CASE STUDY:
Fabricated Metal Products

Introduction

CEVES has identified 18 industries in the Serbian economy that, in spite of general obstacles in the business environment, insufficient macroeconomic stability, and a lack of financial resources, posses potential to foster further economic growth. Those industries exhibit strong export competitiveness and growth capabilities and can be considered the most promising, the most suitable and the most attractive industries for firm development.

In order to support the development of these industries and even enhance their performance and competitiveness, we must disclose and understand the factors, both industry-level and firm-level, that determine their success and international activities. The creation of a sound knowledge foundation about industry's main characteristics, such as structure, performance, competitiveness, hidden potentials, critical success factors, strengths, weaknesses, opportunities and threats, is necessary in order to define adequate policies and create proper measures whose effective implementation would enhance the growth and development of an industry.

The main goal of this case study is to provide a sound knowledge about the performance and competitiveness of a selected industry, and to determine the reasons explaining that performance and competitiveness, by focusing on the identification and understanding of critical success factors (particularly industry-specific). The identification and understanding of hidden potentials and factors is the first step in the process of the creation of required industry-specific knowledge, which can provide essential information to key stakeholders and policymakers in order for industry to prosper.

CEVES weighed several criteria in selecting a sector to examine in greater detail:

- Quadrant in combined final analysis: Building on the results of the analysis described above, CEVES wished to select a sector with demonstrable potential for export competitiveness, i.e. a sector located in the first or second quadrants in the analysis. It also did not wish to select a sector with already outstanding demonstrated performance, as high-performing sectors do not stand to benefit as much from an analysis such as this.

- Degree of industry concentration: Given CEVES' belief that SMEs and potential new market entrants hold the key to increased exports and economic growth in Serbia, the organization also wished to select an industry it defined as demonstrating 'low concentration' according to the HHI Index (index result between 1 and 1,499).

- SLDP priority: Of a shortlist of five sectors created based on the above criteria,[1] USAID SLDP selected this particular sector in order to complement its work supporting the Vojvodina Metal Cluster.[2]

Considering the industry selection criteria, the manufacture of Fabricated Metal Products (FMP) was selected. Generally, that industry consists of a relatively large number of small and medium enterprises, with a relatively high share of exporters among them. The Fabricated Metal Sector had the highest number of companies of all sectors in the first quadrant and a HHI of only 150. Furthermore, the industry exhibited an improvement in export competitiveness, but with a high potential for further enhancement. The Fabricated Metal Products sector is located in the first quadrant and ranks 13th in terms of competitiveness and 15th in terms of industry performance out of 53 tradable industries.

The **first section** of case study will give an overview of a Fabricated Metal products industry. It will define the Fabricated Metal Products industry and briefly describe coverage, general characteristics of this industry and global trends. At the end of a first section, focus will be narrowed to the structure, trends, and characteristics of FMP industry in Serbia. The **second section** of this case study will provide a deeper look into the performance and export competitiveness of this industry. Therefore, together, first two sections will provide a comprehensive and holistic picture of FMP industry in Serbia's economy, with a closer look at its structure, trends, performance and competitiveness. **Third section** will

[1] The other shortlisted sectors were: Electrical Equipment, Bodies and Parts for Motor Vehicles, Plastic Products, and Perennial Crops
[2] For more information, see: vmc.rs

discuss about the possibilities for further performance and competitiveness enhancement. This section will identify the main levers and opportunities for development and internationalization of this sector and it will uncover the characteristics of these opportunities in greater detail. **Final section** will identify and discuss concrete factors of company's competitiveness, which should be addressed with adequate support and policy design. Our analysis has identified five such factors: product quality, product price, delivery time, innovation capacity and access to buyers. Identifying challenges regarding these factors will focus the spotlight on which particular areas are most important for Serbian exporters to overcome in order to be more competitive abroad. By identifying where the gaps exist, it can point policymakers and experts at where the constraints in a given industry may be. Case study will end with a **SWOT matrix** - a comprehensive and systematic view on the characteristics, both industry-specific and general, which impact the factors of success and thereby determine the export competitiveness of the industry.

Industry overview

Definition, structure and characteristics

Broadly, the Fabricated Metal Products (FMP) industry involves the transformation of metals into intermediate and final products using one or a combination of three processes – fabrication, preparation, and finishing – that can also encompass a host of other techniques such as forging, stamping, bending, forming, welding, machining and assembly (FMR, P.2-3). Companies in the sector purchase raw ferrous and nonferrous metals (e.g. carbon, aluminium, steel, titanium, brass, copper), generally the primary inputs in fabricated metal production, in either raw or semi-finished directly form primary producers or large-scale distribution companies and sell them to a range of industrial customers (ibid). In 2013, the overall size of the global fabricated metal products industry was approximately $2 trillion (FMR, 1).

In the NACE 2 classification system, the following sub-sectors are considered fabricated metal products:

Table 6.1 Fabricated Metal Products Sub-Sectors According to NACE 2 Classification

Category	Sub-sector
25.1	Manufacture of structural metal products
25.2	Manufacture of tanks, reservoirs and containers of metal
25.3	Manufacture of steam generators
25.4	Manufacture of weapons and ammunition
25.5	Forging, pressing, stamping and roll-forming of metal and powder metallurgy
25.6	Treatment and coating of metals and machining
25.7	Manufacture of cutlery, tools and general hardware
25.9	Manufacture of other fabricated metal products

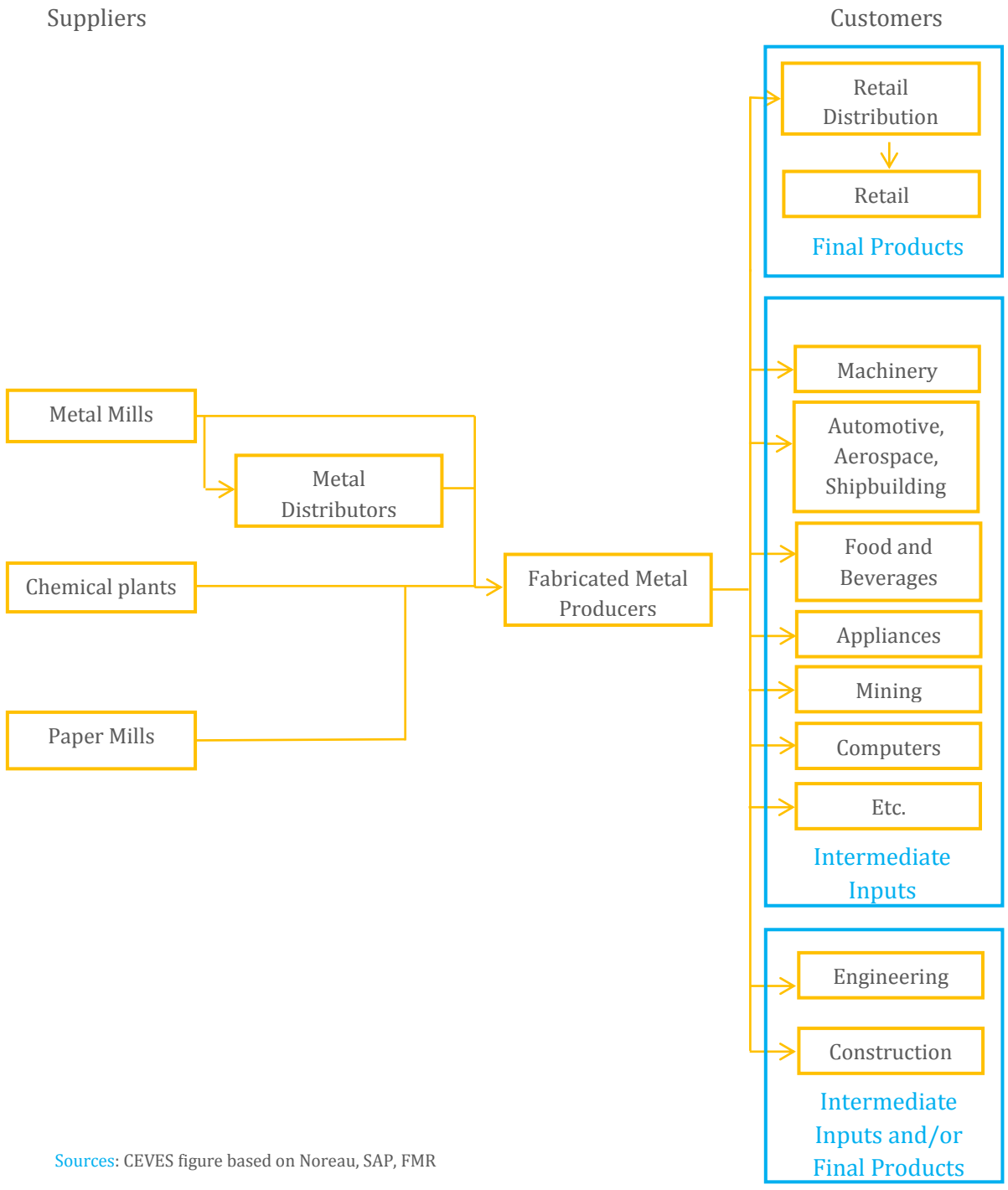
Source: Eurostat

The industry is home to both large and small companies alike, but SMEs constitute the vast majority of companies in the fabricated metal sector. For example, the largest 50 companies in the US account for only 20% of the sector's total revenue (FMR, P.2). In Serbia, the 50 largest companies generate slightly above 50% of the sector's total revenue. Still, considering the size of Serbia's economy, and the general concentration of industries, this share represents a good indicator of industry's diversification. Often, smaller companies that manufacture products with more unique specifications rely on one or a few customers, reducing their bargaining power and placing them at the risk of customer concentration. It is not uncommon, therefore, for SMEs in the fabricated metals sector to become de facto subsidiaries of their customers (ibid, P.3). However, niche specialization does enable them to derive relatively higher profit margins (FWC, P.188).

