CBI
Ministry of Foreign Affairs

CBI Product Factsheet: Agricultural Axles and Axle parts in Eastern Europe

'Practical market insights for your product'

Agricultural axles are and will likely continue to be a growing market in Eastern Europe, with the biggest export markets being Poland, Slovakia and the Czech Republic. The greatest opportunities lie in the aftermarket for brake drums, suspension parts, drive shafts, yokes and axle rims. The best way of accessing the market for developing country manufacturers would be through OEM/OES subcontracting or selling through pan-European or national wholesale networks.

Product definition

Axles and their parts are grouped under "Drive Axles with Differential" (HS codes 87085010, 87085020, 87085035, 87085055, 87085090, 87085091 and 87085099). This Product Factsheet analyses the market for axles and their parts as used in the agricultural machinery for the Eastern European market, which includes Poland, the Czech Republic, Hungary, Romania, Bulgaria, Slovakia and Slovenia.

Product specifications

Quality: Compliance with international standards and the European standards on safety is required, as well as conformity to existing EU and national legislation and practices. The ISO/TS 16949 standard is considered to be the highest level of quality. This standard is important for the European automotive industry as it outlines the best practices when designing, developing, manufacturing, installing or servicing automotive products.

The quality, reliability and durability of axles used in agricultural machinery in Europe is very high because the machines are used for extended periods of time daily and do not always have extensive maintenance schedules. This means that the parts supplied to the market have to be carefully produced and inspected as defective parts may be returned.

Materials: Traditional agricultural axles are made of forged steel or for extremely heavy applications of tempered seamless steel or modular cast iron. Axles are typically comprised of the following parts and component materials:

Considerations for action

- For more information on requirements for exporting casting and forgings to the EU, please refer to the CBI Buyer Requirements database for more information on Labels

- Nuts, washers and lockwashers, bearing cups, cones and rollers, oil seals and slingers, spindles, filler plugs, knuckles and arms, shims and shim packs, pivot pins, capscrews, joint yokes, axle shafts and shaft guides, axle housing and housing cover, ring gears and pinions, differential gears, bolts, lock straps, steering tie rods, gaskets.

and Standards: Sustainability in Casting and Forging

***Packaging & Labelling**:* Axles are typically packaged in cardboard and/or wooden boxes to protect them from being damaged. They are labelled with a description of the technical parameters, such as model type, basic load capacity (in kilograms or pounds), gearing size or series, manufacturing location, housing wall and brake type.

In general, packaging is dependent on the buyer, either OEM or end-user consumer (aftermarket). For aftermarket applications, the packaging is typically one-way packaging, in which the packaging is discarded after a single use. Returnable packaging is the most often used by OEM suppliers, in order to reduce cost and improve efficiency of the packaging operations. Returnable packaging is not thrown away after use. The empty packaging is circulated by the OEM or a designated packaging operator. If you want to export to the EU, you must ensure that the packaging you use for your products meets all EU requirements. To reduce the harmful impact of packaging on the environment, the EU has specified legislation concerning the management of packaging and packaging waste.

Considerations for action

- For more information on requirements for packaging and packaging waste, please refer to the European Commission.

***Design**:* The design of axles depends on the make and the model of the machine they need to fit and will also depend on their expected load rating and necessary dimensions. The manufacturers should anticipate that there is an increasing trend towards greater speed capability in agricultural machinery (up to 65 km/hour), which may affect the axle construction. In Europe, most tractors and other relevant agricultural machinery have a front and a rear axle, although there are also single and multiple-axle tractors/trailers. The most typical axle configurations include 4x4, 4x2, 6x4 and 6x6 (the first number indicating the quantity of axle ends and the second indicating how many of them are driven by the engine). Axles are rated according to the weight they can carry; front axles will typically range from 4.5 to 10.5 tonnes while rear axles may range from 9.5 to 21 tonnes and can be differentiated by the engine power (HP/torque) usage: light class – 20-75 kW, middle class 75-150 kW, and heavy class >150 kW.

Figure 1: Agricultural axles and axle parts

Source: Fotolia/Internet

Buyer Requirements

Legislative Requirements: The most important requirement for automotive components is that they comply with the technical standards set by EU legislation in order to guarantee vehicle and environmental safety.

