



Changing Chinese value chains

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Introduction

- China has risen as a key hub in global value chains
 - Evolution of Chinese value chains has important implications for all economies in the world
- Increasing interest in examining inter-dependencies between economies and revealing vulnerabilities in global value chains
 - Covid-19 pandemic, Russia's war in Ukraine, risks of fragmentation
- We provide a descriptive analysis on the evolution of Chinese value chains based on the most recent data

Defining value chains

- Analysis of fragmentation of production of final products
 - Focus on imports, abstracting from exports
- A value chain includes all inputs and production stages from domestic and foreign sources needed to complete the final product
 - Focus on value added instead of gross output/trade (Johnson, 2018; Koopman et al., 2012; Timmer et al., 2015)
- Value chain is identified by the country-sector, where the last stage of production takes place
 - No distinction between domestic- and foreign-owned companies

Data: ADB international input-output tables

- 65 economies + a Rest of the World – block
 - All major developed and emerging economies individually
 - More extensive coverage of emerging Asia
- 35 sectors
 - Primary, manufacturing, services
 - Our focus on manufacturing and key tradable services
- Annual data for 2007-2020
 - In 2010 US dollars
 - Our focus on the latest decade (2011-2020)

General structure of an international input-output table

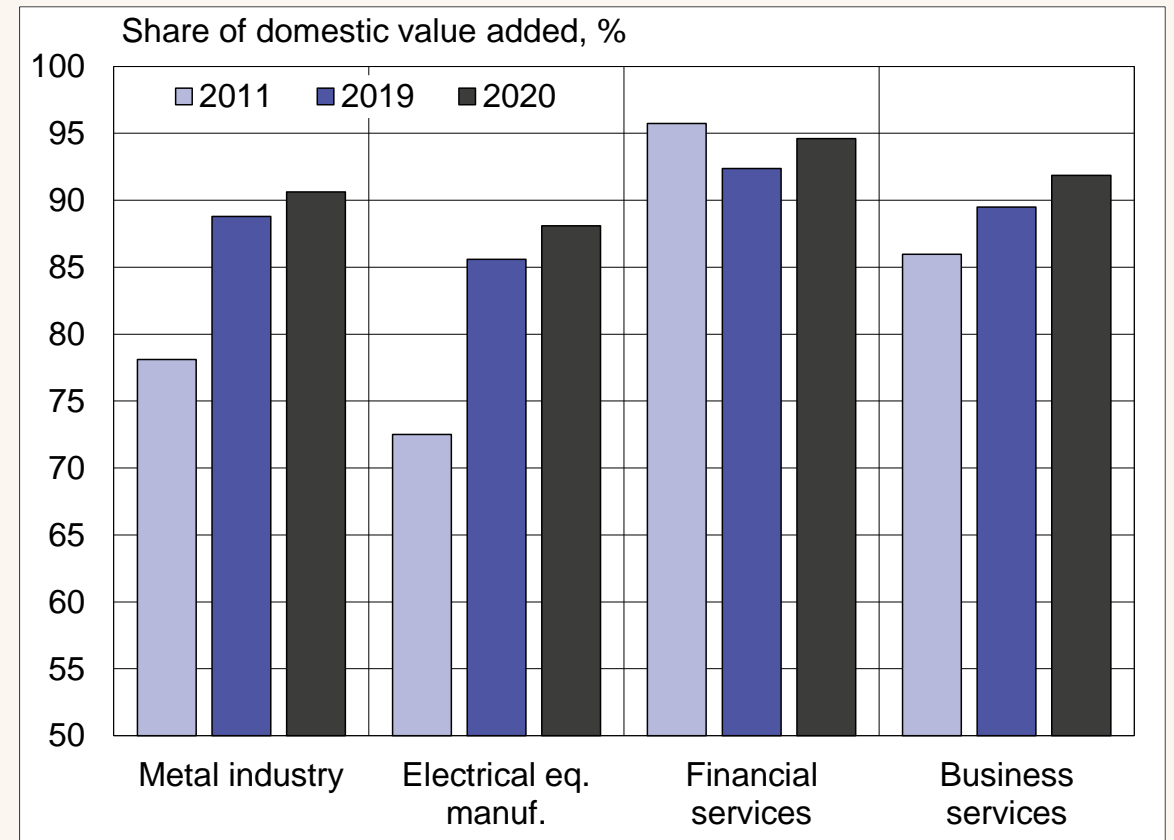
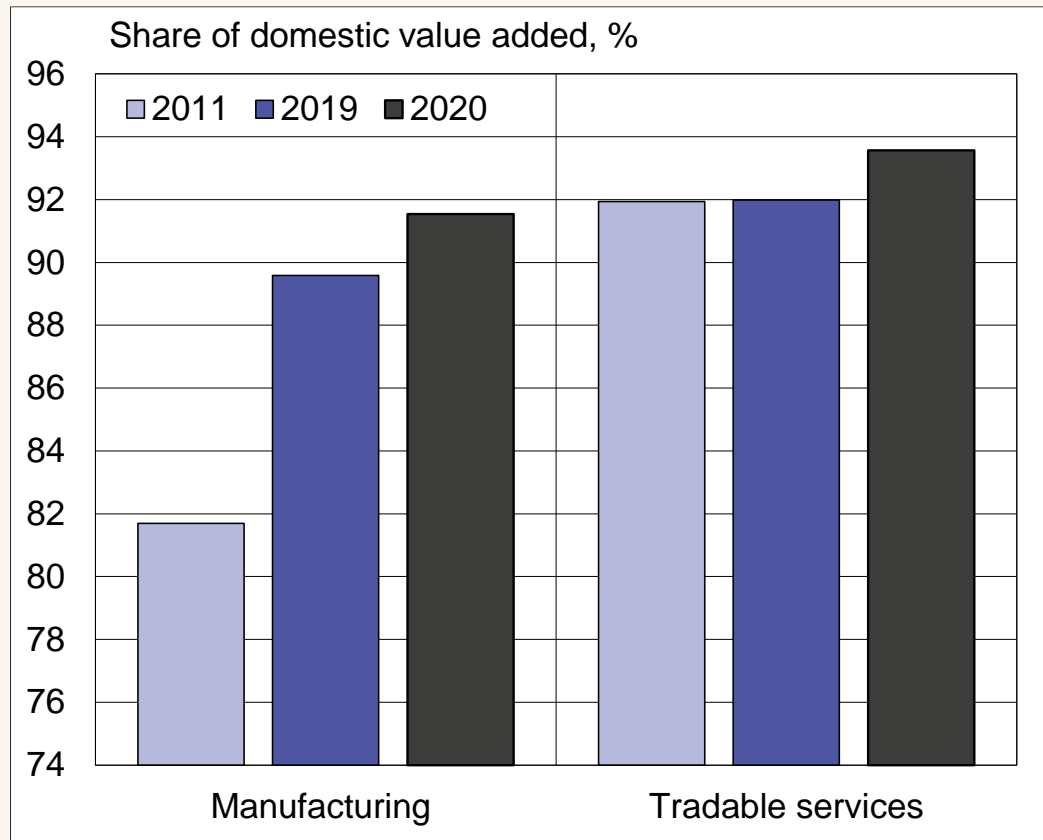
			Use by country-industries						Final use by countries			Total use	
			Country 1			...	Country M			Country 1	...		Country M
			Industry 1	...	Industry N	...	Industry 1	...	Industry N		...		
Supply from country-industries	Country 1	Industry 1											
		...											
	Country M	Industry 1											
		Industry N											
Value added by labour and capital													
Gross output													