The customers of the fabricated metal products industry span a wide range of profiles and industrial fields. Although some final products are used by everyday customers, the bulk of purchasers from this sector are industrial producers that use metal products as inputs in production of items such as machines, transportation vehicles (aircraft, motor vehicles, ships, etc.) and appliances. Fabricated metal component companies can also manufacture final products that are used by engineering and construction industries (ibid, P 3-4, SAP

P. 5). In other words, the sector is an important "feeder" industry for many industrial supply chains that support the wider economy (DTI, from RWC P.109). A broad overview of structure of the related product supply chains is outlined in following figure 6.1.

Figure 6.1 Fabricated Metal Products Overview



Sources: CEVES figure based on Noreau, SAP, FMR

Given the relative importance of industrial manufacturers and the breadth of industries sourcing fabricated metal products, it is unsurprising that demand for these products is primarily determined by the level of demand in the entire economy, or wider macroeconomic performance on the whole (FWC, P.103). However, even significant changes in particular customer sectors can have a significant impact on the activity of the sector. For example, increased automotive manufacturing or housing construction, owing to increased demand, can themselves generate significant demand for fabricated metal products.

Traditionally, the manufacture of fabricated metal products has been dominated by the most developed economies in the world – the United States, Canada, the European Union, and Japan. However, Chinese producers have in particular been notable challengers to producers in more developed countries. More and more customers have been switching to Chinese suppliers, and many producers have relocated some or all of their production to China (FWC, 14, 153). However, in some developed countries, production has been "moving back" from China to more developed markets (NIU CGS, P.4).

FMP in Serbia

The Industry of Fabricated Metal Products is a large and very diverse industry, in terms of the number of firms, its economic activity and regional distribution, respectively. This industry is an essential part of the metal industry and a very significant member of a wider metal sector. Fabricated Metal Products proved to be a resilient industry that managed to increase its value added and extent of activities in the last five years despite the negative impact of the global financial crisis. However, this industry has also experienced certain difficulties in the process of post-crisis recovery, primarily in the field of employment enhancement.

The FMP industry in Serbia is still in the process of recovering from the strike of the crisis that occurred in 2009. That recovery is generally characterized by "jobless growth". Revenues and value added of industry have slightly increased, but even that weak growth was more dynamic than the anaemic growth of the remaining tradable sectors in the post-crisis period. This development was not followed by necessary increases in the number of firms and employees. The number of firms has remained unchanged in the last 5 years and the number of formally employed has decreased. The phenomenon of "growth without jobs" (jobless growth) is not only a reflection of the negative impacts of the crisis and Serbia's delayed an inefficient transition, but rather of a broader malaise affecting many other European and middle income countries and industries at the beginning of 21st century.

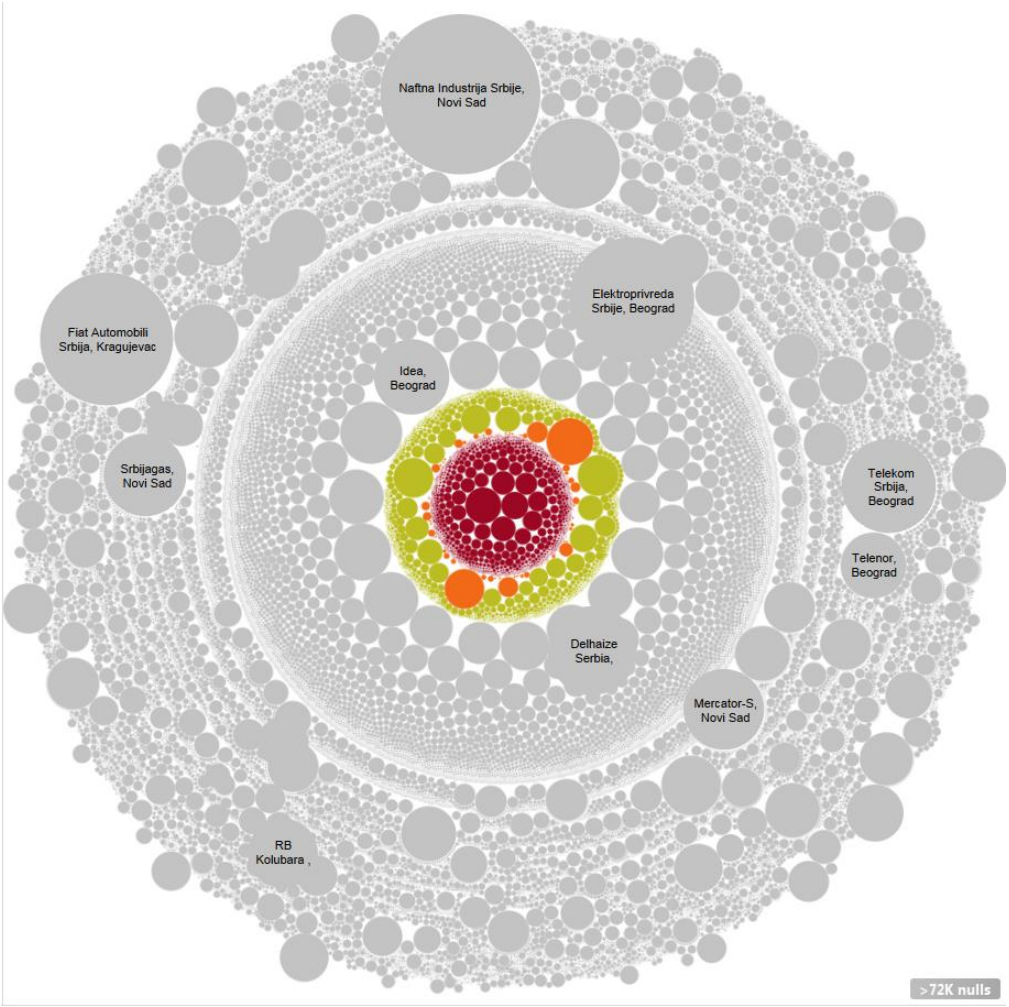
FMP is currently consisted of almost 8.000 firms and entrepreneurs, of which 2611 report their financial statements to SBRA on a regular basis. These "regularly reporting" firms will be the focus of our quantitative analysis, due to availability and reliability of financial data required for description and quantification of their activities and performance in the observed period.

These firms employed 35 thousand people in 2013 and contributed to value added of Serbia's economy with approximately EUR 372 million (5.6% of total VA of tradable economy). Total operating revenues of firms from the FMP industry reached EUR 1.488 million (4.7% of total revenues generated by tradable industries).

The Industry of Fabricated Metal Products is a leading industry of the metal sector, which also includes Manufacture of Iron and Steel, and Casting of Metals. It produces 75% of sector revenues, and employs 79% of employees. Such a dominant and significant position of the FMP within the metal sector is partly a reflection of a great number of firms within this industry and their international activities, as well as a consequence of the deteriorating performance of the Iron and Still industry, due to the decision of US Steel to leave the Serbian market. Observing the wider metal sector, which also includes industries that use metal as one of main inputs in their production process, it can be concluded that the FMP is still very significant.

Figure 6.2 presents a comprehensive graphical summarization of the main structural characteristics of FMP - extent, diversity, and significance in the metal sector and the economy. This figure, presented below, enables a deeper look into the structure of Serbia's economy and Metal Industry, and it clearly points out the broad significance of Fabricated Metal Products. Every firm that is both established and operates in Serbia is presented by one bubble. The size of each bubble is determined by the revenues of that particular firm. Firms are sorted and grouped depending on the industry they belong to. Firms from the FMP industry are located in the center of the economy and they are colored red. This industry is surrounded by the remaining firms from the metal Industry (colored orange), and these are encircled by firms from the wider metal sector (colored yellow). Other firms from Serbia's economy are presented by the grey color.

