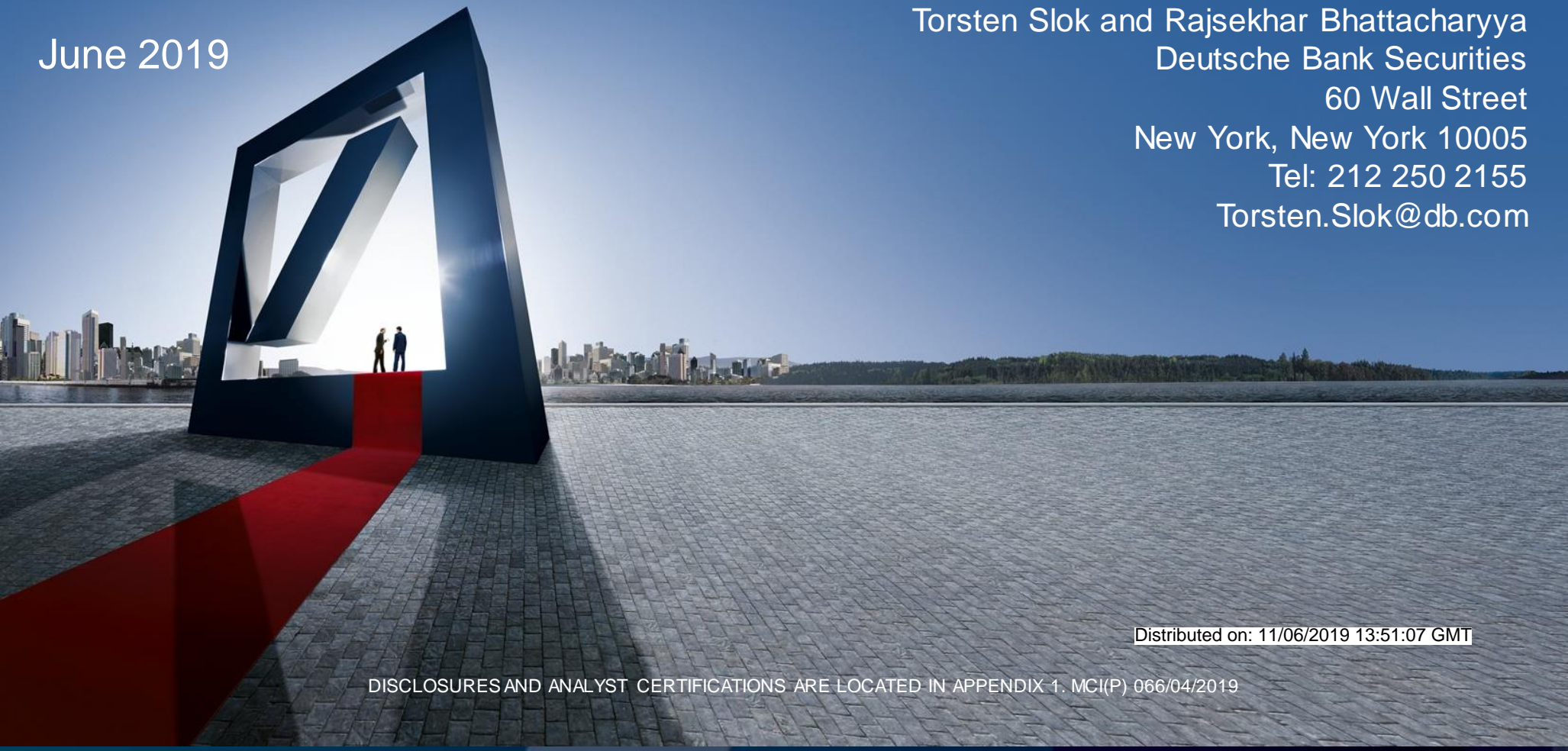




# The importance of the global supply chain for the US and China

June 2019

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# Overview

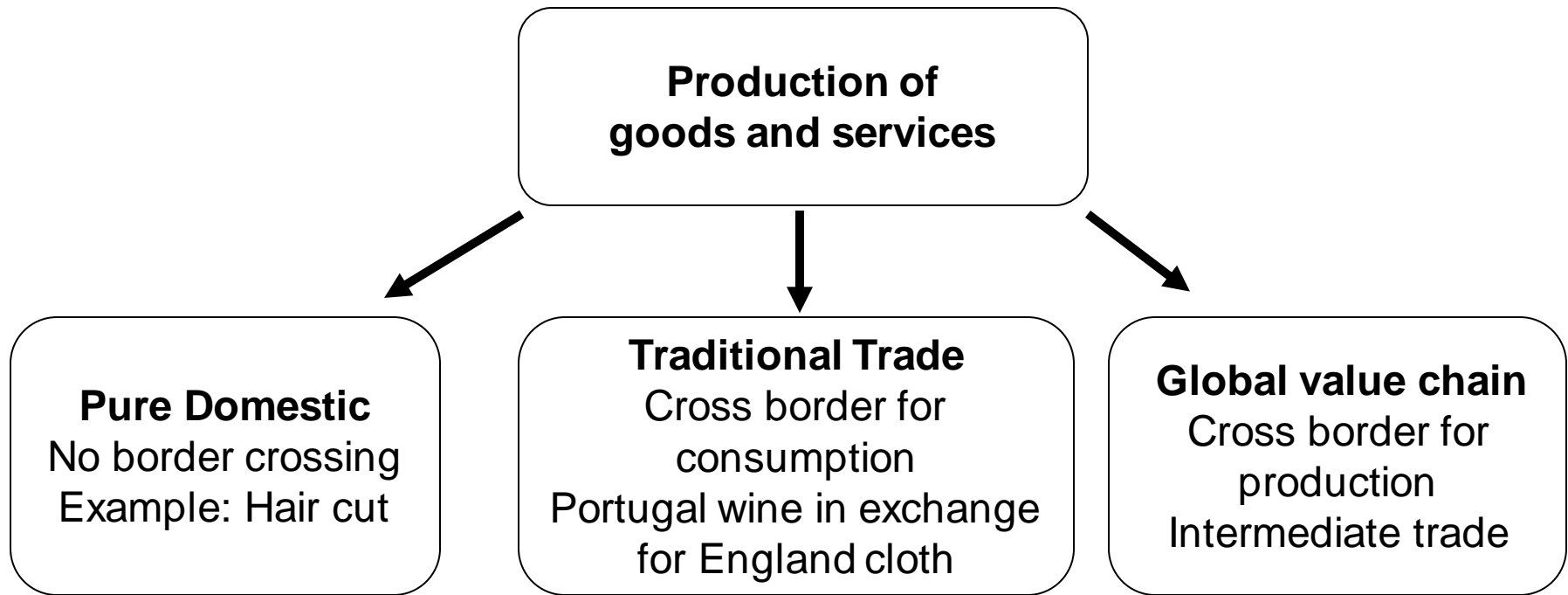
# Main findings



- **Disrupting the global supply chain has serious consequences.** 30% of trade in the US is part of the global supply chain. For China it is 40%.
- **Backward participation in the global supply chain:** Foreign value added in total exports is higher for China than the US.
- **Forward participation in the global supply chain:** 23% of US exports are used as inputs in other countries' exports.
- **Foreign value added accounts for roughly 1/3 of global trade.**
- **Exports as a share of GDP is low in the US.** Trade is much more important for other countries.
- **The Chinese economy is becoming more diversified and less dependent on exports to the US.**
- **Chinese employment less dependent on the rest of the world than it used to be.**
- **Countries that have increased their participation in the global supply chain have also had stronger labor productivity growth.**
- **No clear relationship between global value chains and inequality.**



# Overview: Decomposition of production activities



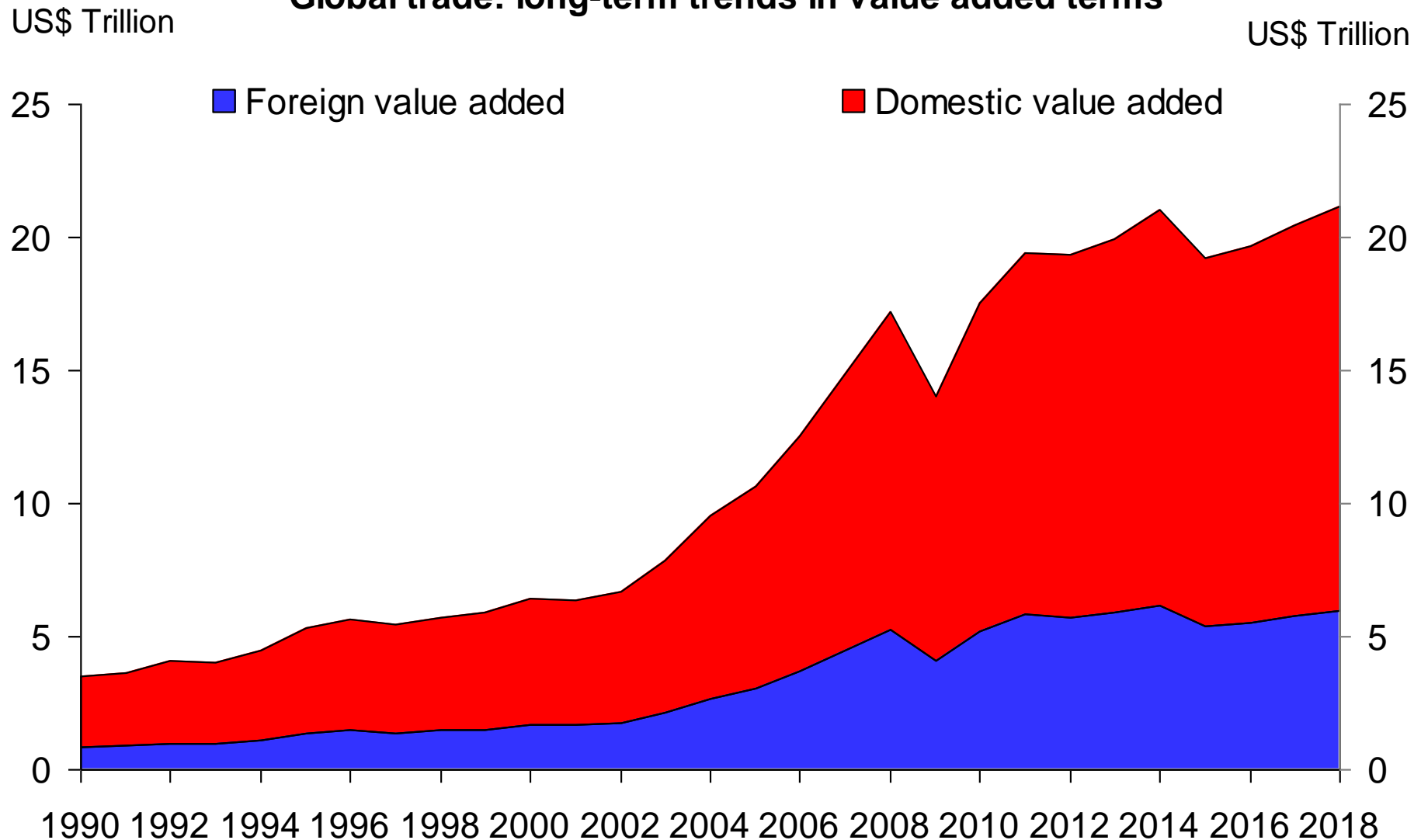
Charts in this presentation quantify the importance of global supply chains for the US and China

Source: UNCTAD, OECD DB Global Research



# Foreign value added accounts for roughly 1/3 of global trade

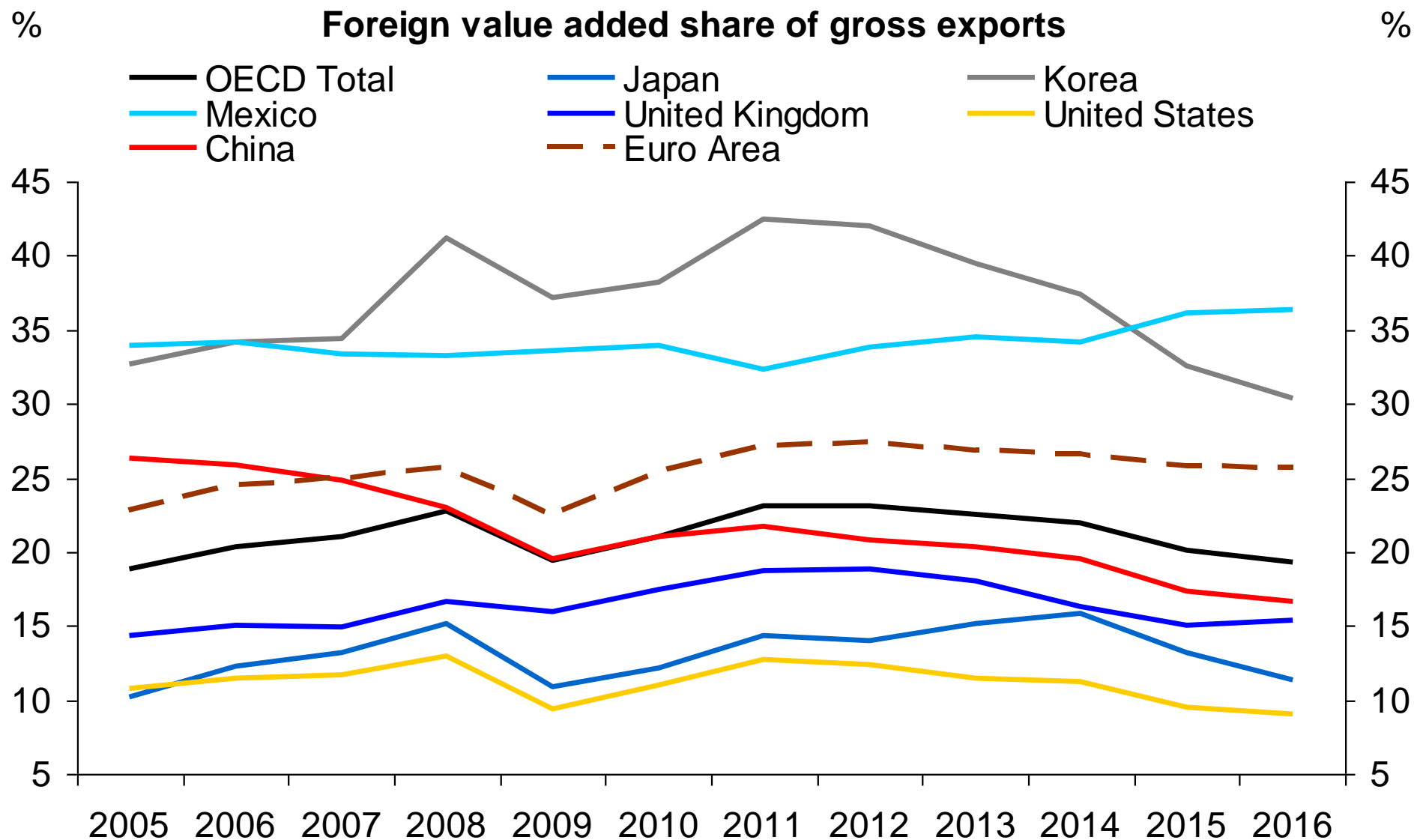
## Global trade: long-term trends in value added terms



Source: UNCTAD, DB Global Research



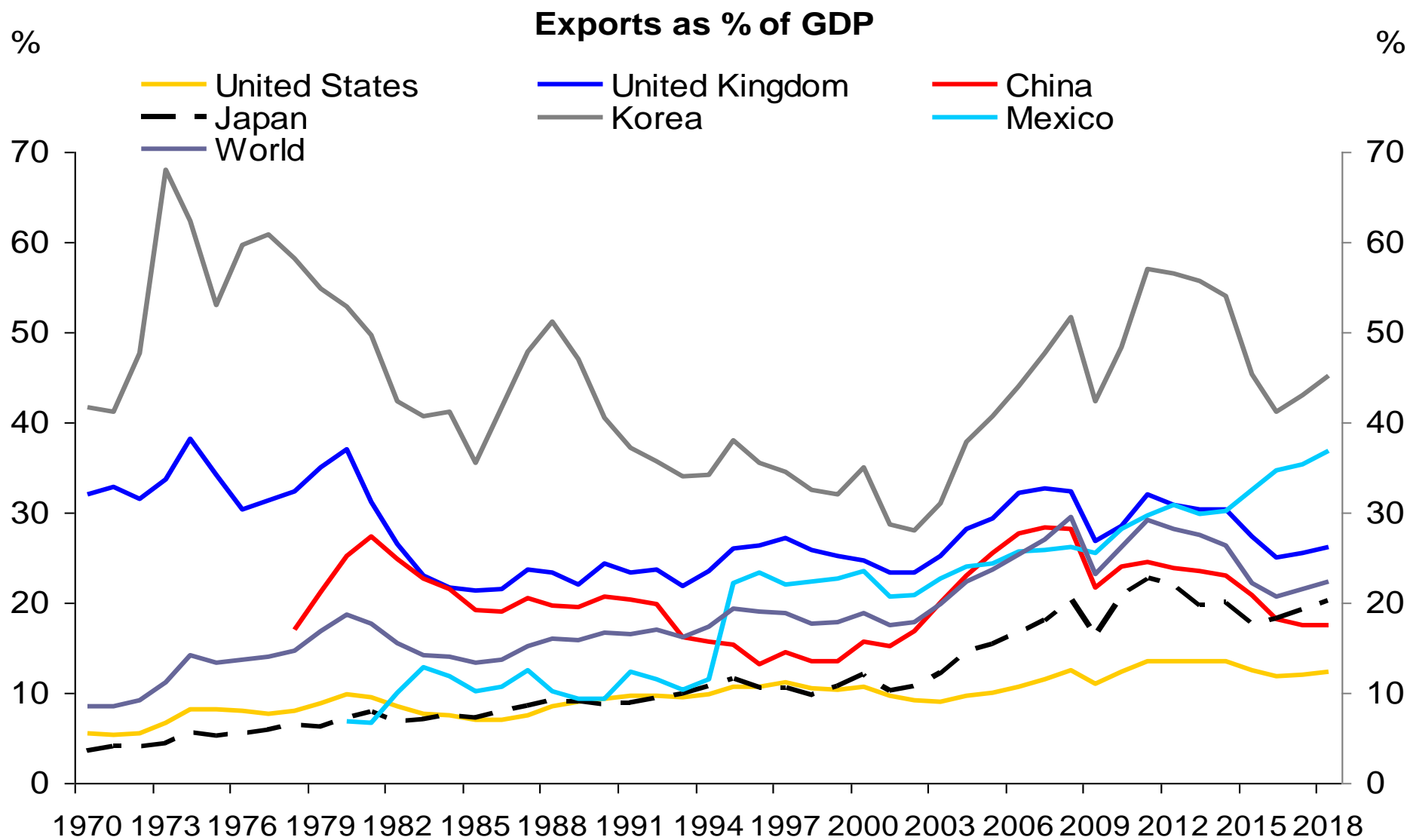
# Foreign value-added as a share of exports in different countries