Type-approval is a certification for various types of motor vehicles and their components which includes agricultural and forestry tractors. The type-approval or certification is valid in all EU Member States and is required when selling any products in the EU. Many automotive components are not approved until the final assembly, in which case certification of individual components is not necessary, although these components will still have to comply with type-approval requirements.

The End of Life Vehicles (ELV) Directive aims to avoid environmental pollution during the scrapping process through reducing the hazardous materials used in vehicle production. Vehicles must be designed to facilitate proper dismantling and recycling (by coding the components), and the use of heavy metals such as lead, mercury, cadmium, hexavalent chromium is prohibited (with the exception of a few applications).

Considerations for action

- Check with your buyer, or with the approval authority of the country you want to export to, what the specific standards are for the parts you are manufacturing.
- Read more about type approval at the EU Export Helpdesk.

- Check if your buyer uses the International Material Data System (IMDS). This is a collective, computer-based data system developed by automotive OEMs to manage environmentally relevant aspects of the different parts used in vehicles. It has been adopted as the global standard for reporting on material content in the automotive industry.

Common buyer requirements: In addition to legislative approval, there are other common buyer requirements. While these are not obligatory in the legal sense, they are implemented by various competitors in the market and are thus necessary in order to compete effectively.

Quality Management: In order to apply for type-approval, production processes need to meet quality management criteria. ISO TS/16949 and ISO 9001 are accepted as a standard requirement and EU buyers and manufacturers often insist on them.

Corporate social responsibility (CSR), and the extent to which buyers expect a certain level of social and environmental performance is becoming increasingly important. Bigger EU companies have developed their own CSR policies and require their suppliers (and their sub-suppliers) to conform to these. Signing a supplier code of conduct is often a prerequisite. These codes of conducts generally cover compliance with local laws, protection regarding workers' health and safety, respecting basic labour rights and also business ethics. The implementation of an environmental management system is often a requirement for core suppliers.

Considerations for action

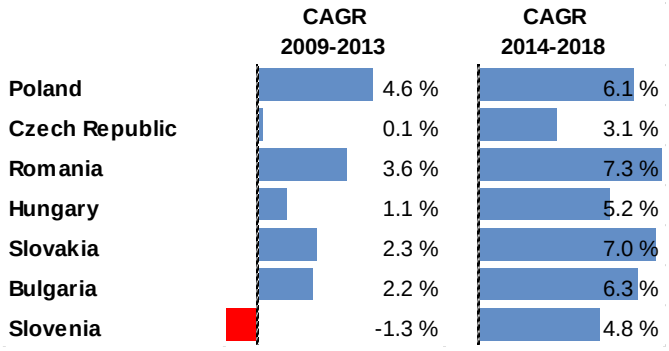
- Implement ISO 9001 and ISO TS/16949, because it is a standard requirement of EU buyers. Click here for more information on ISO TS/16949 at the ISO website

- Most big car brands publish their CSR policies and supplier code of conduct on their websites. An internet search for these may give valuable insight into assessing your company's performance by comparison.
- Implement an environmental management system, such as ISO 14001, as it is a common requirement.

Macro-economic statistics

In 2013, Eastern Europe saw an average growth of 5.5% after the previous year's 6.8% contraction. Forecasts for 2014 and 2015 growth are estimated at 4.1% and 5.7%, respectively. Poland, one of Eastern Europe's largest markets, as well as Romania and Slovakia are all forecasted to have strong average growth of more than 6% through 2018.

