC) and the Konrad Adenauer Foundation, considering their effects on the economy. The top 3 sectors that attract German direct investment are processing industry, trade and finance. These sectors account for about 94% of all German investments in the country, while total FDI in the same sectors accounts for only 48% of

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all foreign direct investments in the state, i.e. there is obviously a certain concentration in terms of the sectors of the Bulgarian economy preferred by German companies (IME, 2019).



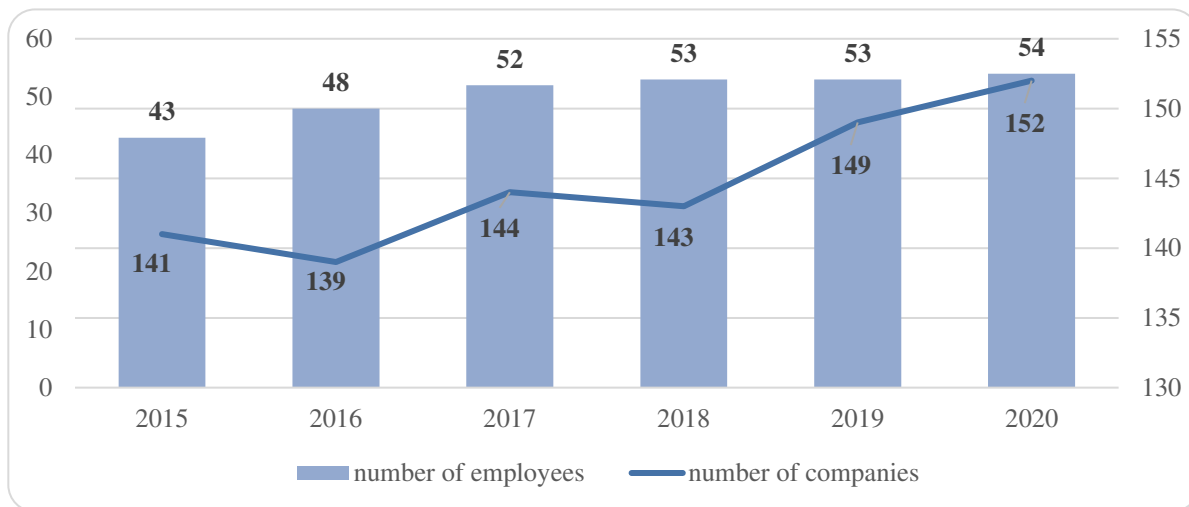
Source: BNB

Figure 1. German FDI stocks for the 2015 – 2020 period, million EUR

According to data given by the German Federal Bank (Deutsche Bundesbank), the number of German companies in Bulgaria is gradually growing – from 141 in 2015 to 152 in 2020 – an increase of 7%. According to the bank, the number of employees in German companies in Bulgaria is also gradually growing – from 43 thousand employees in 2015 to 54 thousand in 2020, which is an increase of more than 25% for 5 years (see Fig. 2).

Bulgarian industry is export-oriented and most of the products are sold on world and European markets. As a member of the EU, our country trades mainly within the Union and with the neighbouring countries. The largest share of non-energy goods in exports is occupied by raw materials – 46%. This group also includes metals. In the 2015-2020 period, the share of copper and copper products ranged between 7 and 9% in the total exports of goods from Bulgaria.

The analysis of the dynamics in the structure of bilateral trade shows that machinery and components have the largest share in Bulgaria's exports to the Federal Republic according to data for 2020, namely 26.8%, followed by metals (15.7%) and mineral products (11.9%). Exports of transport equipment ranks fourth with a share of 10.86%.



Source: Deutsche Bundesbank

Figure 2. Number of German companies in Bulgaria and number of employees (in thous.) for the 2015–2020 period

With imports from Germany, machinery and components rank first (32.9%), followed by transport equipment (13.97%) and chemicals (11.87%). Metals rank fourth with a share of 7.35%. Cars, machinery and chemical products have been leaders in the country's exports over the past few years. However, cars and spare parts remain the most imported products on the German market.

## 2. The role of Aurubis Bulgaria in the country's economy and in metallurgy

Aurubis Bulgaria AD is part of Aurubis AD (Aurubis AG, based in Hamburg, Germany). The main activities of Aurubis Bulgaria are processing of copper concentrates; production of refined copper, registered on the London Metal Exchange as Pirdop brand; production of copper anodes and co-products such as sulfuric acid, iron silicate, anode sludge and fayalite concentrate. Electrolytic copper is widely used in the production of copper products, in electrical engineering and electronics, mechanical engineering, energy, chemistry, construction, automotive and household goods. Experts predict significant growth in global demand for metals during the climate transition period and the development of alternative energy sources.

