

China's Agri-Food Trends

Wendong Zhang

Assistant Professor, Dyson School of Applied Economics and Management, Cornell University;

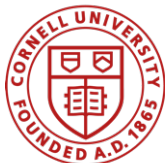
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Syngenta ALA Program, Purdue University

West Lafayette, IN Nov 28, 2023



Dyson
Cornell
SC Johnson College of Business



Cornell **CALS**
College of Agriculture and Life Sciences

A Quick Introduction: Dr. Wendong Zhang

- Grew up in a rural county in Shandong Province, China
- Attended college in Shanghai and Hong Kong
- Ph.D. in Ag Econ from Ohio State in 2015
- Worked at Iowa State for 7 years, leading the Iowa Land Value Survey 15-22
- Moved to Cornell University Dyson School of Applied Economics & Management in July 2022 (50% research 50% extension appointment)
- Research and extension interests:

Led land value/ownership surveys <https://www.card.iastate.edu/farmland>

Co-founded ISU China Ag Center <https://www.card.iastate.edu/china>

Cornell Atkinson Center for Sustainability: <https://atkinson.cornell.edu/>

Cornell Institute for China Economic Research (CICER)

<http://china.dyson.cornell.edu/>

Global Public Voices Fellow, Einaudi Center for International Studies

Set the stage

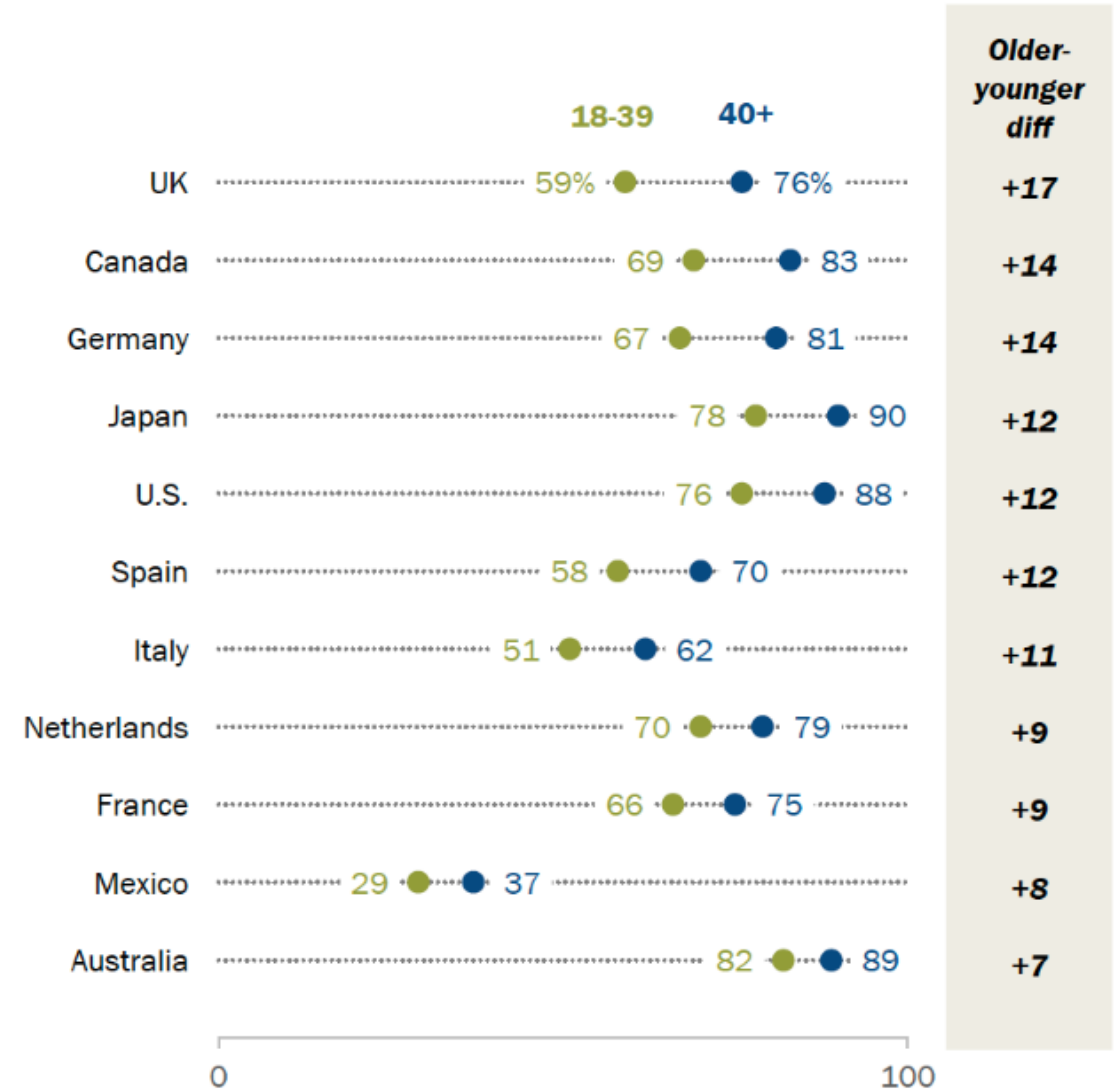
Take heart, it looks like China could send new pandas to the US



Chinese President Xi Jinping is signaling that China will send new pandas to the United States. Xi calls pandas “a symbol of friendship” between the Chinese and American people. (Nov. 16) [Read More](#)

Older adults have more negative views of China than younger ones, especially in high-income countries

% who have an unfavorable opinion of China



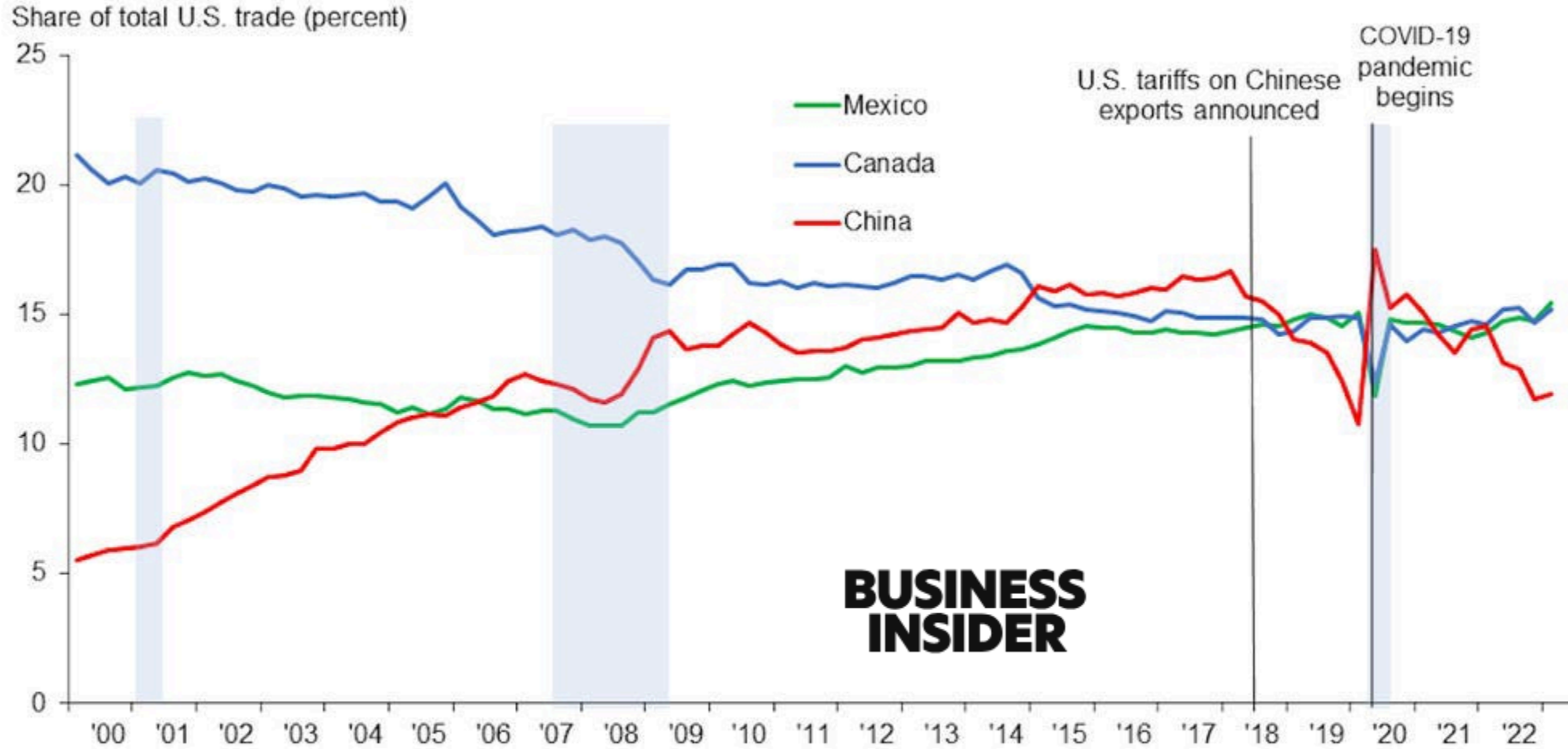
Note: Only statistically significant differences shown.

Source: Spring 2023 Global Attitudes Survey, Q3b.

“China’s Approach to Foreign Policy Gets Largely Negative Reviews in 24-Country Survey”

Set the Stage

2 charts that show how Mexico overtook China as America's top global trade buddy



BUSINESS INSIDER

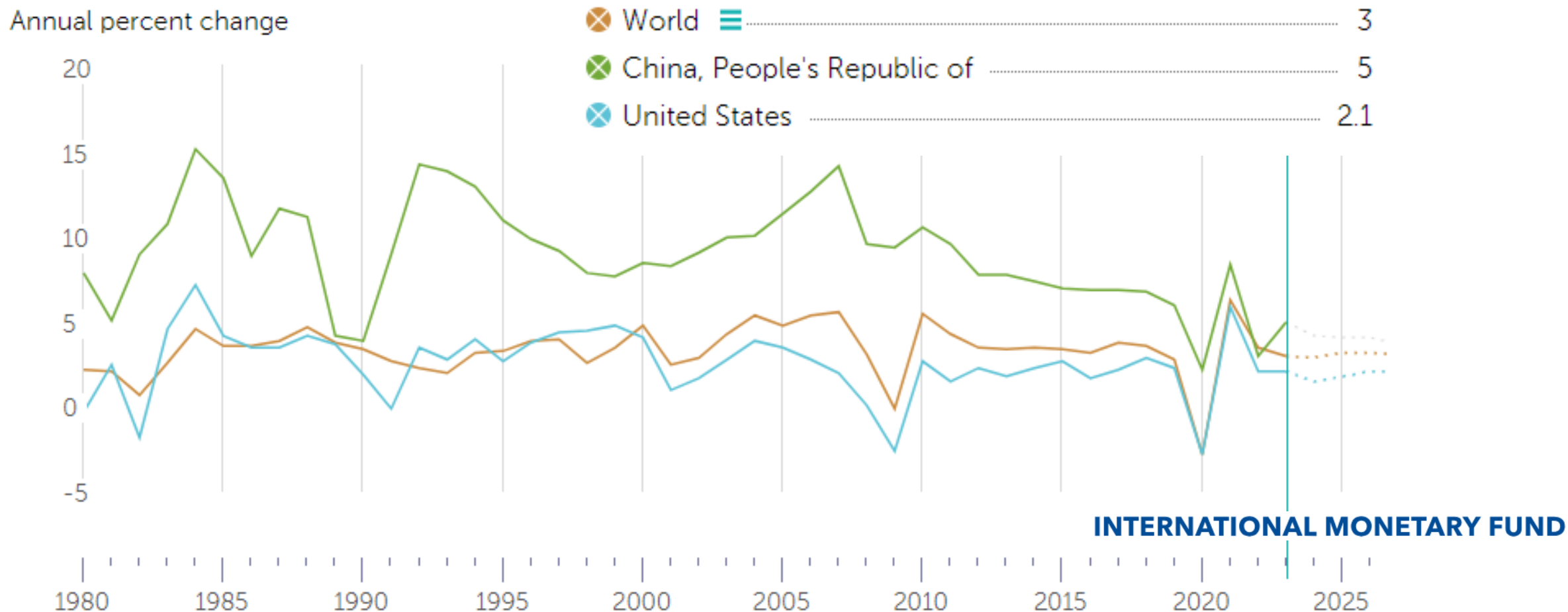
NOTES: Data are seasonally adjusted and quarterly. Figures also include April 2023. Shaded area denotes a recession. Total trade is the sum of exports and imports.
SOURCE: Census Bureau.

Federal Reserve Bank of Dallas

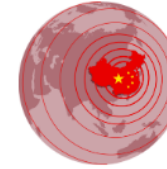
GDP growth rate forecast for China 2023:

5% by IMF – **Not Necessarily An Immediate Collapse**

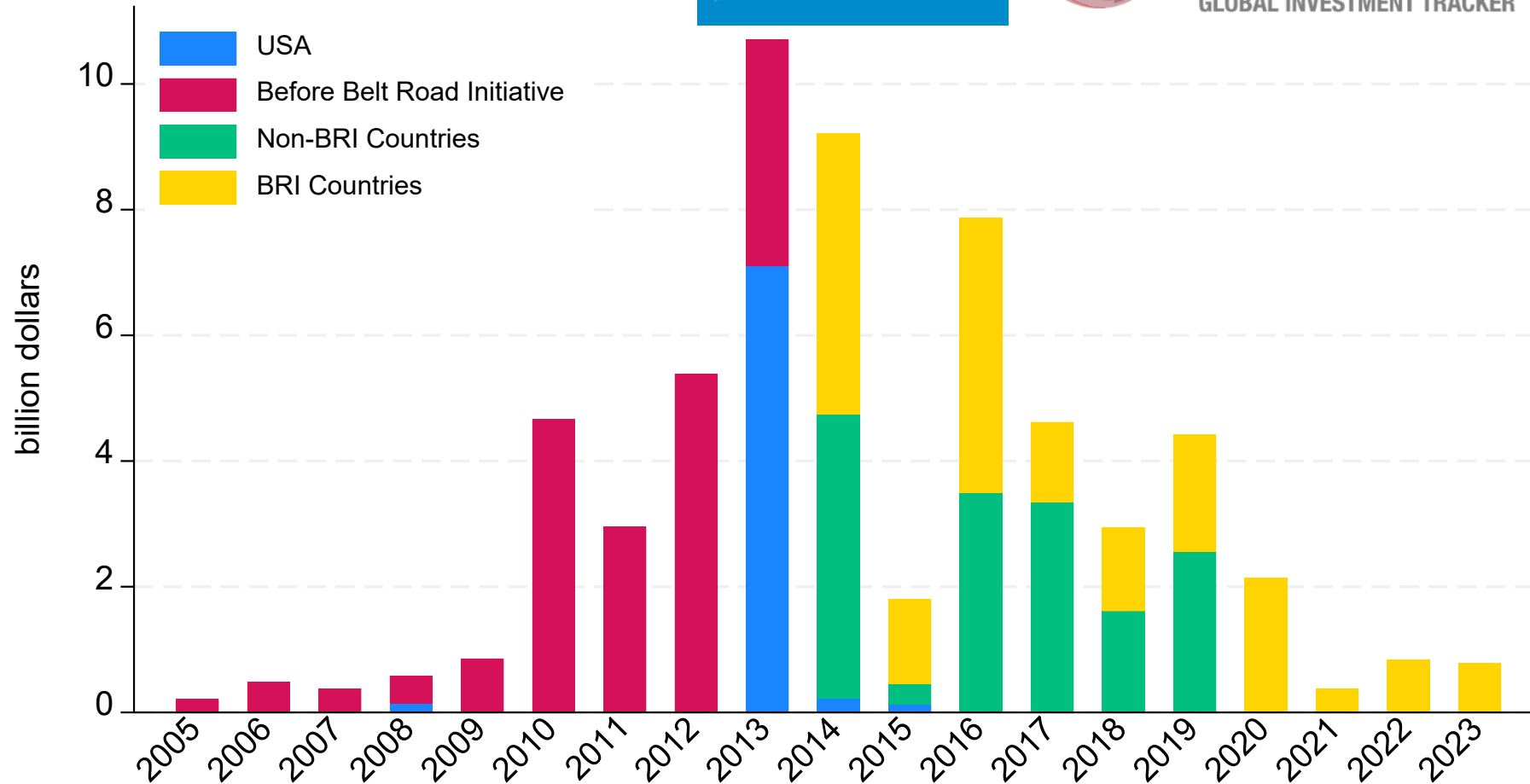
US \$18 Trillion (2022 GDP) * 5% ~ the “smaller” growth of the “bigger pie” is still about the economy for Turkey or Saudi Arabia



China's Overseas Investments in Agriculture



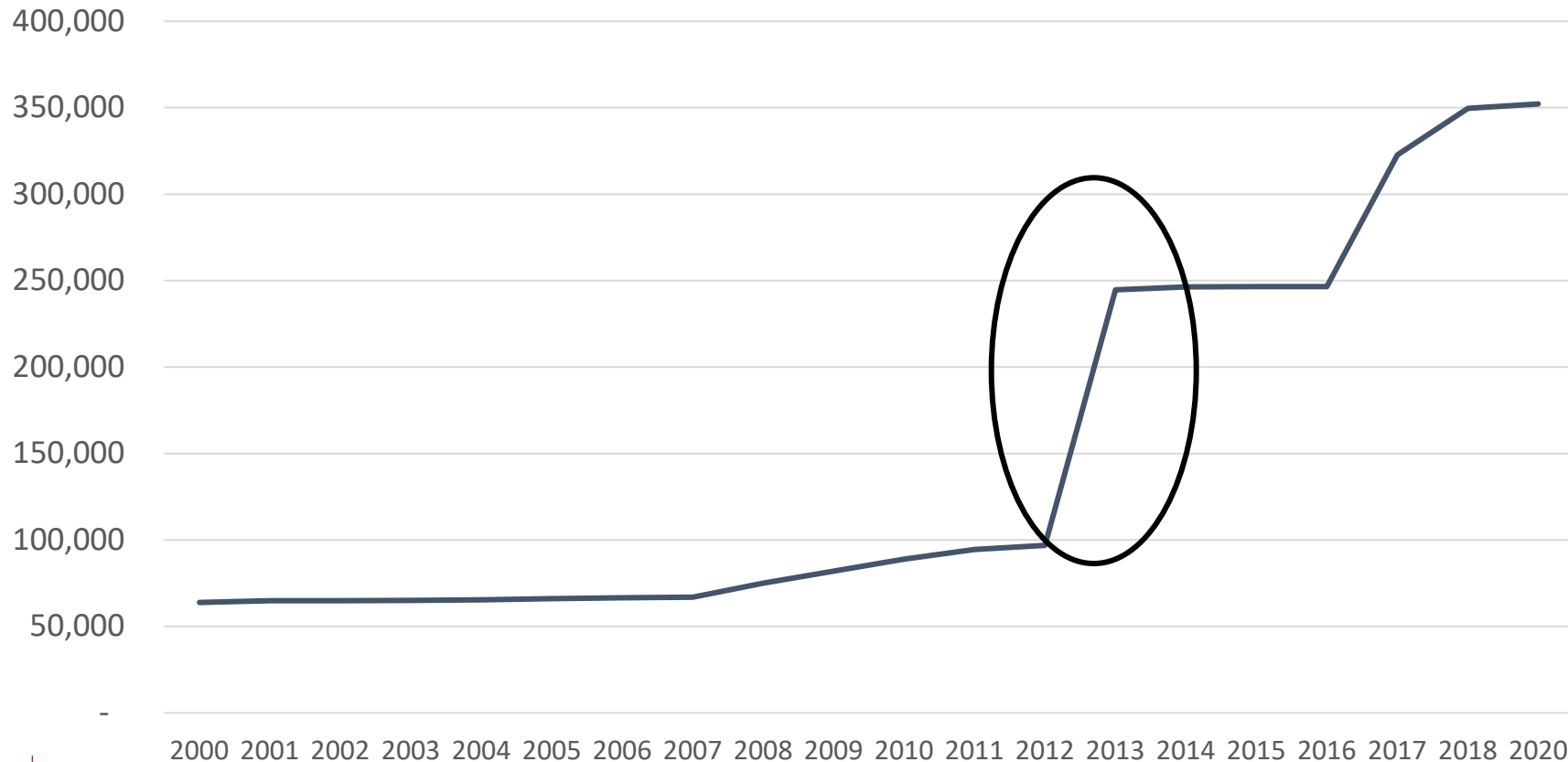
CHINA
GLOBAL INVESTMENT TRACKER



BRI countries include South Sudan, Israel, Zambia, Argentina, Uganda, Uzbekistan, New Zealand, Angola, Sri Lanka, Ethiopia, Russia, Oman, Mozambique, Nepal, Saudi Arabia, Singapore, Cambodia, Belarus, Thailand, Malaysia, Egypt, Nigeria, Bangladesh, Chile, Vietnam, Kazakhstan, Indonesia, Italy, Slovakia.
This graph does not contain the Syngenta (headquartered in Switzerland) acquisition by ChinaChem in 2017.

