



2016 Top Markets Report **Construction Equipment**

Overview and Key Findings

Introduction

Construction machinery manufacturers and producers of related parts and equipment have provided a historically steady and reliable source of exports for the United States. Over the past five years, however, a number of factors have greatly affected U.S. exports of construction machinery. Long-term effects of the 2008 to 2009 global recession; strong competition from sophisticated manufacturers in Western Europe, Japan and South Korea; proliferation of low-cost products from China; continued low commodity prices; and a number of economic factors in traditionally strong markets have driven U.S. sector exports down more than 25 percent in the past five years to a total of \$32.6 billion in 2015. With many of these factors likely to persist, it is vital for U.S. manufacturers to identify and focus on markets possessing factors that drive demand for construction machinery. This report will provide an overview of the global and U.S. markets for construction machinery (and its related parts and equipment), identify factors that drive export demand for U.S. manufacturers, and discuss what the International Trade Administration considers to be top markets for exports, along with more detailed examinations of selected markets.

Key Findings: Top Markets and Methodology

Findings

This report examines the U.S. construction machinery and related parts and equipment

industries (hereafter referred to collectively as the “CE sector” or “CE”) with the goal of achieving sustainable export growth. To achieve this goal, ITA used a combination of historical trade data and a weighted average analysis of factors that, in ITA’s view, influence export demand for CE sector products. This analysis yielded the list of top markets as identified in Figure 1.

Methodology

ITA’s methodology for identifying top markets for U.S. CE sector exports utilized a combination approach that considered historical export trade data as well as factors, or “drivers,” of global CE sector trade. In ITA’s view, export data provided a quantifiable evaluation of top U.S. CE sector export markets from a historical perspective. For the historical sector export analysis, the CE sector was identified and markets ranked using the following North American Industry Classification System (NAICS) codes:

- *333120 Construction Machinery Manufacturing:* This industry is comprised of establishments primarily engaged in manufacturing construction machinery, surface mining machinery, and logging equipment.
- *333131 Mining Machinery and Equipment Manufacturing:* This U.S. industry is comprised of establishments primarily engaged in (1) manufacturing underground mining machinery and equipment, such as coal breakers, mining cars, core drills, coal cutters and rock drills, and (2) manufacturing mineral beneficiating

Figure 1: Top 25 Markets for Construction Equipment

1. Canada	7. Japan	13. India	19. South Korea	25. South Africa
2. China	8. Qatar	14. Sweden	20. Netherlands	
3. Singapore	9. United Arab Emirates	15. Mexico	21. France	
4. Australia	10. Saudi Arabia	16. Malaysia	22. Belgium	
5. United Kingdom	11. Brazil	17. Russia	23. Indonesia	
6. Germany	12. Chile	18. Norway	24. Thailand	

machinery and equipment used in surface or underground mines.

- **333618 Other Engine Equipment Manufacturing:** This U.S. industry is comprised of establishments primarily engaged in manufacturing internal combustion engines (except automotive gasoline and aircraft).
- **333995 Fluid Power Cylinder and Actuator Manufacturing:** This U.S. industry is comprised of establishments primarily engaged in manufacturing fluid power (i.e., hydraulic and pneumatic) cylinders and actuators.
- **333996 Fluid Power Pump and Motor Manufacturing:** This U.S. industry is comprised of establishments primarily engaged in manufacturing fluid power (i.e., hydraulic and pneumatic) pumps and motors.

Based upon its understanding of the global CE sector market, ITA then examined a number of factors that drive export demand for CE sector products. The following factors were selected based on the ready availability of quantifiable and consistently defined data on a country-specific basis:

- **Infrastructure development:** Global infrastructure development is perhaps the primary driver of CE export growth and sustained demand. Building new infrastructure and maintaining existing infrastructure require large amounts of construction machinery to accomplish.
- **Residential and commercial construction:** Similar to infrastructure development and maintenance, residential and commercial construction activities require large amounts of construction machinery.
- **Economic activity:** Producing, buying, or selling products or services are a driver for the construction of commercial property that is necessary to produce, buy and sell goods and services. Consumers engaging in these activities are, in turn, potential buyers of new homes/residential construction. In addition, economic activity requires adequate infrastructure to move goods and services from producer to seller to buyer.

Numerical values were assigned to trade data and export drivers, and the weighted average values for each were aggregated to arrive at a final numerical score for export markets. In ITA's view, this list of markets represents some of the best opportunities for U.S. CE sector players to sustain and carry CE

sector export growth forward. For a detailed explanation of the report methodology, please see Appendix 1.