Figure 2: GDP (current prices) Compound Annual Growth Rate (CAGR) for 2009-2013 and estimate for 2014-2018 for selected Eastern European Countries



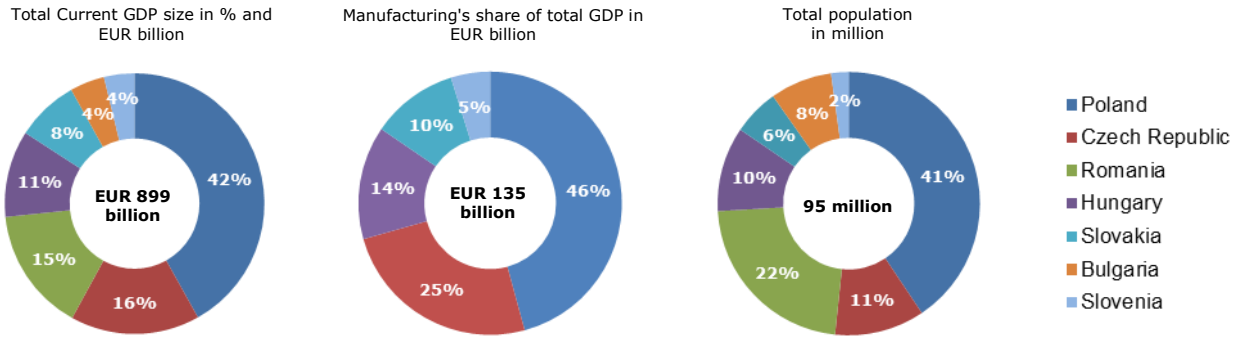
Data source: IMF 2014, World Economic Outlook Database

The value of GDP for the seven Eastern European countries covered by this document was estimated at €899 (or roughly one tenth of the GDP value for the EU5 countries, i.e. Germany, France, the UK, Italy and Spain) in 2013. Poland is the largest market in Eastern Europe, with a GDP of approximately €377 billion and value of manufacturing at €62 billion, accounting respectively for more than 40% share of total GDP and manufacturing values for the seven Eastern European countries in question. The Czech Republic is the second largest Eastern European economy with a strong manufacturing base, followed by Romania and Hungary. Bulgaria and Slovenia are

relatively small economies, together accounting for less than 10% of the total Eastern European GDP.

In 2013, the EU agricultural machinery market was estimated to be worth €24.8 billion – equivalent to 30% of the global sales. The EU is also the biggest manufacturer of agricultural machinery, with sales of more than €26 billion in 2011.

Figure 3: Key 2013 macroeconomic indicators for Eastern Europe, in € billions (population in millions)



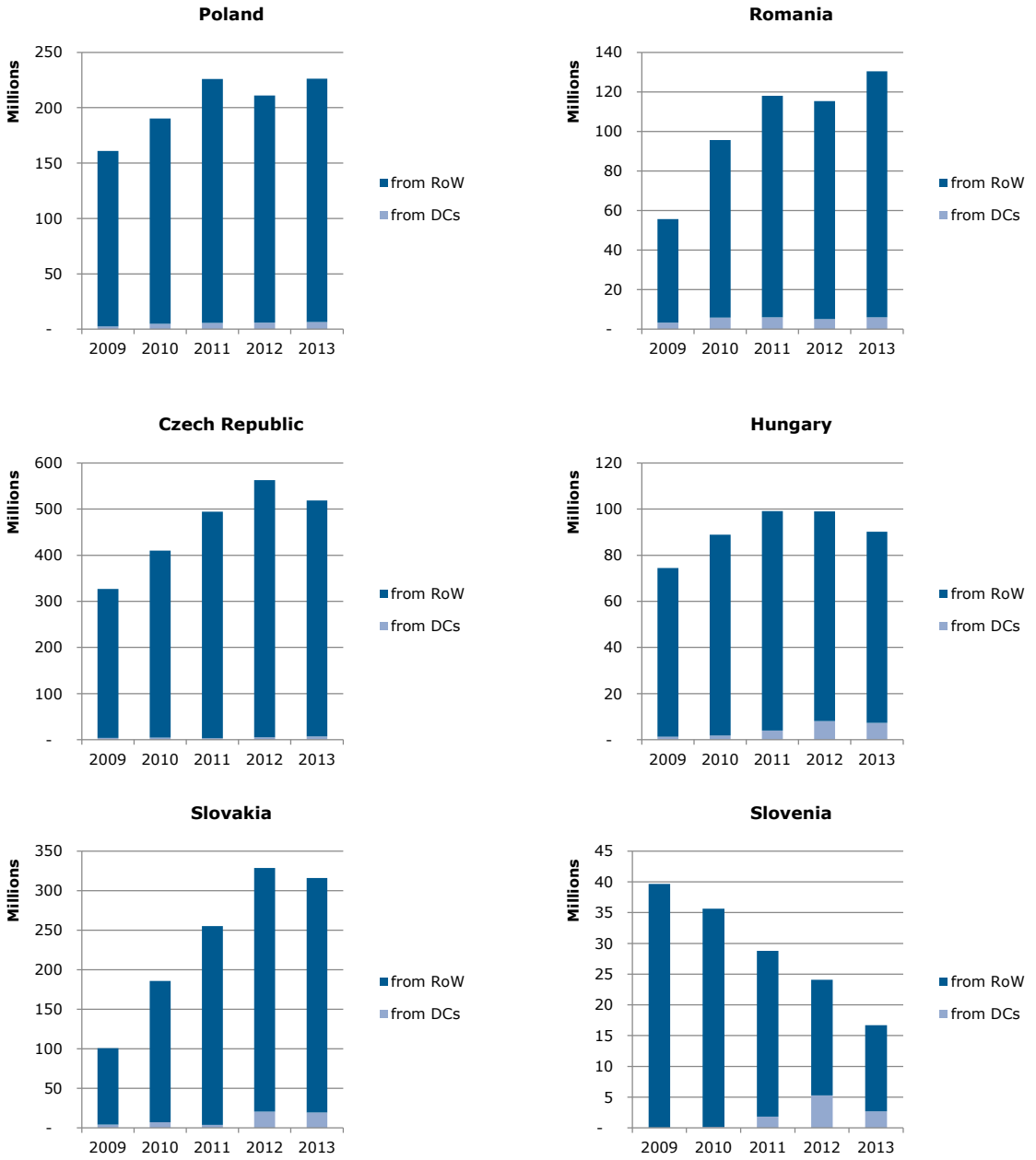
**No data available for Bulgaria and Romania*
Data source: IMF and OECD 2014