Aurubis Bulgaria was chosen for several reasons:

- Aurubis Bulgaria is the largest foreign investment of German origin in Bulgaria;
- it has invested over BGN 1.2 billion over the last 20 years in modernization of production, infrastructure and environmental protection activities;
- it plays a significant role in the Bulgarian economy;
- it dominates the metallurgical industry;
- it is the largest non-financial company in Bulgaria according to sales revenues for 2020 in the K100 ranking; it ranks first in the Top 10 ranking and in the metallurgy sector, ninth in terms of assets in K50 of the Capital newspaper; first in the Bulgarian business in numbers of ICAP Bulgaria and is among the 150 largest employers in the country, as well as the largest industrial taxpayer in Bulgaria.

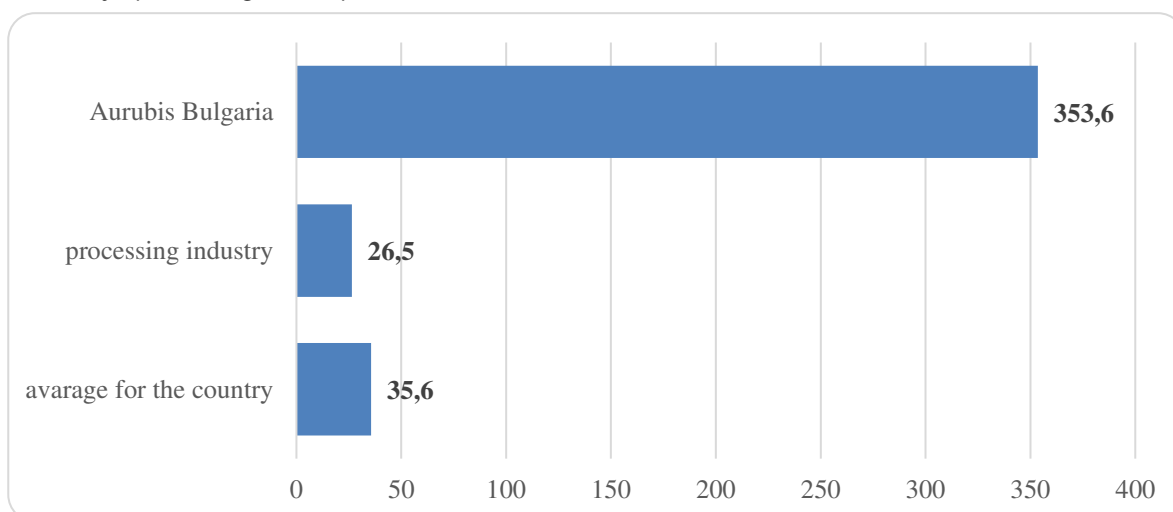
In the 2015-2020 period, the company invested significant funds in investment projects. In 2015, it started planning a new large-scale investment programme 'Aurubis Bulgaria Spectrum 2018' worth EUR 180 million. In 2016, the 'Overhaul 2016' project worth EUR 45 million was implemented. In 2019, over EUR 25 million were earmarked for modernizing the company's energy transmission and distribution systems, and renovating road infrastructure and buildings.

In 2020, investments worth EUR 22.6 million were made in a project for constructing a photovoltaic installation intended to produce electricity to cover own consumption with an installed capacity of 9,999 kWp and for replacing and modernizing existing equipment, energy transmission and distribution systems of the enterprise. The company continued to invest in this project in the next few years.

Aurubis Bulgaria activities have a significant macroeconomic dimension. In the 2000-2020 period, the company invested over EUR 600 million and its activities contributed to the growth of the country's GDP. The current investment programme amounts to EUR 132 million for the 2019-2022 period with a focus on infrastructure, research and development, energy efficiency and environmental protection. In 2020, the number of employees was 900 on average.

Aurubis Bulgaria realized over 7% of total exports and over 4% of Bulgaria's imports in 2020 with a contribution to the growth of gross domestic product. It generates about 50% of the revenues from sales of enterprises in the sector 'Manufacture of basic metals' and about 60% of the revenues from the production and processing of precious and non-ferrous metals. The company's production contributes to 0.4% of gross value added in the