Chinese Investment in U.S. Ag Land

China Holdings in U.S. (acres)

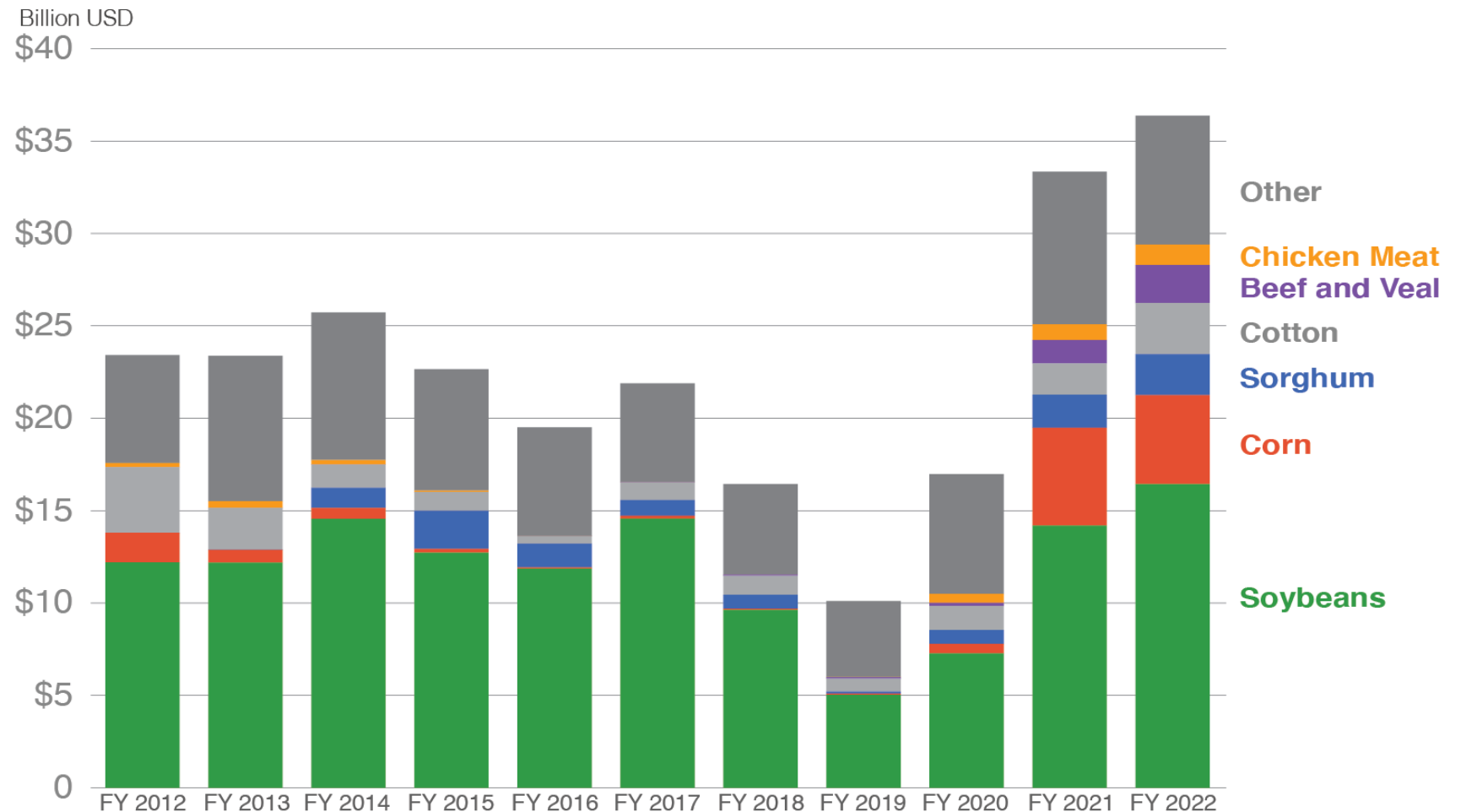


- Total holdings of 352,140 acres
- 2013 Purchase of Smithfield Foods by Chinese company
- Acquired subsidiary Murphy Brown and all their land holdings
- ~140,000 acres in Texas by Xinjiang-based billionaire SUN Guangxin



Chinese imports were concentrated on feed grains

U.S. Agricultural Exports to China



Source: Trade Data Monitor, LLC

<https://www.fas.usda.gov/data/record-us-fy-2022-agricultural-exports-china>

APPLIED ECONOMIC
PERSPECTIVES
AND POLICY



Featured Article

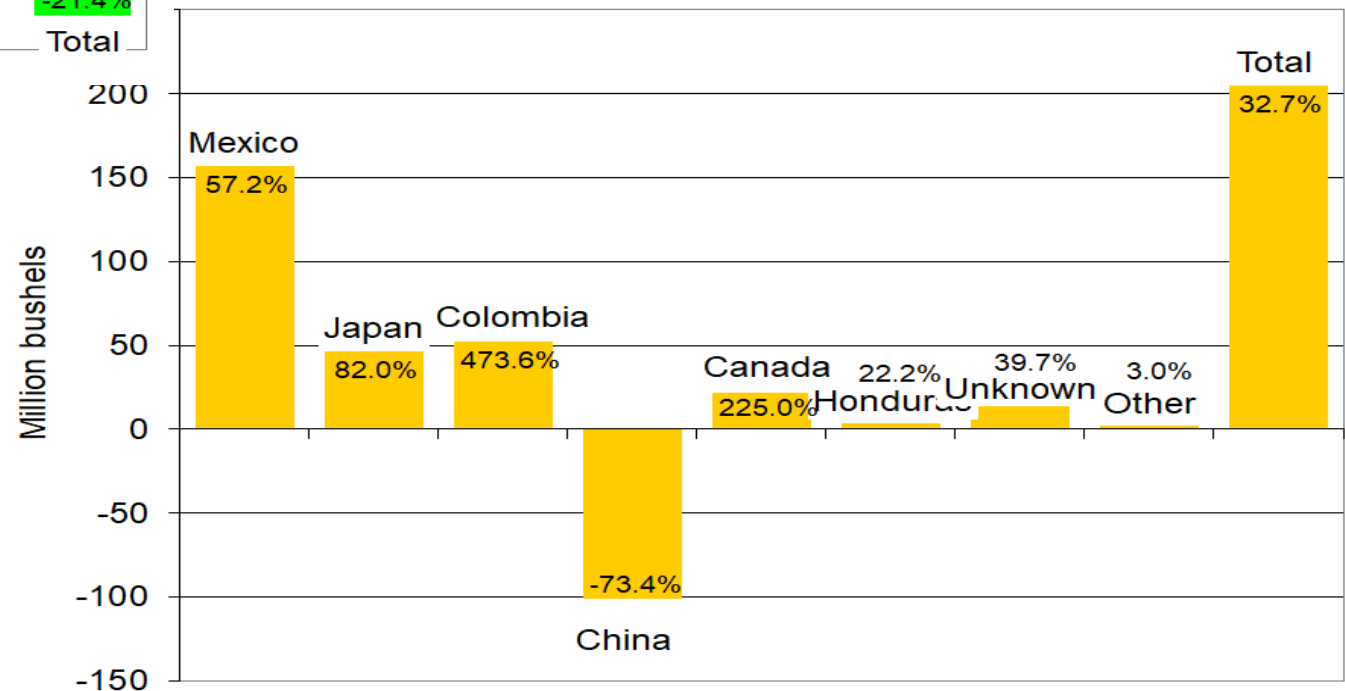
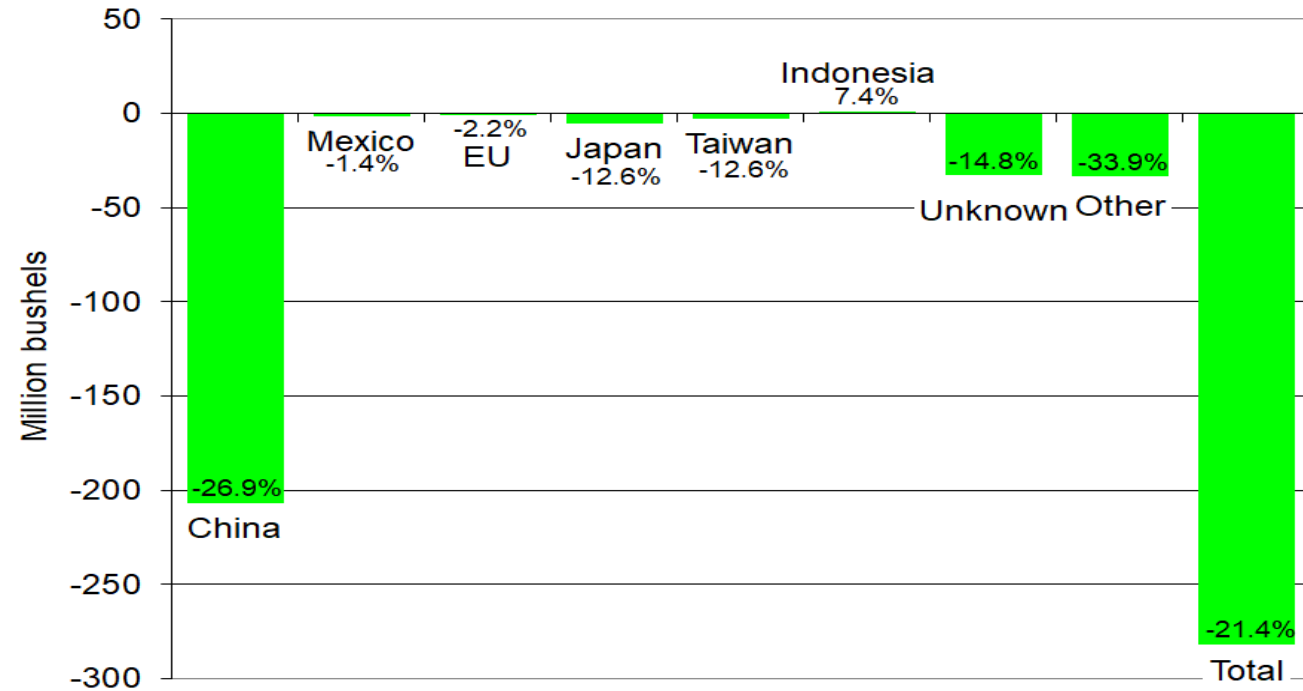
The Case for Healthy U.S.-China Agricultural Trade Relations Despite Deglobalization Pressures†

Wendong Zhang ✉

First published: 13 October 2020 | <https://doi.org/10.1002/aep.13115>

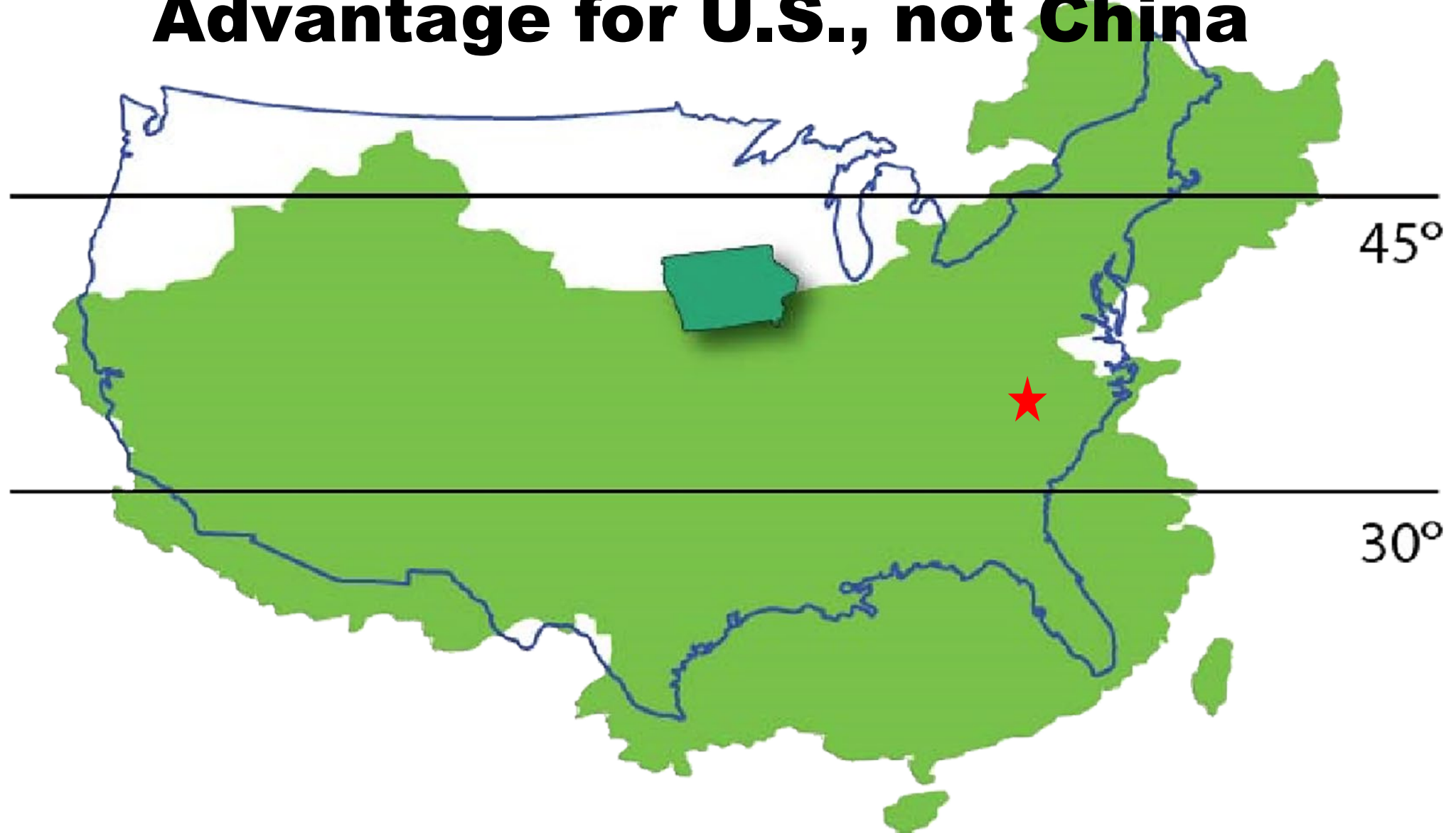
Soybean and Corn Export Shifts

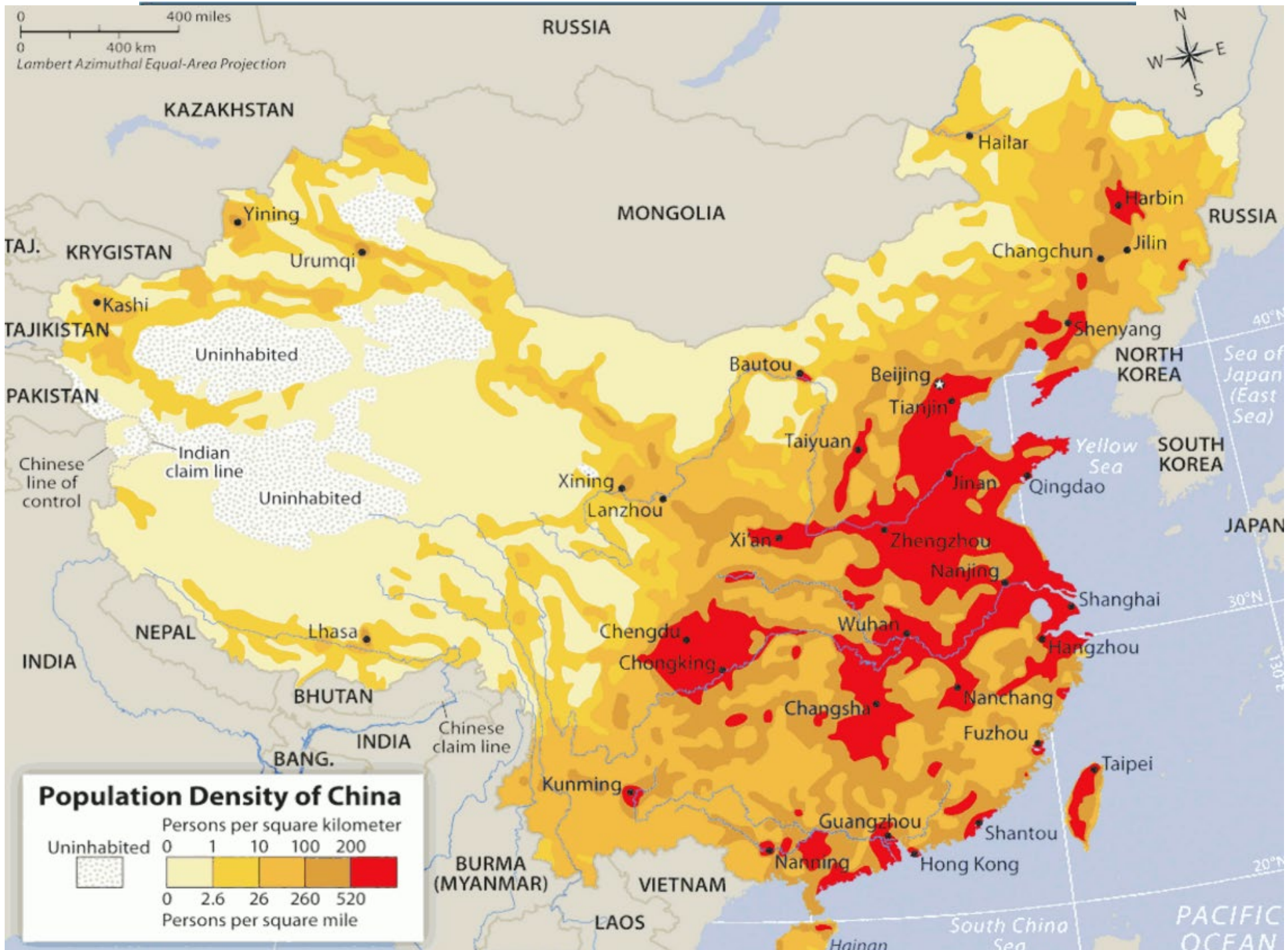
& significant drops for
Chinese demand



- Source: Chad Hart, Iowa State

Commodity Agriculture is Comparative Advantage for U.S., not China





0 400 miles
0 400 km
Lambert Azimuthal Equal-Area Projection



RUSSIA
KAZAKHSTAN
MONGOLIA
TAJ. KRYGISTAN
TAJIKISTAN
PAKISTAN
NEPAL
INDIA
BHUTAN
INDIA
BURMA (MYANMAR)
VIETNAM
LAOS
RUSSIA
NORTH KOREA
SOUTH KOREA
JAPAN
Sea of Japan (East Sea)
Yellow Sea
Taipei
Shanghai
Hangzhou
Nanchang
Fuzhou
Guangzhou
Shantou
Hong Kong
Hainan
South China Sea
PACIFIC OCEAN
40°N
30°N
20°N
130°E