Source: OECD, DB Global Research



# Exports as a share of GDP is low in the US: Trade is much more important for other countries



Source: OECD, IMF, Haver Analytics, DB Global Research

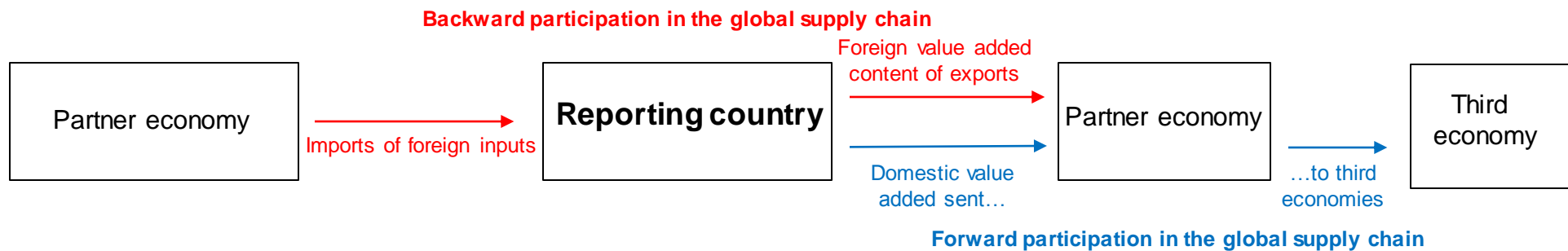


# Trends in global supply chains





# Definition of backward and forward participation in the global supply chain



Individual economies participate in global value chains by importing foreign inputs to produce the goods and services they export (backward participation) and also by exporting domestically produced inputs to partners in charge of downstream production stages (forward participation).

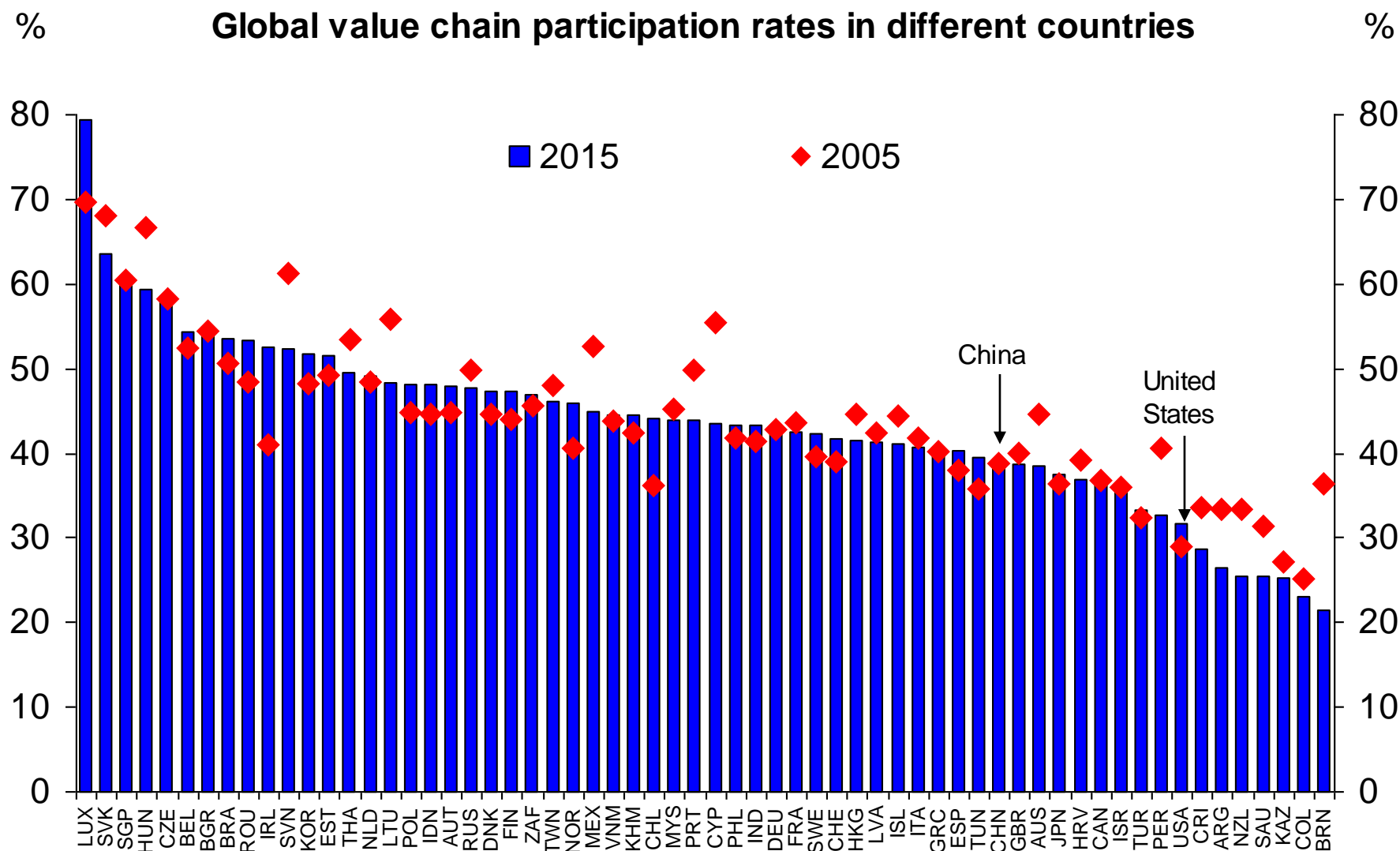
**Backward participation** refers to the ratio of the "Foreign value added content of exports" to the economy's total gross exports. This is the "Buyer" perspective or sourcing side in global supply chains, where an economy imports intermediates to produce its exports.

**Forward participation** corresponds to the ratio of the "Domestic value added sent to third economies" to the economy's total gross exports. It captures the domestic value added contained in inputs sent to third economies for further processing and export through value chains. This is the "Seller" perspective or supply side in global supply chain participation.

Source: WTO, OECD, DB Global Research



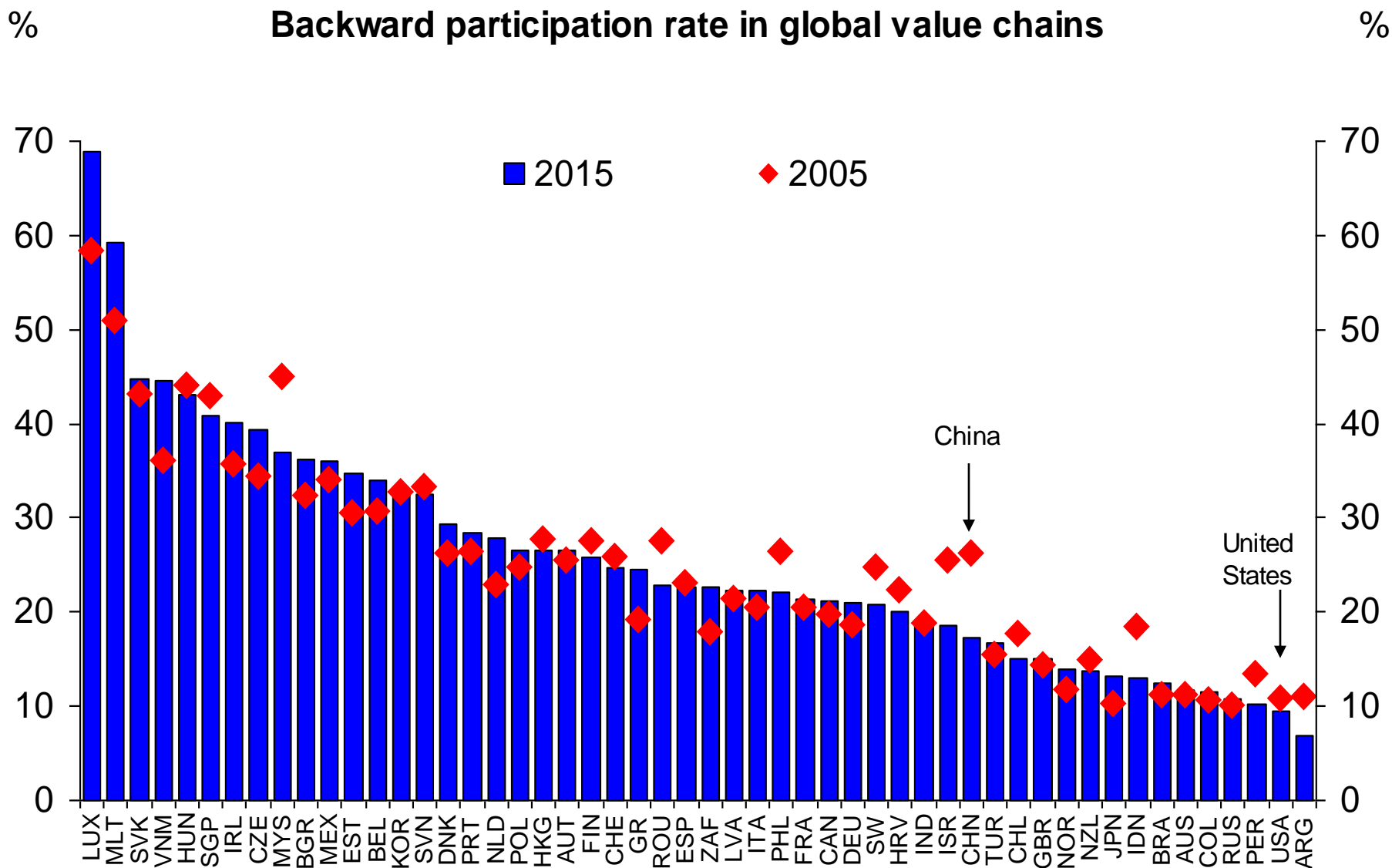
# Disrupting the global supply chain has serious consequences: 30% of trade in the US is part of the global supply chain. For China it is 40%



Note: Forward participation + Backward participation rate; Forward participation is defined as the ratio of the domestic value added embodied in foreign countries' exports over gross exports and Backward participation rate is defined as the share of foreign value added in country's gross exports

Source: OECD, DB Global Research

# Backward participation in the global supply chain: Foreign value added in total exports is higher for China than the US

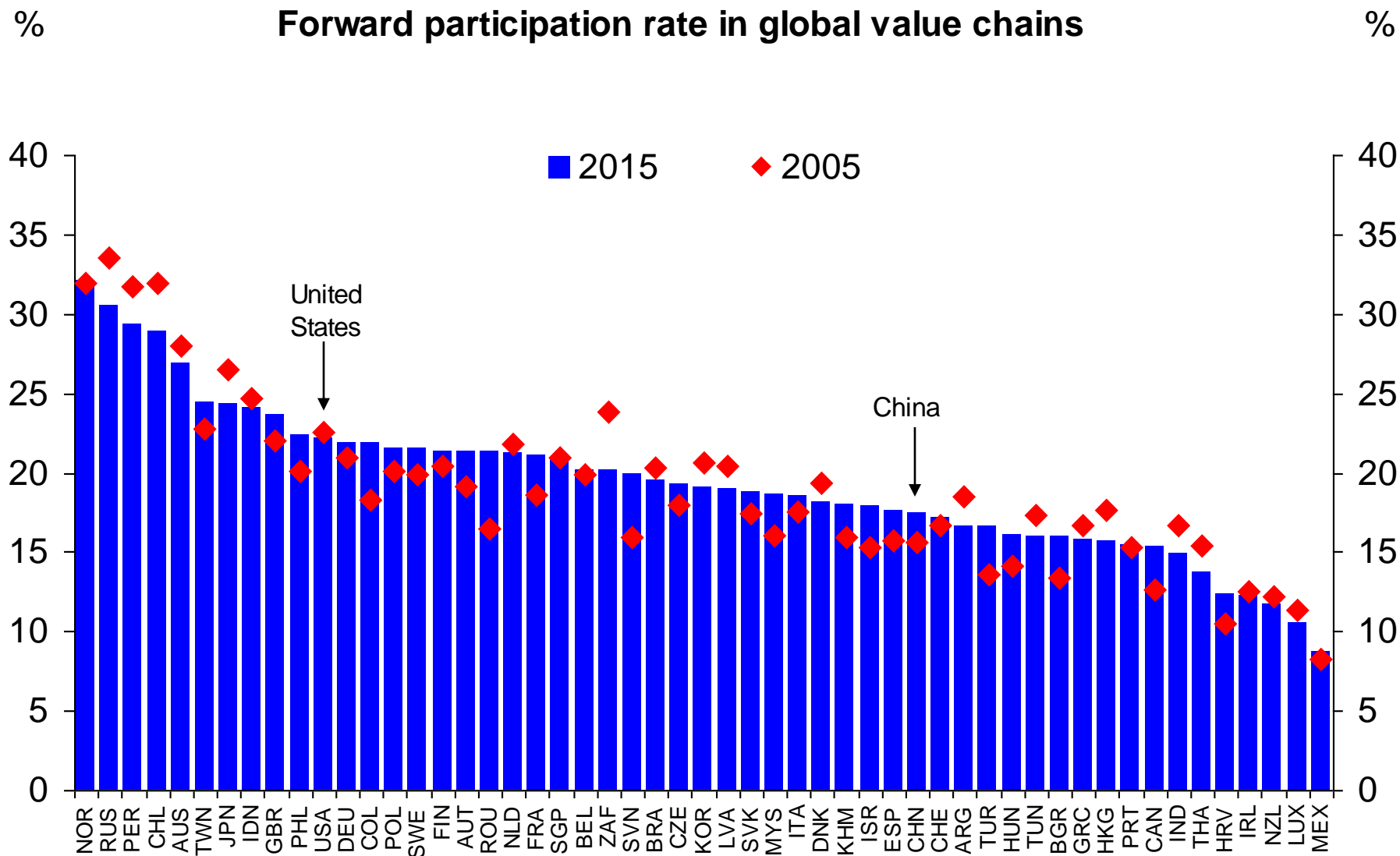


Note: Backward participation rate is defined as the share of foreign value added in each country's gross exports

Source: OECD, DB Global Research



# Forward participation in the global supply chain: 22% of US exports are used as inputs in other countries' exports



Note: Forward participation is defined as the ratio of the domestic value added embodied in foreign countries' exports over gross exports