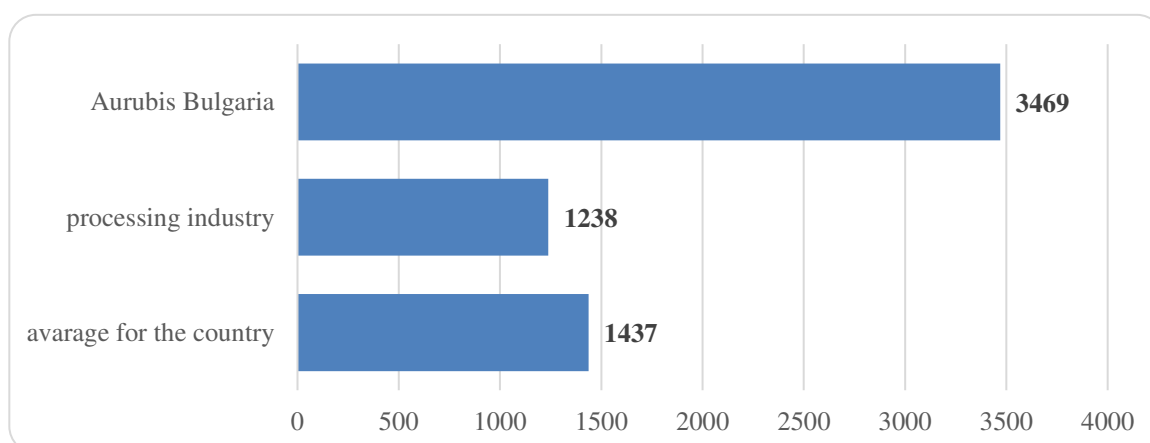
Bulgarian economy. Revenues from sales of products are about 1.5%, and the realized profit reaches over 1% of the total reported for non-financial corporations in Bulgaria. Labour productivity, measured as the value added per employee, is nearly 10 times higher than the average for the Bulgarian economy (see Figure 3).



Source: NSI, calculations by the author

Figure 3. Labour productivity in 2020, value added per employee, thousand BGN

Aurubis Bulgaria is among the employers with the highest wages not only in the metallurgy sector, but also in the Bulgarian economy – in 2020 the monthly payment in the company was 2.4 times higher than the average gross monthly salary for the country (see Fig. 4). This is partly due to the nature of work.



Source: NSI, calculations by the author

Figure 4. Average gross monthly salary in 2020

### 3. Assessment of the effects of the company's activities

Aurubis Bulgaria activities have both direct and indirect effects on the Bulgarian economy. **Direct effects** are related to raw materials costs, fixed assets and external services, employee remuneration, local taxes and fees, etc. **Indirect effects** emerge from interactions with other companies and sectors of the economy. On the other hand, employees in Aurubis Bulgaria receive remuneration, which they then use to purchase goods and services, which create additional consumption and the need to develop new businesses, which in turn generate consumption, income and expenses thus leading to a multiplier effect. Effects of the company's activities are also observed at **regional level** – on the territory of the municipalities in the Srednogorie region. The overall economic effect of Aurubis Bulgaria activities includes both the direct contribution to the additional demand for goods and services through the company's costs and the indirect effects on the value added and income chain, which increase the aggregate domestic demand in the country.

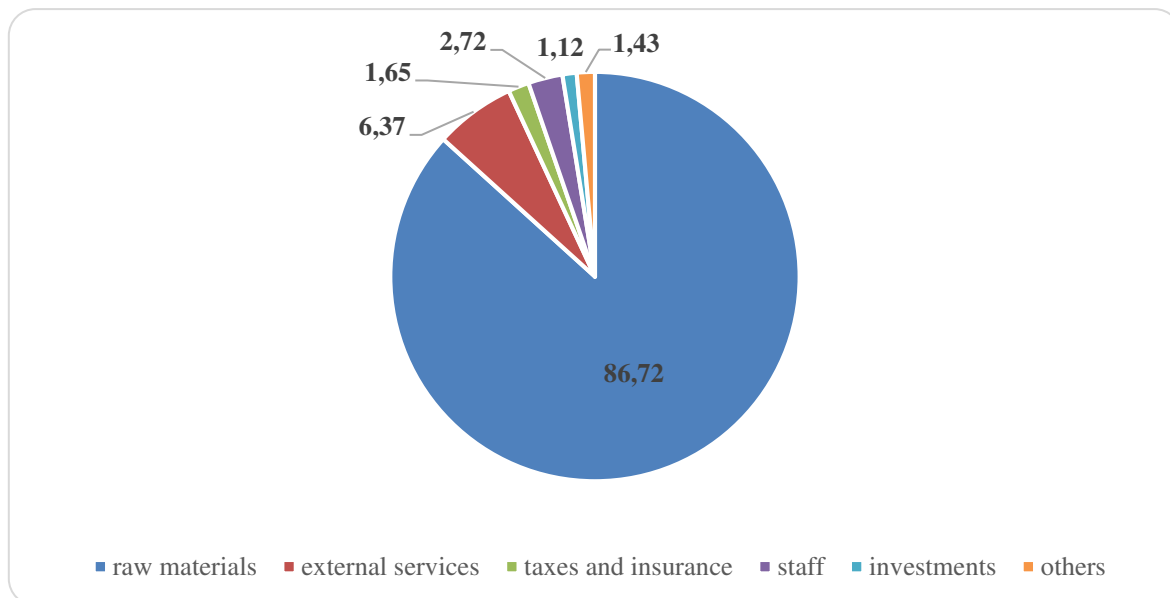
In general, the **direct effects** of the company's activities in the country can be divided into several large groups:

- purchasing raw materials, invested in production and ordered by Bulgarian suppliers;
- staff costs;
- the cost of external services;
- the cost of acquiring fixed assets.

In the 2016-2020 period, the total expenditures in these groups, realized in Bulgaria, were over BGN 1.5 billion on average per year and their amount varied over the years depending on external and internal factors. In 2020, the company's costs realized on the local market amounted to BGN 1.47 billion, nearly 90% of which were for the purchase of raw materials, electricity, fuels and more.

In 2020, the purchase of raw materials formed the main share of the company's costs in Bulgaria – about 87% (see Figure 5). About 26% of the concentrates needed for production were supplied by Bulgarian companies – Assarel Medet AD and Ellatsite-Med AD. In the 2016-2020 period, the concentrates purchased from Bulgarian mining companies varied between 24 and 31% of all processed concentrates in the production.





Source: AFS, data given by Aurubis Bulgaria

Figure 5. Structure of expenditures in Bulgaria in 2020 in %

Staff costs represented only about 2.7% of the company's total costs. This is typical for capital-intensive companies with high labour productivity, which is evident from the level of average gross monthly wages – BGN 3,469 in 2020 against the background of the average wage for the country of BGN 1,437. The transport and logistics costs were slightly over 5% and the service and maintenance costs were about 3%.

As a result of the activity, the company allocated about 1.65% of its expenses for tax payment (corporate tax, social and health insurance of employees, personal income tax, local taxes and fees, etc.). Investment costs were 1.12%. Against the background of all the costs, this also seems small at first glance. However, the implementation of investment projects is often linked to a period longer than 1 calendar year and their implementation is not evenly distributed over the years and depends on a number of factors.

Through their activities, each of the suppliers of goods and services to the company creates additional demand for raw materials, goods, various types of services, etc., which increases the already generated aggregate demand in the local economy. Thus, **indirect effects** emerge. For example, the cost of buying local raw materials creates additional demand for employees, purchase of machinery and equipment, purchase of land, equipment and machinery, building materials, construction services and more. The indirect effects – secondary and tertiary, of the company's

activities on the Bulgarian market and the costs it incurs for the purchase of local products and remuneration of employees are considered consecutively.

Indirect effects are observed in *investment costs*. When investing in construction (buildings, infrastructure, new facilities), additional demand for construction materials, machinery, transport, equipment, consulting services (architects, designers), furniture, etc. is generated. Based on the cost multipliers for the various related activities (OECD, Resource-Use Tables, 2018), the aggregate effect on domestic consumption in the country, which includes the so-called secondary effects on demand, increased from BGN 62.5 million to BGN 125 million for the 2016-2019 period. For 2020, the investment costs were BGN 3.3 million, and they generated additional demand along the value chain of investment and construction activities of nearly BGN 3.5 million in the Bulgarian economy.

*Expenditures on external services* have a secondary effect and are focused mainly on companies from different sectors of the local economy. In 2020, they amounted to BGN 115 million. Their indirect effect calculated on the basis of cost multipliers for different groups of external services, led to a total additional secondary effect of about BGN 84 million. Various business and consulting services, employee training, cleaning, etc. can be regarded as external services.

*The company's costs incurred when purchasing basic raw materials* also produce an indirect effect. They vary over the years and are influenced by many factors. Examples of similar factors can be the development of the world economy, stock market prices of copper, the price of electricity and fuels, transport costs and others. In 2020, raw material costs amounted to nearly BGN 1 billion (direct effect of the costs) and about 87% were made for copper concentrates. 26% of the concentrates needed for production were purchased and delivered by local companies. Thus, the total secondary effect, calculated on the basis of an estimate of cost multipliers for the different groups of raw materials, amounted to about BGN 500 million.