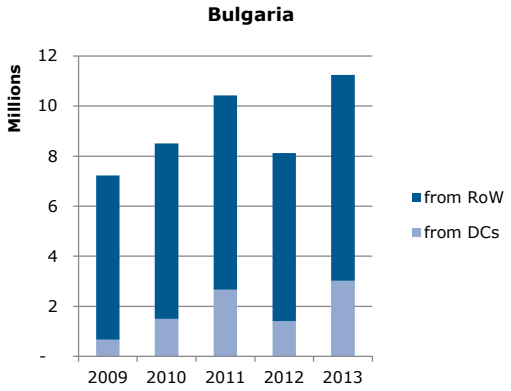
Trade Statistics

Imports and exports:
Eastern Europe is a net importer of axles and axle parts with imports in 2013 at approximately €1.31 million (an increase from €700 million in 2009). Combined, Poland, Slovakia and the Czech Republic represent over 80% of the total imports of axles and axle parts into Eastern Europe. The imported axles and axle parts are mainly shipped from Eastern and Western Europe as well as other developed countries such as Korea.

The value of axle imports from the Developing Countries (DCs) to Eastern Europe was estimated at €53 million (4% of total axle imports) in 2013 and has grown at a 35% CAGR between 2009 and 2013. Slovakia imports by far the most from the DC in terms of value (€19.4 million), followed by the Czech Republic (€7.5 million) and Hungary (€7.3 million). The biggest DC exporters of axles to Eastern Europe are China, India and Turkey, together accounting for roughly €46 million or close to 87% of all axle imports from DCs. Axle imports from China have more than quadrupled while those from India grew more than five-fold between 2009 and 2013. It is expected that axle imports from the DCs to Eastern Europe will continue to grow at a very strong rate, considering that for the past three years they have been increasing by more than three times the rate of total imports.