Population Density of China

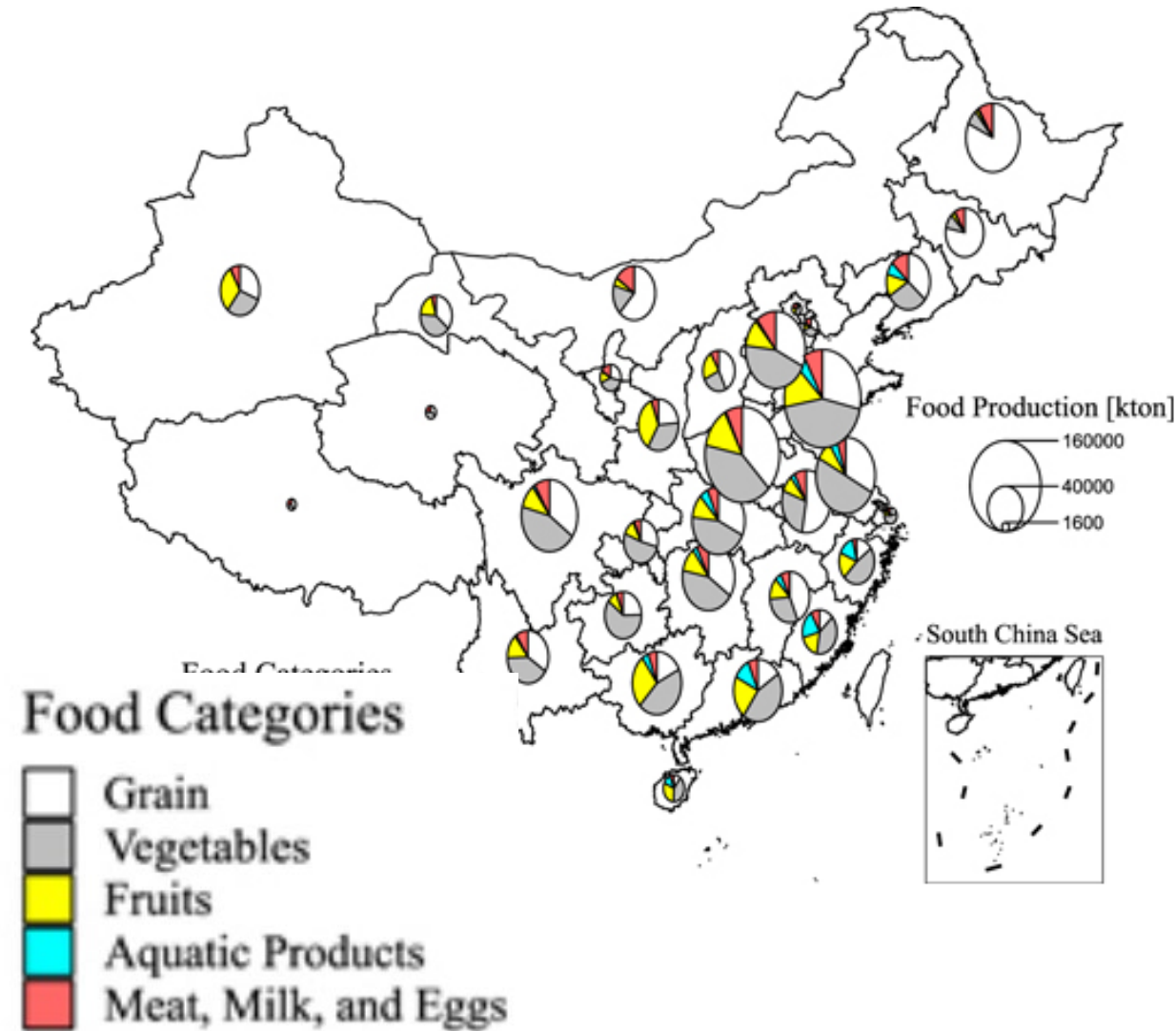
Persons per square kilometer

Uninhabited 0 1 10 100 200

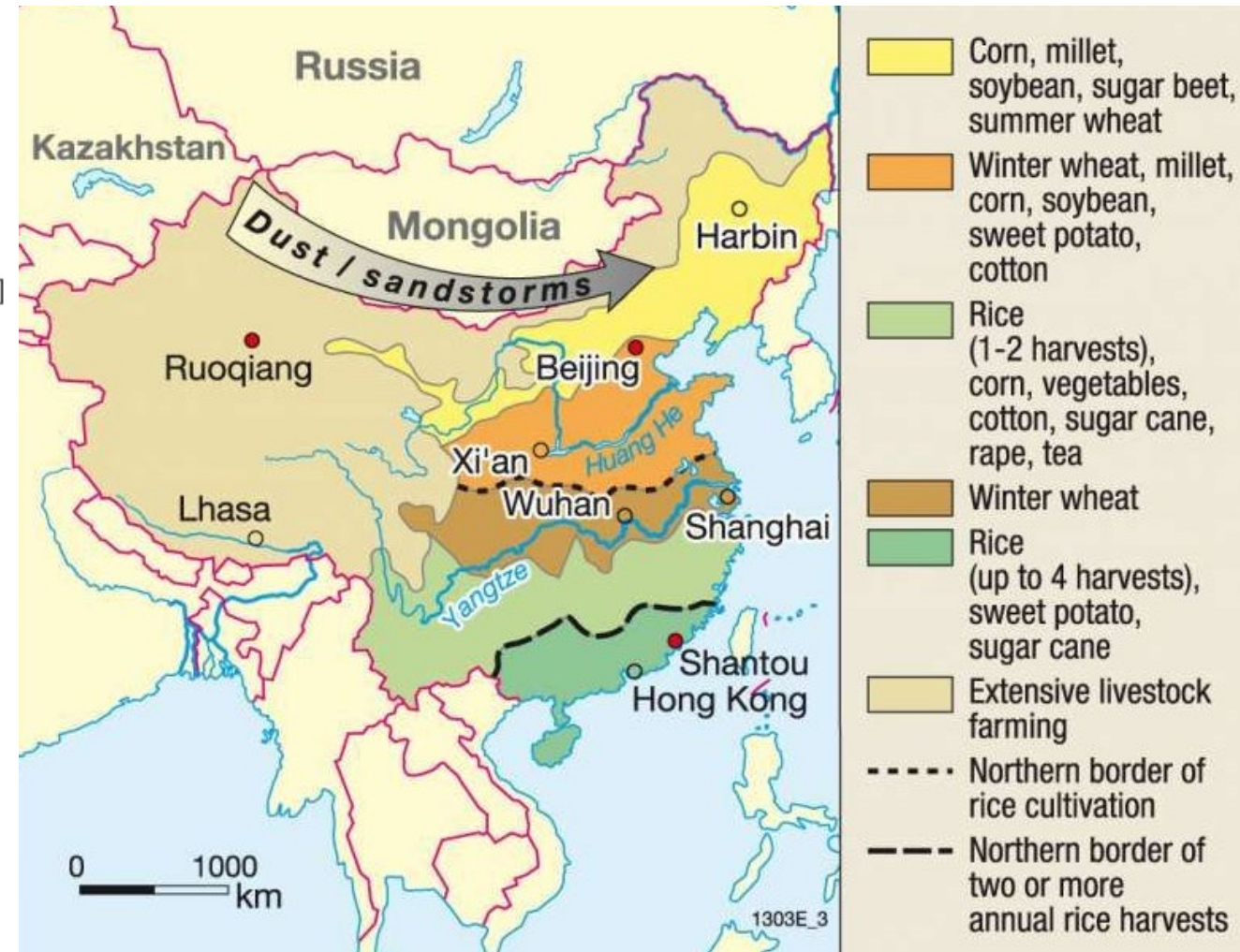
Persons per square mile

0 2.6 26 260 520

Food Production in China, 2018



China's Major Crops

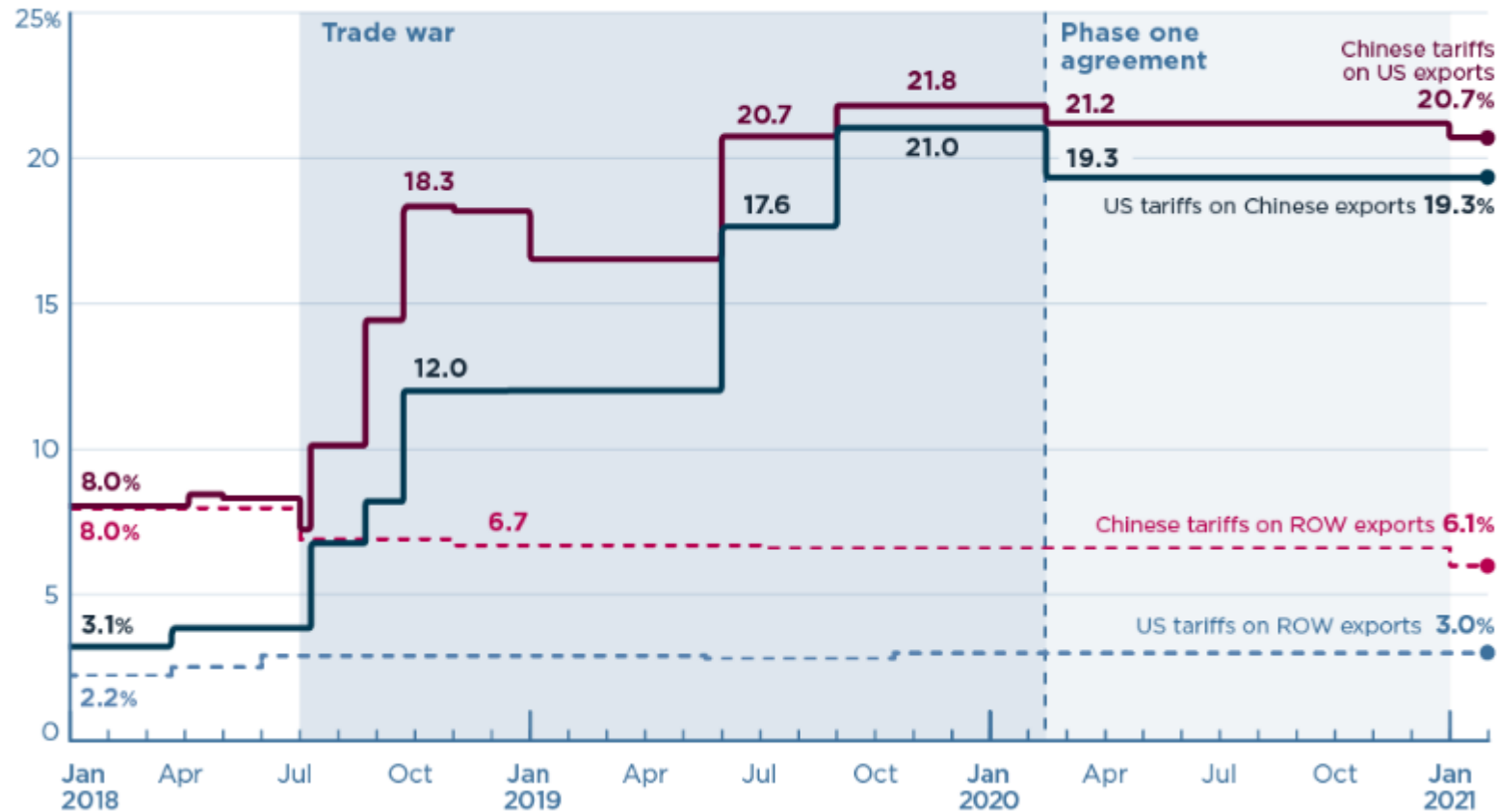


China's Strengthening Trade Ties with US Competitors

in response to US-China trade war & decoupling



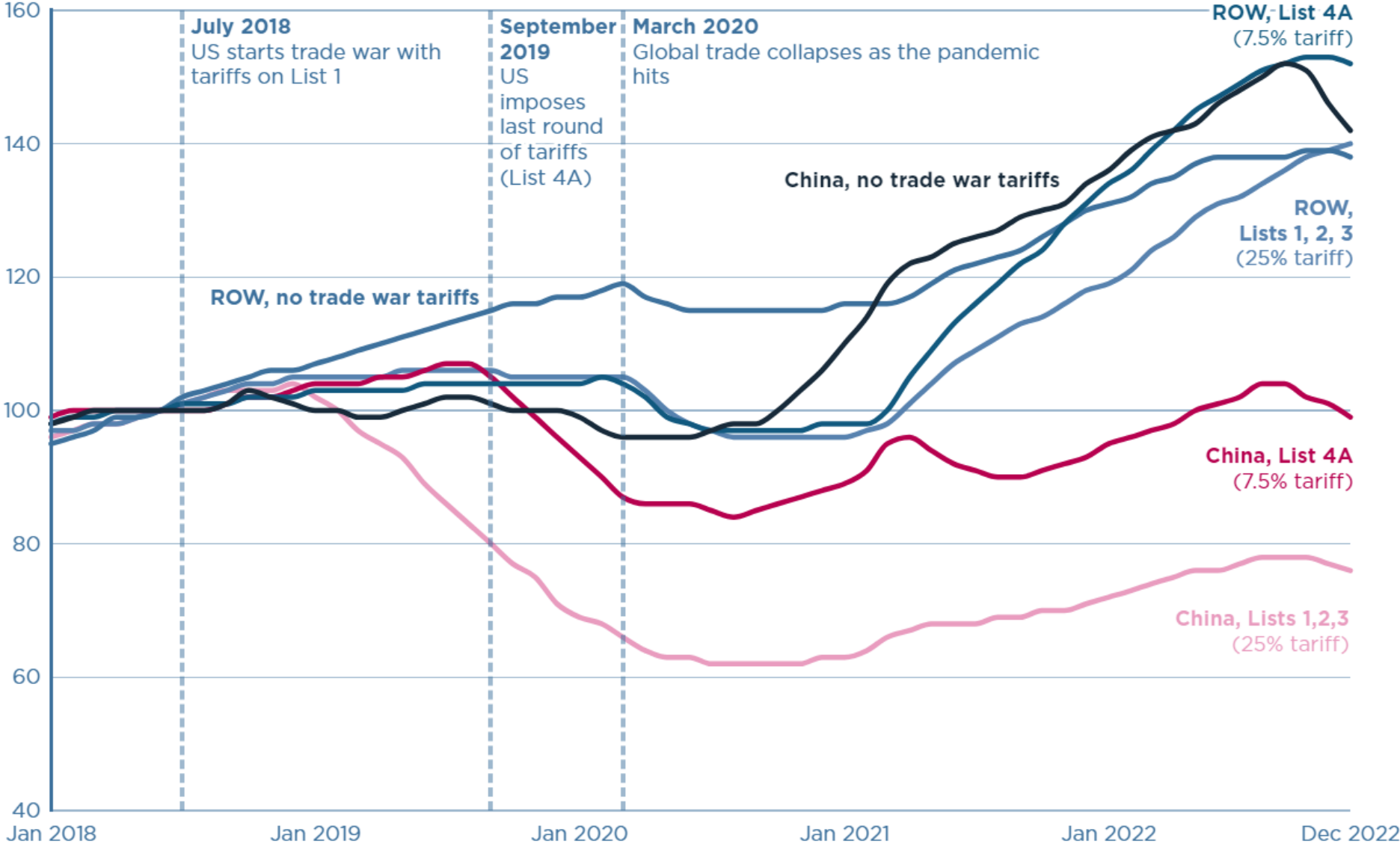
a. US-China tariff rates toward each other and rest of world (ROW)



Chinese tariffs on other countries dropped while the US-China trade war is still ongoing

US imports from China are both decoupling and reaching new highs.

b. US monthly goods imports from China and rest of world by trade war tariff list (index, June 2018=100)



BELT AND ROAD

China-Laos high-speed railway set to roll through COVID cloud

Southeast Asian country's rising infections reduce pomp of Friday's launch



The China-Laos bullet train will compress what is normally a two-day road trek through rugged mountain terrain into a brisk three hours or so. © CCTV/Reuters