Figure 6.2 FMPI within whole Serbian economy

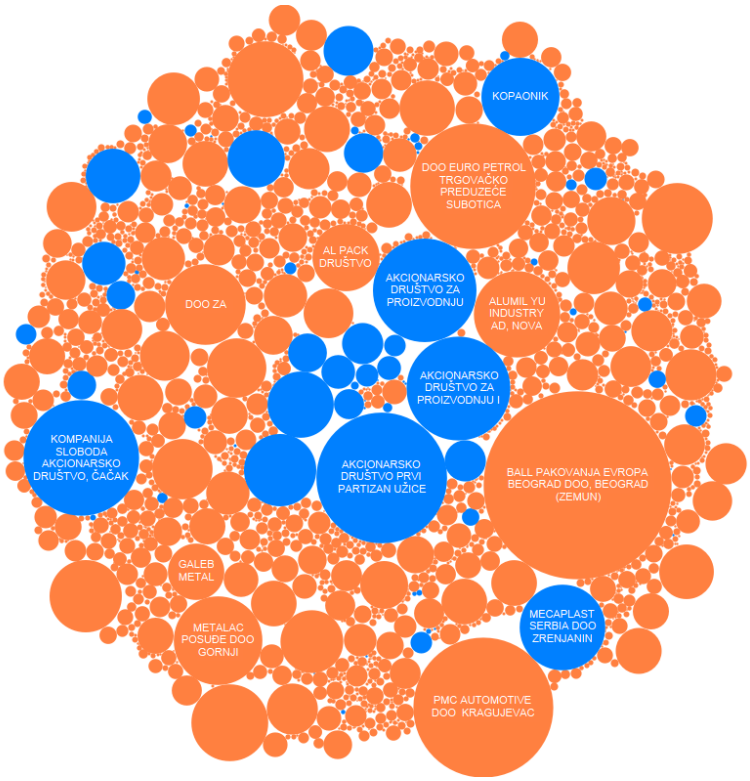


Source: SBRA (*note:* size of bubbles - firm's business revenue, color of bubbles - fabricated metal products industry (red color); narrow metal industry (orange color); wide metal sector (yellow color); the rest of Serbian economy (grey color))

The FMP industry is characterized by a great number of SMEs and undersized large companies, in terms of revenues. This industry also contains a few large state-owned companies, which are hindering the results and performance of this sector. Those state-owned companies proved to be less resilient, less successful, less profitable and less productive. The structure of the FMP industry is presented in the figure

below. As in previous figure, each bubble represents a single firm, while the size of the bubble is determined by the revenues of a particular company. The private sector is presented by the orange color, while state-owned or state-related firms, in terms of ownership structure, are colored blue.

Figure 6.3 FMP industry structure



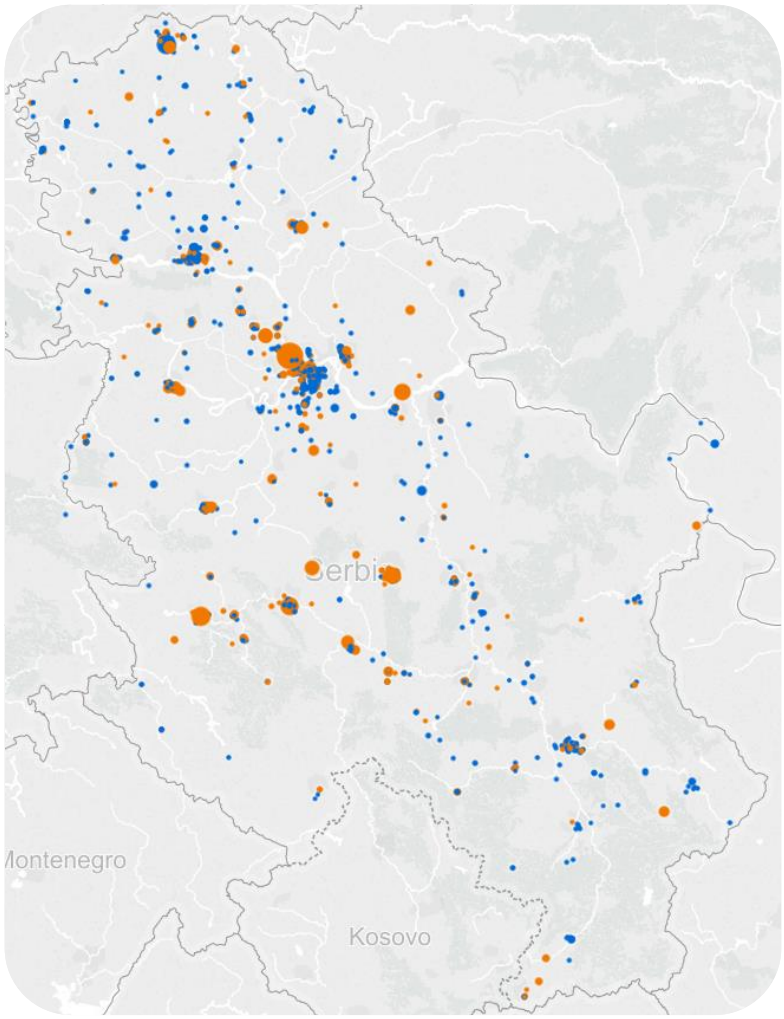
Source: SBRA (*note:* size of bubbles - firm's business revenues, color of bubbles – private sector (orange color); state-owned or state-related firms (blue color)).

The SME sector of the industry contributed to industry performance to a larger extent, than SMEs did on average in the whole economy. The industry itself, like the whole Serbian tradable sector, is composed mainly of SME companies (99%) - mostly micro (79%). However, there are also certain differences; the **employment** share of the industry's SMEs is 60%, about ten percentage points above that of the SMEs share in the whole tradable sector. Furthermore, **value added** produced by the

SMEs stood at 67%, which is approximately 26 percentage points above the tradable sector level. SMEs contributed to a great extent to the industry **revenue** generation, accounting for 76% of the industry's revenues.

Companies of this industry are relatively equally diversified across the territory of Serbia, without any particular regional concentration of firms. However, according to the value added produced, companies located in Sumadia and the western region, account for almost half of the total industry value added. The Belgrade region, as well as the region of Vojvodina, both produces 20.4% of value added, while southern and eastern Serbia account for only 12.7%. Moreover, it can be noted that a higher level of exporters is concentrated in Sumadia and southwestern Serbia, while the lowest level can be found in Vojvodina. Such indication can be noted on the figure 6.4 that shows the regional dispersion of firms from the FMP industry. In this figure, bubbles are colored orange and blue, distinguishing exporters from non-exporters, respectively. The size of each bubble, like in the previous figure, is determined by the firm's operating revenues.

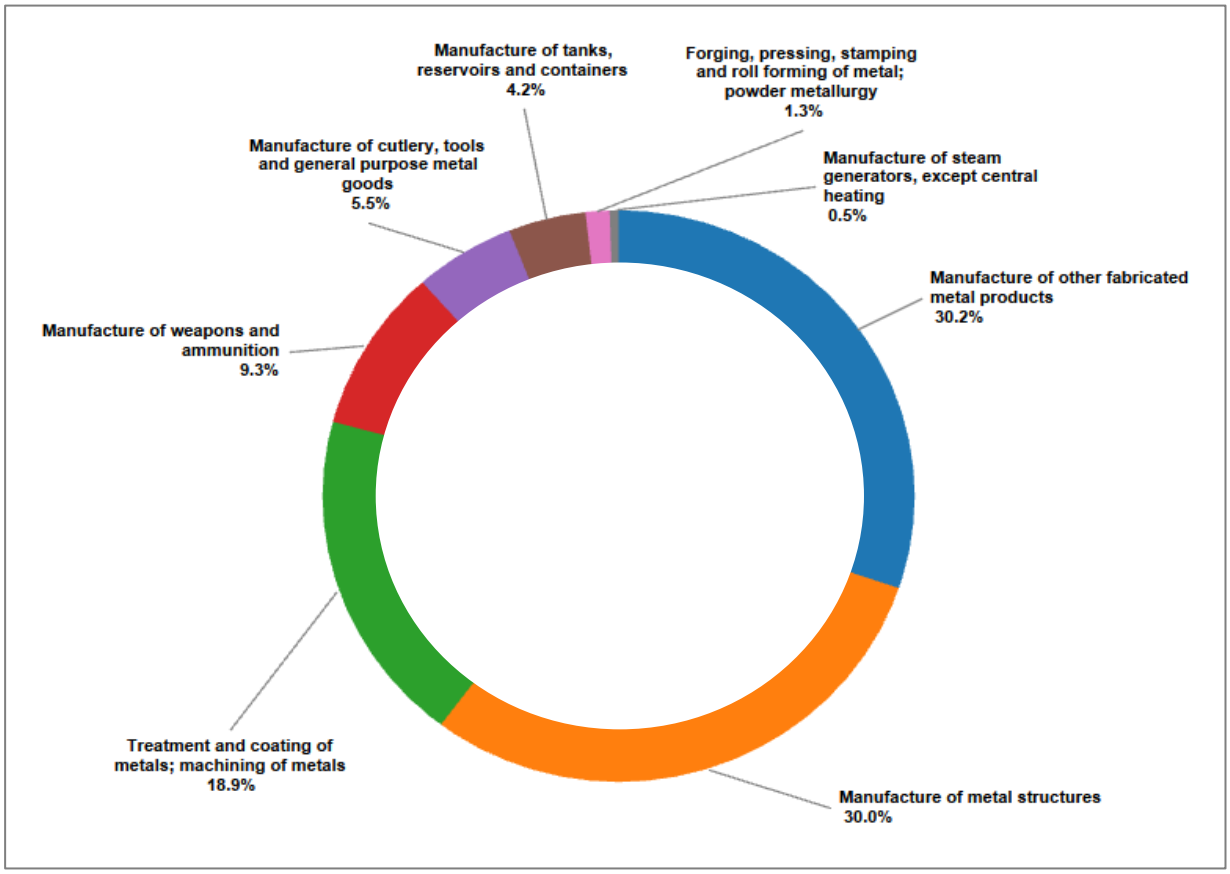
Figure 6.4 Regional dispersion of companies within FMP industry



Source: SBRA (*note:* size of bubbles - firm's business revenue, color of bubbles - exporter (orange color) vs. non-exporter (blue color))

Major subsectors of the FMP industry include Manufacture of Metal Structures, other fabricated metal products and Treatment and Coating of Metals (figure 6.5). Together, these three subsectors accounted for almost 80% of industry turnover.