Figure 4: Imports of axles and axle parts by country, in € million (the range of the y-axes varies by country due to different import levels)



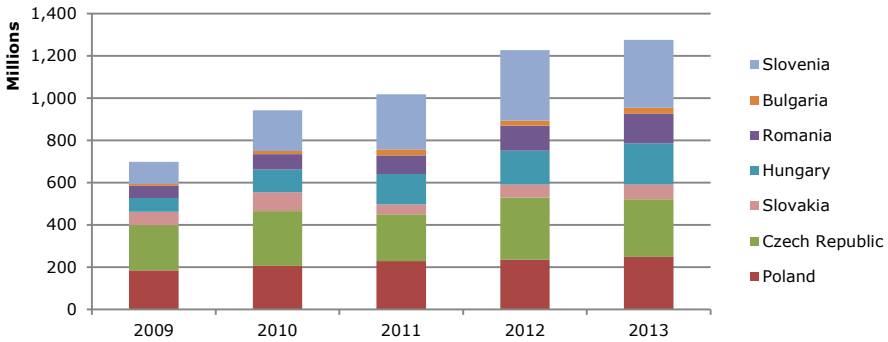


RoW: Rest of the world
Data source: Eurostat 2014

In 2013, Eastern Europe exported approximately €1.27 billion worth of axles and axle parts. The Czech Republic is the largest exporter with €273 million, followed by Poland with €248 million and Hungary with €195 million. Together these countries account for 65% of Eastern Europe's axle exports. The axles are mainly exported within the EU countries, with close to 70% of exports sold there as well as to other developed countries such as the United States and Russia.

Eastern Europe exports approximately €107 million worth of axles and axle parts to the Developing Countries. The biggest DC importers of axles from Eastern Europe include Brazil (€23 million), India (€20 million) and Turkey (€15 million).

Figure 5: Exports of axles and axle parts, in € million



Data source: Eurostat 2014

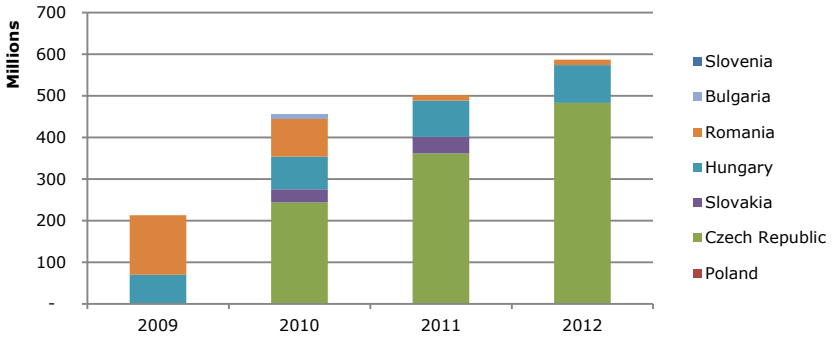
Production and consumption:

The production and consumption data is partly incomplete for Eastern Europe. There are no numbers for axle production in Poland and Slovenia and only partial numbers for Bulgaria, Slovakia and the Czech Republic.

Based on the available data, the Czech Republic is the biggest producer of axles and their parts with apparent production of €483 million in 2012. The reported production value for the Czech Republic has nearly doubled from 2010 when it was at a level of €244 million. Hungary follows with reported 2012 production at €91 million, up 30% from €70 million in 2009. Total reported production has grown from €213 million in 2009 to €586 in 2012. Production levels for axles will likely continue to grow in

Eastern Europe in the future as many automotive OEMs are shifting production to these countries.

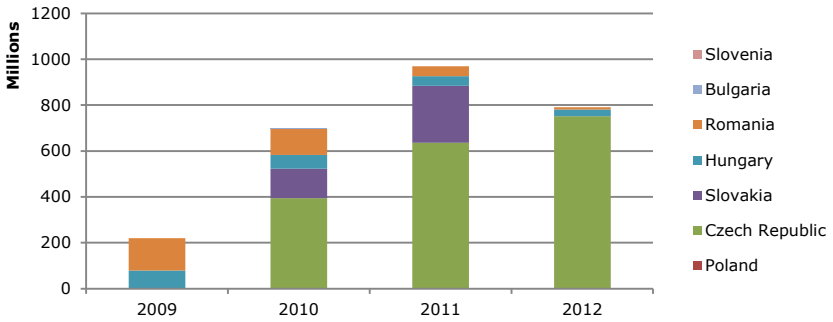
Figure 6: Apparent production of axles and their parts in the EE countries, in € million



Data source: Eurostat (Prodcom) 2014

The unavailability of production data for Poland, Slovakia and Bulgaria has made it impossible to calculate the apparent consumption for these countries. The apparent level of consumption of axles and their parts in Eastern European increased between 2009 and 2012. The Czech Republic is the biggest reported consumer of axles with apparent consumption in 2012 at the €752 million level, followed by Hungary with 2011 consumption at €248 million level.