Source: Timmer et al., 2015.

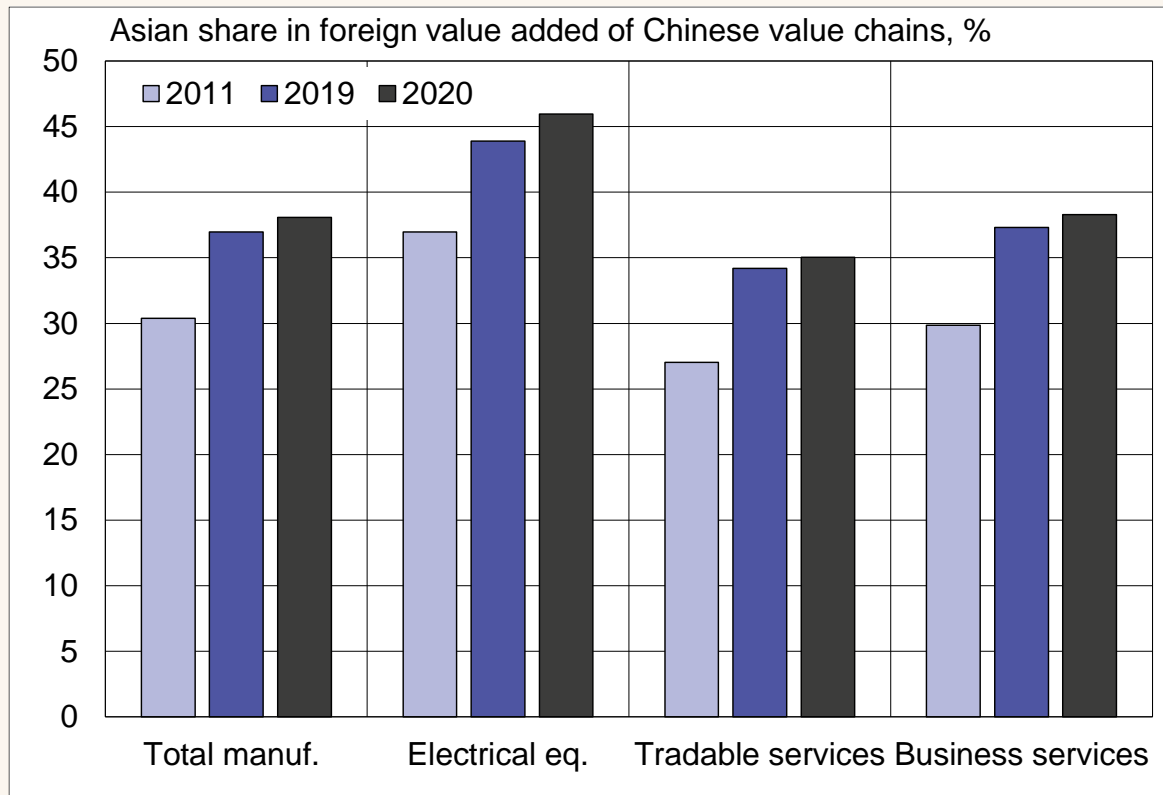
Methodology

- Standard input-output analysis framework commonly applied in the previous literature
 - See e.g. De Vries et al. (2019), Simola (2018), Timmer et al. (2015)
- Country-sector output vector: $\mathbf{Q} = (\mathbf{I}-\mathbf{B})^{-1}\mathbf{C}$ (1)
 - I is identity matrix
 - B is coefficient matrix of intermediate inputs
 - C is final demand vector
- Country-sector value-added vector: $\mathbf{K} = \mathbf{F}(\mathbf{I}-\mathbf{B})^{-1}\mathbf{C}$ (2)
 - F is diagonal matrix containing the ratios of value added to gross output of all countries and industries in its diagonal
- Decomposition of Chinese value chains
 - Total final demand (private & public consumption and investment domestically and abroad) for a Chinese sector inserted for C in (2)
 - Total value added = including domestic inputs
 - Foreign value added = imported inputs

Results I: Domestic value added in Chinese manufacturing value chains has substantially increased