Source: OECD, DB Global Research

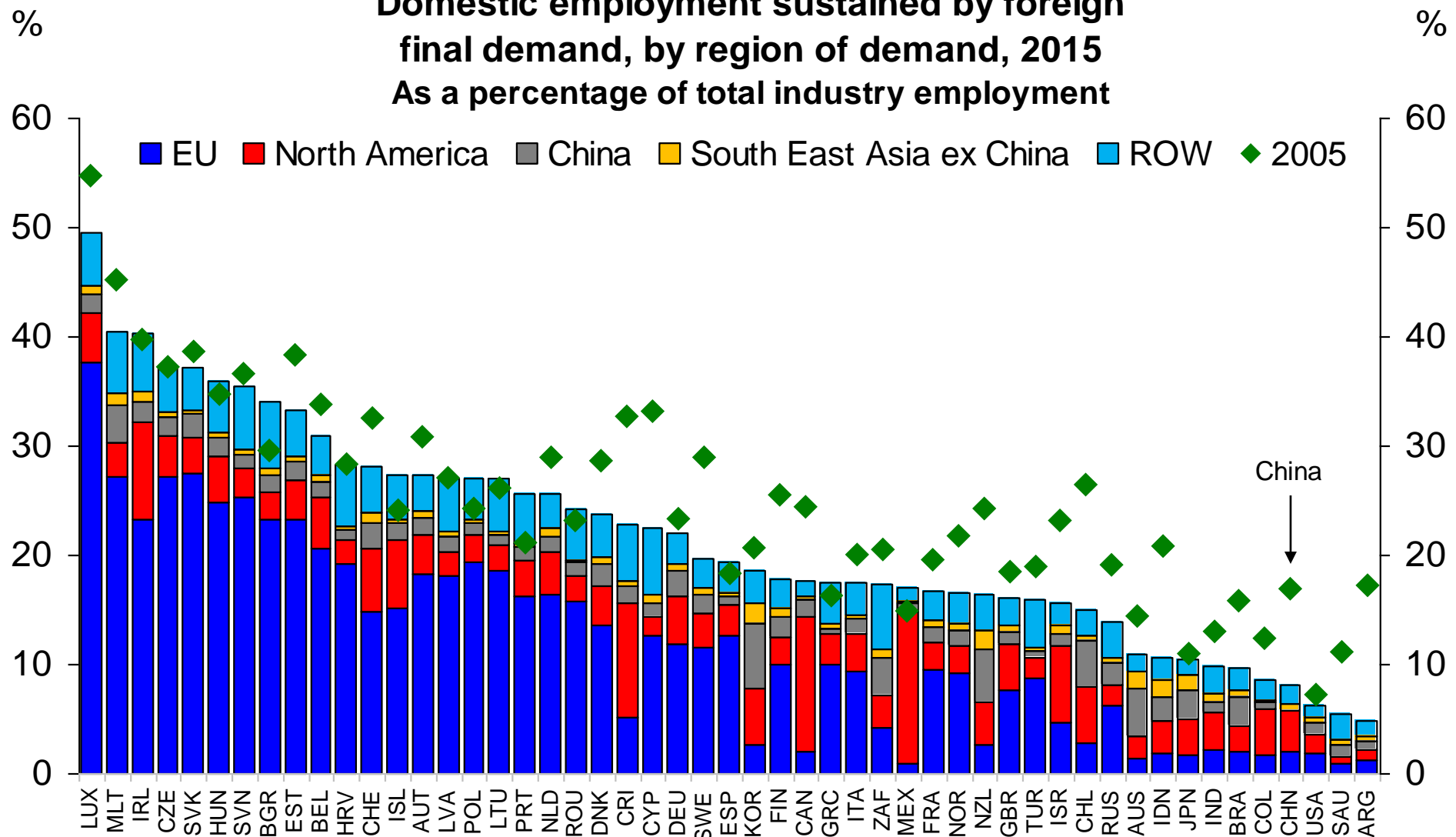


# Global supply chains and labor markets



# The Chinese economy is becoming more diversified and less dependent on exports to the US

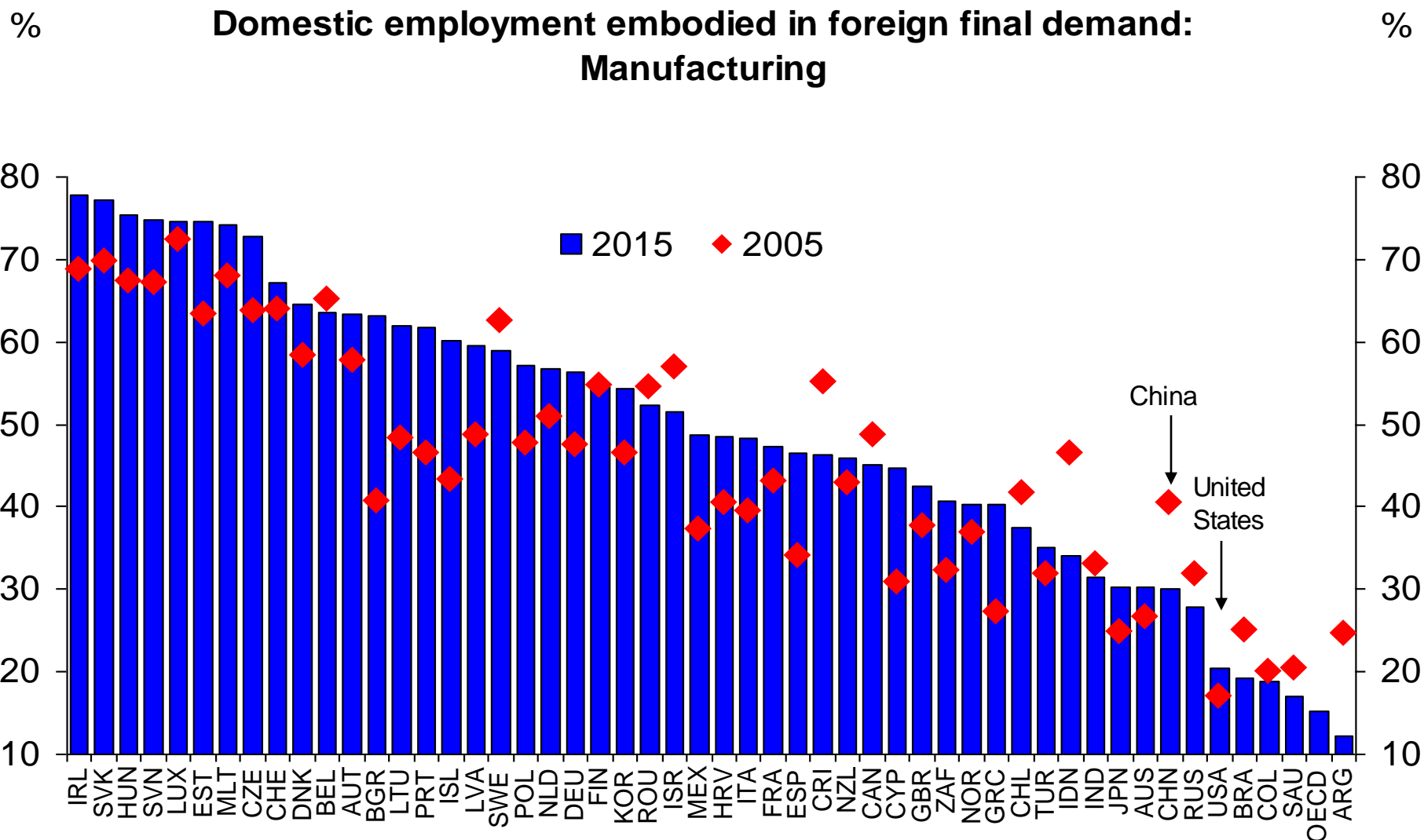
**Domestic employment sustained by foreign  
final demand, by region of demand, 2015**  
As a percentage of total industry employment



Source: OECD, DB Global Research



# Chinese employment less dependent on the rest of the world than it used to be

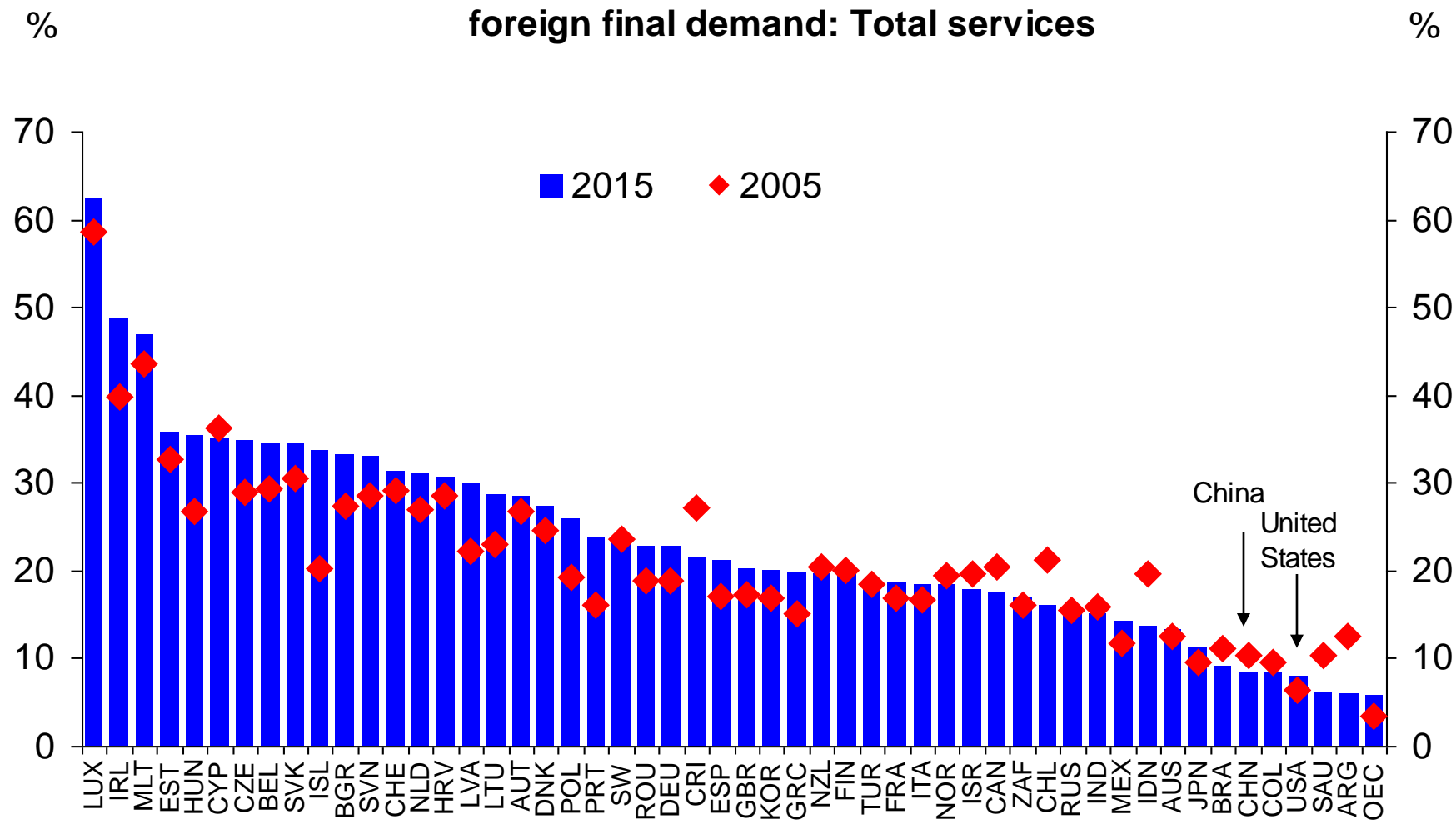


Source: OECD, DB Global Research



# Service sectors in US and China don't depend much on foreign demand

**Domestic employment embodied in foreign final demand: Total services**

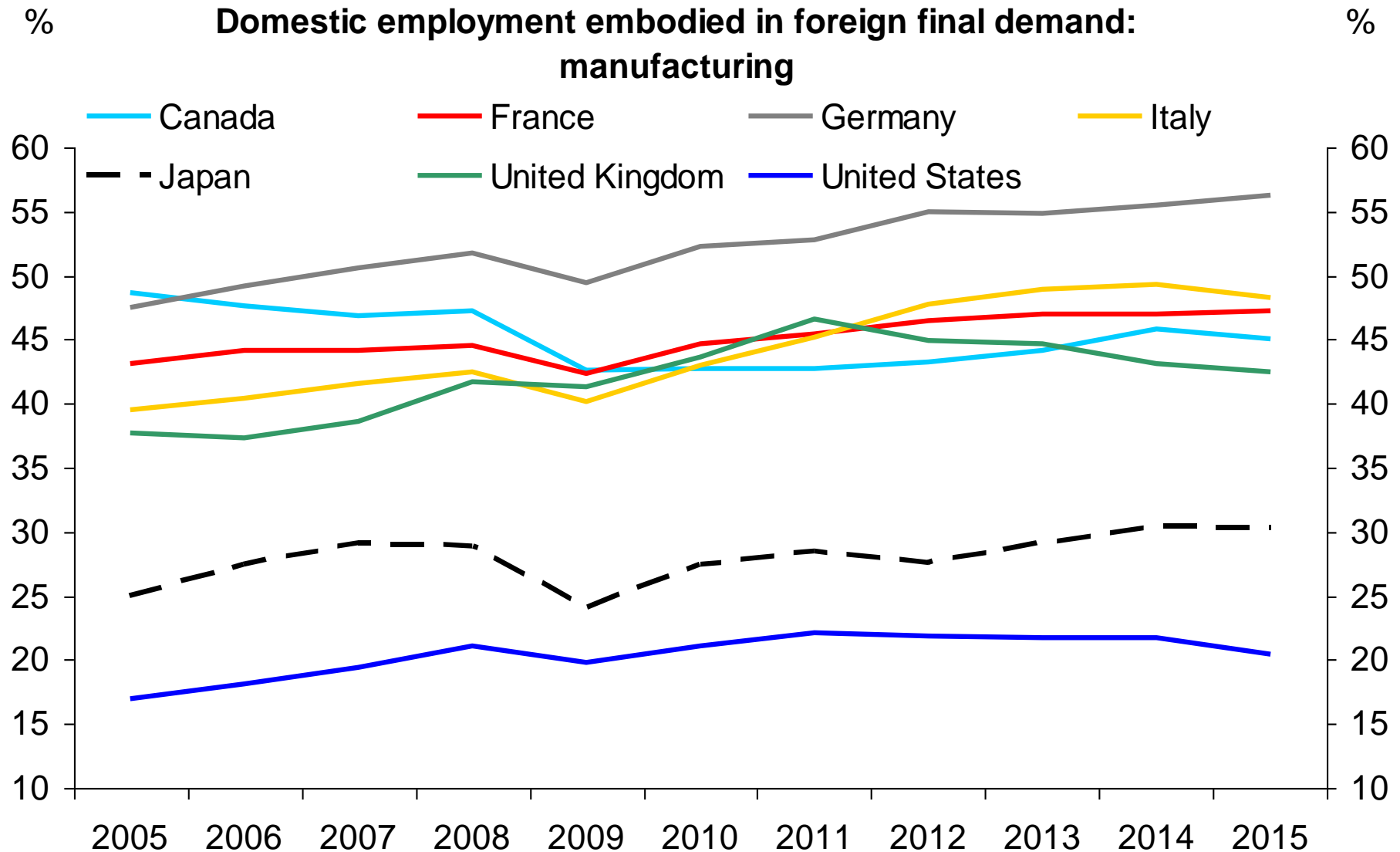


Source: OECD, DB Global Research





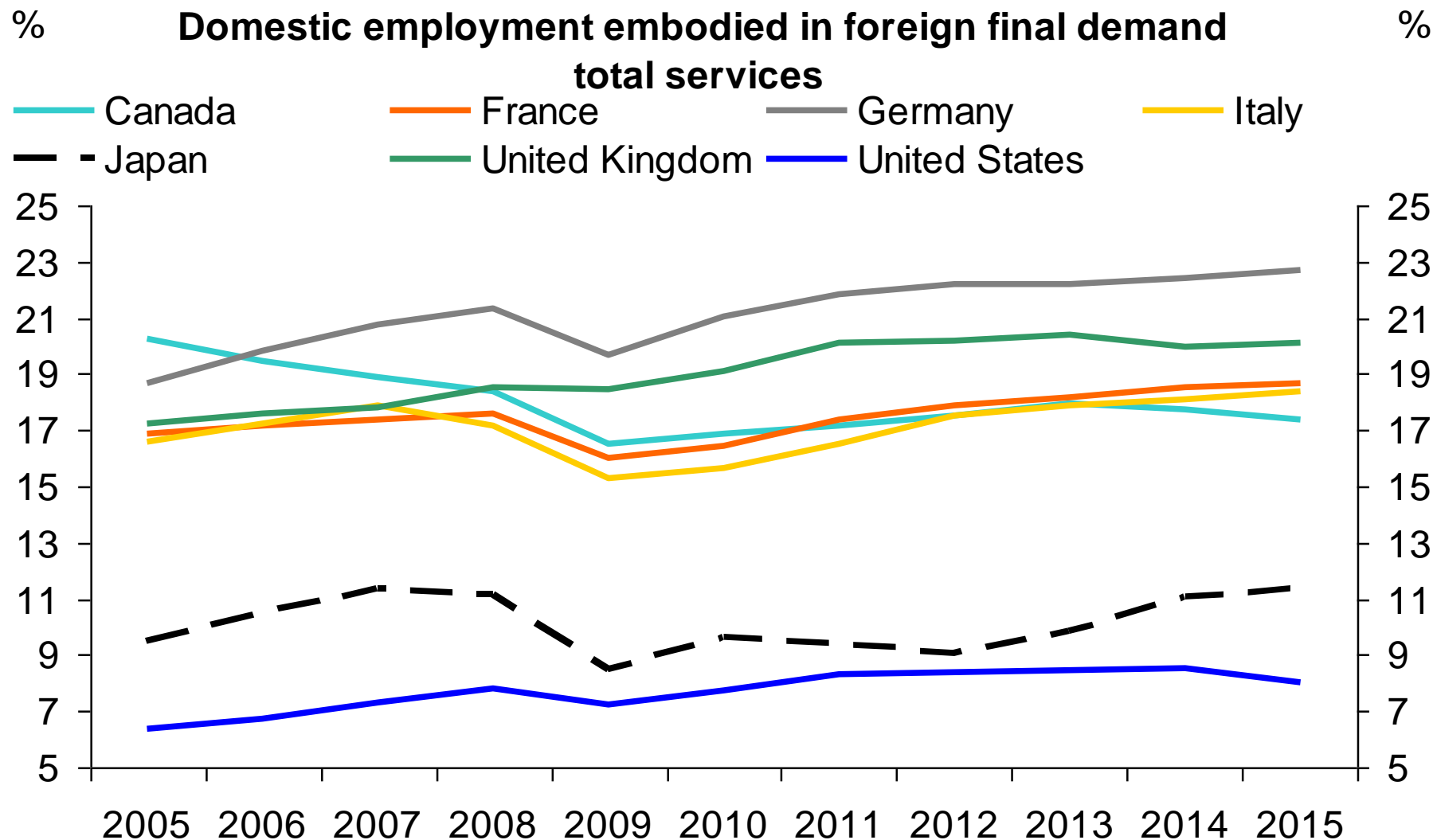
# Foreign demand is not important in US manufacturing sector