Figure 6.5 Share of subsectors within industry according to their turnover



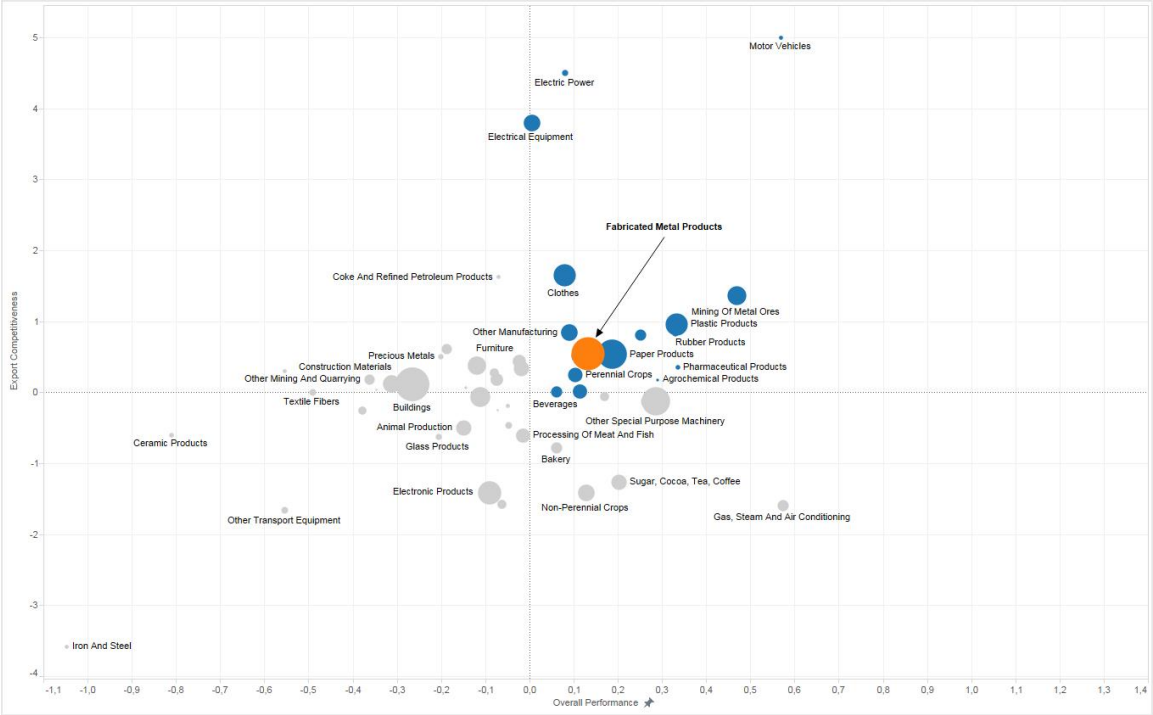
Source: SBRA, based on CEVES calculations

One of the best performing industries

The Industry of Fabricated Metal Products is one of the best performing industries in the Serbian economy, possessing adequate attributes and resources for firms to produce internationally competitive products while operating relatively sustainably and dynamically. The main characteristics, which determine the position of this industry in the performance-competitiveness matrix, are a great number of firms, a relatively solid overall performance and strong international competitiveness.

The FMP industry is located in the first quadrant of the performance-competitiveness matrix, which indicates that this industry has achieved both positive export competitiveness and overall performance in the five-year period, from the strike of the crisis in 2009 until 2013. This quadrant obviously represents the desirable and preferable location for every industry. Industries located in this quadrant can be considered the current stars of Serbia's economy. The exact position of the FMP industry within the performance-competitiveness matrix is shown in the figure below. The FMP industry is presented by an orange bubble, whose size is determined by the number of firms that operate in that industry. Other best performing industries, located in the first quadrant, are colored blue, while the remaining industries of the Serbian economy are colored grey.

Figure 6.6 Industry overall performance and export competitiveness



This section aims to quantify and present in-detail the main performance and competitiveness indicators of the FMP industry and therefore, to complement already established knowledge about the structure and general trends of this industry. Such a knowledge foundation will provide a holistic and comprehensive picture about the FMP industry, before proceeding to concrete recommendations and solutions, whose implementation would improve the performance and competitiveness of firms within this industry.

Before we proceed to a description of the determinants of performance and competitiveness, we present FMP Industry at a glance in the table below. This table provides a profile of the industry, depicting its extent, size, significance, vitality, international operations and key performance indicators. In addition, the table enables a comparison between the FMP and other tradable industries, and also provides information about the relative contribution of the FMP to the overall development of Serbia's tradable sectors.

Table 6.2 Fabricated Metal Sector in Serbia at a Glance

Quick facts	FMPI	All tradable sectors
Number of companies	1,903	22,305
Number of entrepreneurs	5,659	45.893
Submitting financial statements	354	3,336
Not submitting financial statements	5,305	42,557
Number of formally employed	34,963	431,587
Gross Value Added 2013 (mill EUR)	372.9	6,706.7
Revenue 2013 (mill EUR)	1,488	31,771
Growth after crisis (2009-2013) (%)	4.9	3.3
Success rate of companies (%)*	28.87	26.03
Average labor productivity 2013	882.2	1,027.1
Median profitability 2013	0.05	0.04
HHI index (level of concentration)[3]	153	
Number of exporters	711	5,533
Export value (mill EUR)	471.7	10,192.4
Annual export growth rate (2009-2013) (%)	8.86	17.58
Number of penetrated foreign markets	84	106
Top export destinations	Russia, Germany, Bosnia and Herzegovina, Italy and USA	

[3] Different levels - explanations

Overall Performance

Overall performance of the FMP industry was positive and slightly above average for Serbia's economy. It can be concluded that this industry was performing relatively well, better than the majority of other industries in Serbia's economy. Still, in order for this industry to provide a more stable and predictive framework for firms' operations, it is desirable to additionally enhancement performance. Current performance is determined by the success rate, growth dynamics, profitability and productivity.

The potential of the industry is reflected in the presence of a healthy and large base of small and medium-sized enterprises that exhibited the capacity to push the development of the entire industry forward. The FMP industry is an SME friendly industry, dominated and led by small and medium enterprises. Even though Serbia, as most of the developing countries, suffers from "The Missing Middle" phenomena, the FMP industry succeeded in achieving strong overall performance that was characterized by a highly deconcentrated industry structure and dominance of SMEs. Its SME sector proved to be relatively more successful and productive, more resilient, more investment oriented, and had a greater access to finance than SMEs of tradable sector on average.

CEVES' success analysis uncovered that the FMP industry consist of relatively more successful firms, compared to the whole tradable sector. 29% of firms can be considered successful, as those firms managed to increase their revenues, generate employment and operate profitably from 2009 onwards. For the tradable sector as a whole, only 26% of firms were successful. Medium sized companies were most resilient, as accounting for 59.4% of successful companies (while 49.2% of medium sized firms were successful in the tradable sector as a whole).

The growth of FMP industry was modest, but still more dynamic than the growth of other tradable industries. The FMP industry managed to increase its revenues by 4.9% annually in post-crisis period, while the growth of the remaining tradable sector achieved only 3.3% annually. However, the average firm within FMP sector did not manage to recover and, at least maintain the level of its real revenues from 2009. In the post-crisis period, revenues of an average firm from this industry were decreasing by 2.3%. Still, this fall in revenues was less painful compared to the deterioration of an average firm in the economy, whose revenues were decreasing by 3.5% annually.

In terms of efficiency and effectiveness, the performance of the FMP industry was indistinguishable from other tradable industries. Profitability of the FMP, measured by EBITDA margin, exceeded the

profitability of remaining tradable industries, while productivity remained slightly lower. We should bear in mind that productivity of an industry is to a great extent determined by value added of the largest companies within an industry. These companies usually achieve the highest levels of productivity, since they benefit from a certain market power and economies of scale, scope and learning. However, the unique aspect of the FMP industry is that it is gradually nuanced, in terms of size, without huge companies that obtained monopoly or oligopoly power. Large companies from this industry are not comparable to the largest companies in Serbia's economy, in terms of the number of employees and revenues. Hence, the difference in productivity of the SMEs and large enterprises is not great.

Export Performance

The Industry of Fabricated Metal Products exhibited solid export performance with the ability to even advance its position on foreign markets. This industry exhibited permanent and stable growth of exports, based primarily on enhanced competitiveness, which enabled the improvement of its market share on foreign markets in the post-crisis period. This acquisition of a stronger market position was followed by a diversification in exports, in terms of geographical distribution. In addition, the growth of export was quicker than the growth of import demand, which resulted in a net surplus in trade, uncommon for Serbia's economy. **This industry can foster its development and augment international activities by building on its enhanced competitiveness, increasing strength on foreign markets and further diversifying exports.**

Export value of the FMP industry continually increased in the last five years, with an average annual growth rate of 9%, reaching EUR 471.7 million in 2013. The FMP industry represented 4.6% of total Serbian exports in 2013, but its share in the last five years was even higher. However, the extremely strong export growth of the Motor Vehicles industry reduced the contribution of this industry to the total value of export despite of its dynamic growth. Still, if we exclude Motor Vehicles from observation, it can be noted that the contribution of the FMP industry to Serbia's total exports is growing.