MARWAAN MACAN-MARKAR, Asia regional correspondent
November 30, 2021 18:11 JST

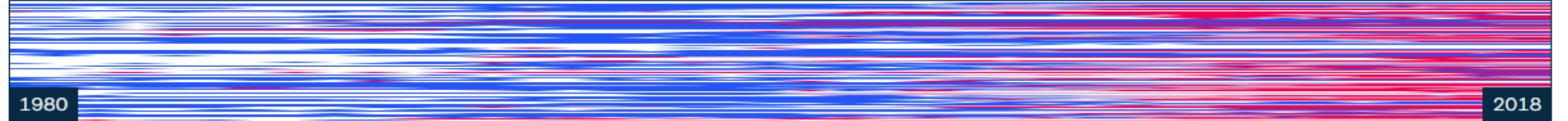
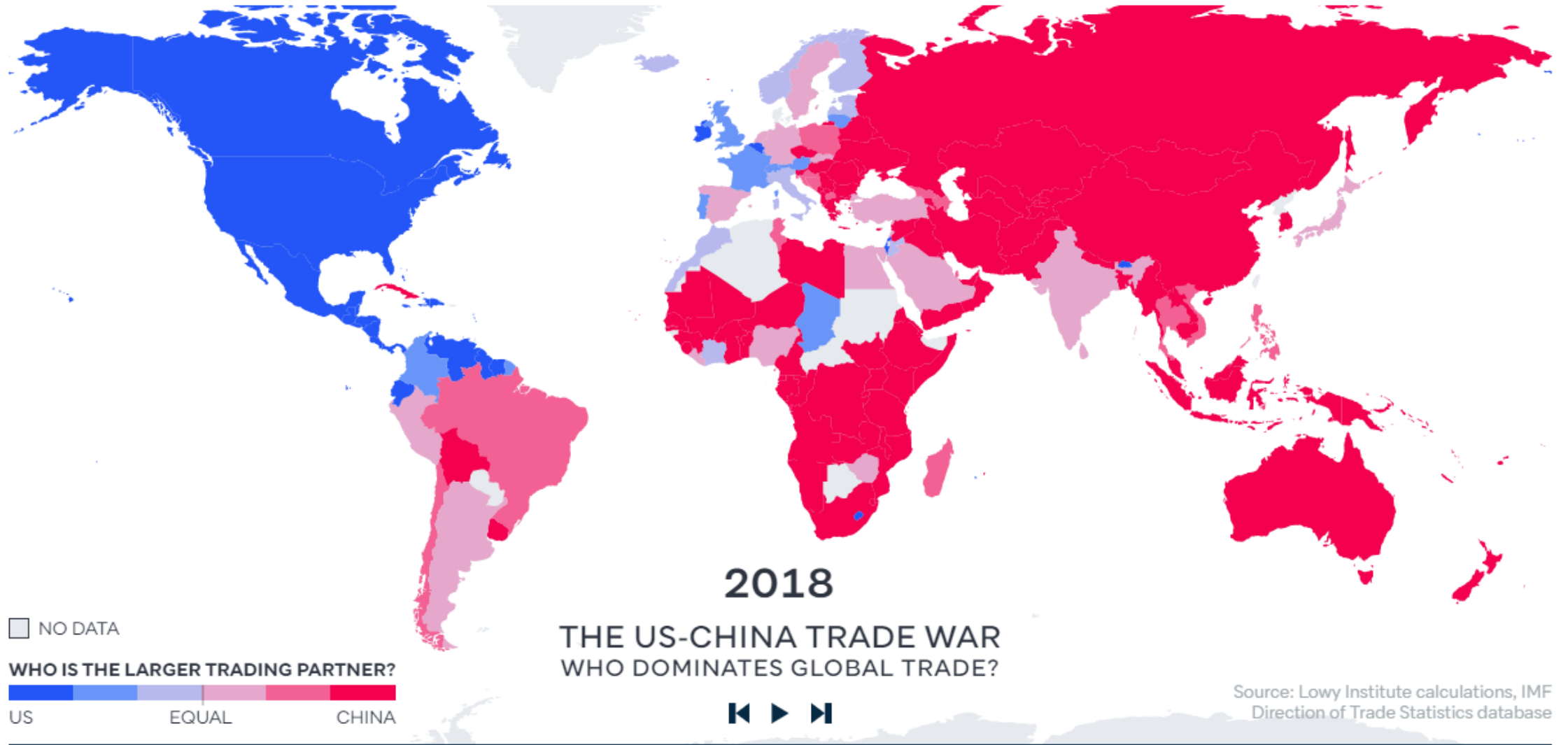
Belt and Road Initiative Still Going

the \$6 billion project in the land-locked country.

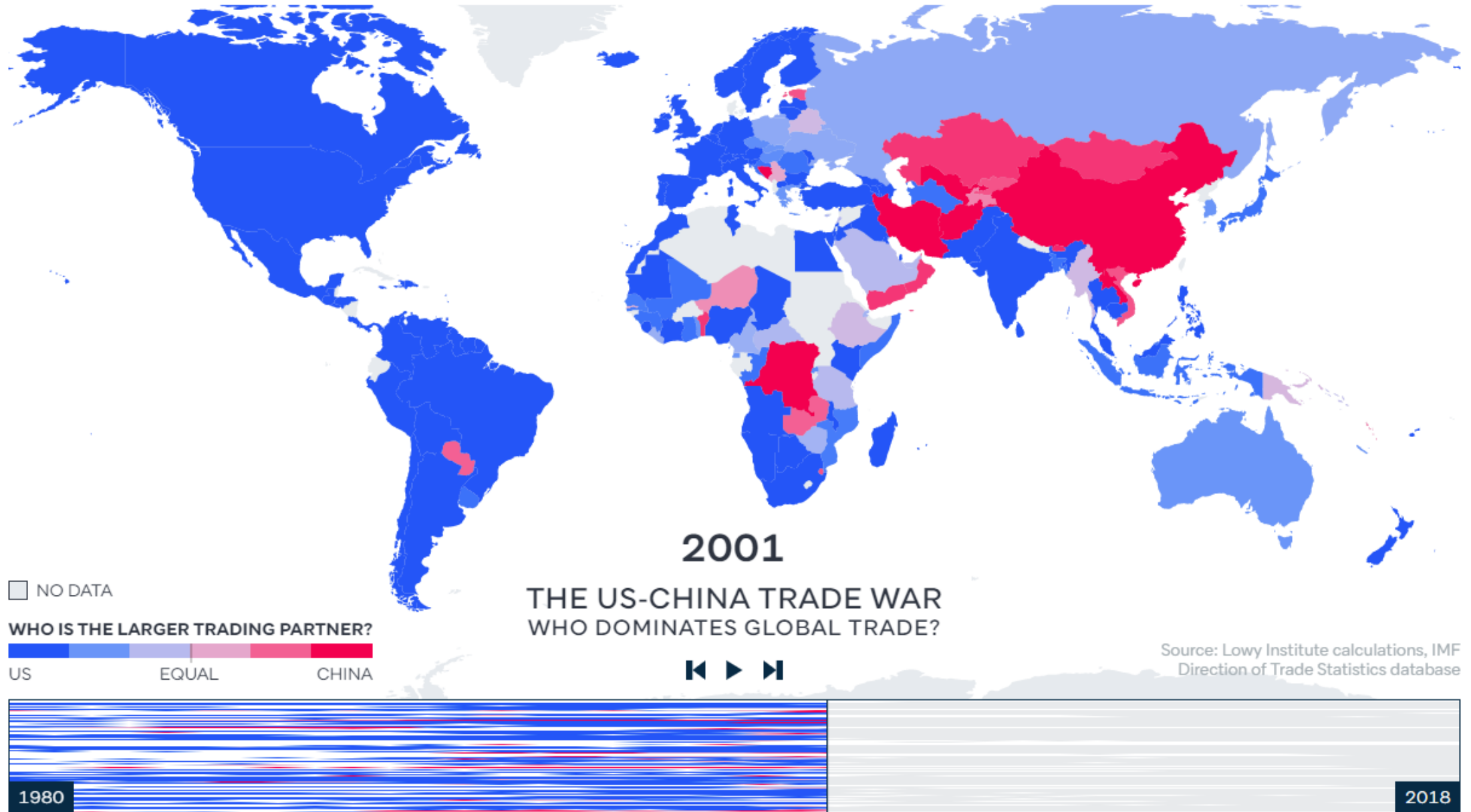


The track from Vientiane to Boten, a northern frontier town along the Laos-China border, will compress what is normally a two-day road trek through rugged mountain terrain into a brisk three hours or so. The Lane Xang, as the bullet train has been named after an ancient Laotian kingdom, will travel through 75 tunnels and across 167 bridges at a speed of up to 160 kph.