Source: OECD, DB Global Research



# Foreign demand in not important in US service sector

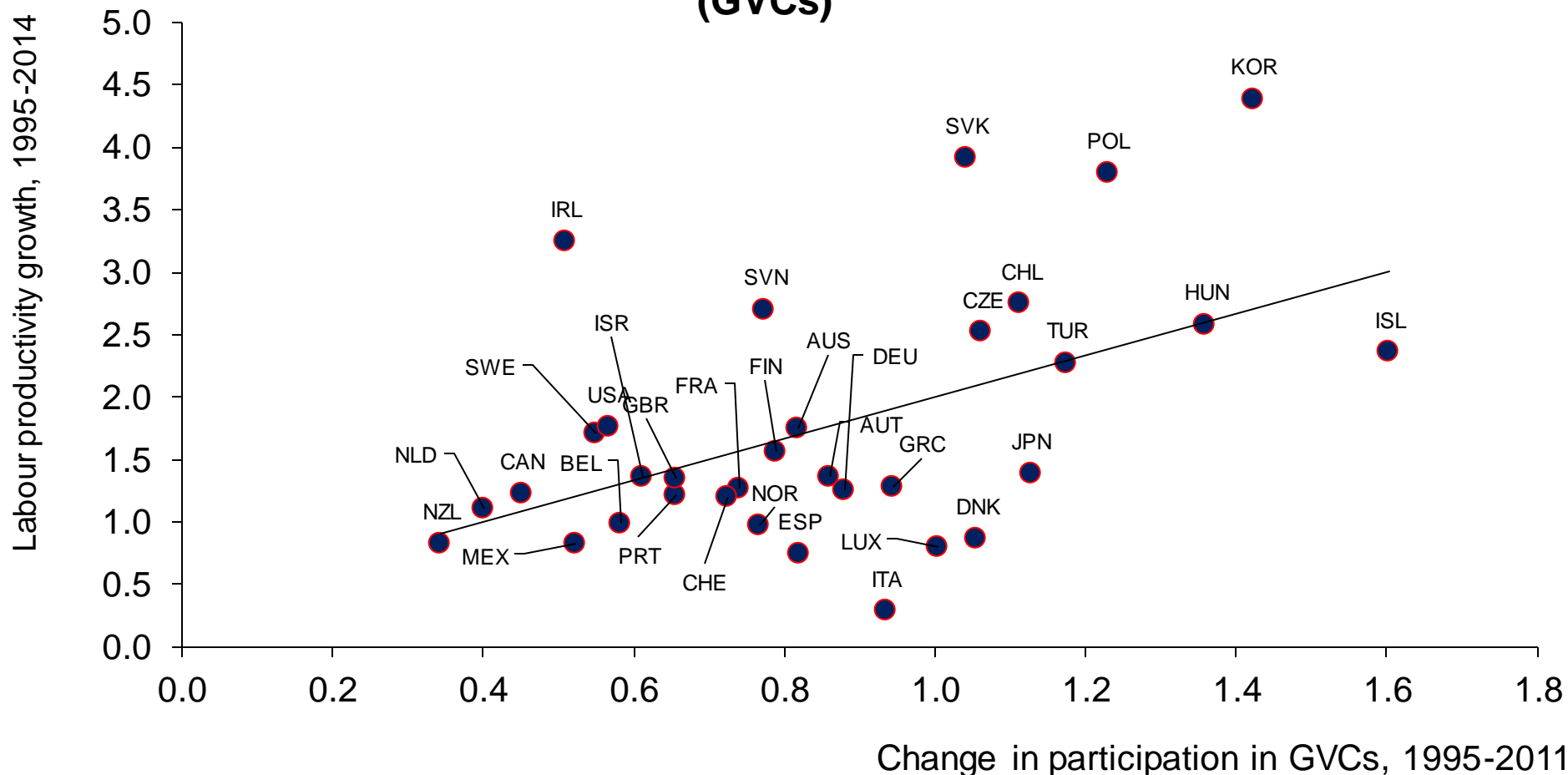


Source: OECD, DB Global Research



# Countries that have increased their participation in the global supply chain have also had stronger labor productivity growth

## Labour productivity and participation in global value chains (GVCs)





# The importance of global supply chains in different industries in the United States

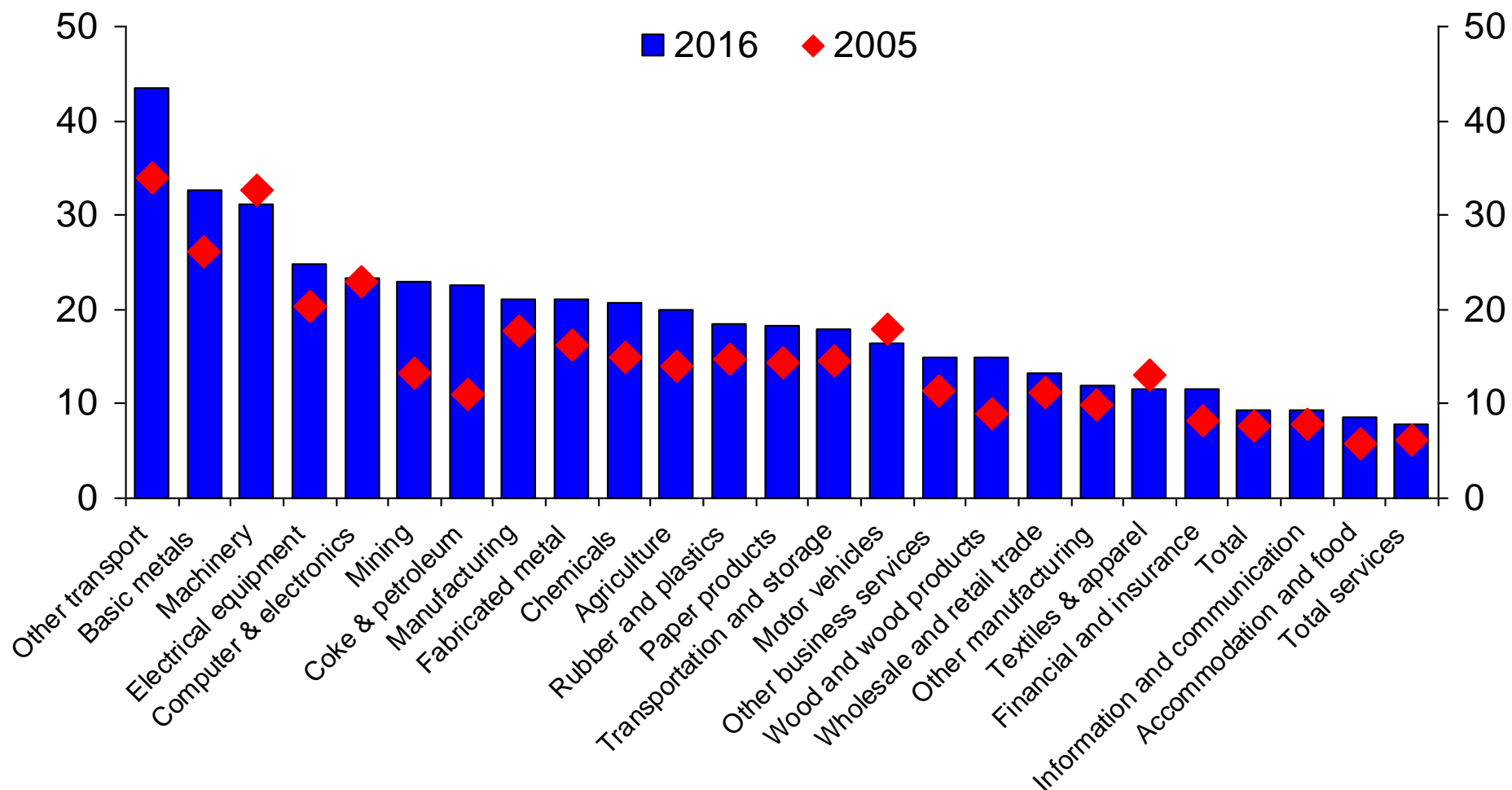


# US: Domestic value added in foreign final demand across industries

%

**United States: domestic value added in foreign final demand**  
As a percent of value added by industry, 2005 to 2016

%

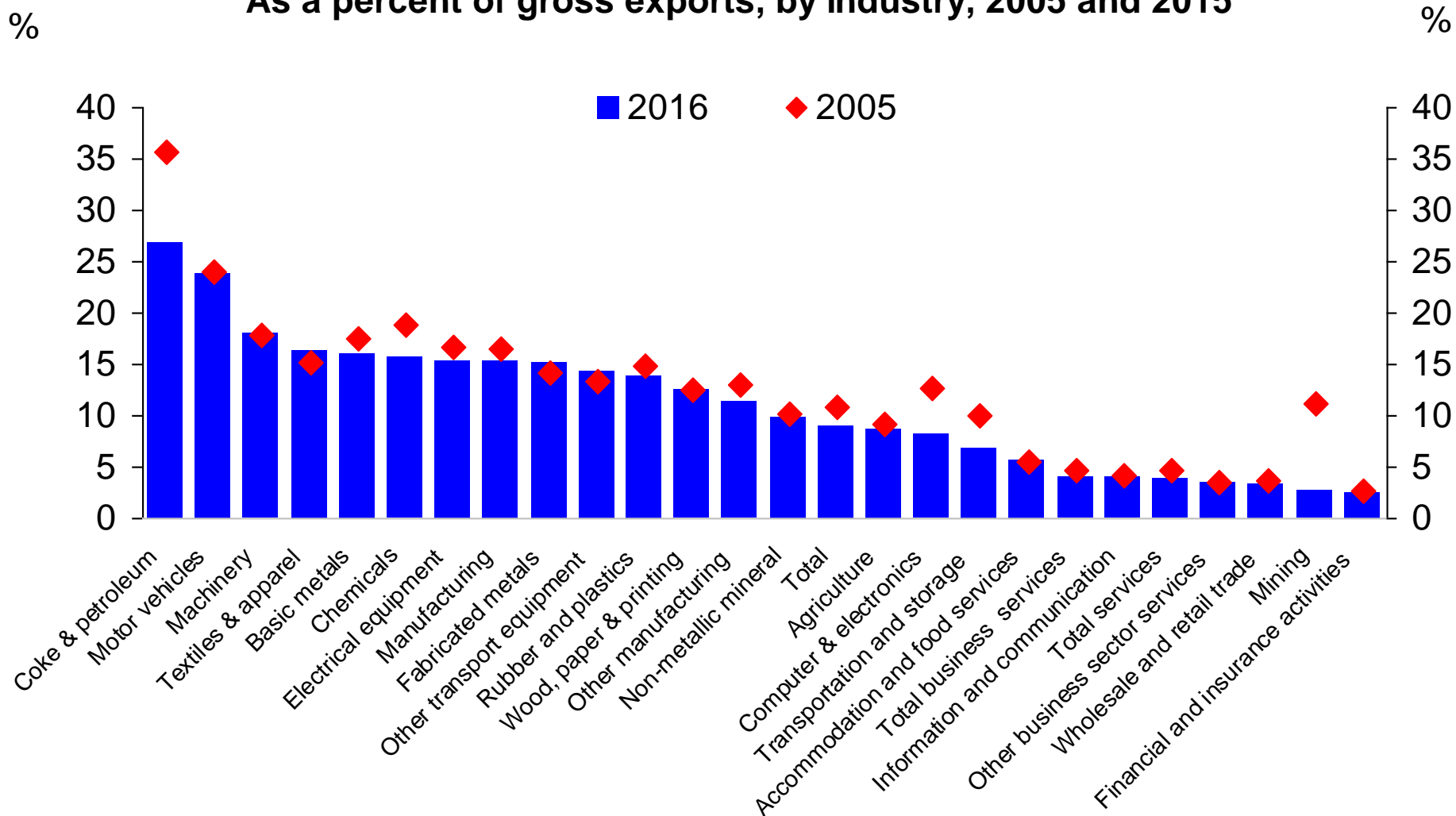


Source: OECD, DB Global Research



# US: Industries with most foreign value-added content in their exports as a percent of total exports

## United States: foreign value-added content of gross exports As a percent of gross exports, by industry, 2005 and 2015

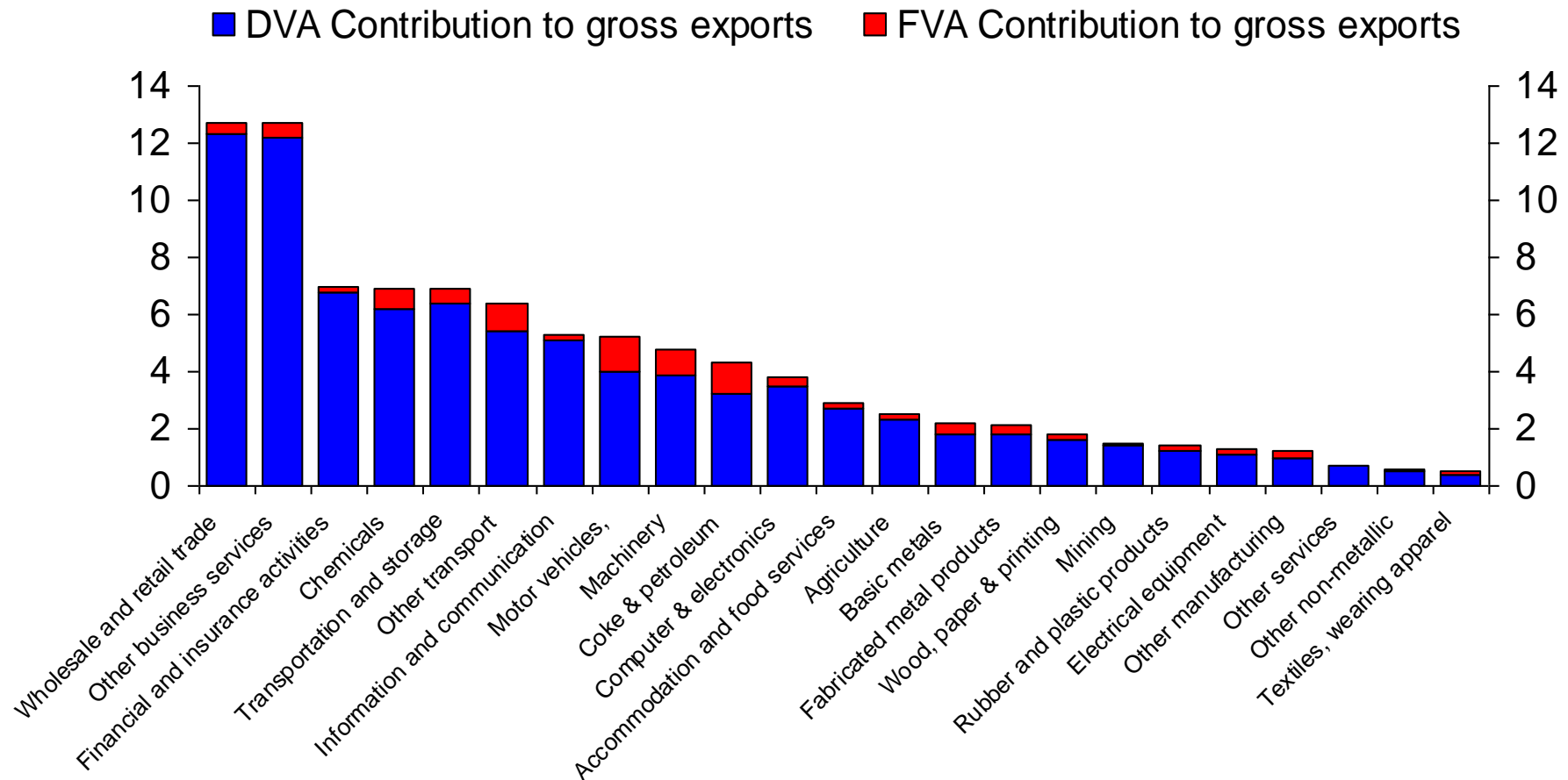


Source: OECD, DB Global Research



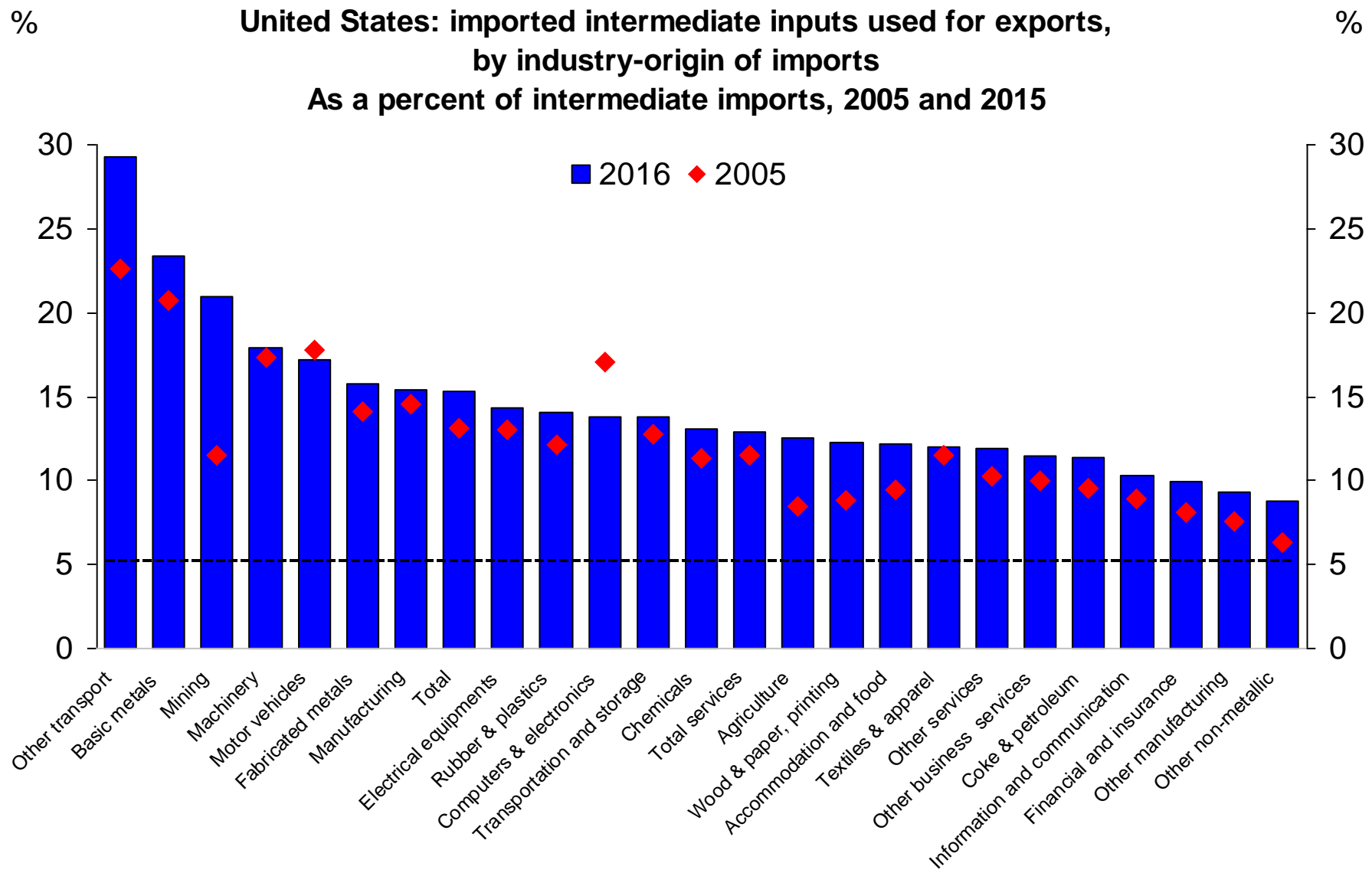
# US: Share of value-added content of exports as a share of total exports by industry