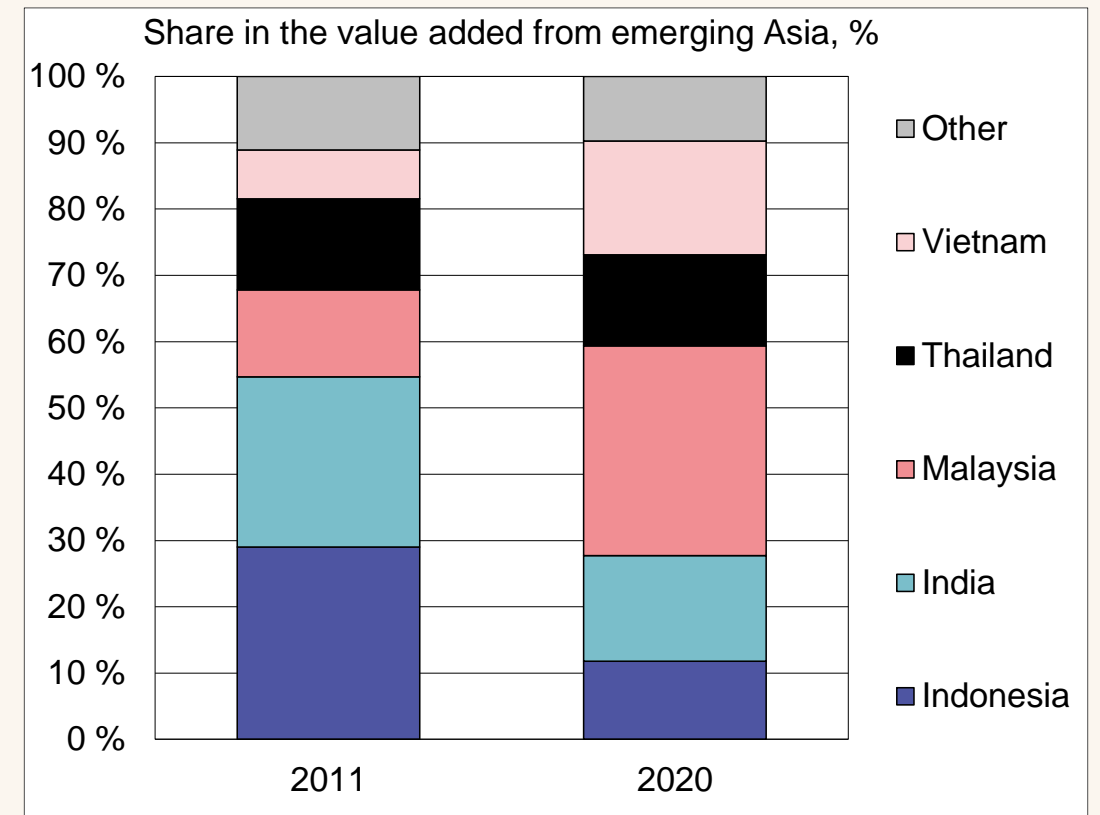
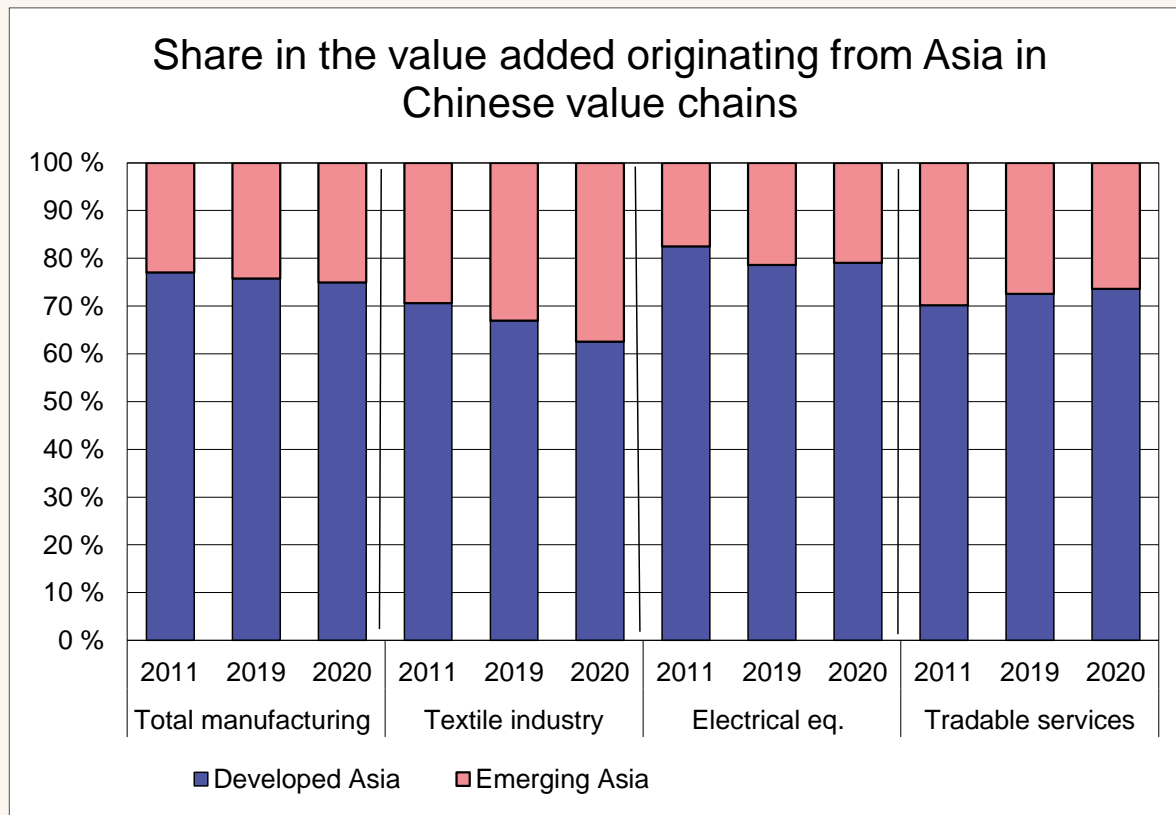