China's Significance in Global Trade



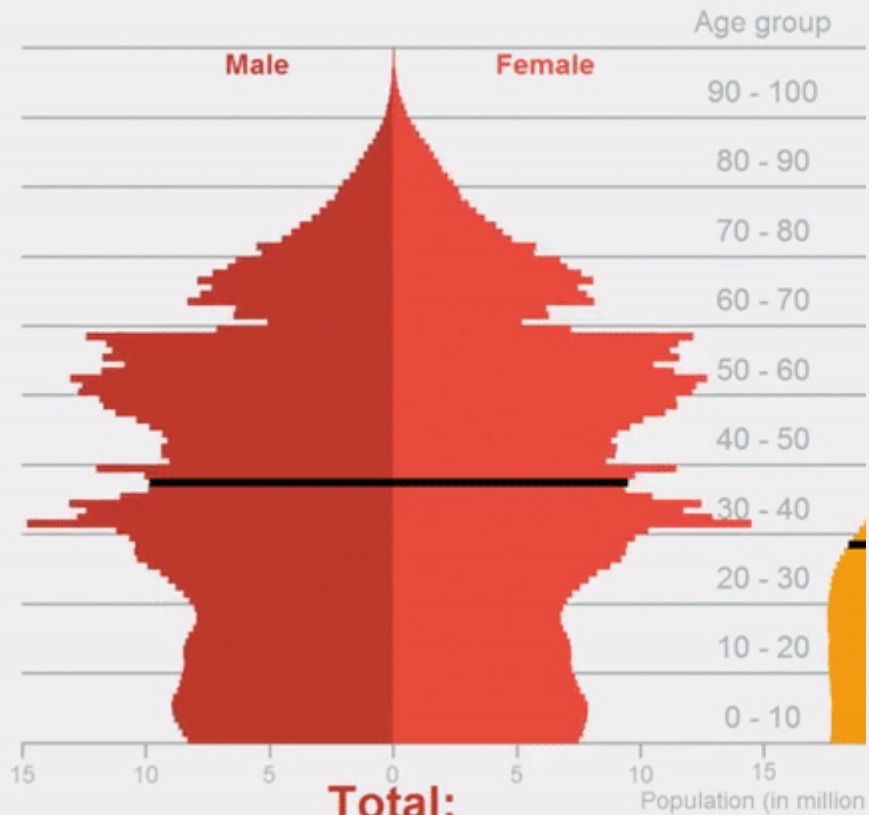
China's Significance in Global Trade



Yes, Chinese Population is Aging, but Income Growth is More Important

Population projection
2021

China

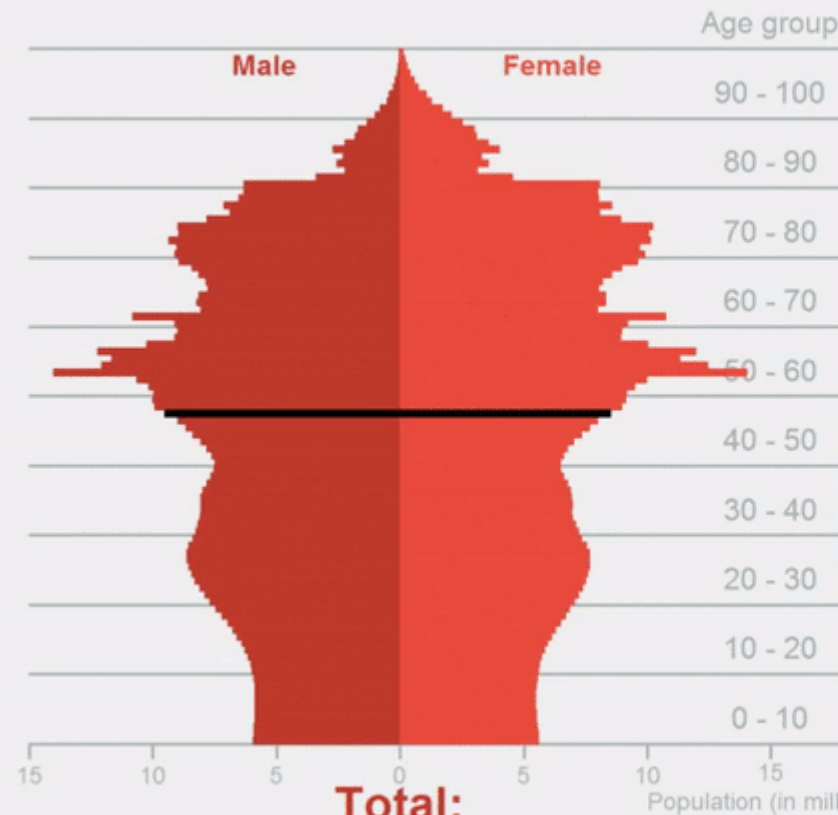


Total:
1,397,852,872

■ Median age

Population projection
2043

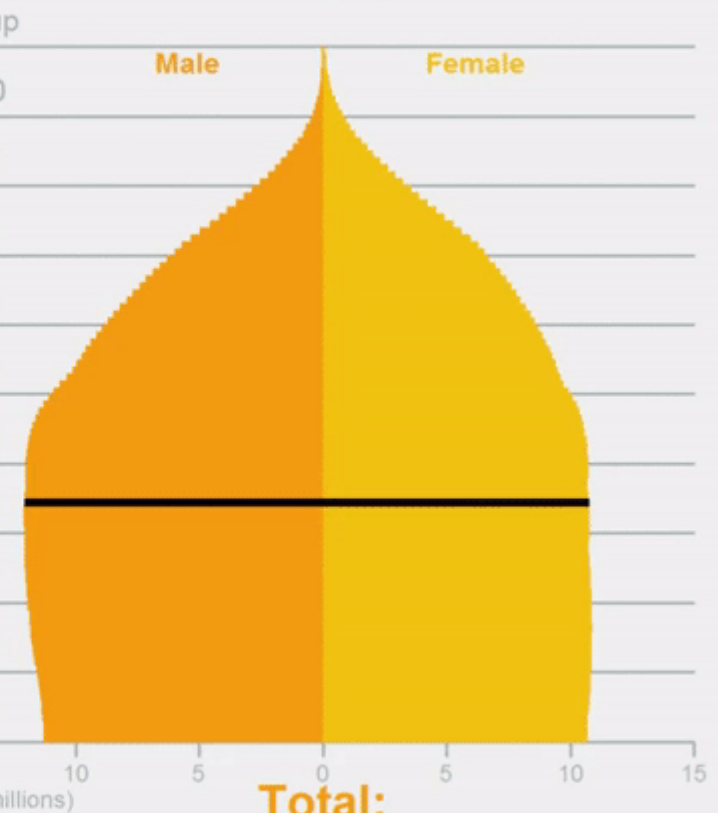
China



Total:
1,348,012,910

■ Median age

India

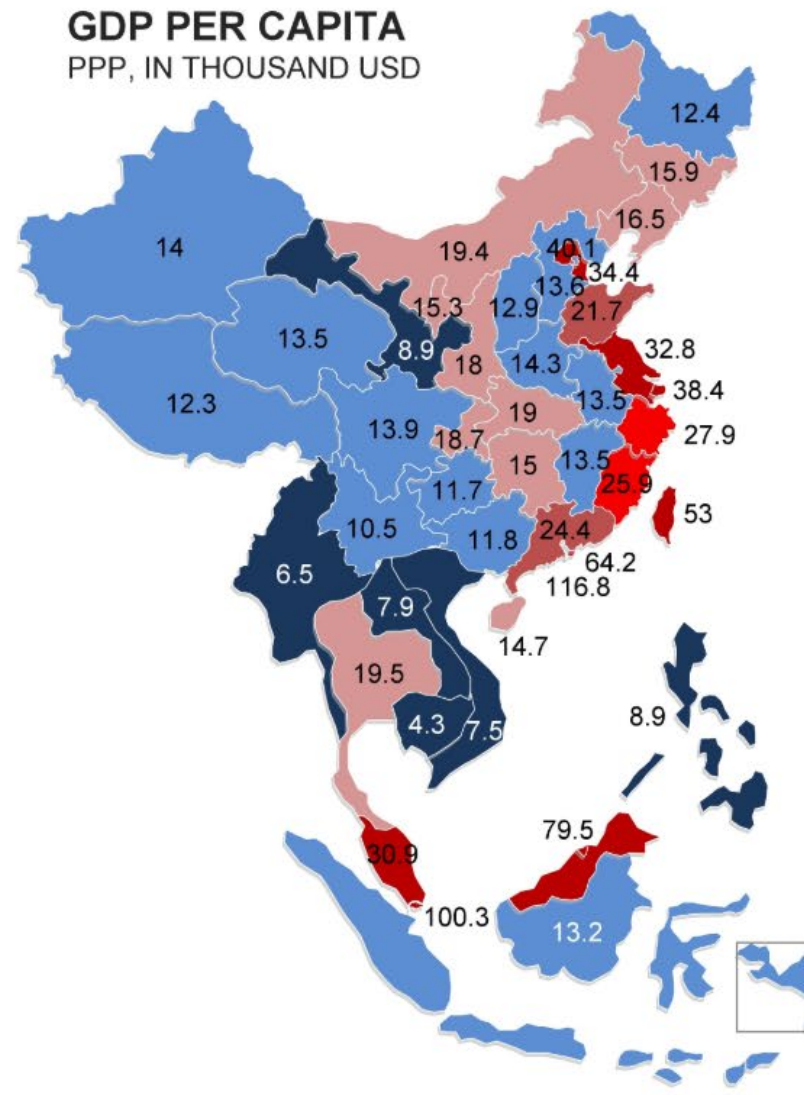
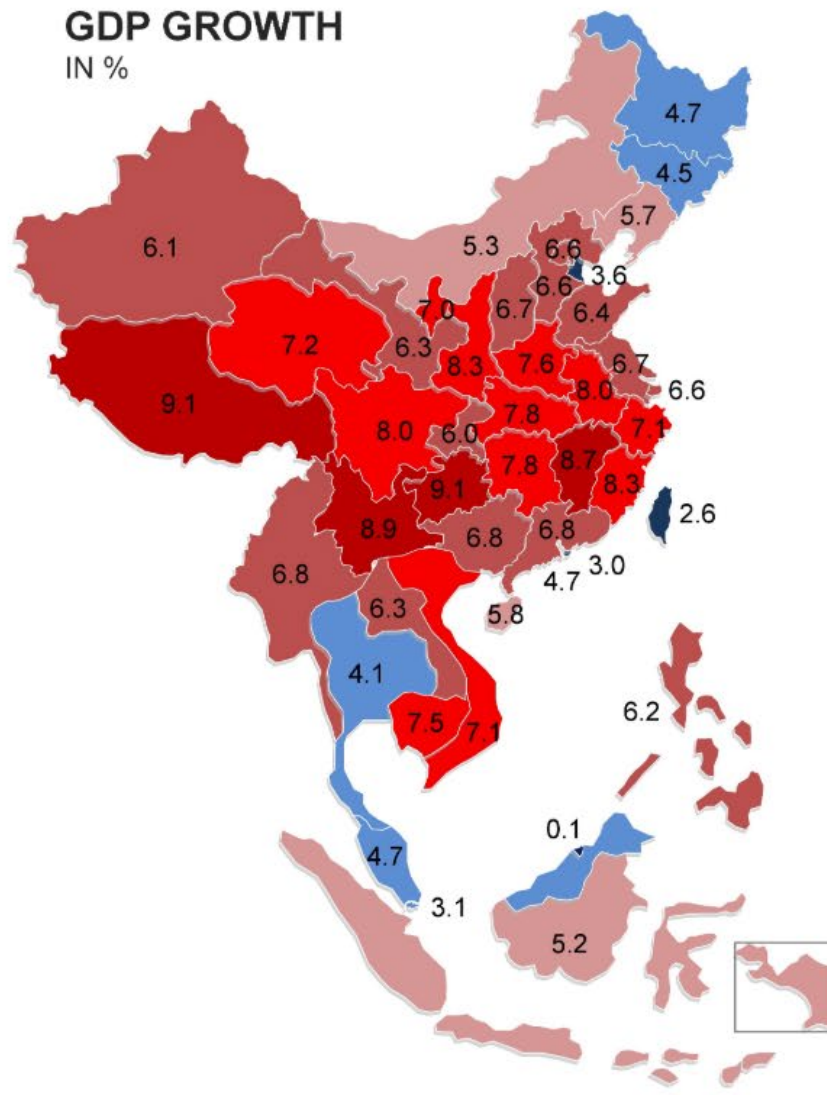
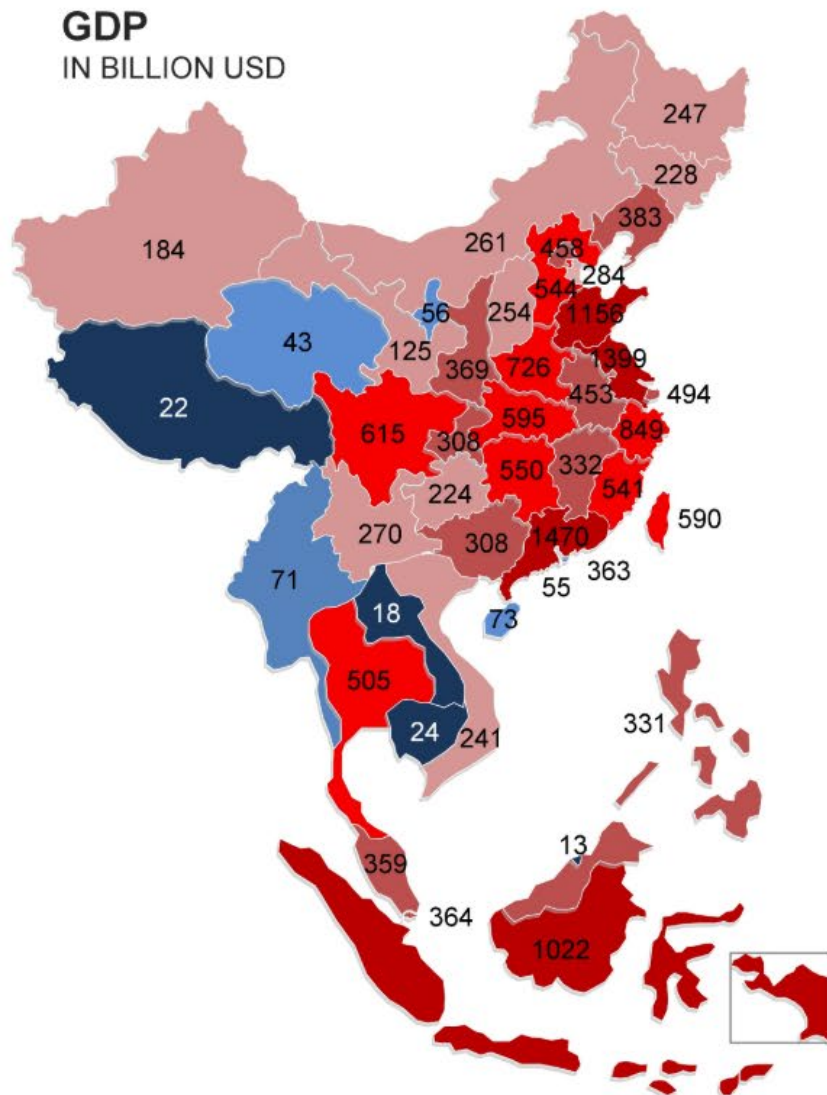


Total:
1,599,824,662

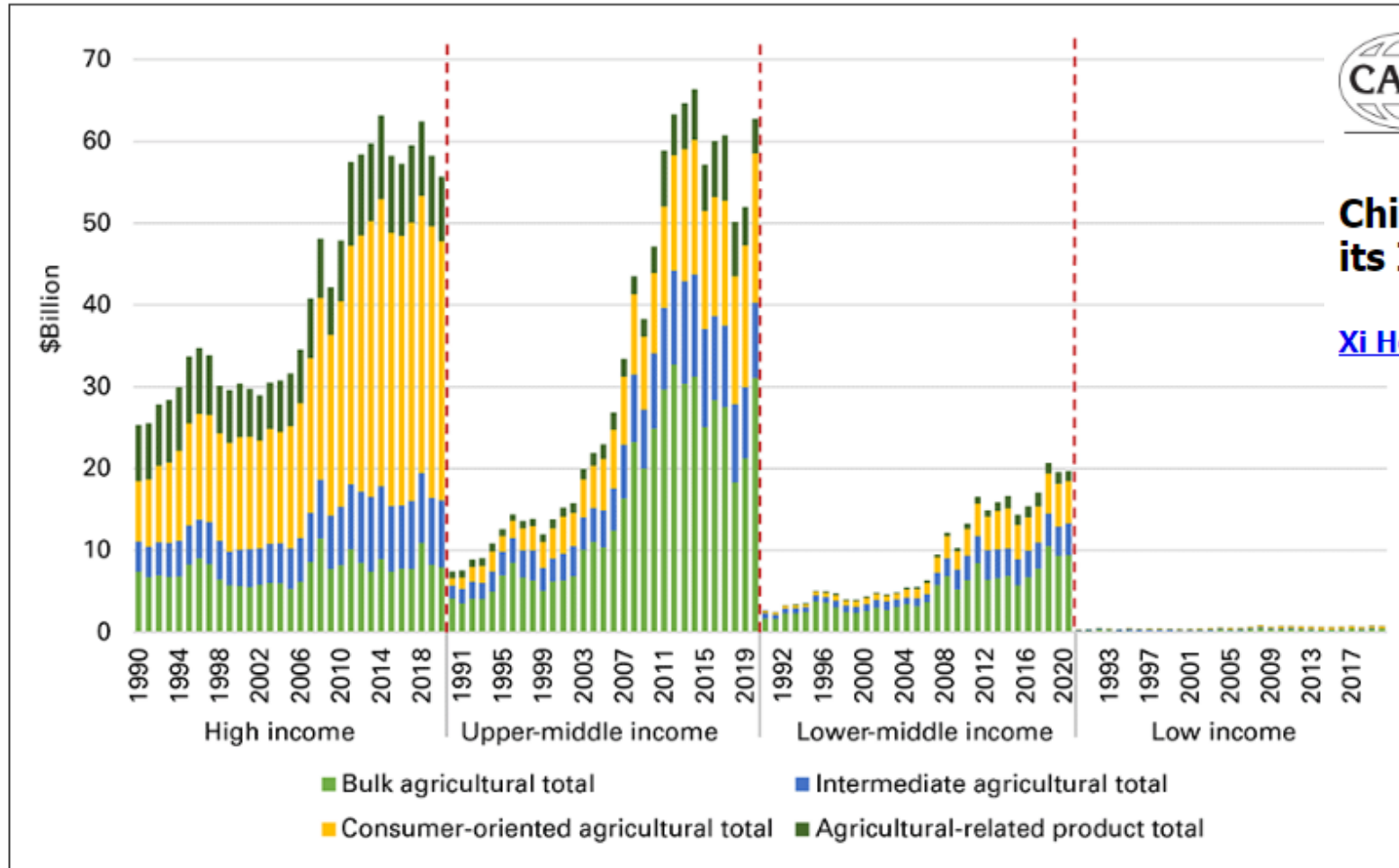


Data source: US Census Bureau IDB
Visualization by @aronstrandberg

A Comparison of 2018 GDP Figures between China Regions and ASEAN Countries, Numbers from IMF WEO (04/2018), Compiled by Marco Förster from Dezan Shira & Associates



States. Figure 2 illustrates US exports of four agricultural categories—bulk (e.g., corn, soybeans, wheat), intermediate (e.g., soybean meal and soybean oil), consumer-oriented (e.g., pork and beef products), and agriculture-related products (e.g., seafood and forestry products)—to high-income, upper-middle-income, lower-middle-income, and low-income countries from 1990 to 2020.



China's Changing Population Structure and its Implications for US Agricultural Exports

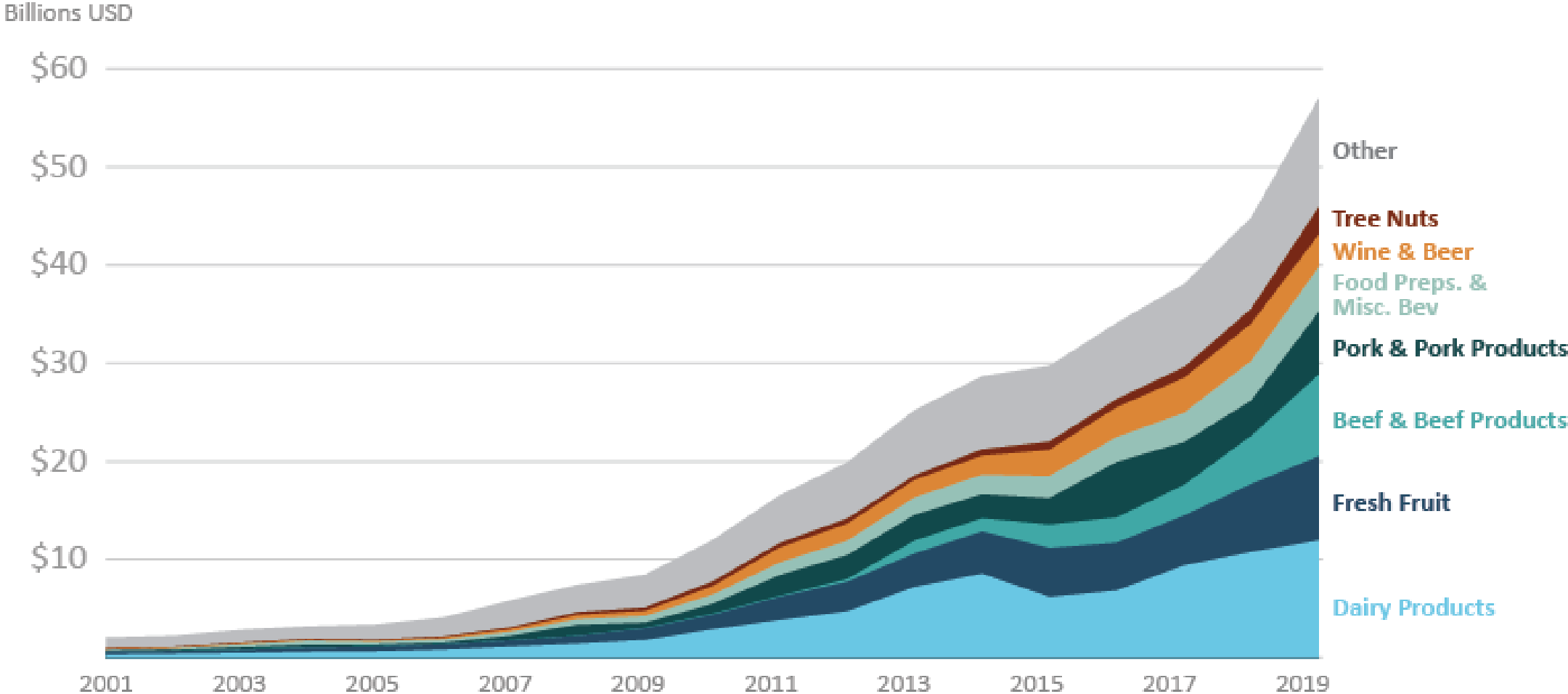
Xi He and Wendong Zhang

https://www.card.iastate.edu/ag_policy_review/article/?a=122

Figure 2. US exports of agricultural commodities to countries with different income levels.

Note: Based on data from USDA GATS (2021). We use World Bank's classification to classify countries into different income groups and use USDA's definition of agricultural products and classification of agricultural product categories.

China's Global Consumer-Oriented Product Imports, 2001-2019



Source: Trade Data Monitor

<https://www.fas.usda.gov/data/china-evolving-demand-world-s-largest-agricultural-import-market>

Chilean cherry exports to China hit new high

By Chu Daye

Published: Jan 19, 2023 12:46 AM

GLOBAL
TIMES
DISCOVER CHINA. DISCOVER THE WORLD.



Fresh cherry exports from Chile to global markets in the 2022/23 season are expected to top 80 million boxes, or around **400,000 tons**

89% of Chilean cherry exports go to China

Conspicuous Consumption

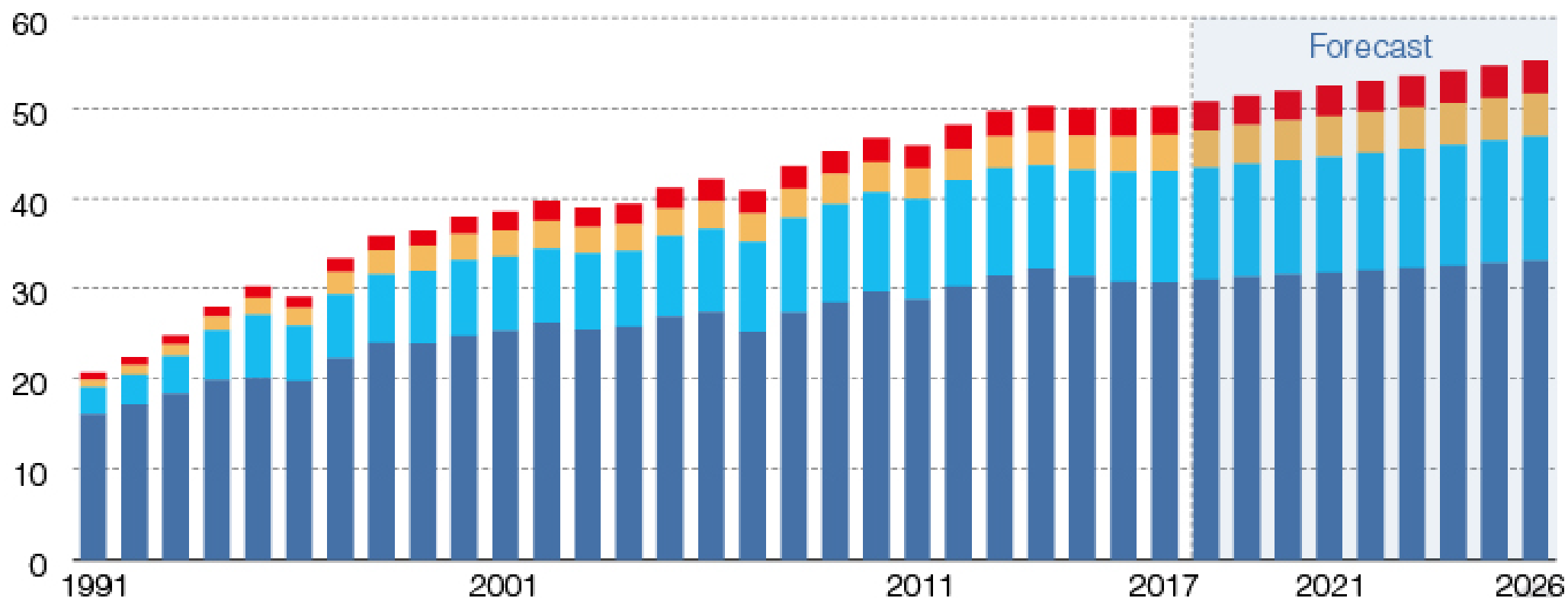
- Thorstein Veblen (1857-1929) introduced the term “conspicuous consumption” (referring to consumption undertaken to **make a statement to others about one’s class or accomplishments**). This term, more than any other, is what Veblen is known for.
- Veblen grew up in a Norwegian immigrant farming community in Wisconsin.



A Meatier Middle Kingdom

■ Pork ■ Poultry ■ Beef and veal ■ Sheep

Unit: Kilograms per capita



Source: **财新数据**
Caixin Data

Original Sources: Organization for Economic Co-operation and Development, Food and Agriculture Organization of the United Nations

Scan to download
Caixin app



Mighty Beef!

Countries with market access to China:

2017 South Africa, Ireland, Ukraine, Lithuania, USA, Belarus

2018 Argentina, Kazakhstan, France, Netherlands, Iceland, Russia, Uruguay, Panama

2019 Bolivia, UK

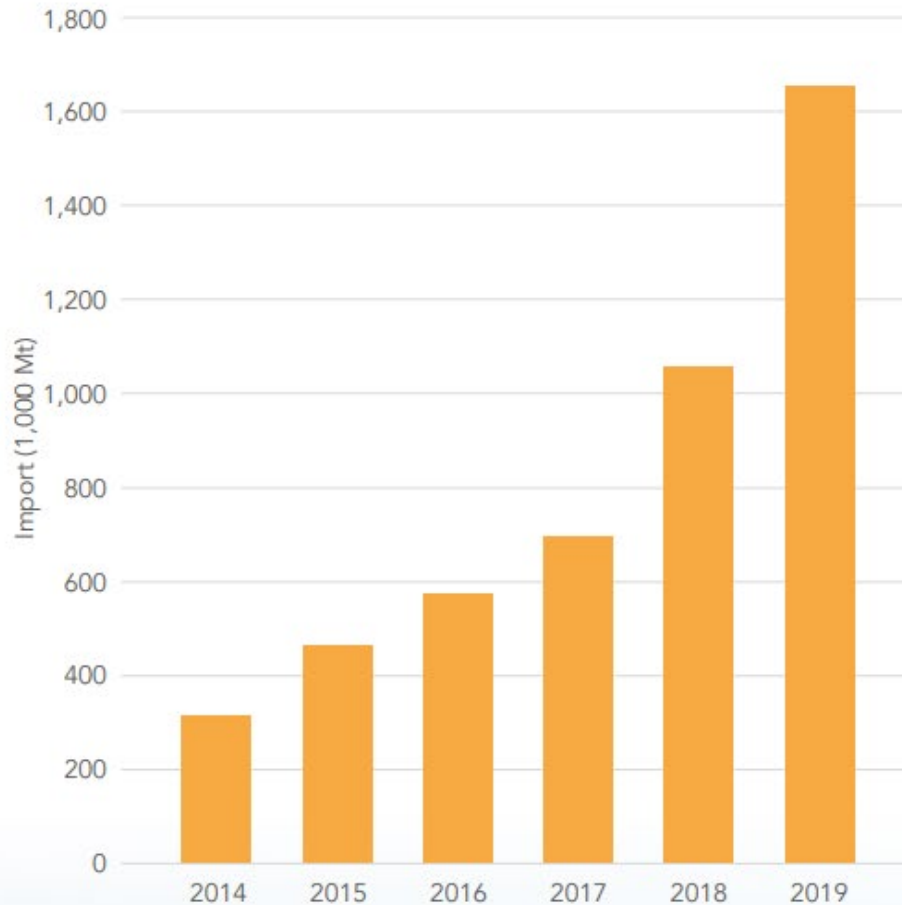


Figure 3. China beef imports

Source: National Bureau of Statistics

world. Brazil, Uruguay, Argentina and Australia are the top four suppliers to China, followed by New Zealand and Canada.