% **United States: industry share of domestic and foreign value-added content of gross exports** %  
As a percent of total gross exports, 2015



Source: OECD, DB Global Research

# Imported intermediate inputs used for exports by industry-origin of imports as a percent of intermediate imports

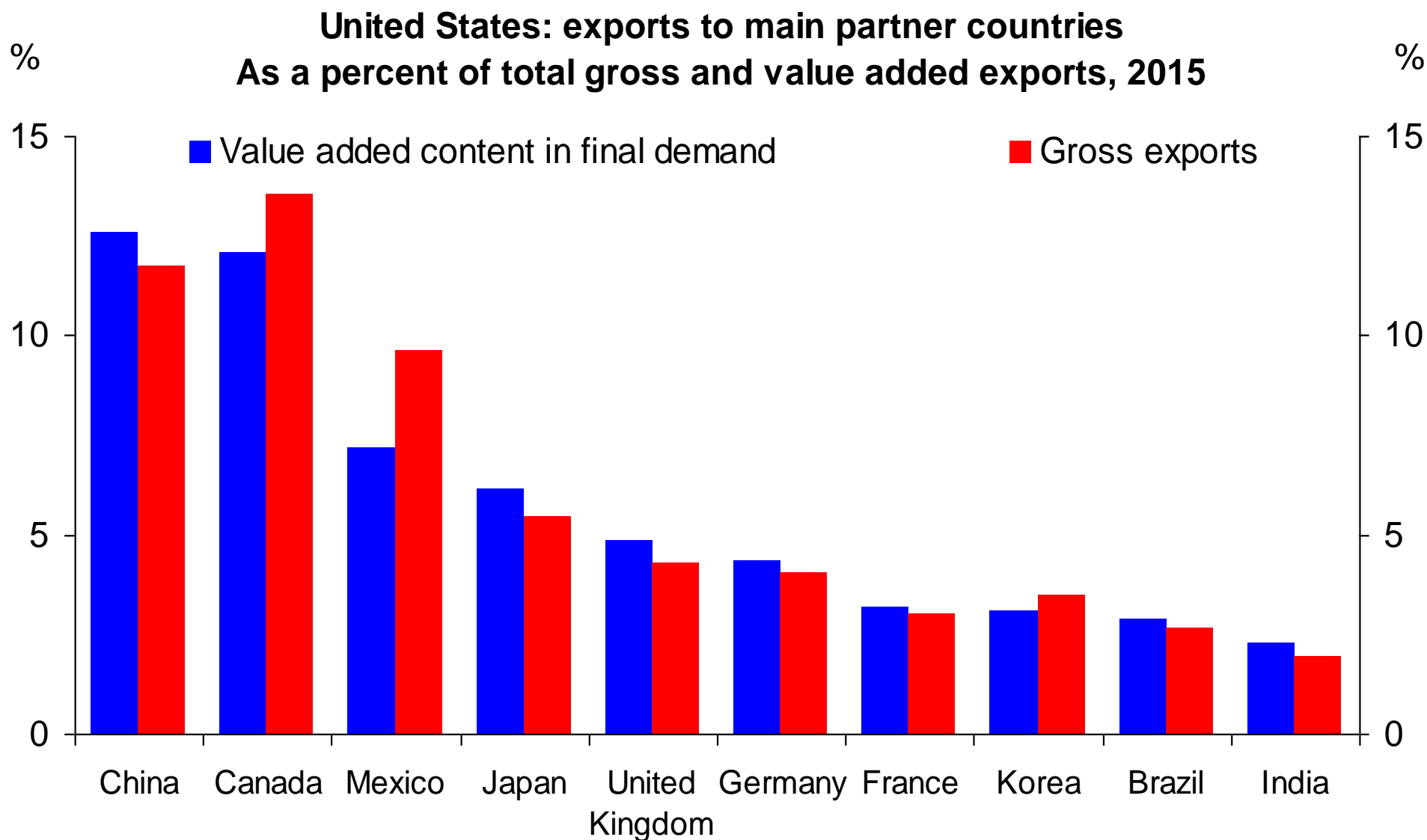


Source: OECD, DB Global Research





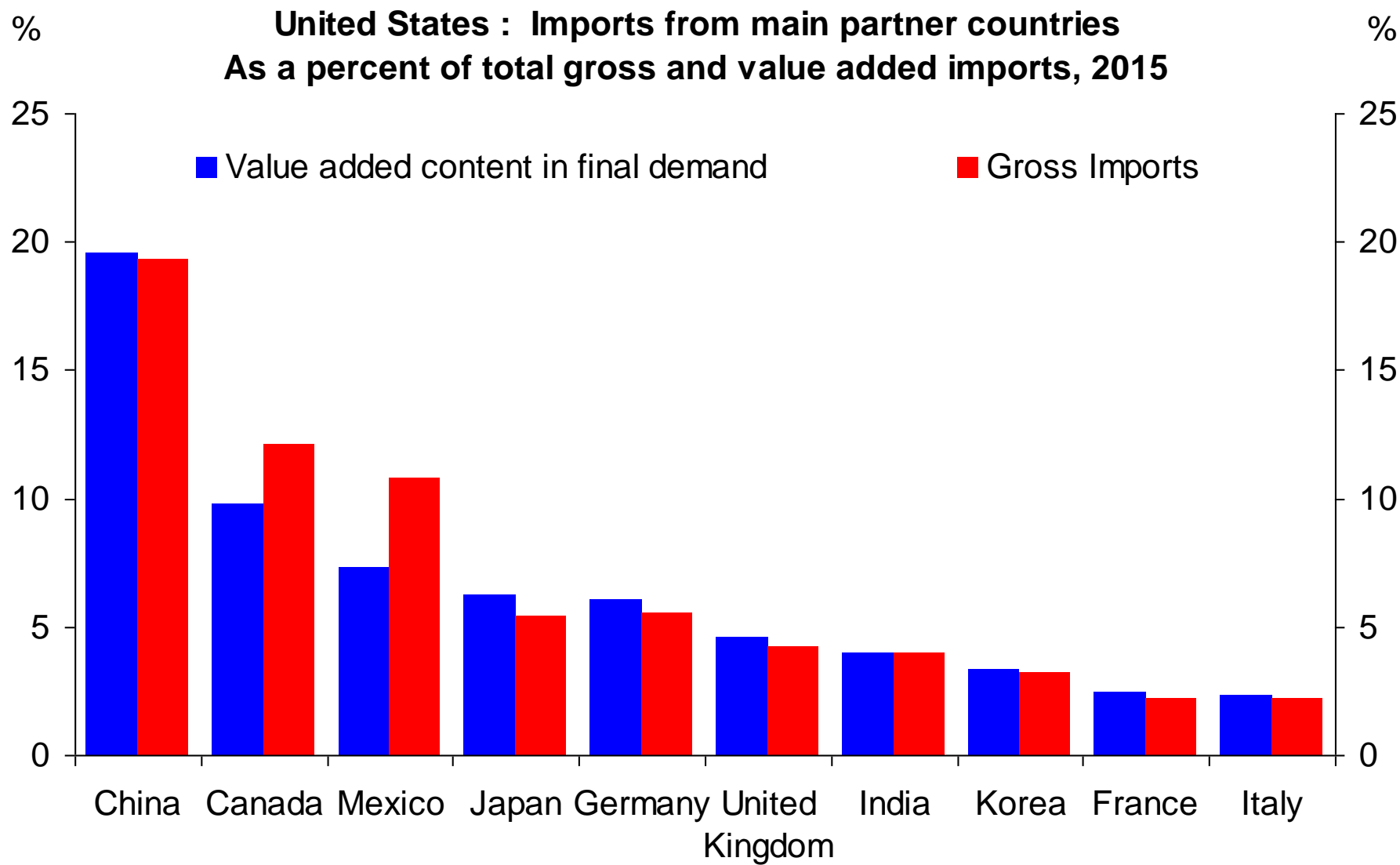
## US: Exports as a percent of total exports



Source: OECD, DB Global Research



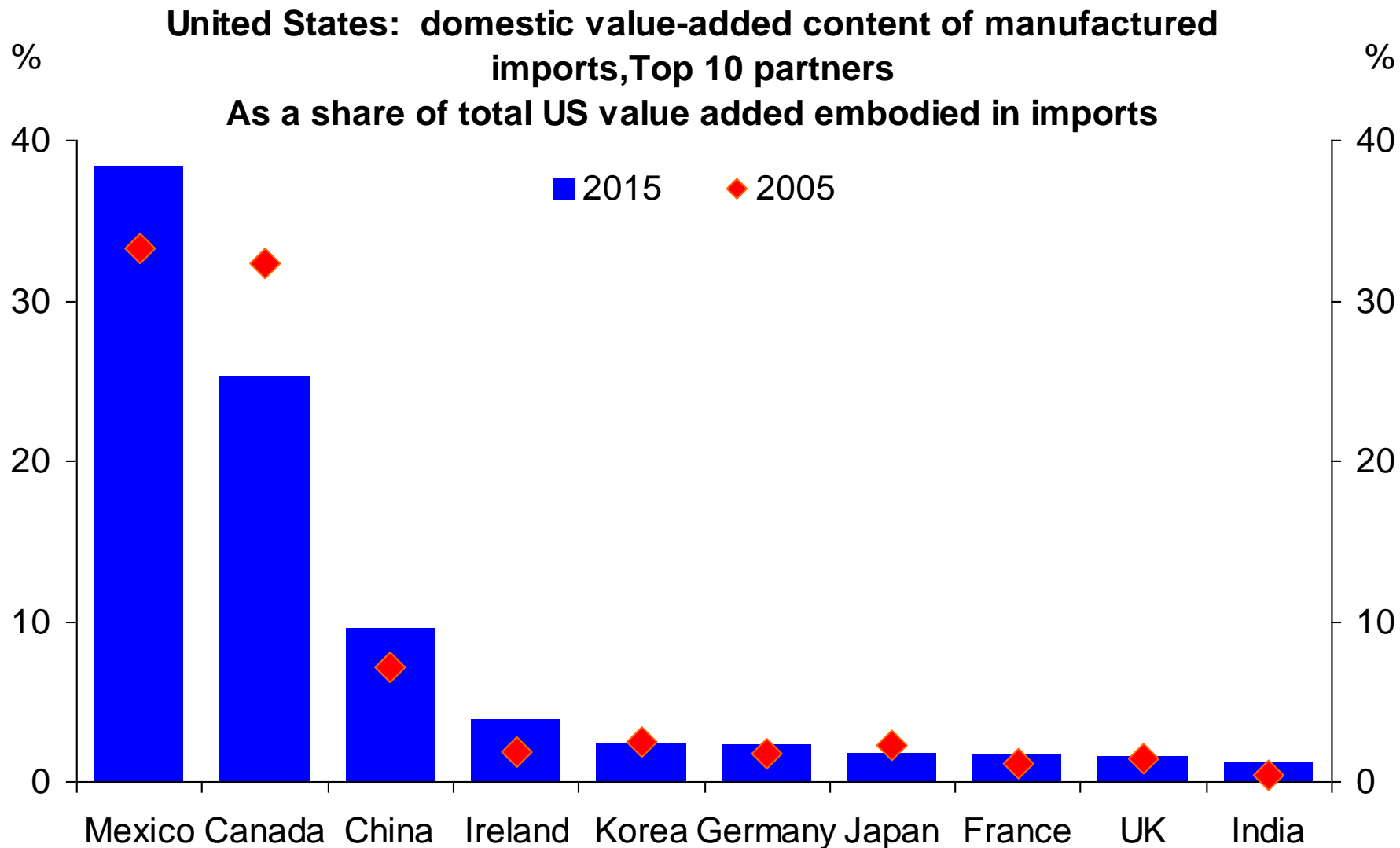
# US: Imports from different countries as a percent of total imports



Source: OECD, DB Global Research



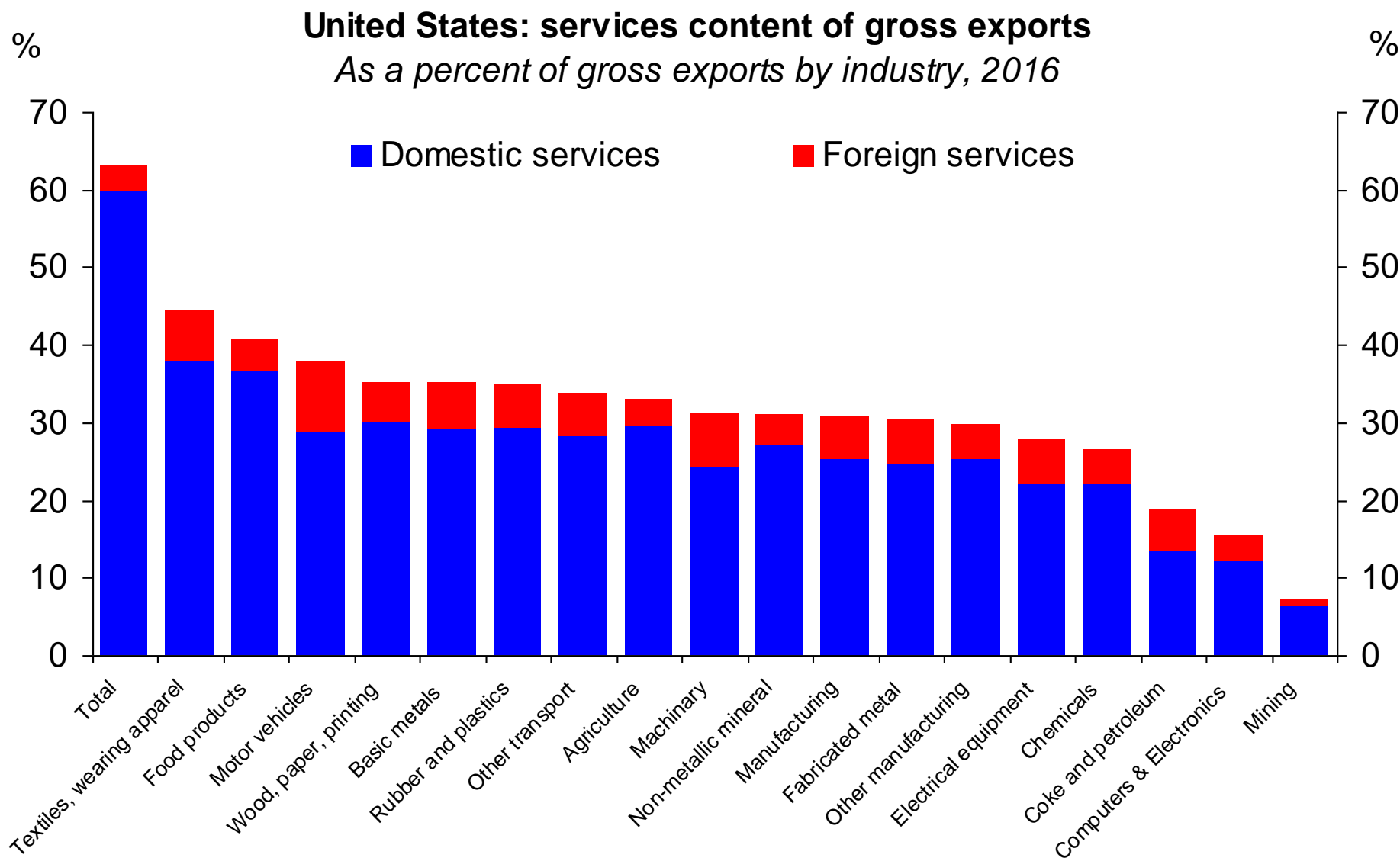
# US: Domestic value-added content of manufactured imports as a share of total value added in imports