Industry Overview and Competitiveness

Definition of CE Sector and Scope of Report

Although the structure varies somewhat by country, region, and level of economic and technological development, global construction machinery and its related parts and equipment industries are a diverse mix of multibillion-dollar and multinational corporations, smaller specialty manufacturers, and small and medium enterprises (SMEs). These companies manufacture machinery used in all phases and types of construction, mining, and forestry operations, as well as service and repair parts for these machines. Many of the larger CE manufacturers operate as a vertically integrated entity. These companies manufacture construction machinery and service and repair parts for their construction/mining/forestry machinery products. In some cases, they even manufacture repair and service parts for competitors. In addition to these large, vertically integrated businesses, first, second and third tier associate and/or independent suppliers also participate in the CE sector. These companies may manufacture specialty CE equipment, provide service and repair parts to construction equipment manufacturers and construction machinery owners, or some combination of these.

This report does not include a discussion of remanufactured (reman) CE sector products. The reman subsector has unique challenges, opportunities and barriers to trade different from those related to construction/mining/forestry equipment and associated "new" service and repair parts.

Global and U.S. CE Sectors

The global CE sector has long been dominated by manufacturers in North America, Western Europe, Japan and South Korea, due in large part to the comparative advantages of these manufacturers' products. Generally speaking, the economics of construction activities require equipment that operate efficiently, economically and with minimal downtime. In some cases, such as large mining operations, 24-hour continuous operation of

machinery is necessary. To achieve this goal, purchasers of construction machinery look for products with the following qualities:

- *Productivity*: ability to move large quantities of material from point to point as quickly as possible
- *Reliability*: ability to operate with minimal downtime for scheduled service or unscheduled breakdowns
- *Level of advancement in technology*: utilizes the best available technology to increase machinery productivity and reliability

U.S. CE manufacturers produce construction machinery and related repair and service parts that offer their customers these qualities with a productive and reliable equipment solution. Specific U.S. CE sector advantages include the following:

- *Technologically superior products*: U.S. CE products in general, and construction and mining machinery in particular, are generally on par with Western European and Japanese competitors. Technologically superior products increase productivity and reliability, as well as reduce operating and service costs for users.
- *Parts and product support network*: Most U.S. construction and mining machinery manufacturers operate and maintain a global parts and service network to support their products. Construction machinery downtime is a significant cost, so owners are inclined to purchase machines with a strong supporting network.
- *IT enhanced maintenance and support*: U.S. CE manufacturers have embraced the use of technology-equipped machinery to monitor operating environment, machinery conditions and other external factors to deliver better control over the health of machinery. Programs such as Caterpillar's CAT Connect and Minestar¹ and Deere's Condition Based Maintenance² help owners minimize downtime and increase operating efficiency through monitoring machinery location, operator performance, load haul cycle times, maintenance requirements, and more.³

The relative advantage American, Western European and Japanese CE manufacturers have enjoyed over other competitors is narrowing, however. Chinese CE sector manufacturers in particular have made steady progress in building more productive, reliable

and technologically advanced products while still maintaining a cost advantage relative to the United States and others. In addition, these manufacturers are taking innovative steps to offer parts and product support networks for their products similar to those of U.S. manufacturers. For example, International Construction Products (ICP), a North American owned and operated company, has partnered with a number of Chinese CE manufacturers to sell and support construction equipment from several Chinese brands through an online marketplace. Customers can research and buy construction machinery, parts, and related equipment, and arrange for comprehensive product support options using ICP's online tools.⁴

Global Industry Landscape

U.S. CE exports are trending downwards globally and regionally. Despite a partial recovery from the 2008 to 2009 global recession, U.S. exporters still face significant headwinds in reversing this downward trend in the short-term. The data provided in Figures 2-4 on U.S. CE sector exports is available through the United States International Trade Commission (USITC) Interactive Tariff and Trade Data Web. In addition to the following brief comments on global and regional trends, more detailed discussions can be found in our examinations of selected markets.⁵

Figure 2: U.S. CE Sector Global Exports 2011 to 2015

Total Exports 2011 to 2015: \$203.7 billion
2011: \$43.7 billion
2015: \$32.6 billion
Total Cumulative Growth/Contraction:
-25.3 percent
CAGR: -5.7 percent

Figure 3: Top Five Export Markets 2011 to 2015

Canada: \$54.2 billion
Mexico: \$31.0 billion
Australia: \$13.7 billion
China: \$9.9 billion
Brazil: \$7.6 billion

Comments: The top three CE sector export markets are free trade agreement (FTA) partners with the United States. Exports to the fourth and fifth largest export markets, China and Brazil, have experienced steady declines since their respective 2011 highs.