Products of the FMP industry became more competitive on foreign markets, which strongly and positively affected export performance and growth. One third of the total export growth was due to that improvement, which is a direct indicator of increasing export competitiveness of the industry. Export performance of the industry, apart from demonstrating competitive and comparative advantages, proved to be more dynamic than the tradable sector on average. The export position of most of the products has

been improved in most of the foreign markets.

Export was relatively diversified, without any dominant market destination for the industry's exporters. It is encouraging that most of the exports were oriented to both large and fast-growing markets. The FMP exporters penetrated as much as 84 foreign markets in the post-crisis period. The single most important market for Serbia's export is Russia, with a share of 10% in Serbia's total export. Such a low share of the most important market strongly confirms the exceptional geographical diversity of FMP export.

In contrast to the total trade balance of Serbia, the Industry of Fabricated Metal Products led by the Manufacture of Other Fabricated Metal Products and the Manufacture of Tanks, Reservoirs and Containers, exhibited trade surpluses through the whole post-crisis period. Other subsectors, apart from Manufacture of Cutlery and Tools, have also managed to reach at least an equal value of export and import in 2013, which is highly encouraging..

Potential for performance and competitiveness improvement

As presented in the previous section, the **FMP industry exhibited decent performance and a solid export competitiveness, which can be further improved.** This industry is located in the first, most desirable quadrant, indicating the possession of adequate resources and capacities to successfully compete with rivals, to improve its export position on foreign markets and at the same time be reasonably profitable, productive, dynamic and successful. However, the industry's position on the figure is in the lower left corner, indicating there is still room for improvement. The ultimate goal should be to move this industry to the upper right corner of the first quadrant, by enhancing both overall and export performance.

Improved export performance, based on enhanced competitiveness, represents the major lever of the FMP industry's development and growth. In order to increase the export performance of the industry, apart from **fostering exports of existing exporters,** it is also necessary to **broaden the base of exporters,** by enabling more companies to sell on the international market. Exporters are significantly more successful compared to non-exporters. On the one hand, this is due to the fact that a certain level of productivity and growth is required in order to become an exporter. On the other hand, after becoming one, export orientation of a company enables it to enhance its success. Directing sales to foreign markets has multiple positive effects on a company's success. For example, it opens up market space compared to the relatively saturated domestic market. Companies are given an opportunity to grow and expand their business, employ more people, and are

encouraged to innovate. Moreover, higher competition on foreign markets forces companies to enhance their productivity.

The main opportunities for export performance enhancement of the FMP industry are reallocation of resources towards more competitive subsectors; exploitation of attractive, available and insufficiently penetrated foreign markets; and further strengthening of the SME sector. The following section aims to uncover the characteristics of these opportunities in greater detail. The realization of these opportunities will enable an improvement of the industry's position towards the top right corner of the performance-competitiveness matrix. However, before proceeding to discussion about these characteristics, we will briefly describe and present the superior performance of exporters and point out the structural potential of the FMP industry, reflected in a large base of healthy and internationally oriented SMEs, which is atypical in terms of industries in Serbia's economy.

Exporters – industry's most resilient and successful part

Exporting firms were the main engine of growth and development of the FMP industry. This industry exhibited above average performance primarily due to the relatively large base of the exporters that prove to be its most resilient and most successful part. One third of the companies within the industry were exporters in 2013. Moreover, the majority of small and medium companies were able to become exporters; 83% of medium-sized and 68% of small companies succeeded in entering the foreign market. On the other hand, only 20% of micro firms managed to offer their products and services on foreign markets.

Exporters proved to be systematically more successful, productive and dynamic than exclusively domestically oriented companies. Half of the exporters are successful companies, while only every fifth non-exporter can be considered a successful firm. Exporters from the FMP industry have been growing by 11% annually after the strike of the crisis, measured by average increment of real revenues. On the other hand, companies that were exclusively oriented towards the domestic market have experienced a significant fall in their operations and activities, due to a 12% annual decrease in revenues. A similar trend can be observed with changes in employment. Exporters managed to slightly increase the average number of employees, while employment of non-exporters has collapsed after the strike of the crisis, falling by 22% annually. Furthermore, the average labor productivity was twice that of non-exporters. This higher productivity enabled the absorption of addition costs of entering the foreign markets and exploiting the opportunities gained by an international presence.

The superior performance of exporters enabled them a dominant contribution to the industry's employment, revenues and value created, even though exporters did not represent the majority of the total number of enterprises. They employed 72% of individuals working within the industry, created 78% of turnover and 80% of value added.

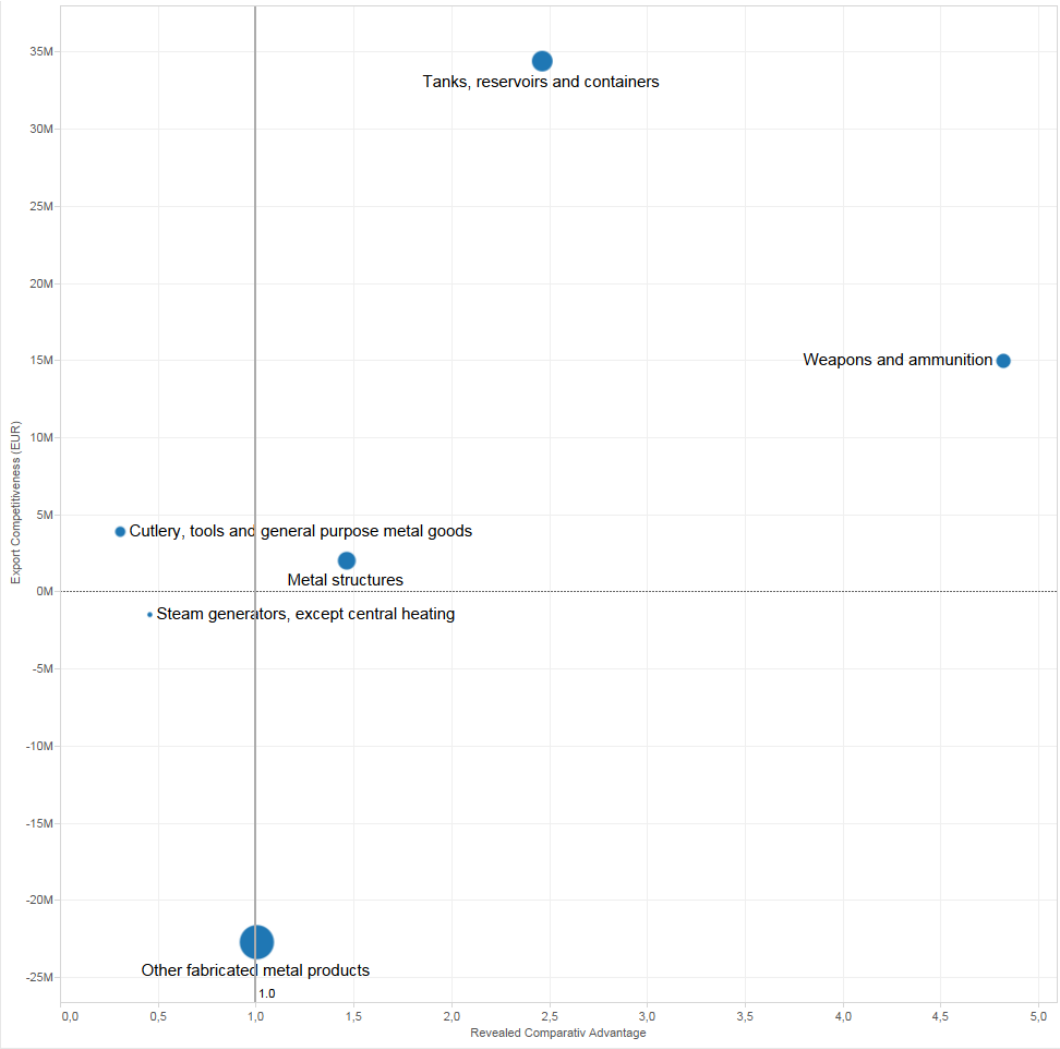
To summarize, the FMP industry is one of the best performing industries in Serbia's economy, but room for additional improvement exists, primarily through support directed towards a healthy SME sector and more importantly, its exporters. In next section, we will discuss three concrete actions and activities whose implementation would enable further development and internationalization of this promising industry.

Resource reallocation towards more competitive subsectors

A subsector structure analysis reveals the existence of a hidden potential for export performance improvement through reallocation of available resources and shifting investments from low competitive subsectors, which position on foreign markets is worsening, towards more competitive sectors, which position is strengthening and improving. The most massive sector, in terms of export value, was the least competitive and its export position was deteriorating. On the other hand the vast majority of other subsectors within the FMP industry were strengthening their export position through competitiveness enhancement.