Importing countries

Country	2017	2018	2019
	Quantity (t)		
Brazil	197,565	322,693	399,642
Argentina	86,334	180,377	375,581
Australia	115,779	173,088	307,216
Uruguay	195,874	218,553	285,826
New Zealand	79,485	110,805	214,400
Chile	4,113	5,599	14,659
Costa Rica	3,754	5,410	11,749
Canada	8,977	8,178	9,997
USA	2,205	6,916	9,851
Ireland	0	738	6,991
Other	1,029	7,031	23,979
Total	695,115	1,039,388	1,659,891

Source: IHS Maritime & Trade – Global Trade Atlas®/China Customs

Further publication of the trade data is prohibited, unless expressly permitted by IHS Maritime & Trade

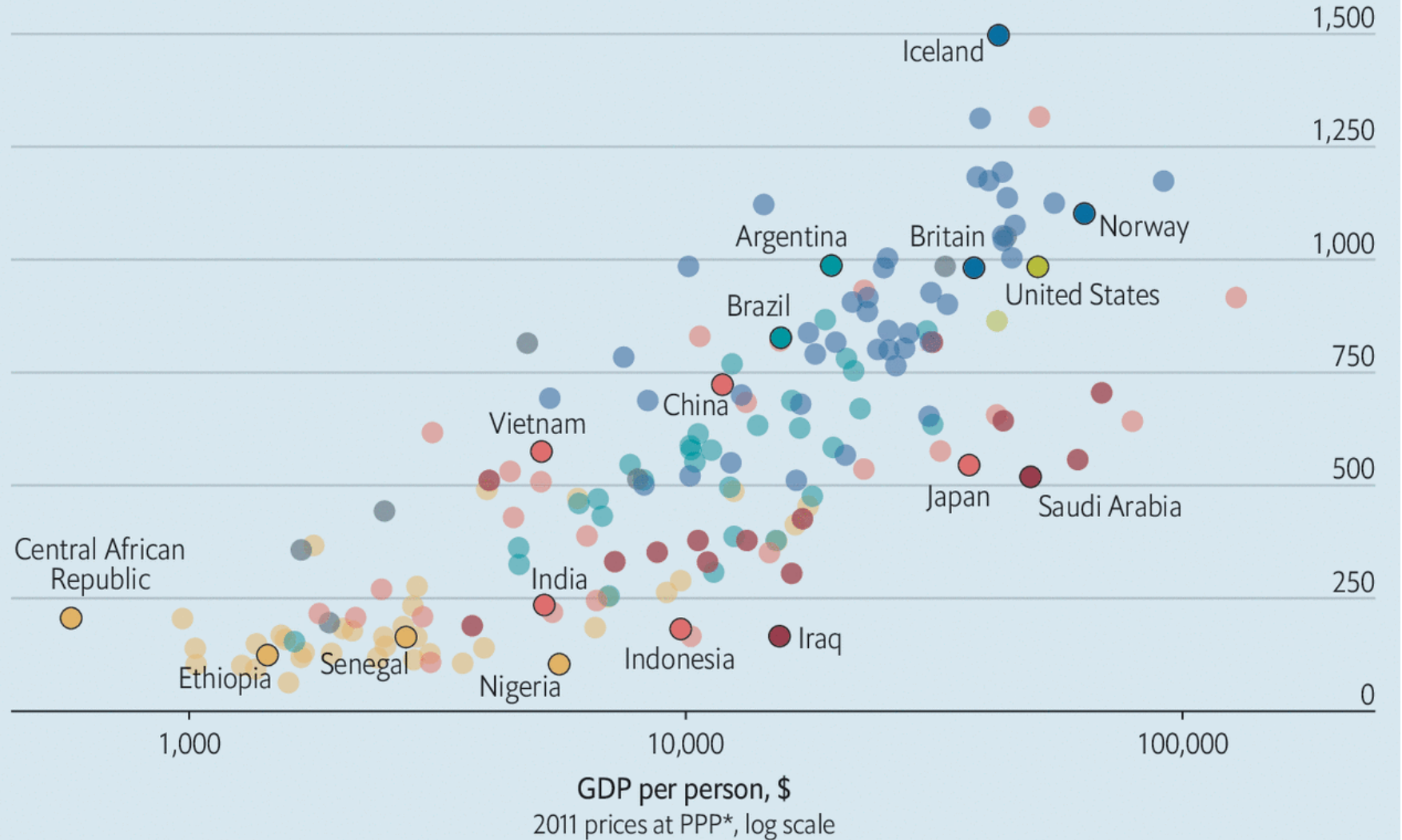
Meat Economics

Economic carnivores

GDP per person and food supply, 2013

- Asia
- Europe
- Latin America
- Middle East & north Africa
- Oceania
- North America
- Sub-Saharan Africa

Daily food supply from animal products, kilocalories per person

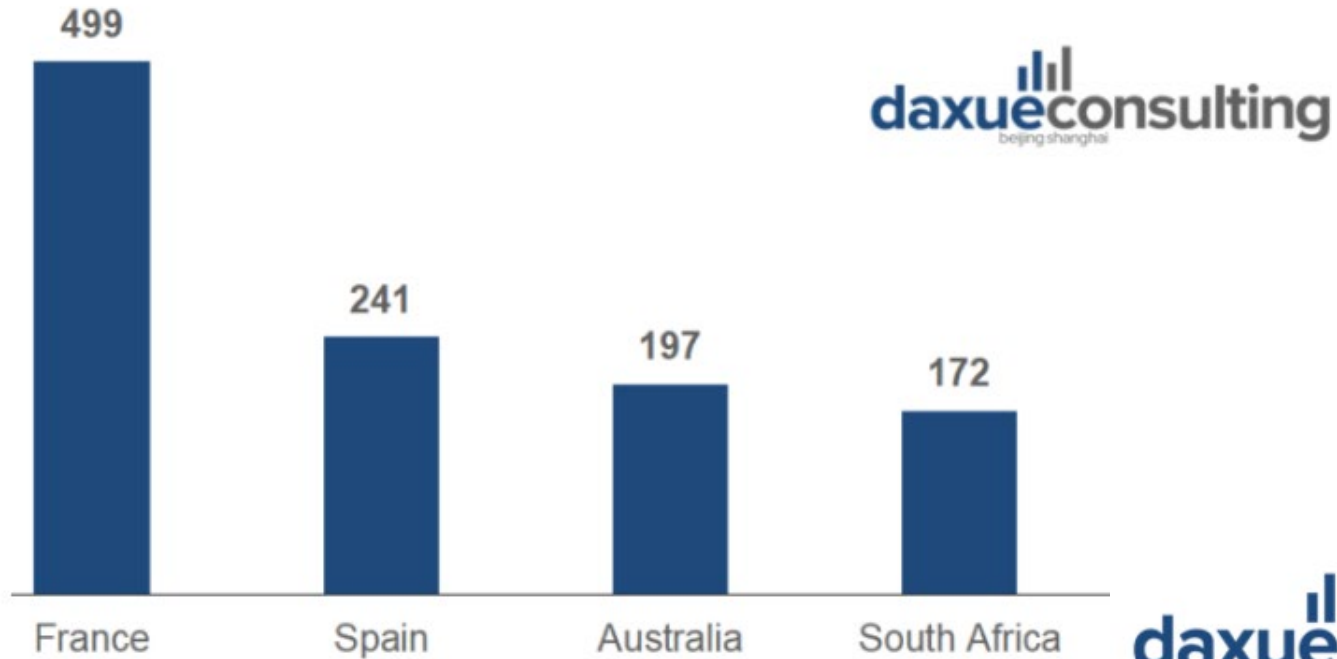


Sources: IMF; FAO

*Purchasing-power parity

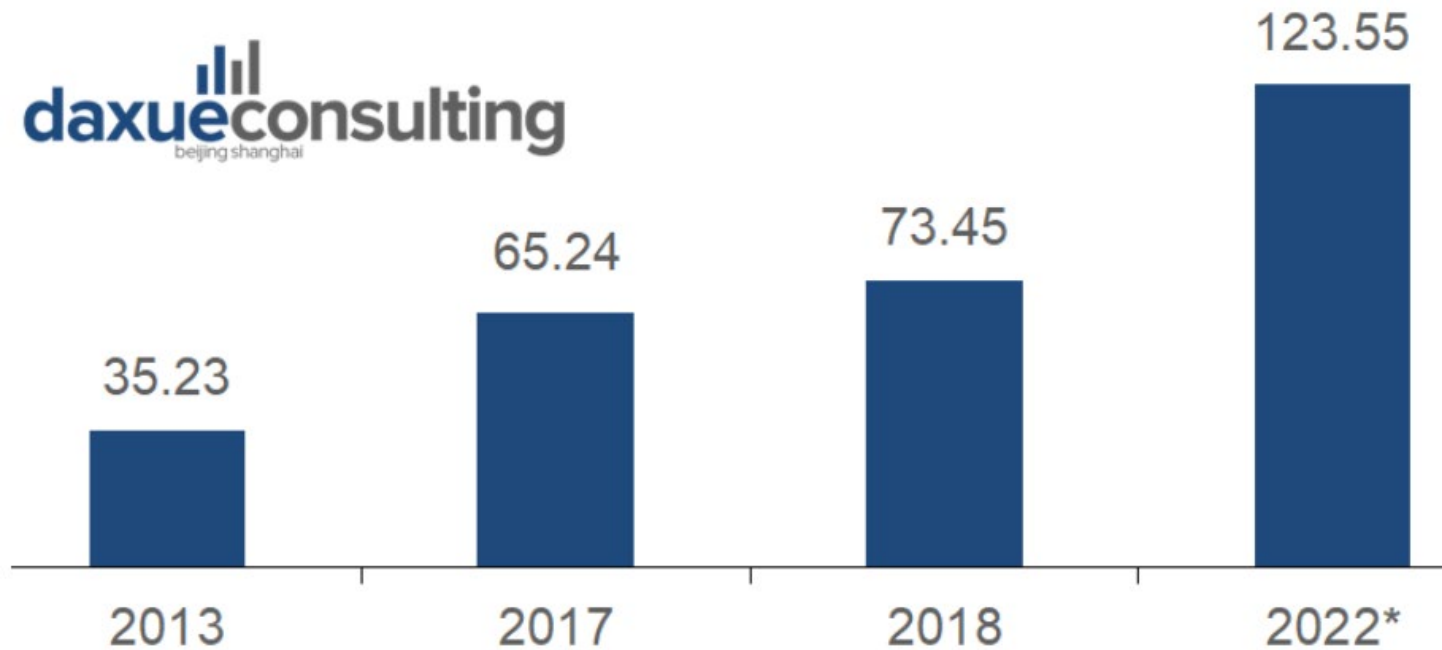
Baidu searches for wine from certain countries

*Number is for comparison and does not represent actual search volume



Another example: wine

Sales value of wine in China (billion USD)



China High Speed Railway Map

(Click to Enlarge)



High Speed Rail

<https://www.travelchinaguide.com/images/map/train/high-speed-railway.jpg>

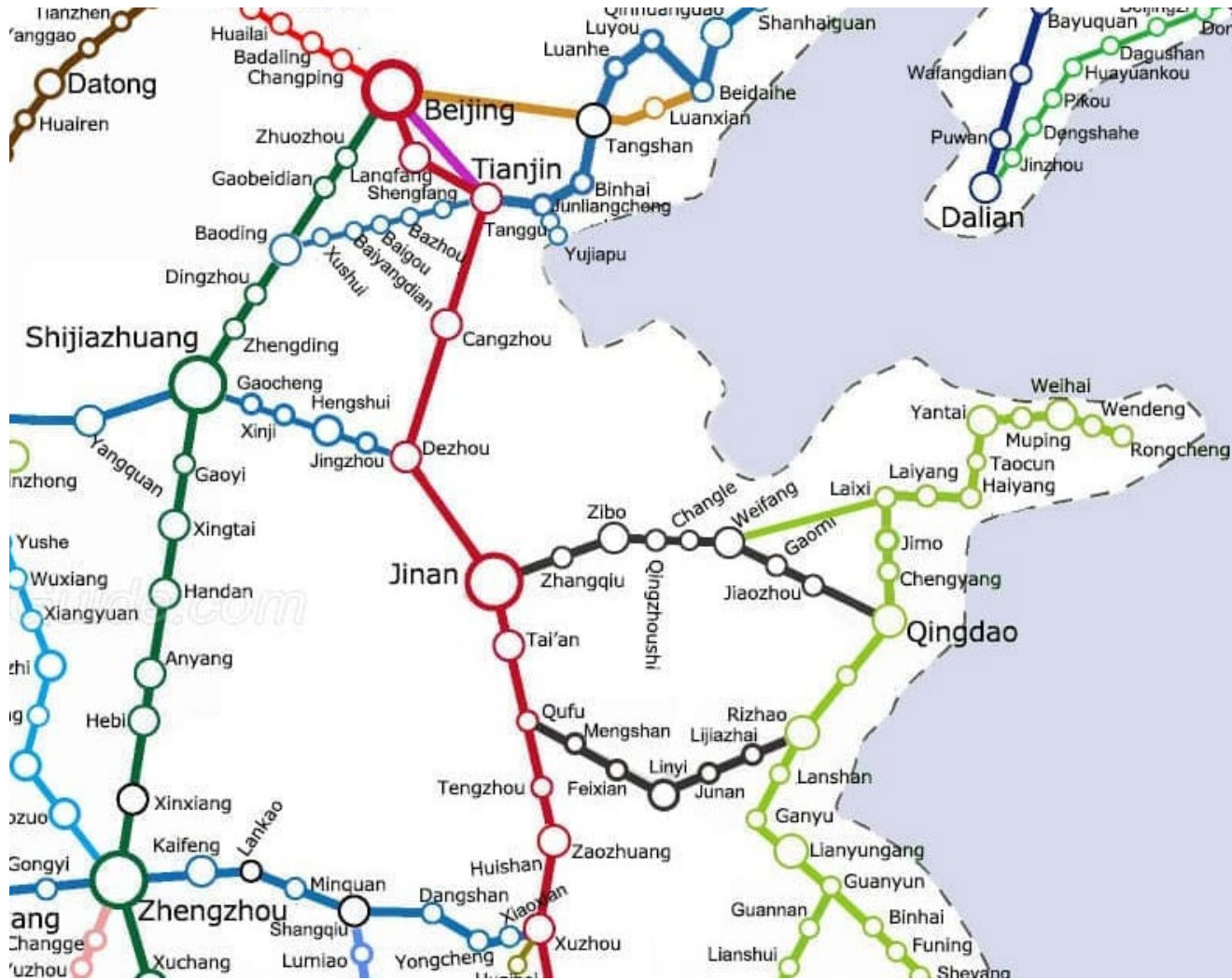
China is a Country of Rapid Change

“四横四纵” 国家冷链物流骨干通道网络布局示意图

Cold Chains

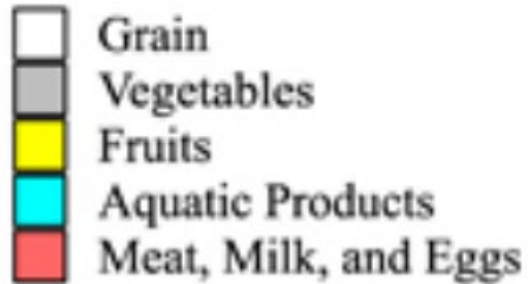


China's High Speed Rail Map, 2021

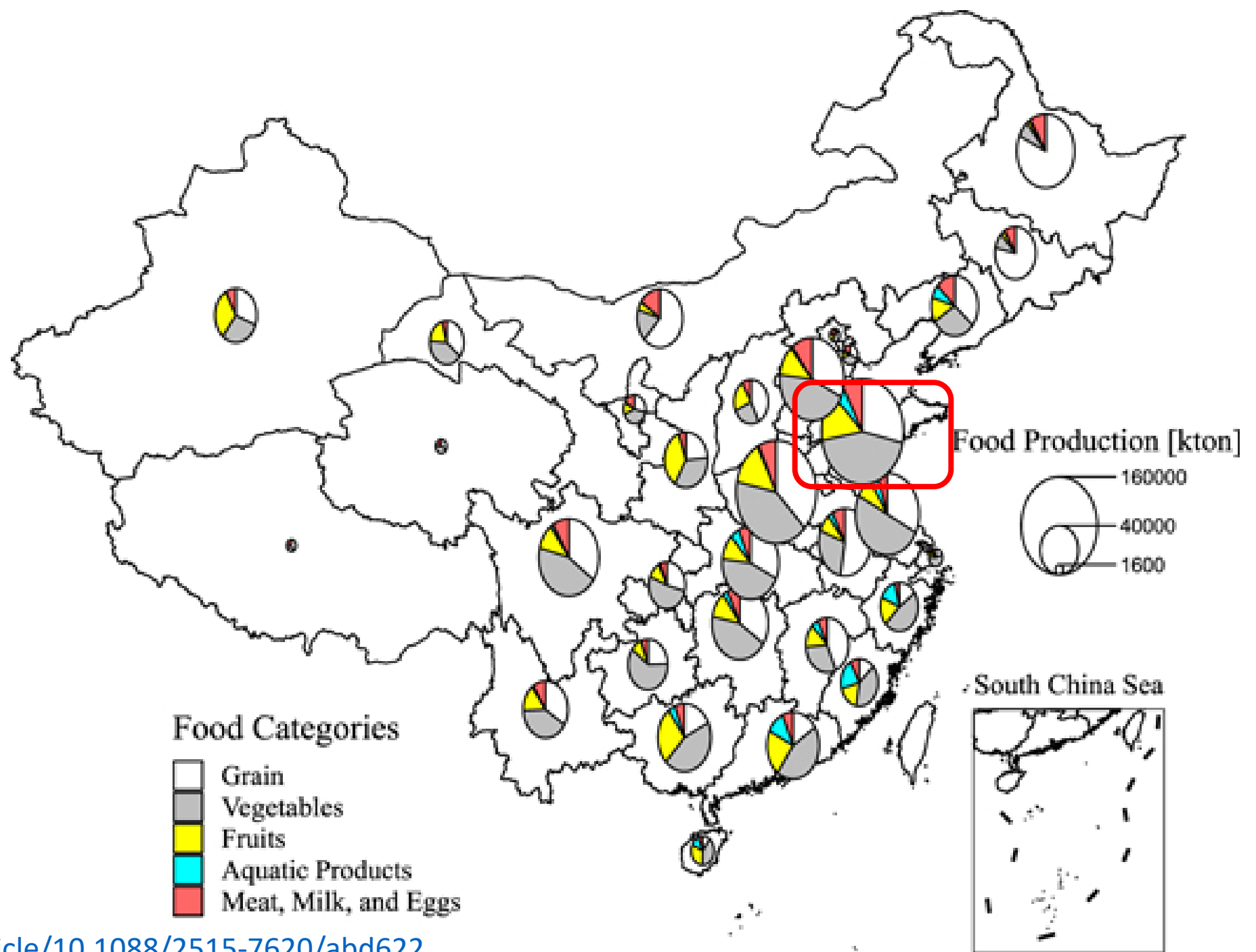
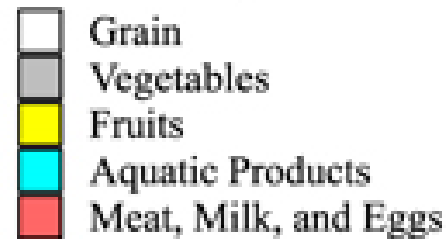