Source: OECD, DB Global Research



# Services accounted for 62% of US gross exports in 2016



Source: OECD, DB Global Research



# The importance of global supply chains in different industries in China



# China: Domestic value added in foreign final demand across industries

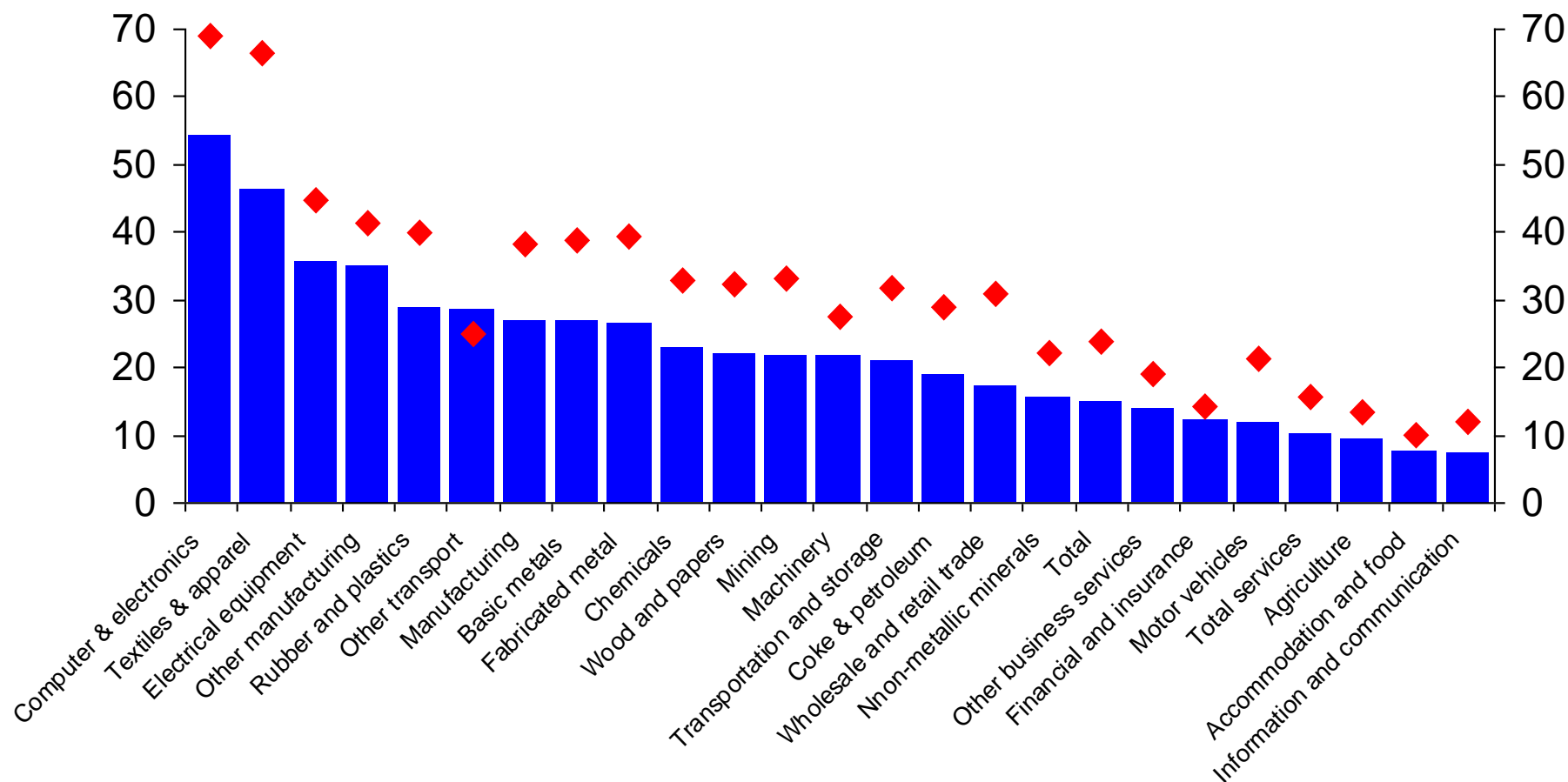
%

## China: domestic value added in foreign final demand

%

*As a percent of value added by industry, 2005 to 2015*

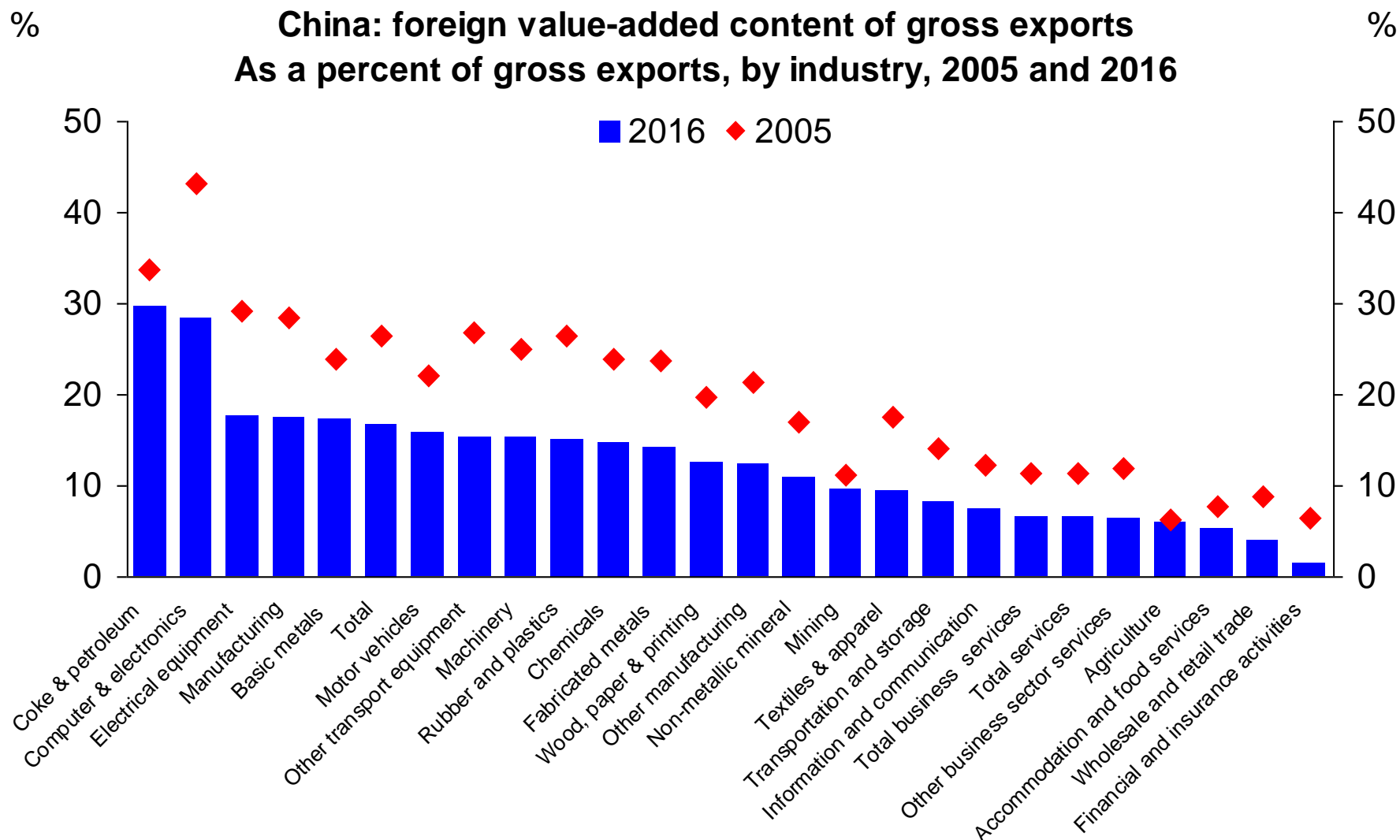
■ 2016 ◆ 2005



Source: OECD, DB Global Research



## China: Foreign value-added content of exports as a percent of exports by industry

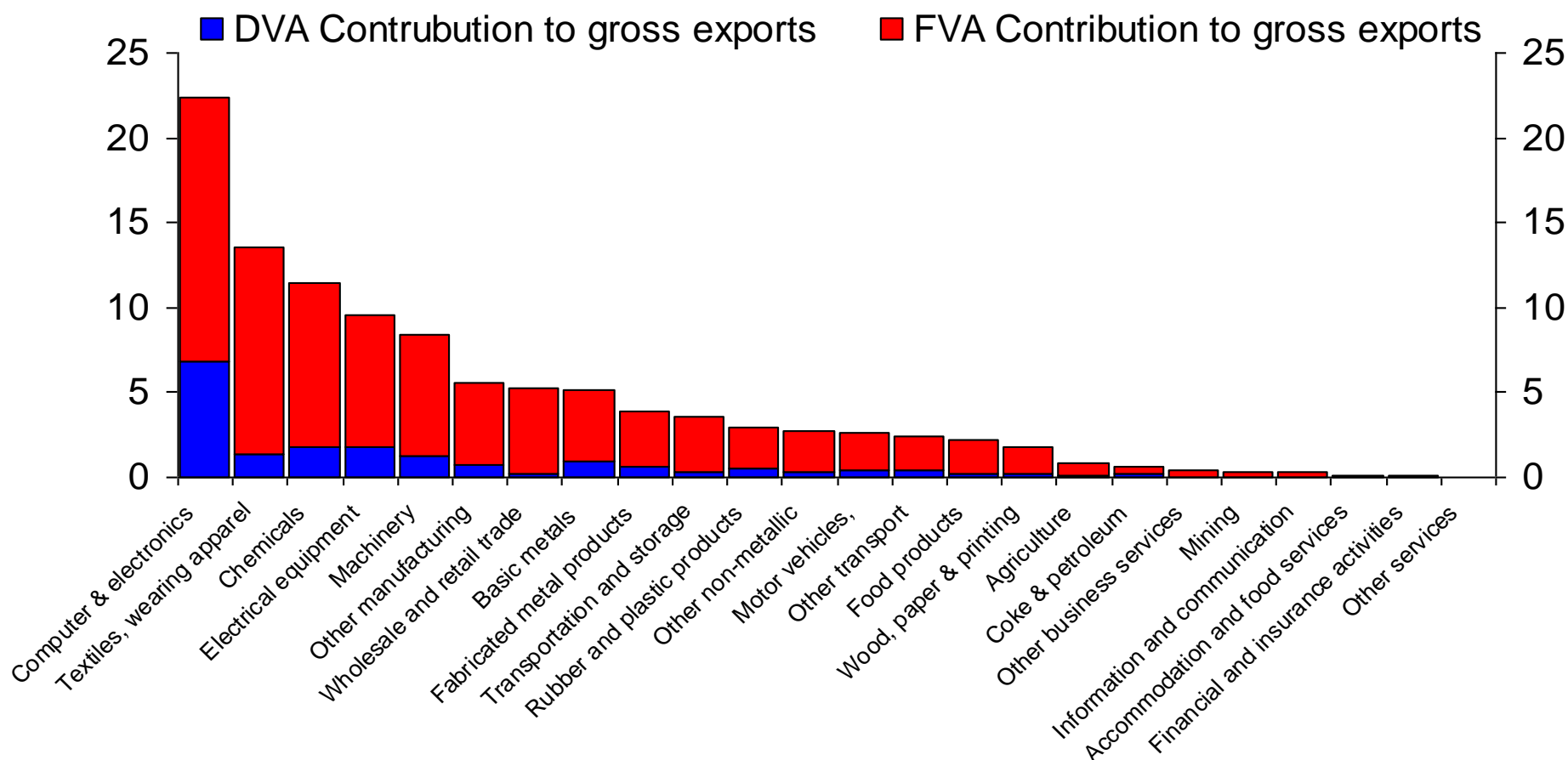


Source: OECD, DB Global Research



# China: Industry share of value-added content of exports as a percent of total exports

## China: industry share of domestic and foreign value-added content of gross exports As a percent of total gross exports, 2015



Source: OECD, DB Global Research

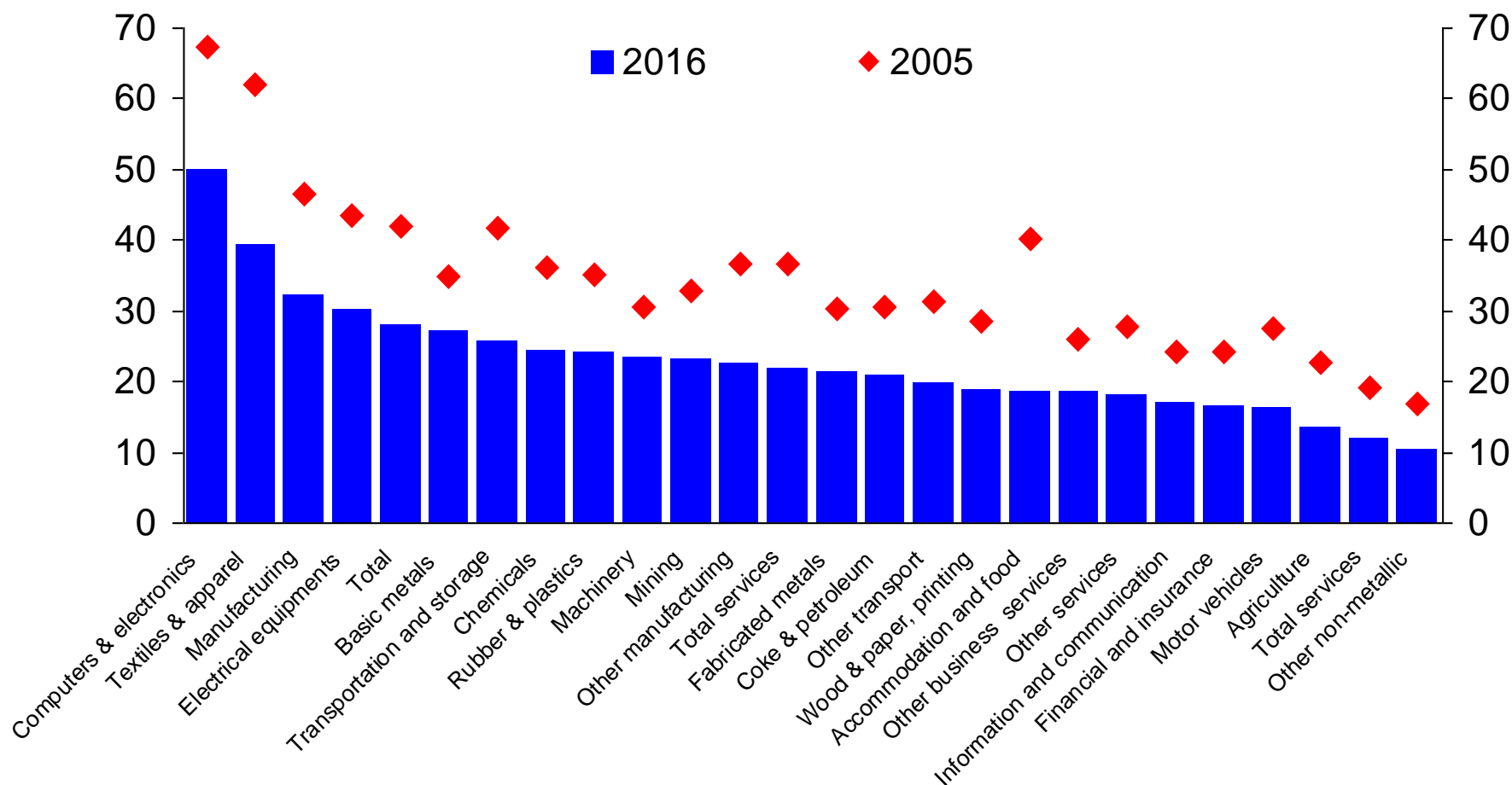




# Imported intermediate inputs used for exports by industry-origin of imports

% **China: imported intermediate inputs used for exports, by industry-origin of imports** %