Staff costs in Aurubis Bulgaria increased by over 15%, from BGN 24 million in 2018 to nearly BGN 28.4 million in 2020 due to the increase in the number of employees and the increase in salaries and insurance contributions. Remuneration paid to employees generated additional consumption in the local economy through the purchase of goods and services in various sectors (income effect). They generated additional domestic consumption of about BGN 16.32 million in the local economy, where the aggregate effect on aggregate demand, calculated on the basis of

an expenditure multiplier of 1.58, was over BGN 44.21 million. This means that the net remuneration received by employees generates additional demand for goods and services in various sectors.

Household consumption as a result of the received remuneration has a secondary effect on employment through the need for the existence and functioning of other companies in various industries, whose products and services consumers benefit from in their daily lives. On average, Aurubis Bulgaria activities create about 4.7 times more jobs than those employed in it (on average 900 in 2020), i.e. 4,230 additional jobs were created in the economy in 2020.

Investments in training and professional development lead to increased productivity and increased competitiveness of employees in the labour market. Investing in new technologies also increases the requirements for the skills employees must develop. Training helps in adaptation and the smooth work with the new technologies, introduced in production. Staff development and motivation increases their productivity. A number of internship programmes have been developed, as well as a dual training programme together with local vocational high schools.

Apart from the effects at micro and macro levels, Aurubis Bulgaria activities also have an impact at **regional level**. Given the size of the company, the impact it has on Srednogorie region and the municipalities in which it is located is significant. The annual expenditures for local taxes and fees in the municipalities of Pirdop and Zlatitsa amount to more than BGN 1.1 million, which has a positive effect on their finances. This amount represents an average of 14% of the revenues from local taxes and fees of the municipality of Pirdop and 35% of those of the municipality of Zlatitsa.

At regional level, it also affects the labour market. In small municipalities, the presence of a large employer is extremely important for providing employment, in addition to the attractive level of wages in the company, which is many times higher than the national average. Thus, the company is attractive for the residents of the surrounding municipalities of Anton, Koprivshitsa, Mirkovo, Chavdar and Chelopech.

The nature of the materials used in metallurgical production inevitably affect the environment. The company is constantly working to optimize the process in order to reduce the impact on the environment, which is its main priority. Since its privatization in 1997, nearly EUR 600 million have been

invested in modernization, with 100 million used to implement measures taken to improve the company's environmental performance.

The commitment of Aurubis Bulgaria in the field of corporate social responsibility (CSR) has an additional positive effect. Each year Aurubis Bulgaria implements a number of social projects at national and local levels, combining its corporate values with the desire to benefit society. The consistent social policy is implemented through agreements with the municipal authorities of Pirdop and Zlatitsa, which are implemented on an annual basis and meet the social policy of the company and the priority needs of the relevant municipality. Each year a social programme is implemented, with projects aiming to support disadvantaged people, health care, education and talented children, sports initiatives, cultural projects and more. For the last 10 years, the company has made donations worth over BGN 6 million. In addition to the projects included in the social agreements, Aurubis Bulgaria implements other socially significant projects in partnership with associations, schools and other organizations that share common ideas for the development of the region.

The company developed "Sustainability Strategy 2018-2023". It is part of the Aurubis Group's strategy and focuses on people, the environment and the economy.

It can be concluded that the regional effect of Aurubis Bulgaria is strongly felt in 9 municipalities (Pirdop and Zlatitsa, the surrounding 5 municipalities - Anton, Koprivshtitsa, Mirkovo, Chavdar and Chelopech, as well as in the municipalities of Etropole and Panagyurishte, where copper companies from which raw materials are purchased are located) both in terms of being a large employer and in terms of a consumer of goods and services supplied by local companies.

### **4. Conclusion**

The impact of foreign investment on the economy of the host country is indisputable. Through its production and activity Aurubis Bulgaria has a positive impact on the country's economy. The full effect of this impact for 2020, measured by the aggregate demand created, amounted to more than BGN 2 billion and over 4,200 jobs indirectly created in the chain as a result of the activity. The influence of the primary, secondary and multiplier effects at micro-, macro- and regional levels is also taken into account.

The main effect is related to production and processing and directly reflects in the cost of raw materials from local suppliers. Secondary (indirect) effects on the supply chain of goods and services generate additional domestic demand in the local economy.

At national (for the state) and regional levels (for the municipal budgets) the taxes paid during the year also have a positive effect, as the company is the largest industrial taxpayer in Bulgaria. This gives an additional impetus to the development of Srednogorie region and the small municipalities on whose territories the enterprise is located. In addition, the corporate social responsibility of the company enhances the impact of these effects on the society as a whole.

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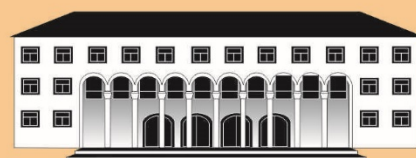
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