Figure 7: Apparent consumption* of axles and their parts in the EE countries, in € million



*Apparent Consumption = Production + Imports – Exports
Data source: Eurostat (Prodcom) 2014

For more information on automotive trade statistics, please refer to CBI Market Trade Statistics

Market trends and opportunities

The greatest opportunities for DC exporters lie in subcontracting the production of axle parts for sale in the aftermarket, such as brake drums, suspension parts, drive shafts, yokes for drive shafts and rims for axles. The aftermarket in Eastern Europe is especially well-developed due to the large share of aged agricultural machinery and the tendency to utilize old machinery for a longer period. Exporters targeting the aftermarket sector may find it advantageous to enter the sector through the independent distributor channel, as distributors tend to carry a larger variety of parts in their inventory rather than focusing on a few selected suppliers.

There have been significant investments in the development of agricultural equipment in the Eastern European market over the last few years due to the EU funds that have been made available to farmers, and this trend is expected to continue in the short

and medium-term, positively impacting the sales of axles and axle parts. The easiest way to market these components would be to arrange meetings with local agricultural parts wholesalers or the OEMs and/or component/systems suppliers and approach them with a subcontracting offer.

Poland, Slovakia and the Czech Republic present the biggest opportunities for DC exporters due to their size, strong economy, lack of market saturation, and the inflow of EU subsidies. They are well-established automotive hubs, which import axles and axle parts for their own market as well as for manufacture and exports. Together these countries represent an import market worth €1.05 billion, which has grown on average by 16% annually since 2009. Slovakia, especially, tends to import a larger share of axles from DC exporters. With an import value of €130 million and significant EU funds earmarked for investment in agricultural machinery, Romania is also a potentially profitable market.

Price

Apart from the distribution of new parts, the aftermarket for agricultural parts also encompasses a lively distribution of used or overhauled parts and components. Pricing depends on the supply chain positioning. The aftermarket, in particular, is very discount-driven and has varied mark-ups at each distribution step, and for different parts and components. Due to large variation in types and models of parts, it is difficult to provide a general overview of agricultural axle prices, but it is possible to provide some insight into margins imposed by different players in the supply chain. Based on the margin ranges, DC suppliers selling to the tier 3 supplier in the OEM supply chain could price their products at between 64% and 81% of the OEM delivery price. In order to better ascertain prices of specific products and models, you can search the internet to determine the appropriate range, or talk directly to wholesalers and/or retailers. The differences in price of branded spare parts will not be great among the various countries. Those players who are present in several European countries have largely harmonised their prices; any differences in pricing may occur because of different logistics and local costs.

OEM supply chain	Margin
Tier 1 supplier delivering to OEM	6-8%
Tier 2 supplier delivering to tier 1	6-15%
Tier 3 supplier delivering to tier 2	10-25%
Aftermarket OES supply chain	**Margin**
Tier 1 delivering to OEM for OES sales through approved service chain	10-30%
Tier 1 delivering to OEM for OES sales through independent outlets	10-25%
OEM delivering OES parts through its approved service chain	25-65%
OEM delivering OES parts through independent outlets	30-40%

Main sources

- European Commission's macroeconomic publications
- IMF – good source for macroeconomic information
- OECD – good source for macroeconomic and industry-specific information
- European Commission's Directives and Regulations pertaining to wheeled agricultural or forestry tractors
- CEMA – Agricultural Machinery in Europe
- Trade fairs are a good place to network, meet buyers and to promote your company. The major agricultural machinery trade fairs in Eastern Europe are: the Polish Agricultural Trade Fair: Polagra-Premiery and the Czech Agricultural Trade Fair: TECHAGRO, Slovakian Agrosalon Nitra

This survey was compiled for CBI by Global Intelligence Alliance