Food Production in China, 2018

Food Categories



Food Categories



Agricultural transformation in my hometown

Greenhouse – plastic film - Shandong Province



Now the high-tunnel production system has been upgraded



Chinese Dairy Demand



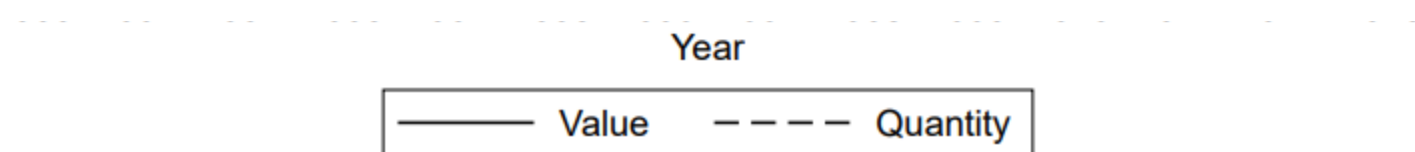
China's dairy market: How a population known for lactose intolerance became the world's largest dairy importer

Figure 1: Event Study Graph: China's Dairy Exports

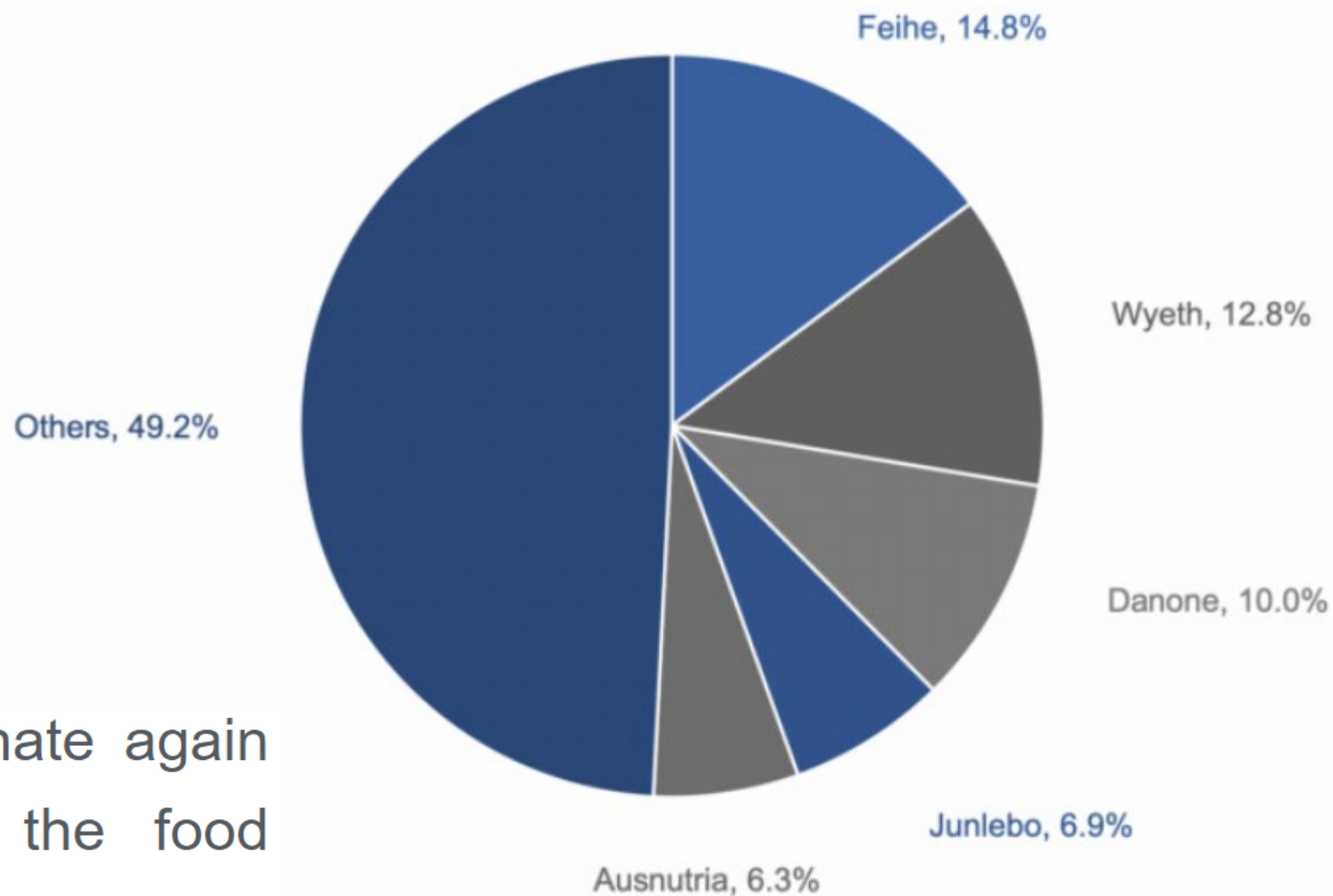
The 2008 melamine scandal and government's efforts to pick up the pieces

In 2008, the Chinese milk market was implicated in probably the worst scandal that the food industry in China has ever seen. Traces of melamine – a toxic industrial compound generally used in plastics and fertilizers– were found in locally produced **infant milk powder**. Apparently, the substance was supposed **to boost the milk protein content**, but after four months of the discovery, around 300,000 babies fell sick and 6 babies died of kidney malfunctioning.

As a consequence, trust in local brands plummeted, leading to a **92%** drop in their exports. Since then, the government has actively worked to improve the safety of locally produced milk, as well as to help domestic brands win over consumers' trust once again.



The main players in China's baby formulas market in 2020



Domestic brands dominate again after recovering from the food safety scandal

Creativity is the key to win consumers' attention



Adult powdered milk by Nestlé

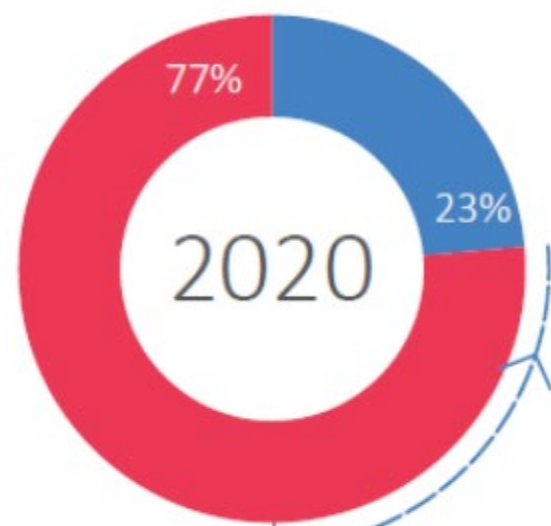
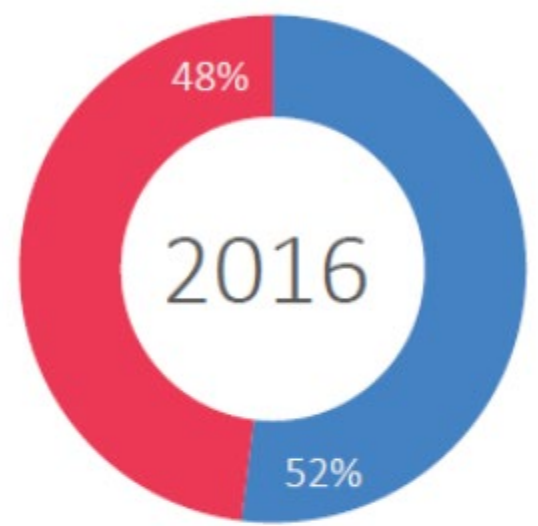
White Rabbit, White Rabbit's candy flavoured milk

Chinese consumers sour on foreign dairy brands

🕒 2 min read

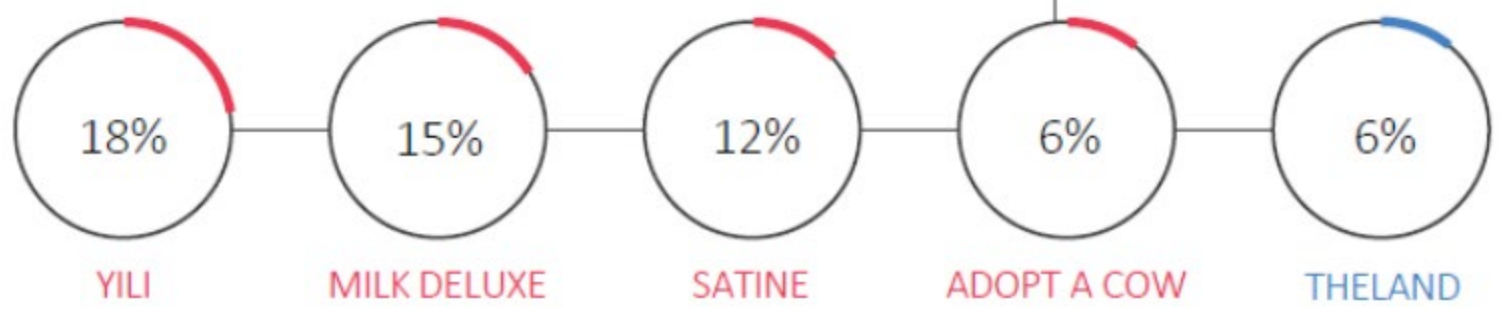
News, 24/09/2020

Foreign vs Domestic Market Share 2016 & 2020

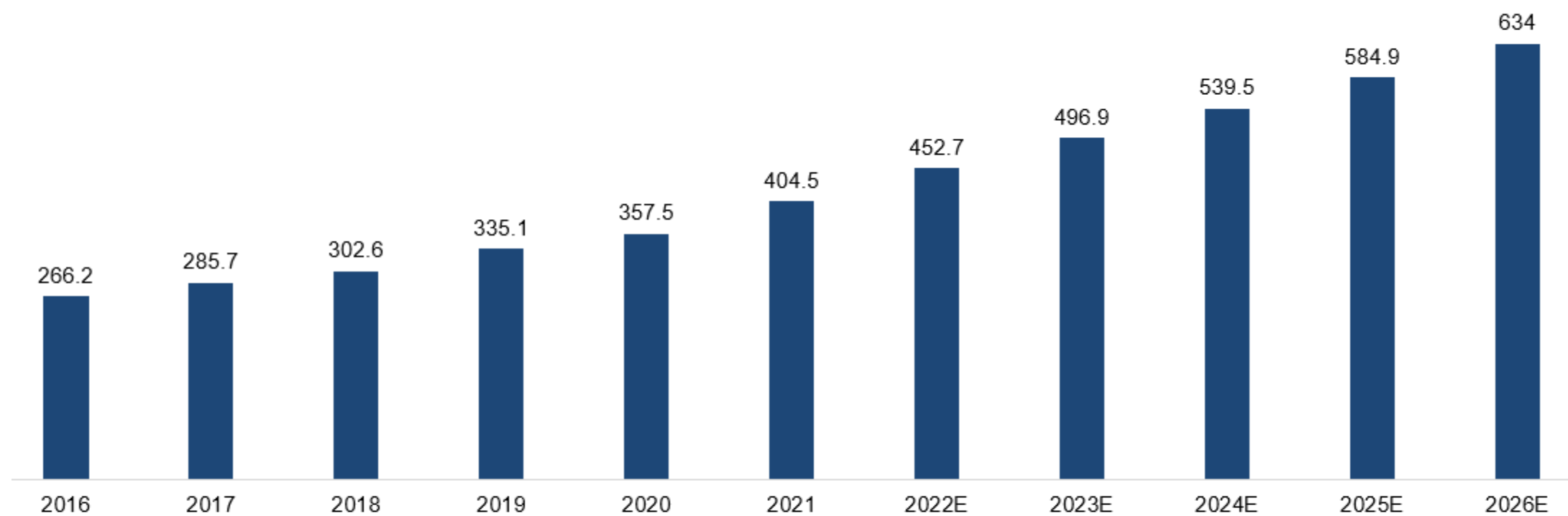


↓ 29 percentage points

Top 5 Brands



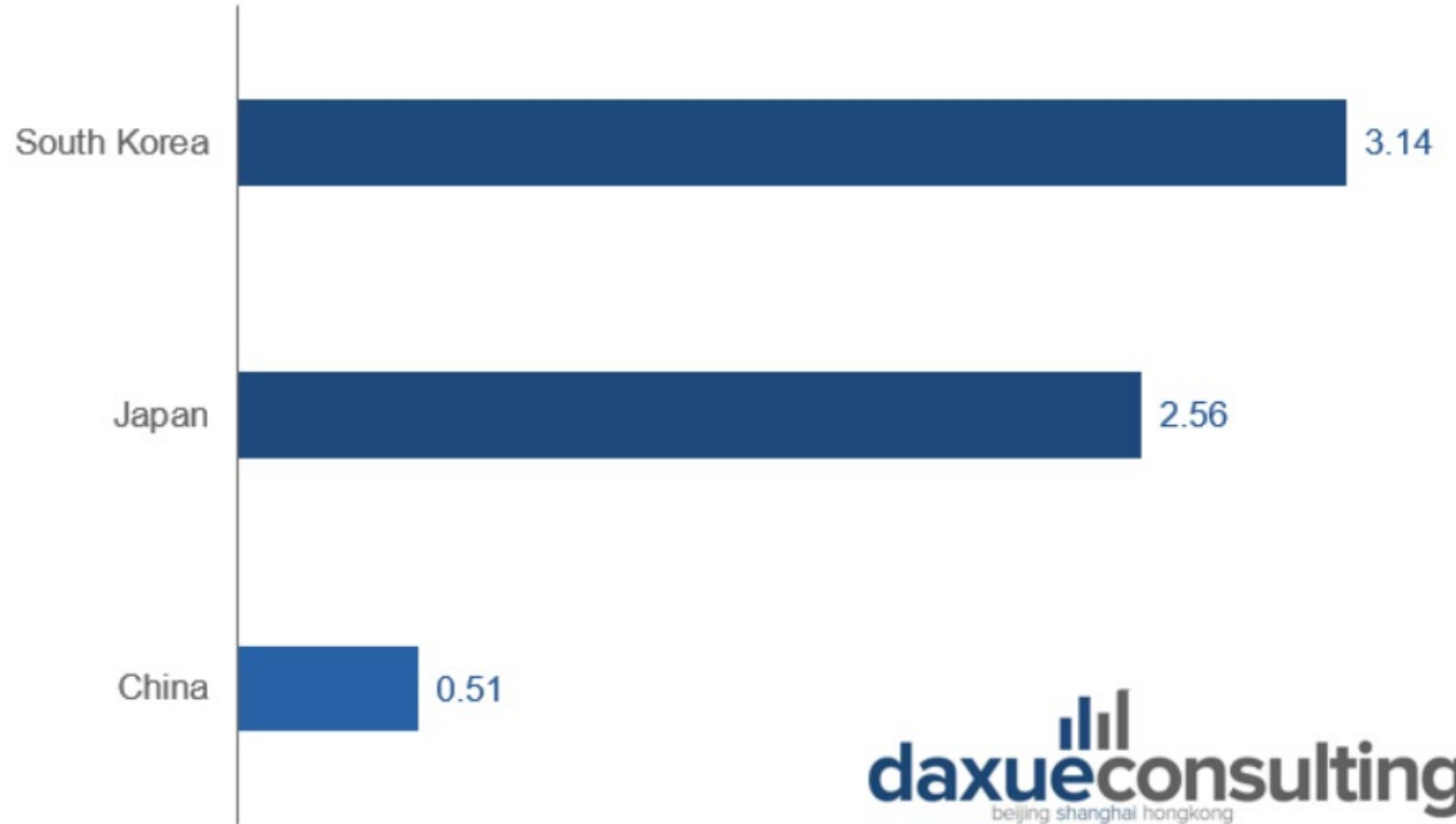
2016-2021 retail sales value of liquid milk in China and 2022-2026 estimates
(in billion RMB)