Results II: Chinese value chains have become more regional



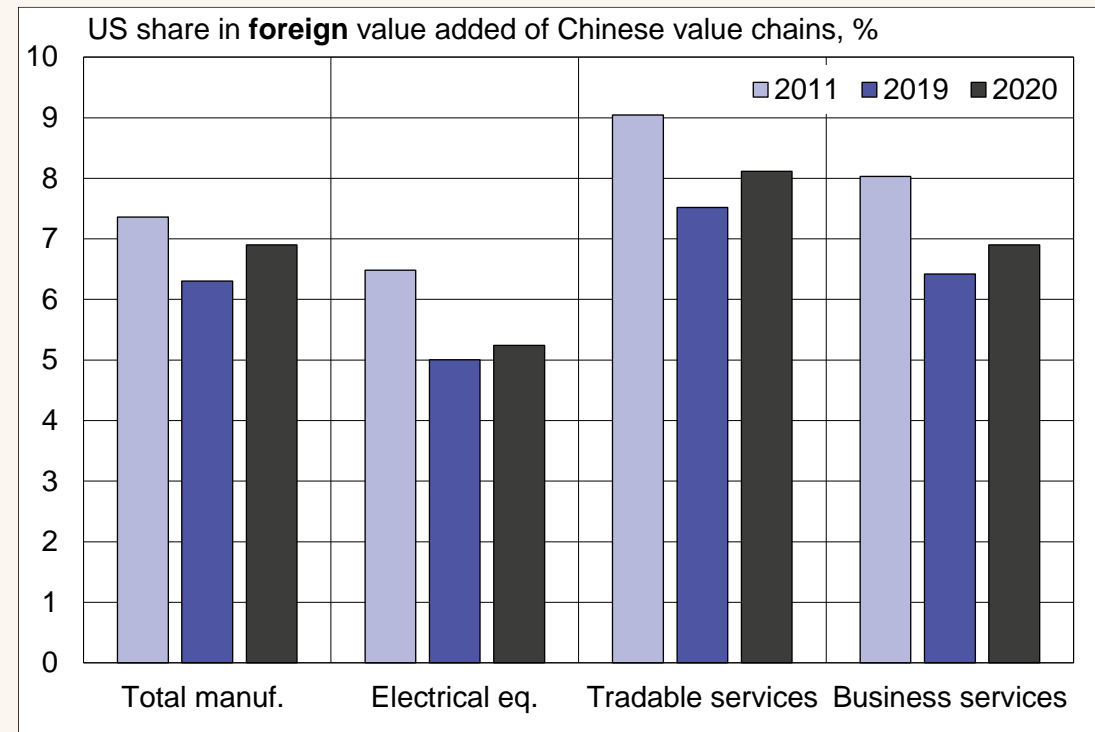
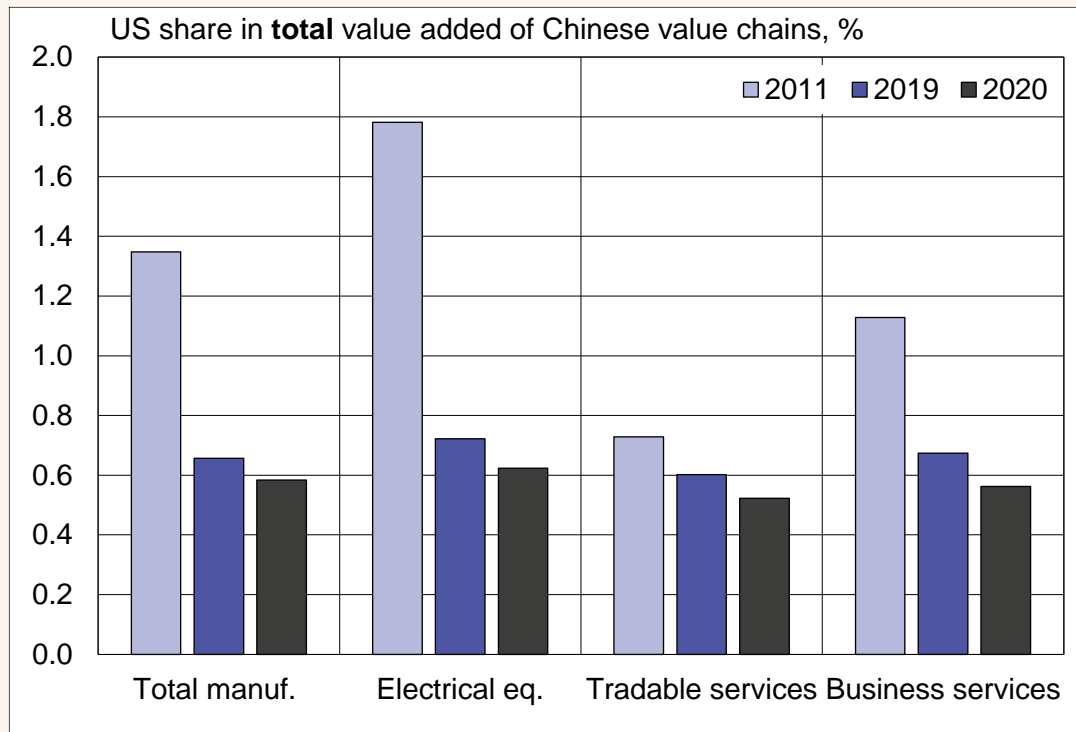
- Share of Asian economies in the foreign value added embodied in Chinese value chains increased in 2011-2019
- Rapid growth in nearly all manufacturing and tradable service sectors
- More mixed trends in the pandemic year 2020