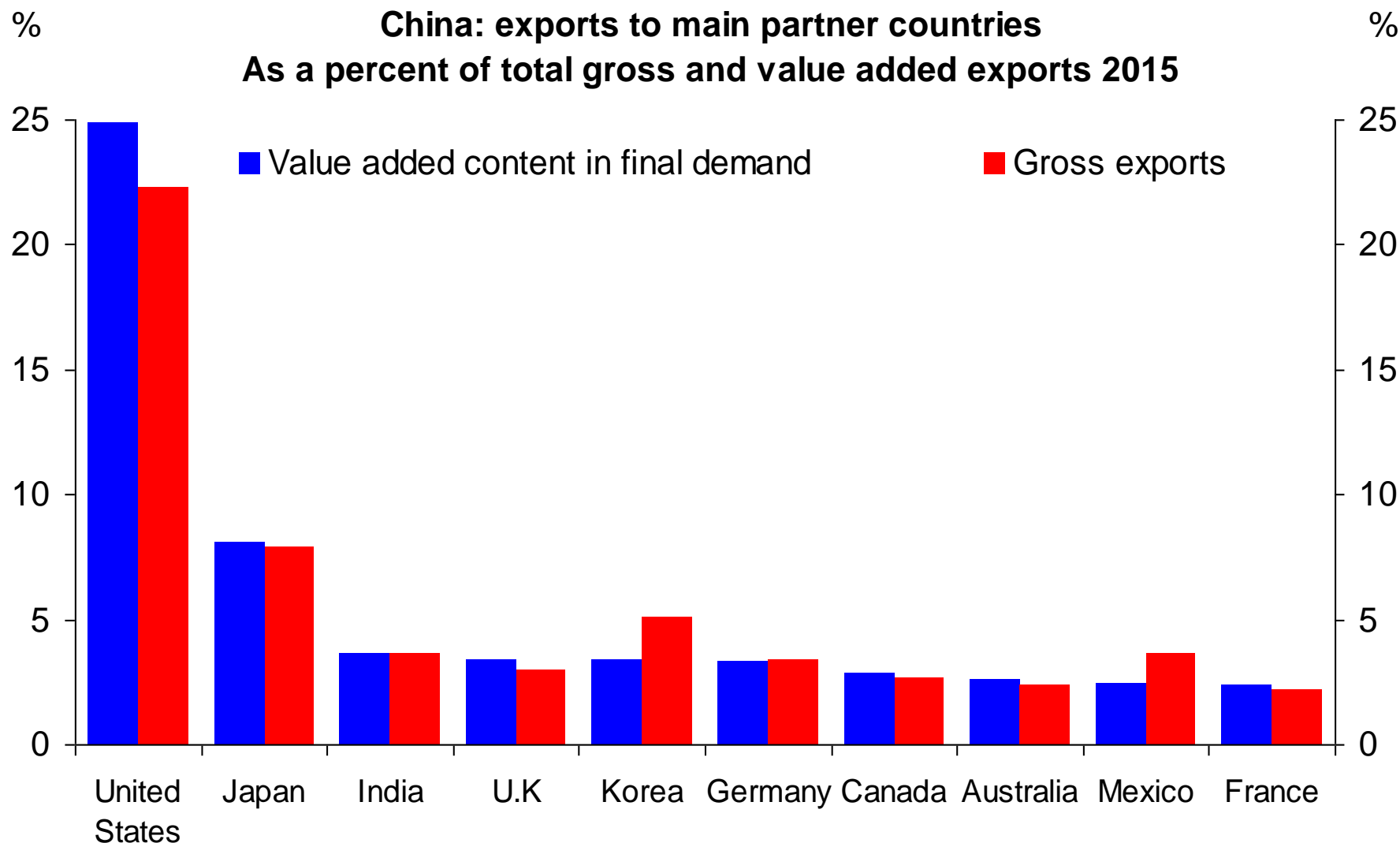
*As a percent of intermediate imports, 2005 and 2015*



Source: OECD, DB Global Research



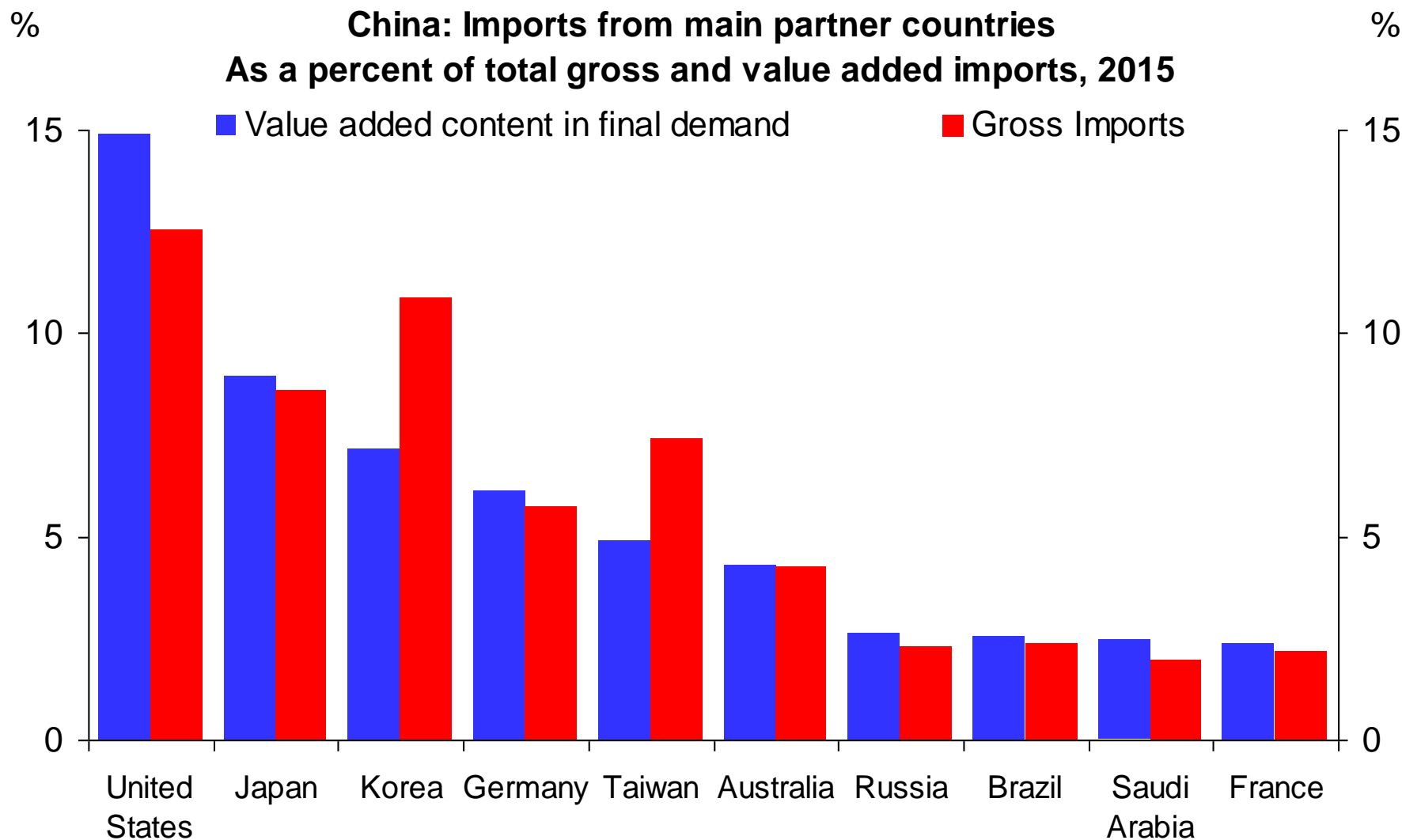
## China: Exports to main trading partners as a percent of exports



Source: OECD, DB Global Research



# China: Imports from main trading partners as a percent of imports



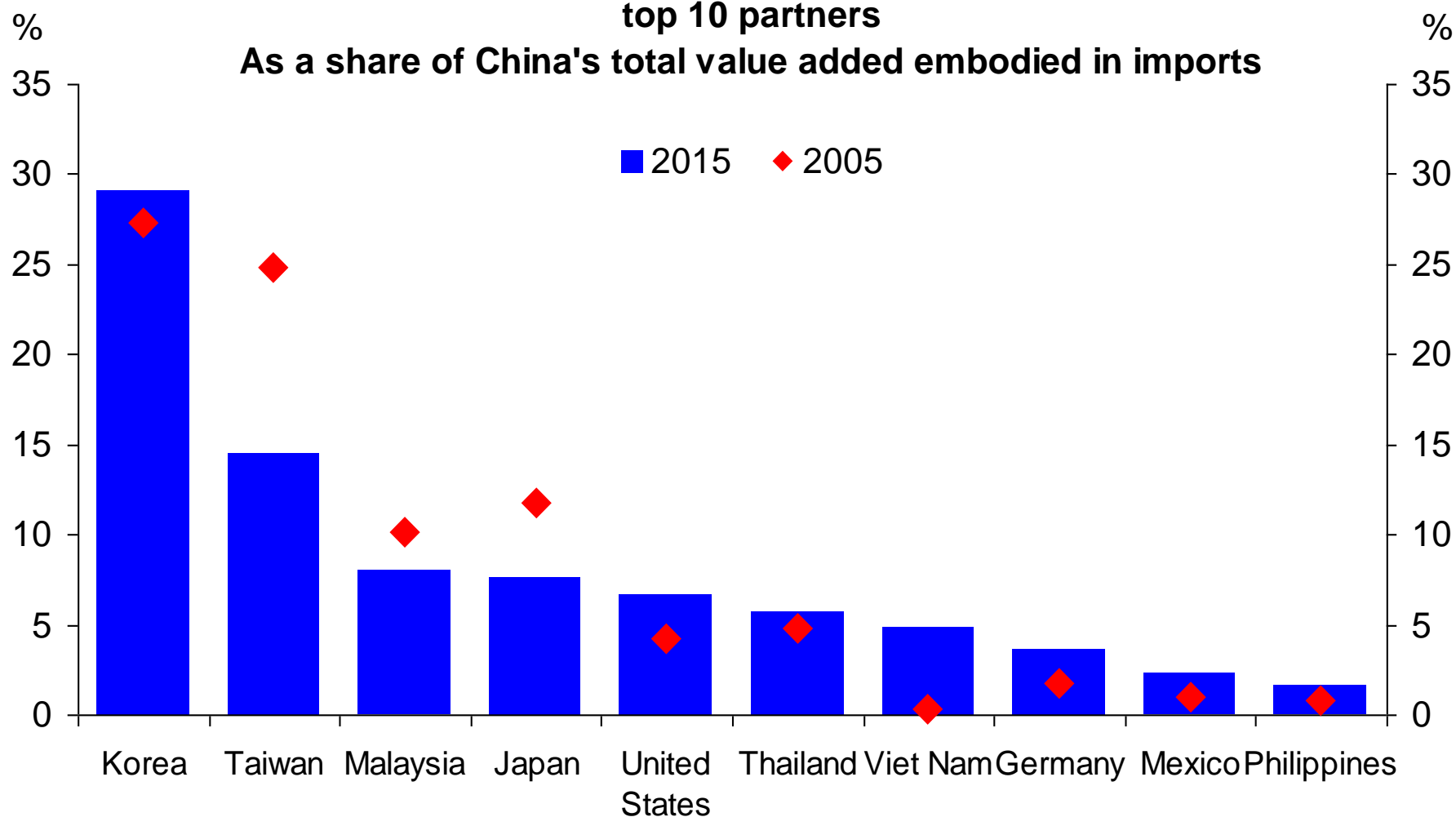
Source: OECD, DB Global Research



## China: Domestic value added content of imports

### China: domestic value-added content of manufactured imports, top 10 partners

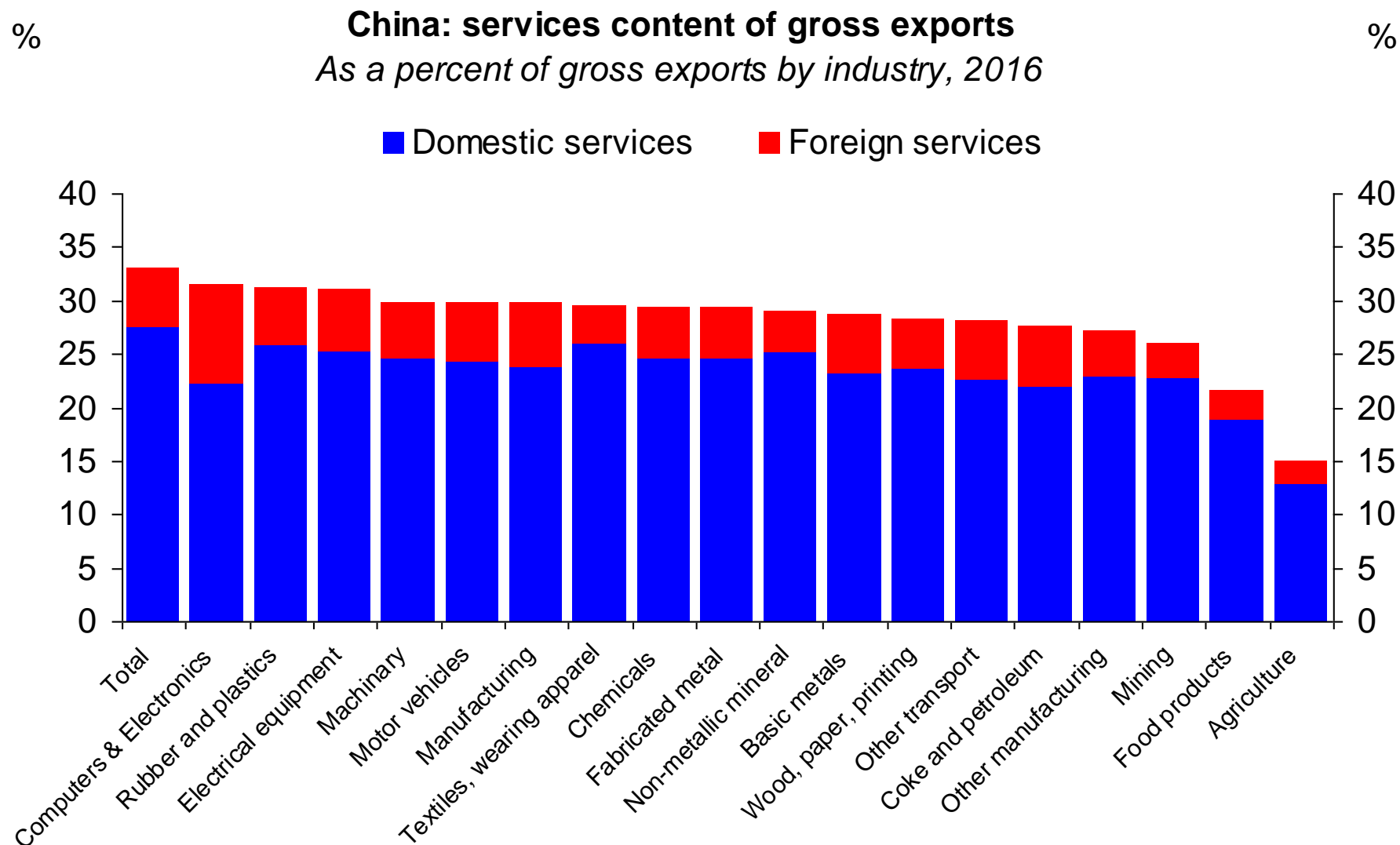
As a share of China's total value added embodied in imports