Figure 4: U.S. CE Sector Exports by Region

Latin America

Total Exports 2011 to 2015: \$60.2 billion
2011: \$11.9 billion
2015: \$9.9 billion
Cumulative Growth/Contraction: -16.6 percent
CAGR: -3.6 percent

Top Five Markets 2011 to 2015
Mexico: \$31.0 billion
Brazil: \$7.6 billion
Chile: \$6.6 billion
Peru: \$3.7 billion
Colombia: \$3.3 billion

Comments: After peaking in 2012, U.S. CE sector exports to Latin America began a region-wide decline, driven largely by sharp losses in four of the top five markets (Brazil, Chile, Peru and Colombia). Despite solid, multi-year growth from 2011 to 2014, U.S. CE sector exports to Mexico declined 21.5 percent in 2015.

EU

Total Exports 2011 to 2015: \$25.5 billion
2011: \$5.5 billion
2015: \$4.5 billion
Cumulative Growth/Contraction: -21.7 percent
CAGR: -3.9 percent

Top Five Markets 2011 to 2015
United Kingdom: \$5.7 billion
Belgium: \$5.6 billion
Belgium: \$4.6 billion
France: \$2.1 billion
Netherlands: \$1.9 billion

Comments: Although U.S. CE sector exports to the EU fell by 21.7 percent over the past five years, a number of EU markets outside the top five experienced overall export growth. This growth was mainly in Eastern Europe (Czech Republic, Hungary, Romania and Bulgaria).

Asia

Total Exports 2011 to 2015 - \$26.2 billion
2011: \$6.3 billion
2015: \$3.9 billion
Cumulative Growth/Contraction: -38.5 percent
CAGR: -9.2 percent

Top Five Markets 2011 to 2015
China: \$9.9 billion
Singapore: \$4.2 billion
Japan: \$2.6 billion
India: \$2.3 billion
South Korea: \$2.2 billion

Comments: Relatively flat U.S. CE sector export growth to Asia from 2011 to 2014 has given way to much larger declines in almost all markets in 2015. One notable exception is Vietnam. Although not a top five market, U.S. CE sector exports to Vietnam grew 54.8 percent over the five-year period 2011 to 2015.

Africa

Total Exports 2011 to 2015: \$9.4 billion
2011: \$2.0 billion
2015: \$1.3 billion
Cumulative Growth/Contraction: -34.2 percent
CAGR: -8.0 percent

Top Five Markets 2011 to 2015
South Africa: \$4.8 billion
Egypt: \$702 million
Nigeria: \$573 million
Ghana: \$386 million
Algeria: \$348 million

Comments: U.S. CE sector exports to South Africa from 2011 to 2015 were over 600 percent higher than the next largest market. Overall regional growth in the past four years was relatively flat; regional export performance, however, mirrored overall global and declined sharply in 2015.

Challenges and Barriers

Challenges and barriers to U.S. CE sector exports have not only slowed growth, but also led to contractions in export volume in many markets.

Market specific challenges and barriers to export will be addressed in individual case studies.

Localization/relocation of manufacturing and domestic production programs

In efforts to maximize regional labor/production/financial incentives offered by globalized production and longer supply chains, many CE sector manufacturers, including those in

the United States, have moved towards more “globalized” production of CE sector products. In the wake of the 2008 global recession, however, many CE sector manufacturers are retooling globalized production operations towards a more localized model emphasizing production in the market of exports and sales. By shortening supply chains and producing in local markets, CE sector manufacturers hope to reduce the impact of delays in shipments, customs challenges, and currency fluctuations. While localized manufacturing reduces the impact of these issues, it negatively impacts export opportunities for CE sector producers in these markets.

In conjunction with unilateral moves to localized production by CE sector manufacturers, some countries are enacting plans to support local/domestic producers. These plans are also intended to encourage local production by foreign competitors. One of the most well-known of these plans, Plano Brasil Maior (“Greater Brazil Plan”), aims to expand access to domestic and external markets for Brazilian companies through a variety of preferential tax and financing incentives for foreign investment. Government procurement advantages for Brazilian companies and aggressive use of trade remedies, such as AD/CVD, assist Brazilian companies in accessing export markets.⁶

Dollar value vs. major currencies of trading partners

With the exception of Russia, the U.S. dollar has strengthened against the currencies of its top 25 CE sector export markets in 2015. A continued stronger dollar will increase purchase prices of U.S.-made CE sector products in comparison to direct competitors in the EU and Japan, while the price difference will widen further in China.