Within Asia, the importance of emerging economies has grown only slightly



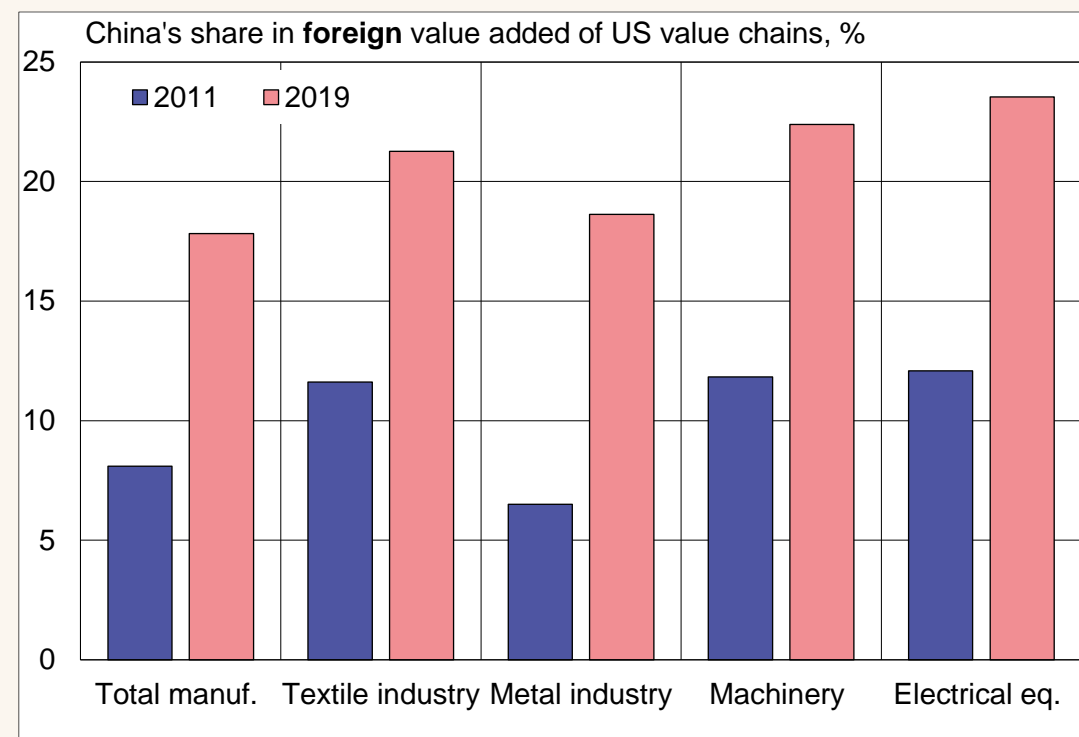
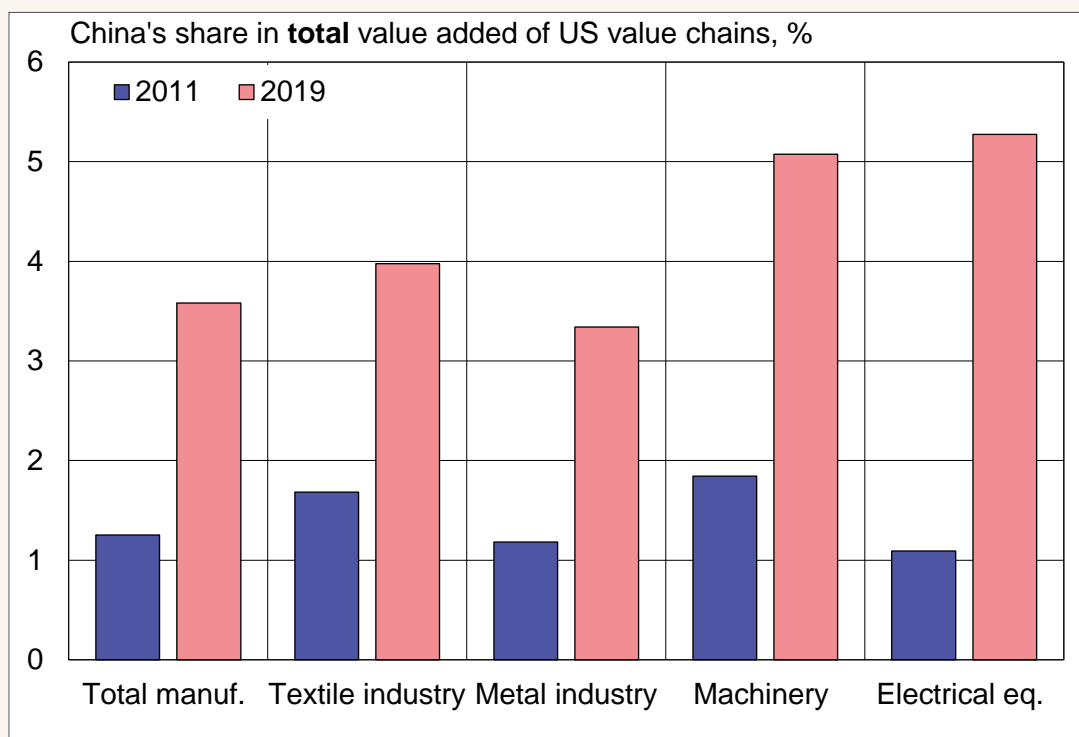
Results III: Some indications of China decoupling from the US..