Source: OECD, DB Global Research



## Services accounted for 33% of China's gross exports in 2016



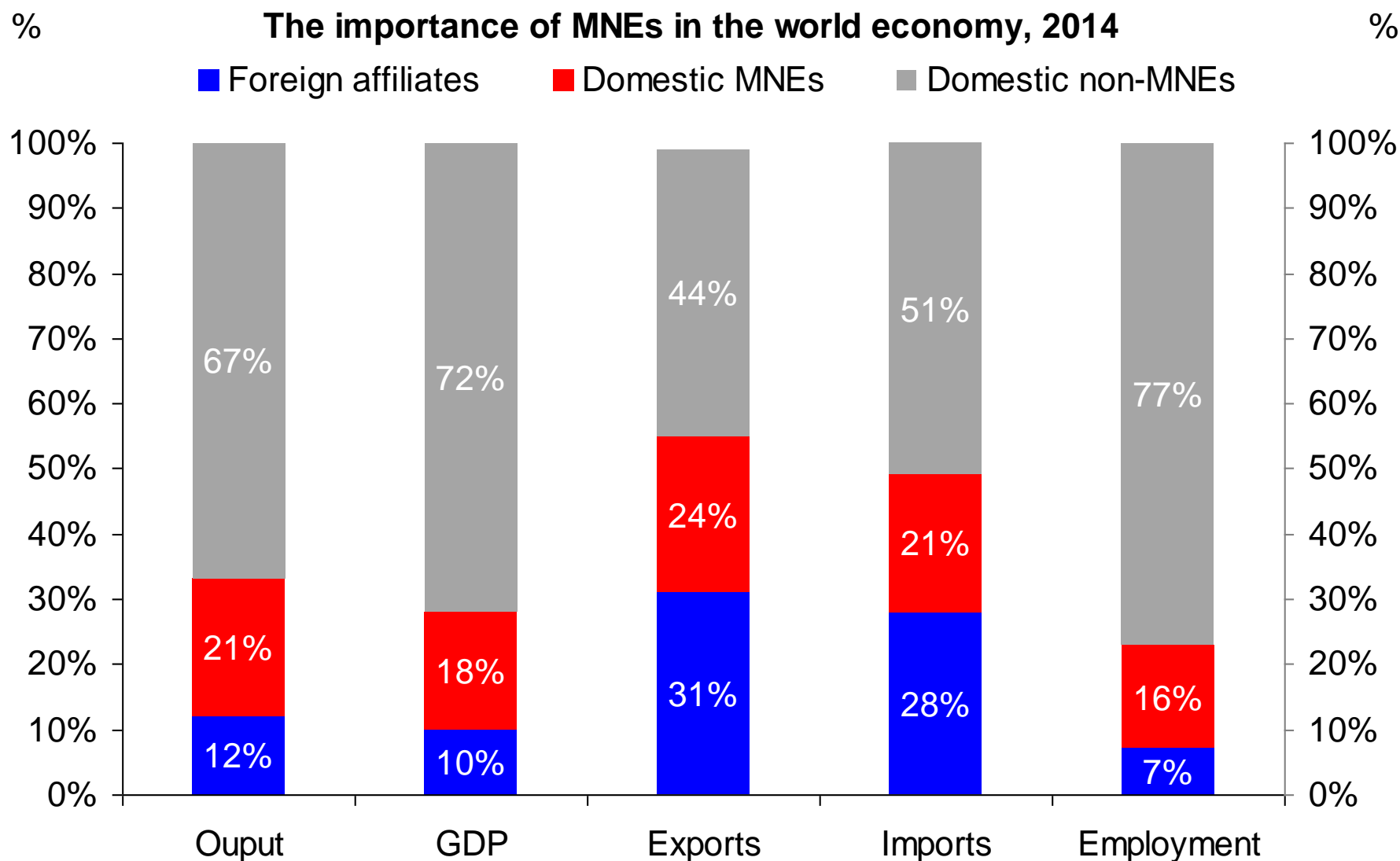
Source: OECD, DB Global Research



# Global supply chains and Multi-national Enterprises (MNEs)



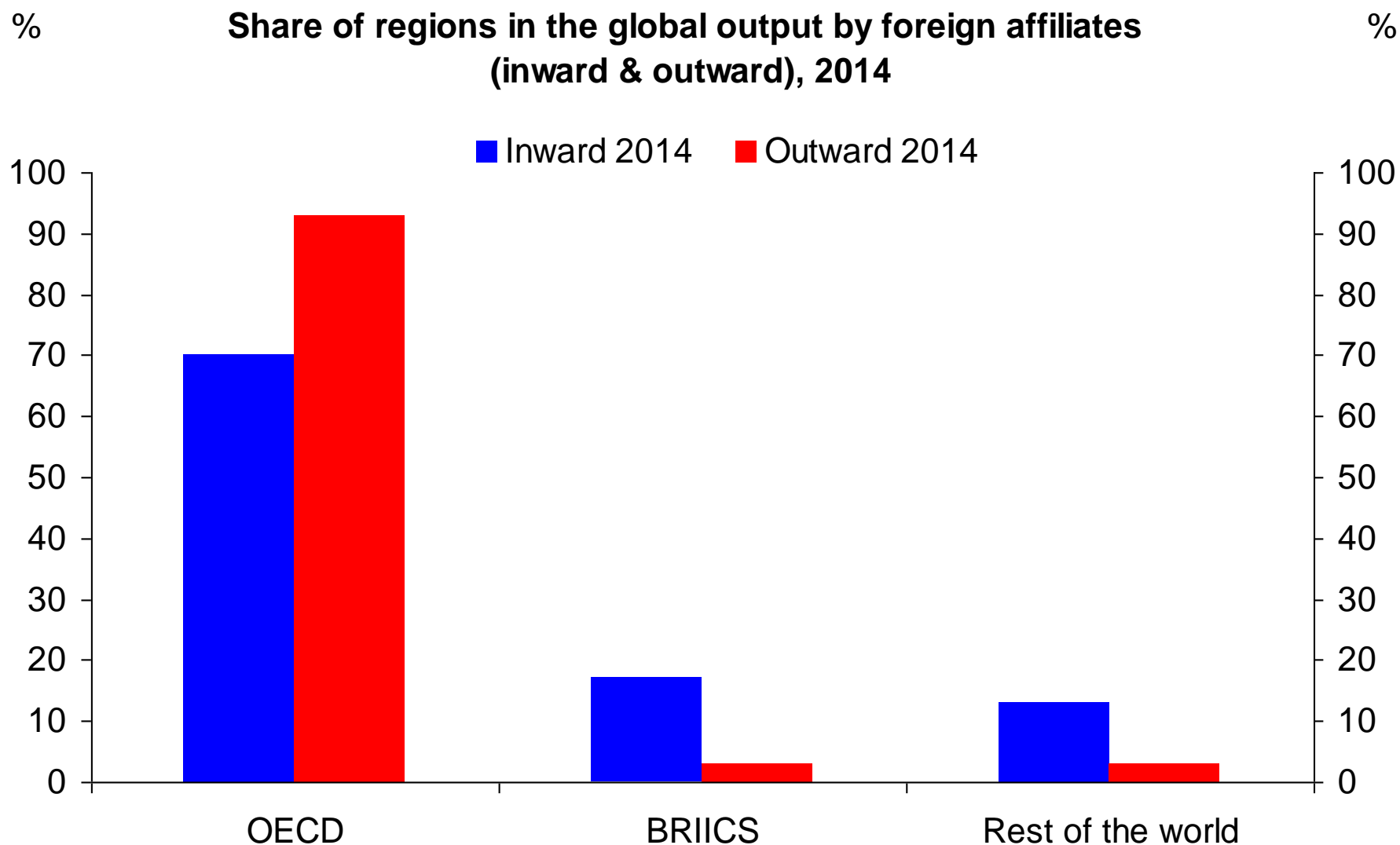
# MNEs are estimated to produce about 1/3 of global output



Source: OECD, DB Global Research



## Share in global output by foreign affiliates



Source: OECD, DB Global Research



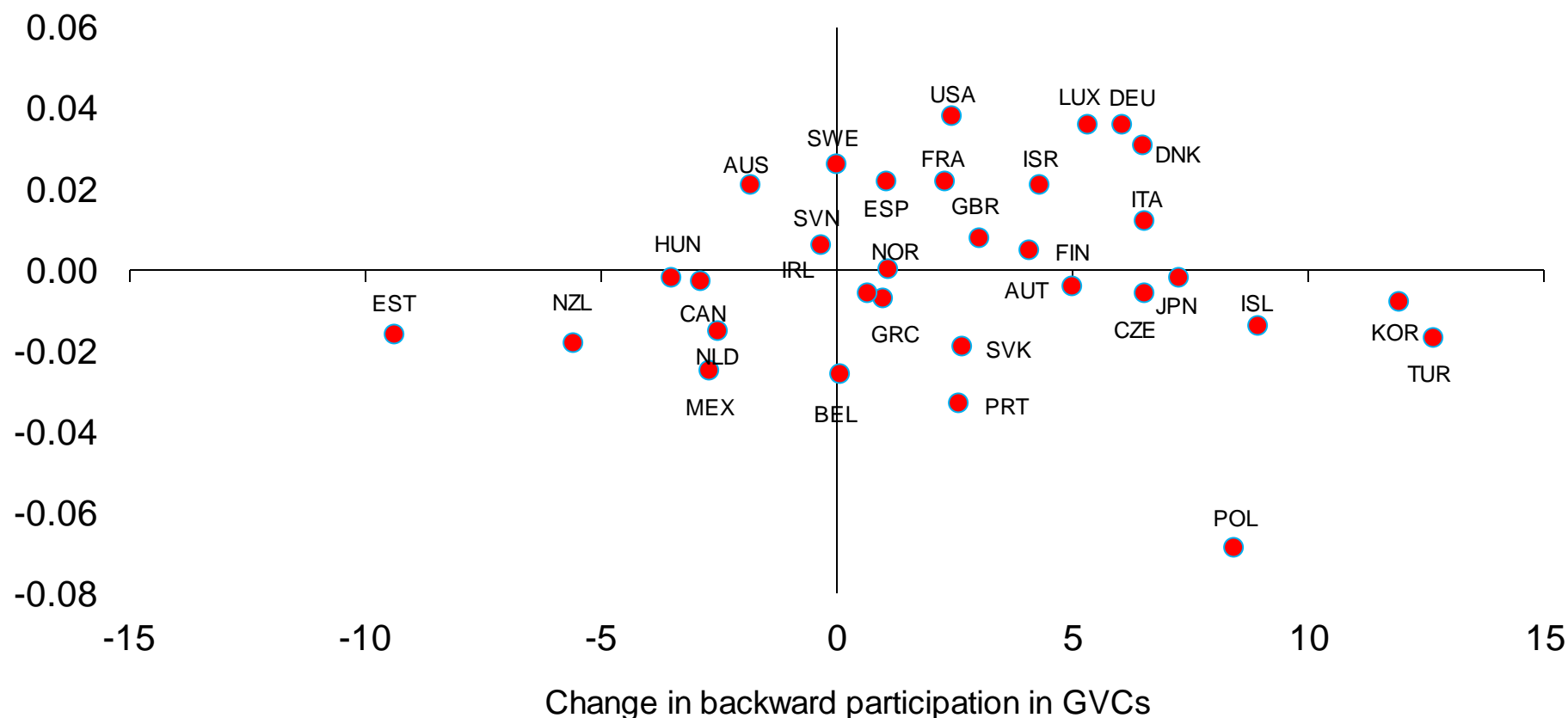


# Global supply chains and inequality



# No clear relationship between global value chains and inequality

Change in the Gini coefficient **Trends in income inequalities and participation in global value chains 2000-12**

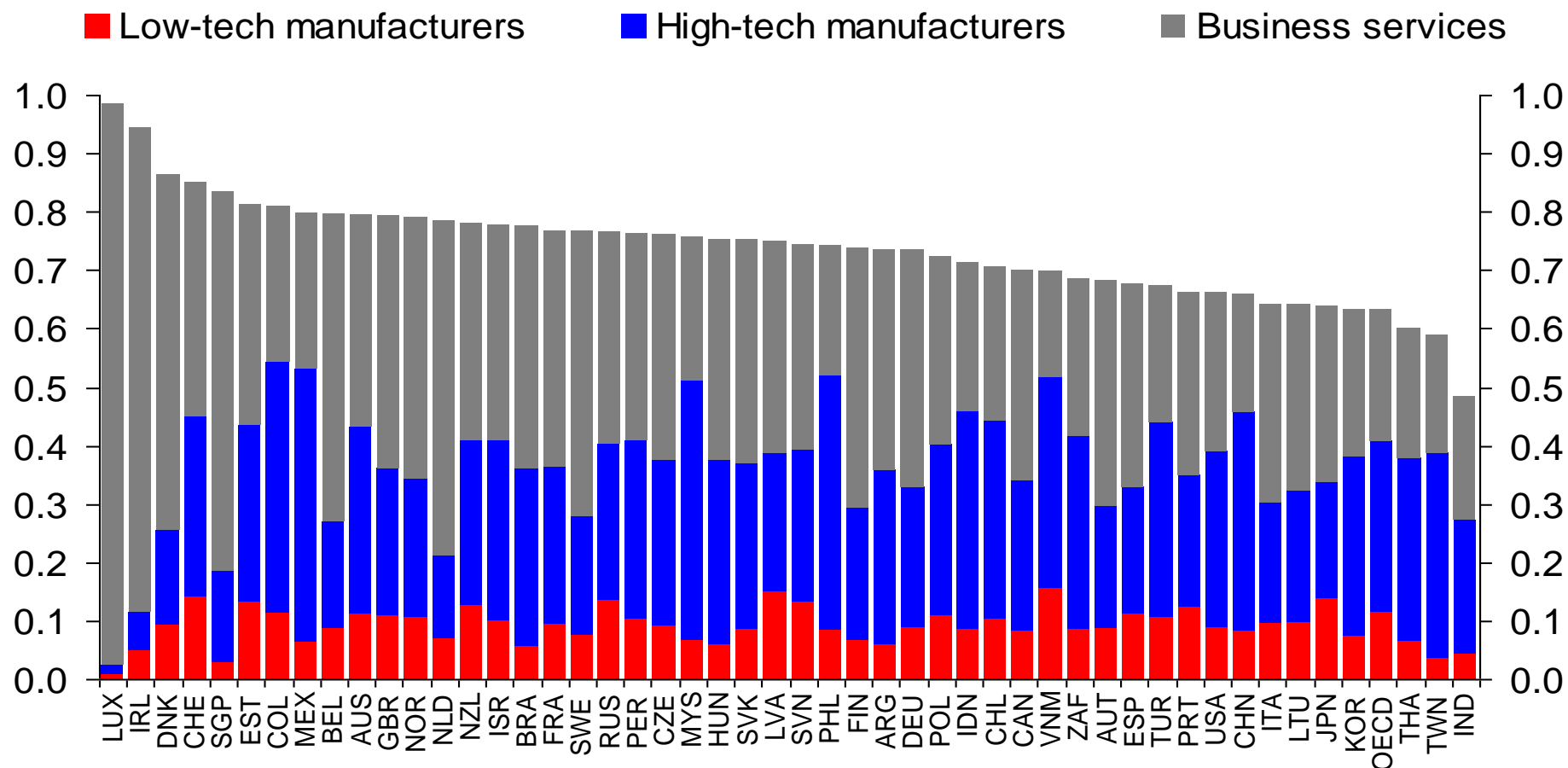


Source: OECD, DB Global Research



# Use of foreign intermediate inputs

## Use of foreign intermediate inputs, by groups of industries As a proportion of total imports of intermediate products, 2015

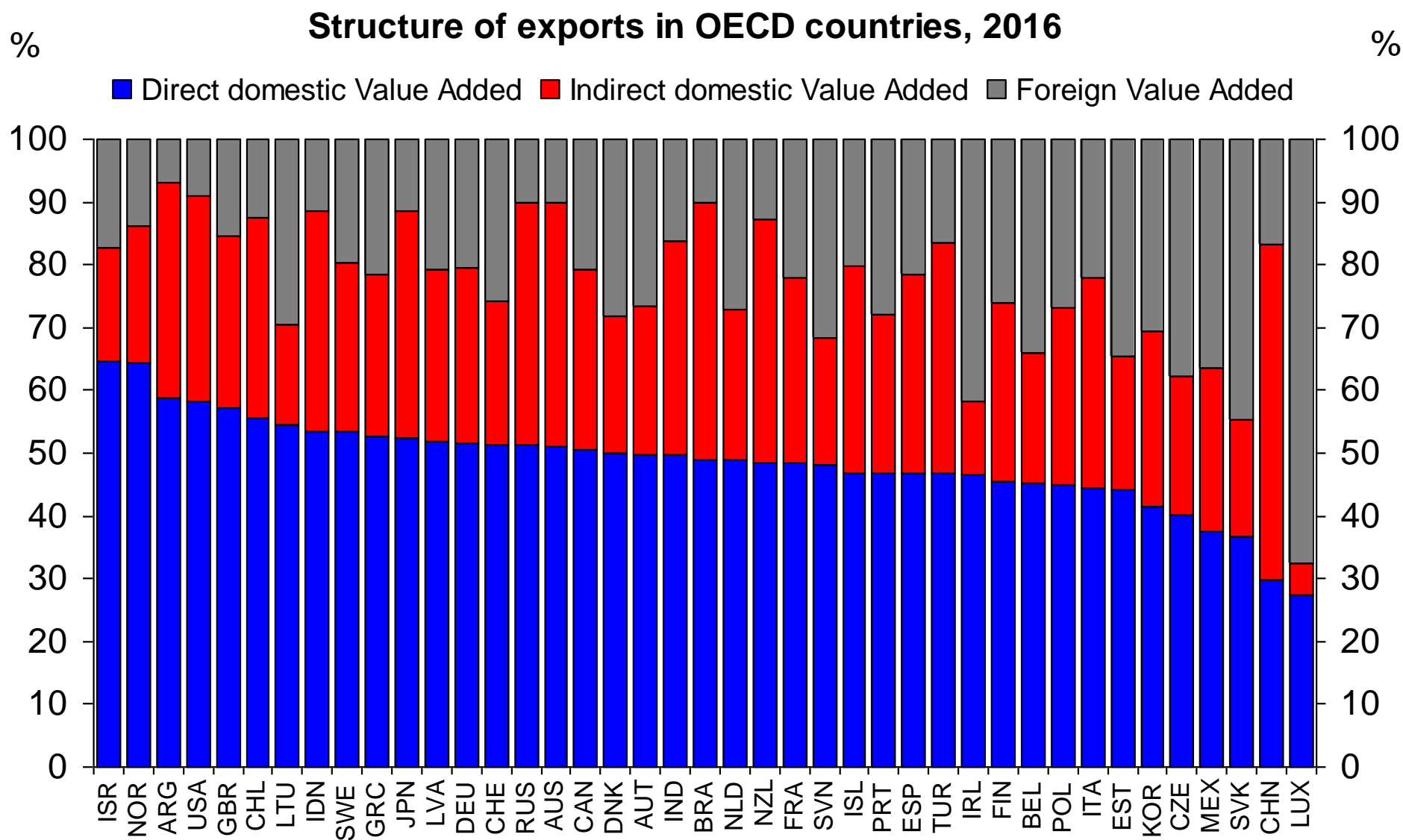


Note: Low technology manufactures are defined as sectors covering ISIC Rev.3 codes 15-22 and 36-37; business services include ISIC Rev.3 codes 50-74; and high technology manufactures include ISIC Rev.3 codes 24, 30, 32-33, 35

Source: OECD, DB Global Research



# Imports are an important part of exports in many OECD countries



Source: OECD, Global Research



## Torsten Slok, Ph.D.

**Chief Economist, Managing Director**

**Deutsche Bank Securities, Inc.**

- Torsten Slok joined Deutsche Bank Securities in the fall of 2005.
- Mr. Slok's Economics team has been top-ranked by Institutional Investor for the past four years. Slok currently serves as a member of the Economic Club of New York
- Prior to joining the firm, Mr. Slok worked at the OECD in Paris in the Money and Finance Division and the Structural Policy Analysis Division. Before joining the OECD he worked for four years at the IMF in the Division responsible for writing the World Economic Outlook and the Division responsible for China, Hong Kong, and Mongolia.
- Mr. Slok studied at University of Copenhagen and Princeton University. He has published numerous journal articles and reviews on economics and policy analysis, including in Journal of International Economics, Journal of International Money and Finance, and The Econometric Journal.



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