Commodity Prices

Continued low prices in the oil and mining commodity sectors are placing downward pressure on CE sector export growth, particularly in those countries with economies largely dependent on sales

of these commodities. With commodity prices predicted to continue falling⁷, CE sector manufacturers will continue to see decreased demand for construction machinery purchases. Low ore prices are influencing the CE mining equipment subsector particularly hard, decreasing demand for mining machinery. One of the most visible examples of commodity price impact on sector demand is at Caterpillar, the largest U.S. and global CE sector manufacturer and exporter. In September 2015, the company announced a major realignment of its Mining division and the reduction of 10,000 employees by 2018 through manufacturing facility consolidations and closures.⁸ In January 2016, Caterpillar announced that company sales had decreased for the third year in a row and 2015 profit was down 43 percent from 2014.

Economic headwinds in major export markets

Perhaps the most significant challenge for U.S. exporters, however, is the economic slowdown in several major U.S. CE sector export markets. China and Brazil are the U.S. CE sector’s fourth and fifth largest export markets respectively. Although China’s economy continues to grow, year on year double-digit GDP increases have ceased. A weakening Chinese yuan, as well as a heavy reliance on debt and investment to grow its economy, have contributed to recent stock market volatility and uncertainty about the pace of economic growth moving forward.⁹ The situation in Brazil is more serious. In addition to falling GDP, the country is facing a large and persistent budget deficit that affects the government’s ability to fund needed infrastructure improvements, which, in turn, influences construction activities and the demand for CE sector products.

Even those countries with otherwise healthy economies that rely heavily on commodity exports are facing challenges in sustaining long-term growth. Canada’s economy is quite diverse and its overall economic health is good; however, as a net oil exporter, continued low oil prices will likely impact economic growth in the near future. Countries with less diverse economies that depend more on commodity exports (western and central Africa and parts of Latin America)¹⁰ will continue to be a challenge for CE sector export markets.

Opportunities

Despite the challenges noted above, there are still numerous export opportunities for CE sector exporters. Specific opportunities will be addressed in the country case studies that follow.

Relative advantage of U.S. CE sector products

As previously noted, U.S. CE sector products are among the most productive, reliable and technologically advanced in the world. U.S. products are superior to Chinese competitors, and at least comparable to Western European and Japanese competitors. Customers who base their purchases on these competitive advantages will pay a premium for U.S. CE products over Chinese competitors.

Spending and Infrastructure Investment Climate

Infrastructure development represents the single biggest opportunity driver for U.S. CE sector export growth. Infrastructure development is, at the basic level, construction activity, and construction activity fosters demand for CE sector goods. Beyond this basic cause and effect, however, infrastructure development feeds CE sector demand indirectly through improvement in a country's investment climate. A well-developed infrastructure fuels economic development by supporting industrial growth and cross-border trade. It also facilitates the distribution of essentials like energy, water,

sanitation and public services. Finally, a stable investment climate leads to a greater ability to invest in infrastructure.

A number of countries have government sponsored infrastructure development plans, and this report will address those plans in the country case study section as appropriate. In most instances, however, private financing is a key supplement to public funding of national infrastructure development plans. For this reason, access to capital represents an opportunity for CE sector exports.

Finally, the overall health of a particular country's economy is an important and essential driver of demand for CE sector goods. Annualized GDP and GDP growth over time represent a country's ability to invest in infrastructure development and maintenance.

Completion of trade agreements

As noted above, the top three export markets for the U.S. CE sector are all FTA partners with the United States. Completion, ratification and enactment of the US-EU Transatlantic Trade and Investment Partnership (T-TIP) and the Trans-Pacific Partnership (TPP) represent strong opportunities to drive exports, particularly in Asia, where U.S. CE sector exporters often pay high tariffs in comparison to already cheaper Chinese products.

¹http://www.cat.com/en_US/support/operations/technology/cat-minestar.html

²https://www.deere.com/en_US/services_and_support/maintenance-and-protection-plans/condition-based-maintenance/condition-based-maintenance.page

³http://www.cat.com/en_US/support/operations/cat-connect-solutions.html

⁴<http://www.equipmentworld.com/icp-conexpo/>

⁵https://dataweb.usitc.gov/scripts/user_set.asp

⁶<http://www.brasilmaior.mdic.gov.br/images/data/201205/ac36870491379be10d85230b0a3bf526.pdf>

⁷<http://gfs.eiu.com/Article.aspx?articleType=cf&articleId=1513860135&secId=0>

⁸<http://www.nasdaq.com/article/caterpillar-sees-further-revenue-weakness--2nd-update-20160128-01186>

⁹<http://www.investopedia.com/articles/investing/011316/4-economic-challenges-china-faces-2016.asp>

¹⁰http://unctad.org/en/PublicationsLibrary/suc2014d7_en.pdf