Share of the US has declined in the total and foreign value added embodied in Chinese value chains

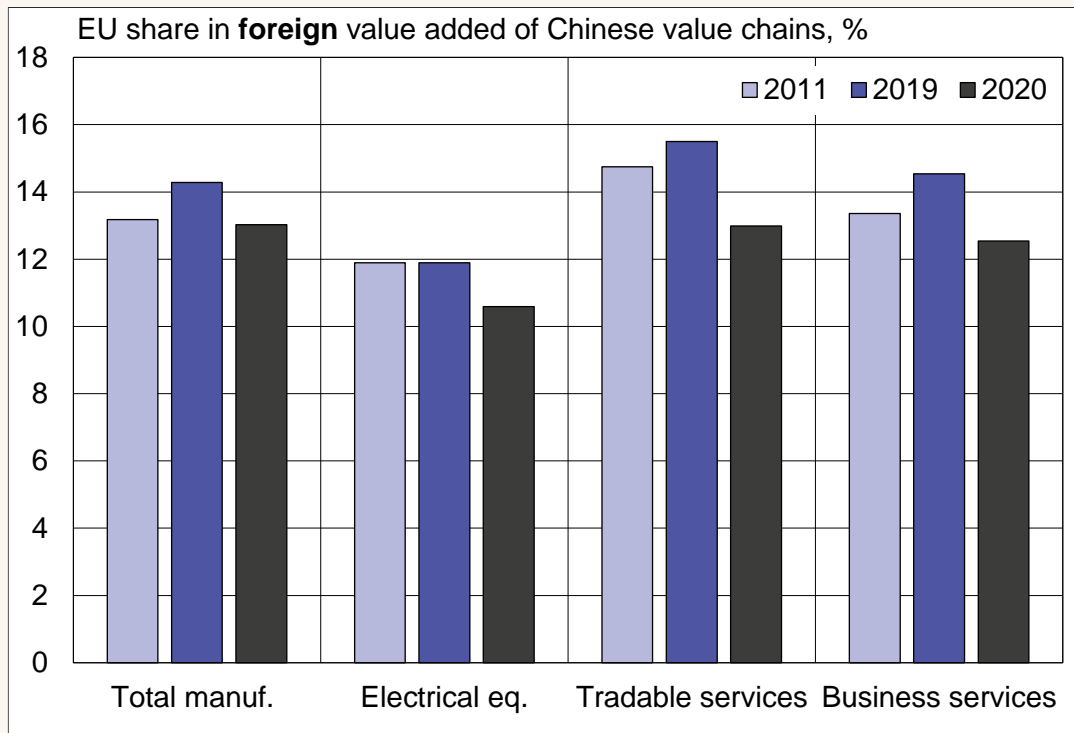


..but no signs of US decoupling from China

Share of China has increased in the total and foreign value added embodied in Chinese value chains