Figure 6.7 clearly indicates a contrast between each subsector's export performances and therefore gives a better insight into the hidden potential and the need for effective and efficient reallocation of resources. The two most important characteristics of export performance are intersected in the figure: the strength of a subsector's current export position, measured by revealed comparative advantage, and the ability of a subsector to improve its position on existing and new foreign markets, measured by the competitiveness effect. By observing this figure, the strength and significance of a subsector's current position can be concluded and to what extent that position has improved or worsened. Each bubble represents a subsector and the size is determined by the value of its exports.

Figure 6.7 Revealed comparative advantage vs export competitiveness of industry products



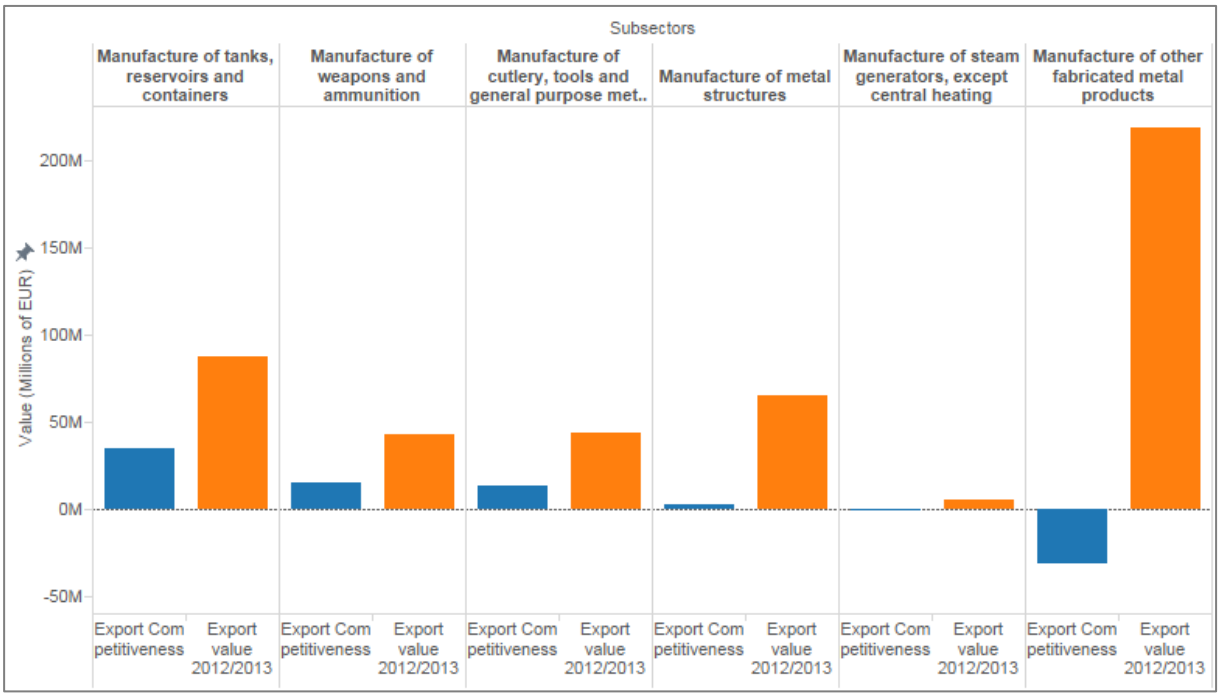
Source: UN Comtrade database, based on CEVES calculations

The majority of the subsectors demonstrated export competitiveness and improved their positions on foreign markets in the last five years. The best performing subsectors are located in the first quadrant and they are considered to be the industry's export stars. They already hold a strong export position, which has

been continuously improving in the post-crisis period. The Manufacture of Tanks, Reservoirs and Containers, - the second largest sub-sector - has improved its export position, surpassing other sub-sectors. On the other hand, subsectors located in second quadrant exhibit an export potential that has not been realized. However, since their competitiveness is positive, it is expected that their position on foreign markets will progressively improve and that, with adequate support, these sectors will move to the first quadrant.

Even though the industry as a whole improved its export position, there are some subsectors that were not able to follow this trend. The greatest loss in competitiveness was experienced by the Manufacture of Other Fabricated Metal Products. Even though that subsector represents the largest portion of the industry's exports (47.4%), its competitiveness on the foreign markets was the lowest (Figure 6.8). Its export position worsened because it was unable to grow at the same rate as its competitors. Moreover, this subsector exhibited lower export growth than the growth of import demand of foreign markets. Since that subsector accounts for a high share of the industry's total value of exports, its underperformance has significantly influenced the overall industry competitiveness. However, the positive performance of other subsectors was high enough to outweigh this subsector's poor performance.

Figure 6.8 Export performance of subsectors[4]



Source: CEVES calculations based on UN Comtrade data base

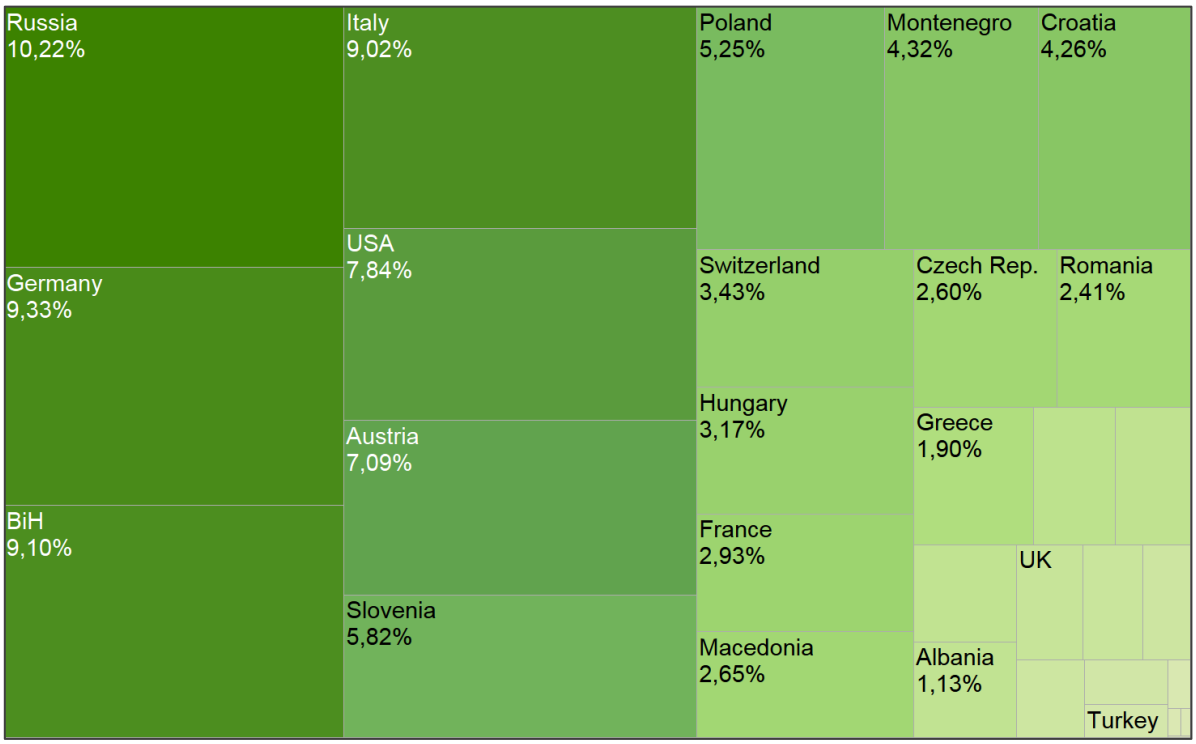
[4] Negative value of export competitiveness indicates the worsening of market share of foreign destinations.

Entering New Foreign Markets

The export of the FMP industry is diversified, directed to 84 foreign markets, without any dominant market destination. **However, there is considerable room for exploitation of attractive and currently insufficiently penetrated foreign markets, including countries from the EU 27 such as the Czech Republic or the Netherlands, but also China and Turkey.**