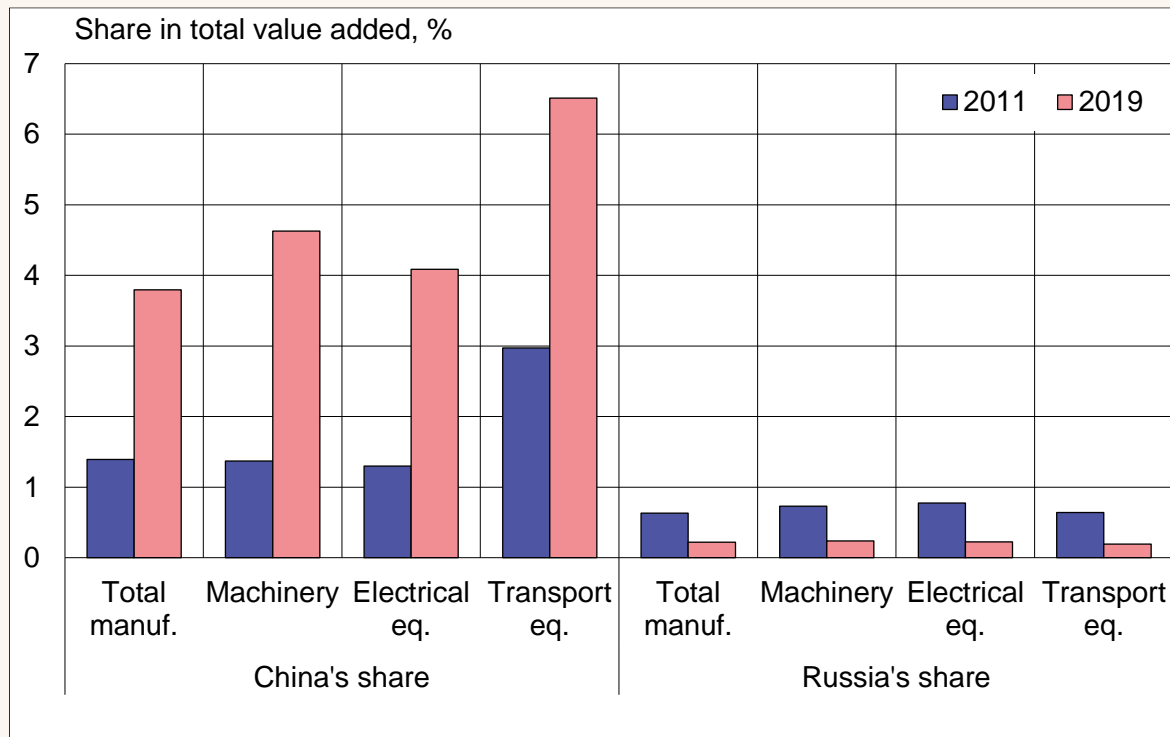
Results IV: The Covid pandemic hit particularly EU value added



- EU share in the **foreign** value added embodied in Chinese value chains increased in 2011-2019
- But with a sharp decline in 2020, the share dropped below 2011 level
- Similar development across all sectors

Results V: Asymmetry in value chain relations between Russia and China has increased

Share of China in the **total** value added of Russian value chains and share of Russia in the **total** value added of Chinese value chains.



- China's share in the total value added of Russian value chains has substantially increased
 - Mainly replacing Russia's domestic value added
 - China's share in imported value added has also grown
- Russia's share in the total value added of Chinese value chains has decreased
 - The relative importance of raw materials has declined as China has shifted to higher value-added production

Concluding remarks

- Chinese value chains have become increasingly domestic and regional
 - Longer term trend further strengthened by the pandemic in 2020
 - Decline in the share of US and Russia in 2011-19, EU in 2020
- Indirect indications of evolving Chinese value chains
 - Higher domestic value added share
 - Decline in the relative importance of raw materials in value chains (diminishing role of Russia)
 - Outsourcing of labour-intensive production (increasing role of emerging Asian economies)
- What are the drivers of these developments?
 - “Natural” reasons: Rapid growth and qualitative development of the Chinese economy
 - Policy outcomes: China’s policies to support domestic production, increasing economic and political tensions globally