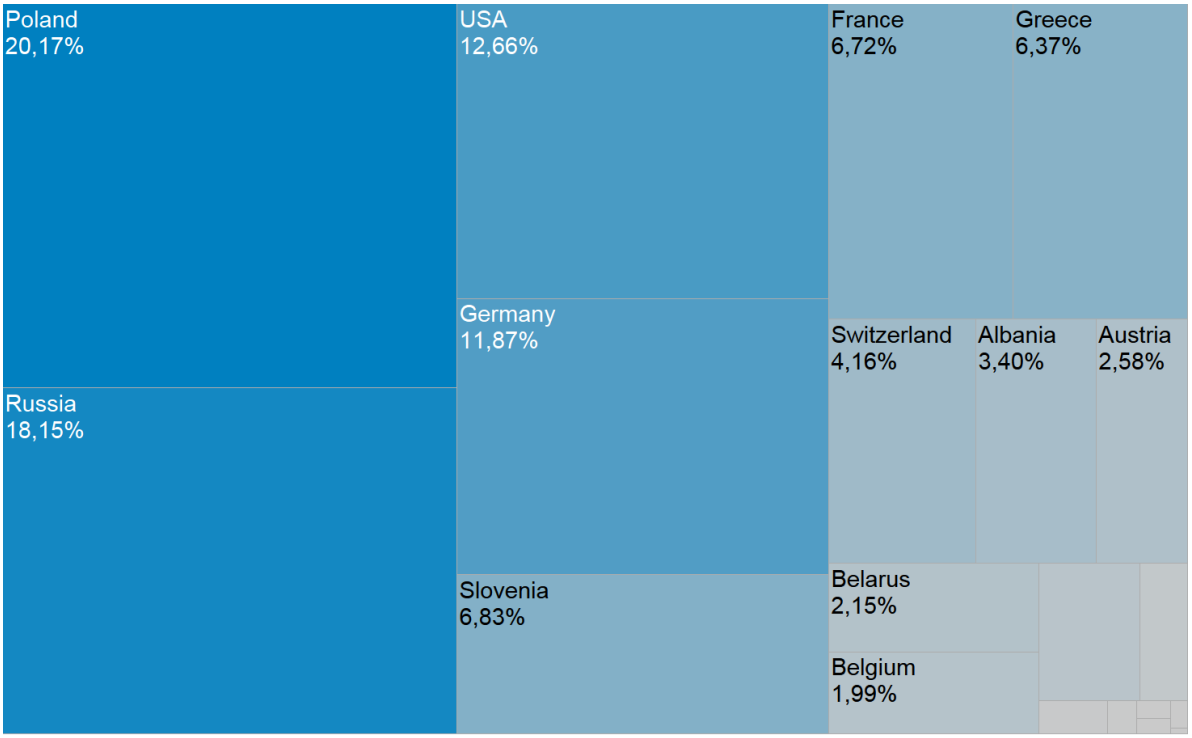
Analysis of the industry's export destinations identified the EU and Russia as leading foreign markets. Figure 6.9 shows export destinations in 2013. The share of total exports of the top 10 destinations last year was 72%. However, there is no particular geographical concentration of exports in terms of continents penetrated. As it can be noted from the figure, the top five destinations represent two countries from the EU (Germany and Italy), two outside of the EU (Russia and USA) and one from the region (Bosnia and Herzegovina). Although the Russian market represents a top market destination, most of the industry experts noted that cooperation with Russian companies is hampered by high transportation costs and administrative barriers.

Figure 6.9 The share of exports destinations in total industry export (2012/2013)



The FMP industry has systematically improved its market position on a majority of geographical markets by growing faster than its competitors and increasing its market share. The greatest improvement in export competitiveness this industry realized was in the Polish market (Figure 6.10). This destination is followed by the Russian market and further by the US and the German as well. These top 4 destinations represent 63% of all positive export competitiveness. The most significant loss in export competitiveness *occurred* in the Italian market.

Figure 6.10 Share of export destination in industry export competitiveness



Source: CEVES calculations based on UN Comtrade data base

Serbia exported fabricated metal products mostly to markets with a high growth in import demand, but there is still room for additional improvement by better market targeting. Apart from the identification of dominant export destinations for Serbia, it is important to determine world demand trends as well. CEVES' analysis uncovered that Serbia directed its exports to the markets with

increasing import demand. Germany, Russia, USA and Poland are markets with the highest export competitiveness. On the other hand, markets like China, Turkey, the Czech Republic and the Netherlands had a high growth of import demand, but these foreign markets have yet to be fully exploited. Despite the high demand, Serbia was either losing its competitive position, or hardly maintaining it in these destinations.

SME sector strengthening

In order to increase exports of existing exporters and broaden the base of exporters, it is of particular importance to support the systematic growth of the SME sector in terms of revenues and number of employees. Growth of this sector will enable sustainable, consistent and continuous operation of these firms on global markets, while also filling the existing gap in the FMP industry structure caused by the lack of real large companies.

SMEs face a number of obstacles when entering or retaining their position on foreign markets. They often suffer from a discontinuity in product placement, and are therefore unable to invest and grow regularly. They lack the financial resources for developing innovative technologies, improving production processes, marketing and brand recognition. Furthermore, they suffer from less strategic planning, a lack of capable managers and an inadequate governance structure. These represent obstacles that make the process of internationalization more difficult and unsustainable. **Much of these difficulties are associated with the size of the firm (Altomonte, Aquilante and Ottaviano, 2012).** This is to be expected, because there are economies of scale in international operations, which are rarely achieved by small companies. Entry barriers have been increasing with the strengthening of competition in global markets. In order to operate competitively in the global market, firms need innovative ideas, modern technologies, brand recognition, complex organizational and governance structures, and capable managers. These are more difficult to achieve for small firms. Still, there are many obstacles that are not always correlated to size and are equally important.

Measures of support for small firms should clearly and explicitly target their productivity and growth (Bruegel, P.49)**.** Growth does not occur unless smallness is complemented with other support mechanisms. The key question for SME policy should not be how to help small firms survive, but rather how to make small firms adopt the right attitudes towards innovation, finance, human resources, management and ownership, promoting not only their survival but also their growth (Altomonte, Aquilante and Ottaviano, 2012). Firms' attitudes are not incontrovertible but can be positively influenced by effectively tailored policies.

Key factors for determining a company's export performance

The FMP industry is a resilient, geographically diversified, lowly concentrated and SME friendly industry. This industry is one of the best performing in Serbia's economy – its overall performance was slightly above average and it exhibited strong export performance. Still, this industry possesses a room for additional improvement. The greatest potential of this industry lies in its relatively large basis of exporters, particularly SMEs, which proved to be very dynamic, productive and profitable. In order to increase the export performance of the industry, apart from fostering exports of existing exporters, it is also necessary to broaden the base of exporters, by enabling more companies to sell on the international market. Policies directed towards the growth and strengthening of SMEs in this sector, as well as resource reallocation and new market penetration, would enable a better and more stable export performance.

The question that arises is which concrete factors of company's competitiveness should be addressed with adequate support and policy design. **We have identified five critical factors of success: product quality, product price, delivery time, innovation capacity and access to buyers.** Identifying challenges regarding these factors will focus the spotlight on which particular areas are most important for Serbian exporters to overcome in order to be more competitive abroad. By identifying where the gaps exist, it can point policymakers and experts at where the constraints in a given industry may be. These factors as well as the measures and activities whose implementation would improve the quality of these factors, will be discussed in the following sections.

Critical Factors of Success

Each factor is determined by a number of barriers that are inherent primarily to SMEs of the industry. In order to reach the critical level of growth and success needed for entering and retaining position on the foreign markets, it is necessary to remove the most significant obstacles.

Product Quality

Producers in the industry manufacture according to two models: made-to-stock (MTS), which emphasizes producing relatively standardized products as efficiently and in the greatest number possible; and made-to-order (MTO), which emphasizes making fewer components but made to the precise and often changing specifications demanded by customers (SAP, P. 5). The former can be broadly associated with a relatively small group of larger companies and the latter is primarily composed of a large number of smaller businesses.

Numerous studies indicate that the most important factor of success is the quality

of the product produced. Product quality most frequently represents a specific and demanded requirement, which cannot be negotiated. Principally, that includes maintaining the consistency in quality and reliability. In the case of MTO products, this more precisely refers to the ability of a manufacturer to produce to the exact (and often frequently changing) specifications demanded by customers (SAP, P.10). In a survey of European metal companies, this was always highlighted as the single most important factor in determining quality (FWC, P.122).

Lack of quality standards and certificates represent one of the major impediments to accessing foreign buyers. Industry experts noted that approximately 70% of companies possess at least one of the required certificates (most frequently ISO9001). However, this barely meets a third of the required standards by foreign buyers. Moreover, without having new contracts (re)signed, companies often do not renew certificates. It should be noted that CEVES's comprehensive survey of 1.000 SME determined that only 30% of firms from the FMP industry possess a quality certificate. The difference between experts' opinion and firms' answers is probably a consequence of a lower visibility and proactivity of micro and domestically - oriented firms, which CEVES's survey has successfully covered.

Poor quality of raw materials and intermediate goods are frequently cited problems that influence the product quality. Being affected by the discontinuity in production, companies are prevented from acquiring good quality inputs of a good price. Therefore, according to opinions of industry experts, they are obliged to purchase raw material of lower quality. Furthermore, there is a lack of domestic intermediate goods producers. Altogether, these issues lower the average level of quality of Serbian products.

Furthermore, the quality of labor, an insufficient number of highly specialized workers, and the lack of middle management that should improve the production process by improving coordination between workers and engineers, lead to problems in organizing the production process. Middle management is frequently not skilled enough to organize and run the process, or completely missing.

Finding adequate skilled labor is a problem common to the fabricated metal products industry, and demographic and educational trends indicate that it will become an even greater obstacle as time passes. Companies in the fabricated metals production sectors primarily employ semi-skilled labor (FMR, P.5). However, businesses are continuously demanding more from their workforce as they try to reduce workforce size in response to cost-cutting pressures arising mainly from competition from countries abundant in competitively priced labor (Noreau, P.3). This has become increasingly difficult,

however, as companies have for quite a long time, been finding it harder and harder to recruit relatively younger talented workers into a sector that is not perceived as attractive by many top graduates. This is also partly reflected in the demographic breakdown of the sector, which is dominated by relatively older workers (NIU CGS, P.6-7).

Product Price

The price of the product is almost equally as important as the quality. The industry is characterized by a large number of potential suppliers, so it is not surprising that customers often cite price as an important factor of success when considering which fabricated metal producer to purchase from (FWC P.120-121). This has driven established producers to attempt to reduce production costs.

Although fabricated metal production involves energy-intensive and labor-intensive manufacturing, the main determinant of cost on the supply side is usually the price of metal, the primary input into production. In a 2006 survey of metalworking companies in the EU, businesses noted that raw material costs accounted for anywhere between 45% and 70% of turnover (FWC, P.110). This is particularly challenging to fabricated metal producers for two reasons. First, the prices of metal inputs can vary considerably from year to year. Global steel prices can change even up to 25% in the course of a single year (FMR, P.3). Second, because there are relatively few suppliers and many smaller buyers of raw metals, purchasers of raw materials are in a difficult bargaining position vis-à-vis their suppliers (FWC, P.9). Energy costs and labor expenditures also account for significant portions of fabricated metal companies' production costs (FMR, P.7).

The price of raw material and intermediate goods is the single most important factor that determines product price. Unfortunately, owing to low bargaining power vis-à-vis suppliers, input price is not easily negotiable. SMEs of the industry are particularly affected by their subordinate position in relation to the suppliers. Companies association into clusters could provide a higher bargaining power.

One of the main challenges that further influence product price is productivity. The majority of SMEs have low productivity based on obsolete technology. Regardless of inexpensive labor that lowers the cost of production; obsolete technology prevents the efficient use of labour input. Moreover, as already mentioned, adequate skilled labor is a problem common to the fabricated metal products industry.

Transportation and logistics are factors which influence product price. Poor railway infrastructure and limited use of the Danube River are constraining factors that make transport more difficult and costly (Singidunum, 2012). In addition,

transportation costs for SMEs are relatively higher due to the small quantity of exported products or uncontentious export activities.

Delivery Time / Distribution

Delivery time is a specific requirement that is also the quality measure -- *on time in full*. That implies providing the entire quantity agreed upon in the contract in a timely manner, without partial delays in delivery. Being able to provide delivery on time in full is a direct indicator of reliability that influences the stability and durability of cooperation with foreign buyers.

This factor of success is particularly important for producers who are part of just-in-time or just-in-sequence manufacturing systems that always seek to minimize inventory stock and produce within very specific and relatively "tight" timeframes (SAP, P.9). This puts increased pressure on geographic location, transportation infrastructure, and relationships with distributors.

Innovative Capacity

In a similar vein to product quality, an important factor of success is the ability of companies to continuously innovate in an industry in which customer and regulatory demands constantly change and in which technological change and competition are part of the landscape. Having adequate financial and human resources are crucially important in this regard.

The lack of SME innovation is a cumulative consequence of discontinuity in production, lack of financing, and a lack of innovation management capacity, which make the vicious circle hard to break. Without continuity in placement, a certain and predictable source of finance is missing. Consequentially, there are no resources necessary for innovation. Lack of innovation further prolong and increases uncertainty and discontinuity in sales. Furthermore, experts denote that SMEs are generally disinterested in science and research, which is related to the absence of innovation management capacity.

Even though FMPI companies had a higher opportunity of using bank loans to finance investments, industry experts underline that the credit considerably impeded business for the majority of companies. The problem is twofold. On the one hand, the interest rates are too high for an industry that is characterized by moderate profit margins, reducing the possibility of a cost-effective use of credit. On the other hand, SME companies seem to have less strategic financial planning that leads to poor estimates and forecasts of financial flows. When it comes to making decisions on additional debt, 60% of SMEs stated that that decision is exclusively in the jurisdiction of the firm owner. Only 27.3% of SME's owners do consult financial advisors regarding this matter.

Marketing / Access to Buyers

The primary sales channels for fabricated metal product manufacturers are direct contacts with distributors and end-customers (FMR, P.9). Direct contact with potential customers is particularly important for MTO producers, as it enables buyers and suppliers to define the precise specifications of potential products. Therefore, tradeshow participation and individual business-to-business meetings are important sales channels. Internet marketing is another potentially important channel (ibid).

SME visibility is one of the major challenges regarding entering foreign markets. Even though most of the companies export or aspire to do so, little has been done in order to increase visibility on foreign markets (on a larger scale). According to the survey, 39% of companies do not invest any share of revenues in advertising, promotion and branding. Out of those who do invest, as much as 95% invest only up to 10% of revenues.

SME association into clusters is a valuable way of increasing visibility of SMEs. However, some experts point out that there is considerable lack of a culture of association. Furthermore, once they join a cluster they do not exploit all the benefits, and the realization of potential synergy becomes more difficult. Given the dominance of SMEs and the importance of having close relationships with clients and potential clients, it only appears logical that smaller companies that have access to potential niche customers would have greater opportunities for sales.

In addition, the FMP industry is characterized by some general impediments that hinder company development and affect the all success factors to some extent. One of the most important generic obstacles refers to the quality of corporate governance. During firm evolution and growth into a bigger entity, discrepancy between owner's capacity and lack of any management structure imposes a significant obstacle to firm development. The owner's management approach usually focuses on short-term objectives, without being able to consider longer-term business development. Unfortunately, some industry experts pointed out that the existence of the black market largely affects the market distortion and loyal competition.

SMEs seem to plan strategically in a less structured and more informal manner than bigger companies. CEVES' survey indicates that the majority of the FMPI SME companies wish to expand their business operations and grow into bigger companies. Furthermore, the majority of the companies do have a development and growth plan, based on certain predictions and financial data. However, only 18.6% of them have it as a formal document. Moreover, the decision-making process regarding

investment planning is mostly reserved to the companies' owner.

Comprehensive overview of industry's strengths, weaknesses, opportunities and threats

In summary, the overall keys to competitive performance are keeping operating costs as low as possible while maintaining high product quality and encouraging continual innovation. It is also important to have a technically skilled workforce in order to make this possible. It is also crucial for companies that rely on MTO manufacturing to maintain very close relationships with their customers so as to stay abreast of often rapidly changing product development trends (SAP, P.10-11).

Building on knowledge provided and established in this research, presented in the table below, a high level strengths-weaknesses-opportunities-threats (SWOT) analysis of the Fabricated Metal Products industry in Serbia. This matrix provides knowledge about the most important strengths on which FMP industry should build its competitiveness and performance, but also presents opportunities which should be seized, in order for FMP industry to enhance and prolong its growth and development. On the other hand, policies and activities should target the weaknesses of this industry, which are obstructing its further development, so that their influence is eliminated or minimized. Knowledge produced by this case study should serve as a starting point for the follow-up project, which would prioritize and concretize recommendations and propose actions whose implementation would improve the business environment of FMP industry in Serbia.

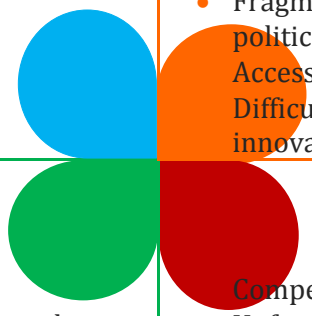
Table 6.3 SWOT analysis of FMP industry in Serbia

Strengths

- Metal products are "interchangeable" between industries and are not dependent on any one sector alone
- Specialization (common among SMEs) allows for higher margins
- Long industrial tradition; good value in terms of skill/cost
- Producers flexible to adjust to buyer requirements
- Demonstrated export competitiveness
- Demonstrated solid domestic performance
- SME friendly industry
- Strong base of healthy MSMEs
- Relatively high share of exporters

Weaknesses

- Prolonged economic slowdown in largest traditional demand markets
- Oscillating raw material prices
- Difficulty in finding adequately-skilled labor
- Skills gap both in engineering and in middle operational management competence
- Industry generally characterized by "thin" margins
- Low worker productivity
- Obsolete machinery (30 years old on average)
- Lack of facilities in Serbia for "final product testing"
- Domestic certification bodies not up to international standards
- Poor transport infrastructure
- Cumbersome business environment
- Poor IP Protection discourages innovation
- Low level of cooperation both within industry and with government
- Low level of product development
- SME Specific
- Low bargaining power vis-à-vis suppliers
- Low bargaining power vis-à-vis buyers
- Specialization implies customer concentration
- Fragmented nature of companies equates to less political clout (the invisible sector)
- Access to finance difficult, hence…
- Difficult to invest in process and technological innovation



Opportunities

- Increased demand in developing markets
- Serbia logical outsourcing choice from EU markets (geographic proximity, previous experience, etc.)
- New metal alloys allow for increasingly sophisticated final products.
- Addition of non-metal substances to final products
- Industry consolidation
- Geographic proximity to EU market, other fast-growing markets
- Potential for collaboration/information sharing
- Resources reallocation, from low competitive towards high competitive subsectors
- SME sector strengthening
- Available fast growing markets, which are not currently penetrated by FMP exporters

Threats

- Competition from developing countries
- Unfavorable demographic & educational trends deprive sector of skilled labor
- Rising energy prices
- Substitution of metal with other materials (e.g. plastic, ceramics)
- Product lifecycles shrinking over time (especially in MTO
- Frequent change of regulations and political influences

Sources: CEVES analysis based on NIU CGS, Noreau, FMR, FWC, Eurostat, Singidunum, SIPPO

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