Source: Milkground, Milkground's star product: cheese lollipops

2019 per capita consumption of cheese in North-East Asia in kg

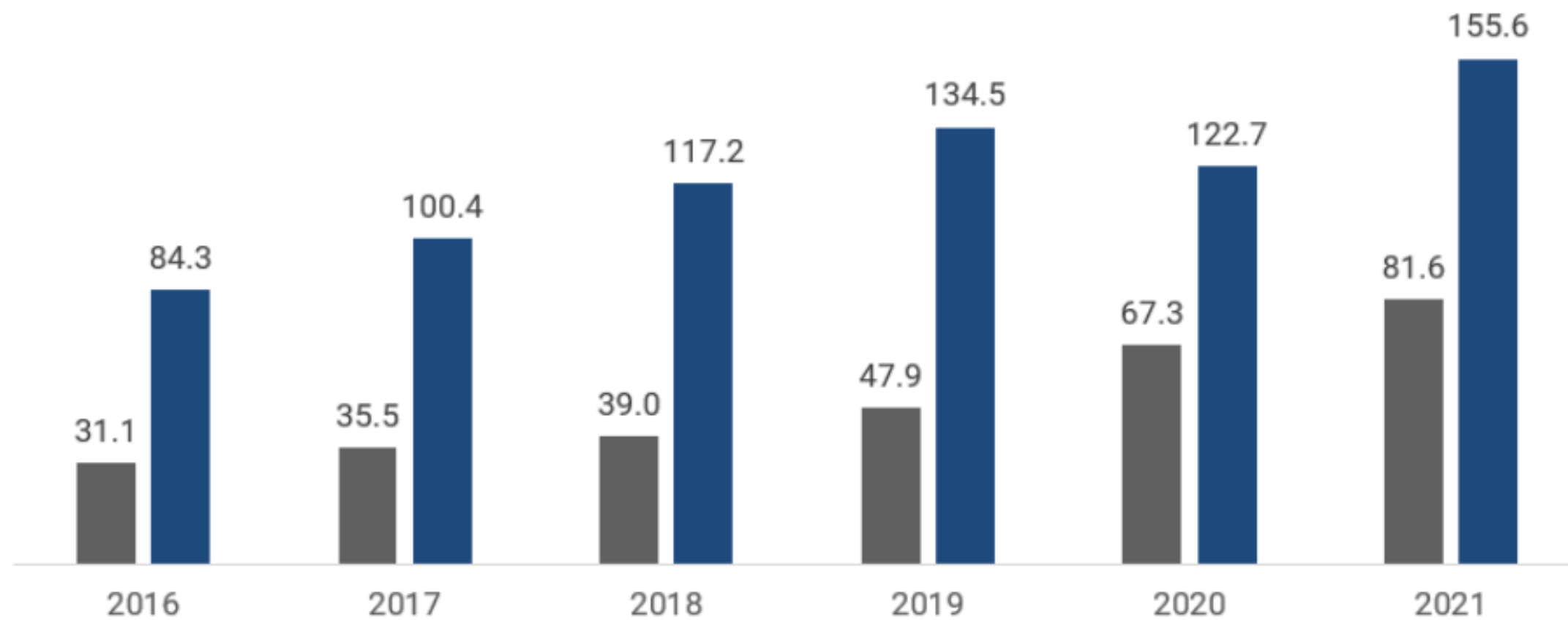


US: 19 kg per capita consumption of cheese in 2019

Evolution of cheese retail sales & sales in catering from 2016 to 2021

(Thousand tonnes)

■ Retail sales ■ Sales in catering



Learn more about Food and China

THE LANGUAGE OF FOOD

A LINGUIST
READS THE MENU

DAN
JURAFSKY

SHARK'S FIN AND SICHUAN PEPPER A SWEET-SOUR MEMOIR OF EATING IN CHINA FUCHSIA DUNLOP

"Not just a smart
memoir about
cross-cultural
eating but one of
the most engaging
books of any kind
I've read in years."
—Celia Barbour,
O, The Oprah Magazine

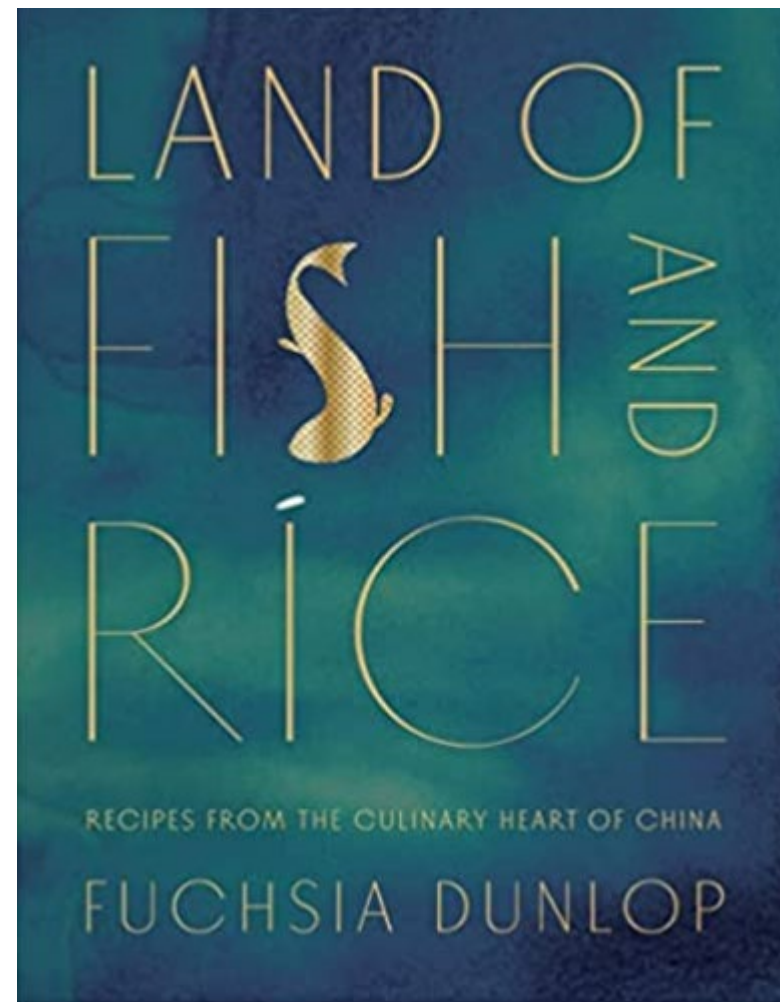
author of
REVOLUTIONARY
CHINESE COOKBOOK



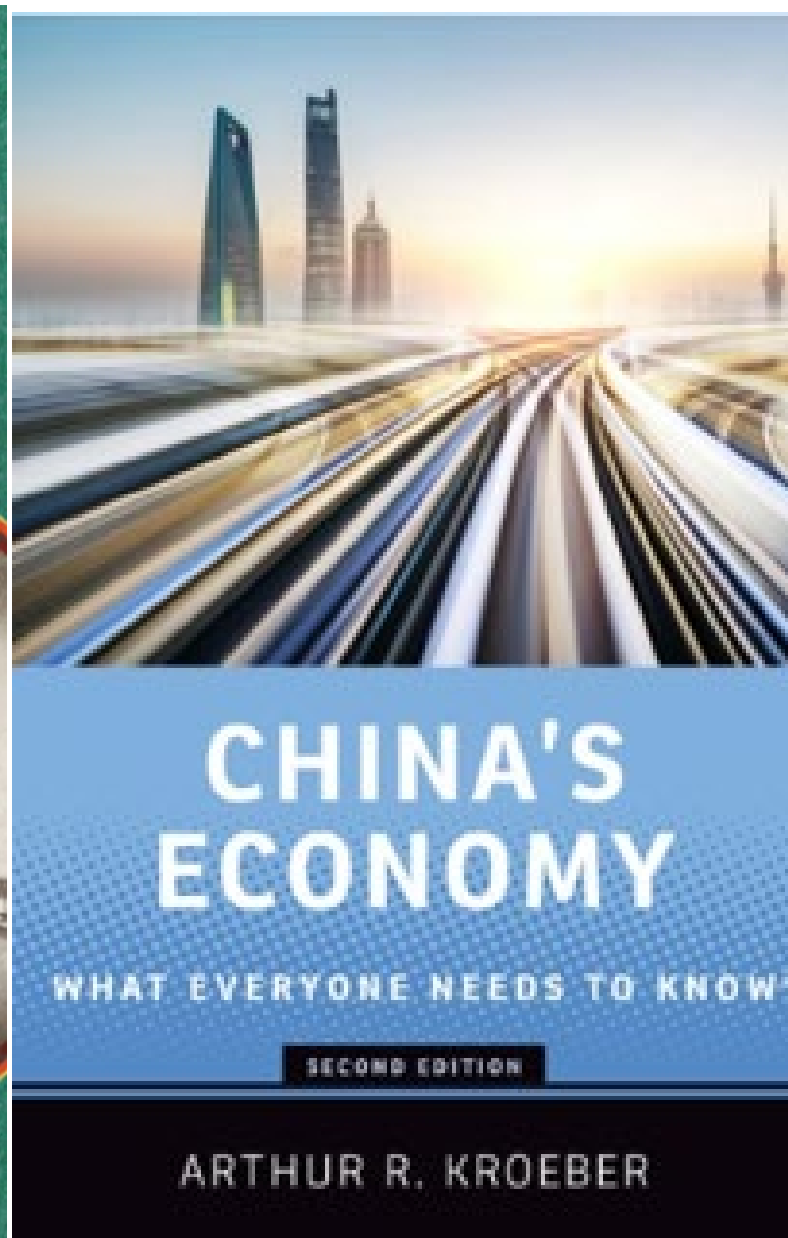
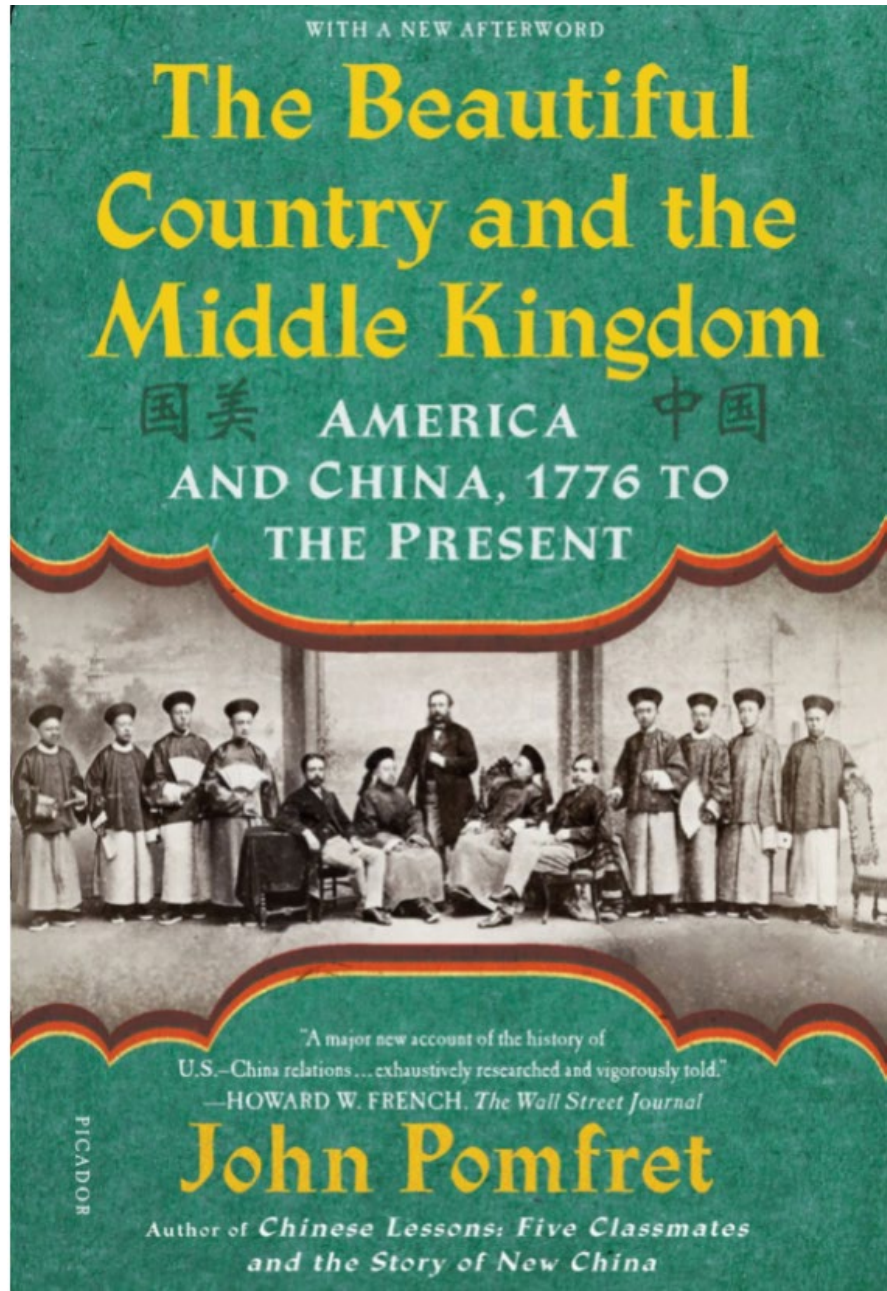
LAND OF FISH AND RICE

RECIPES FROM THE CULINARY HEART OF CHINA

FUCHSIA DUNLOP



Learn more about contemporary Chinese economy



Thank you!

Wendong Zhang
wendongz@cornell.edu

<https://wendongzhang.weebly.com/>

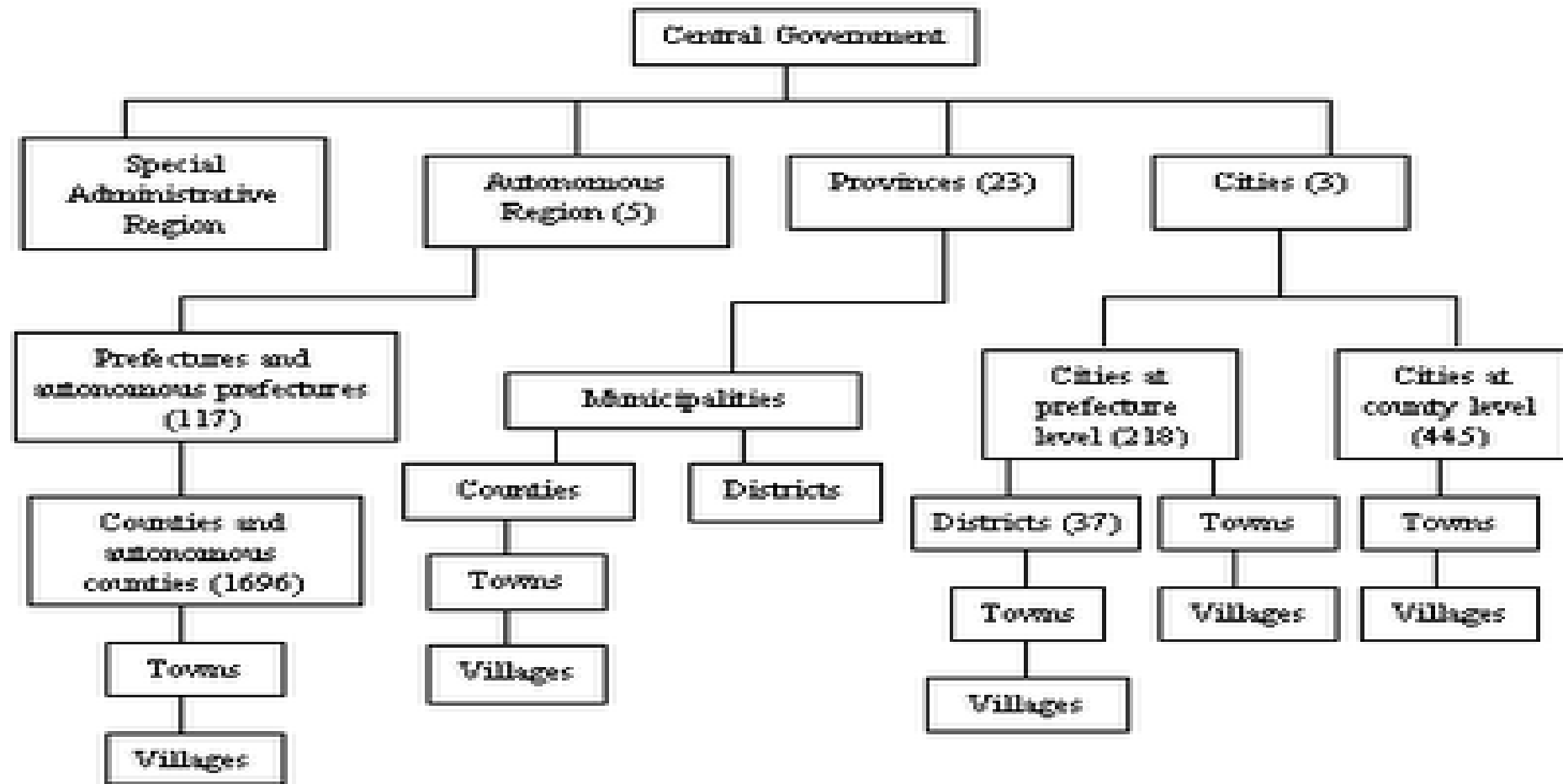


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China's Governance Hierarchy



2000 yrs of imperial history

- huge legacies on governance structure

the only exception: emperor replaced by central government

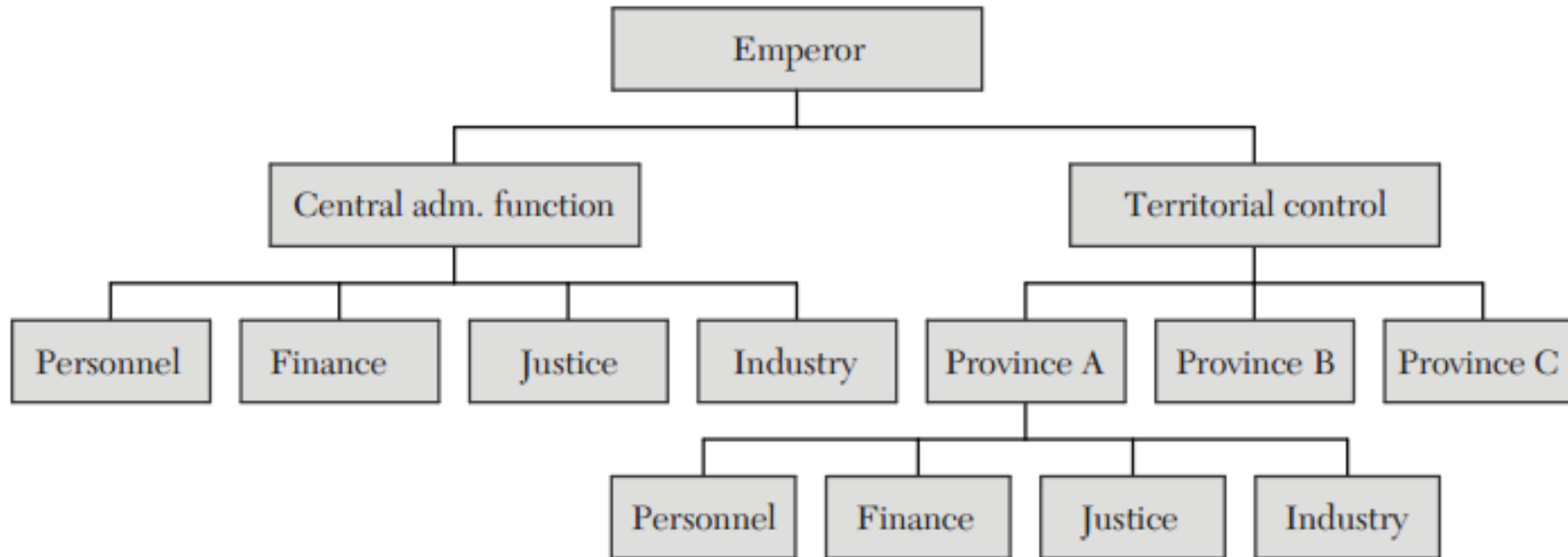
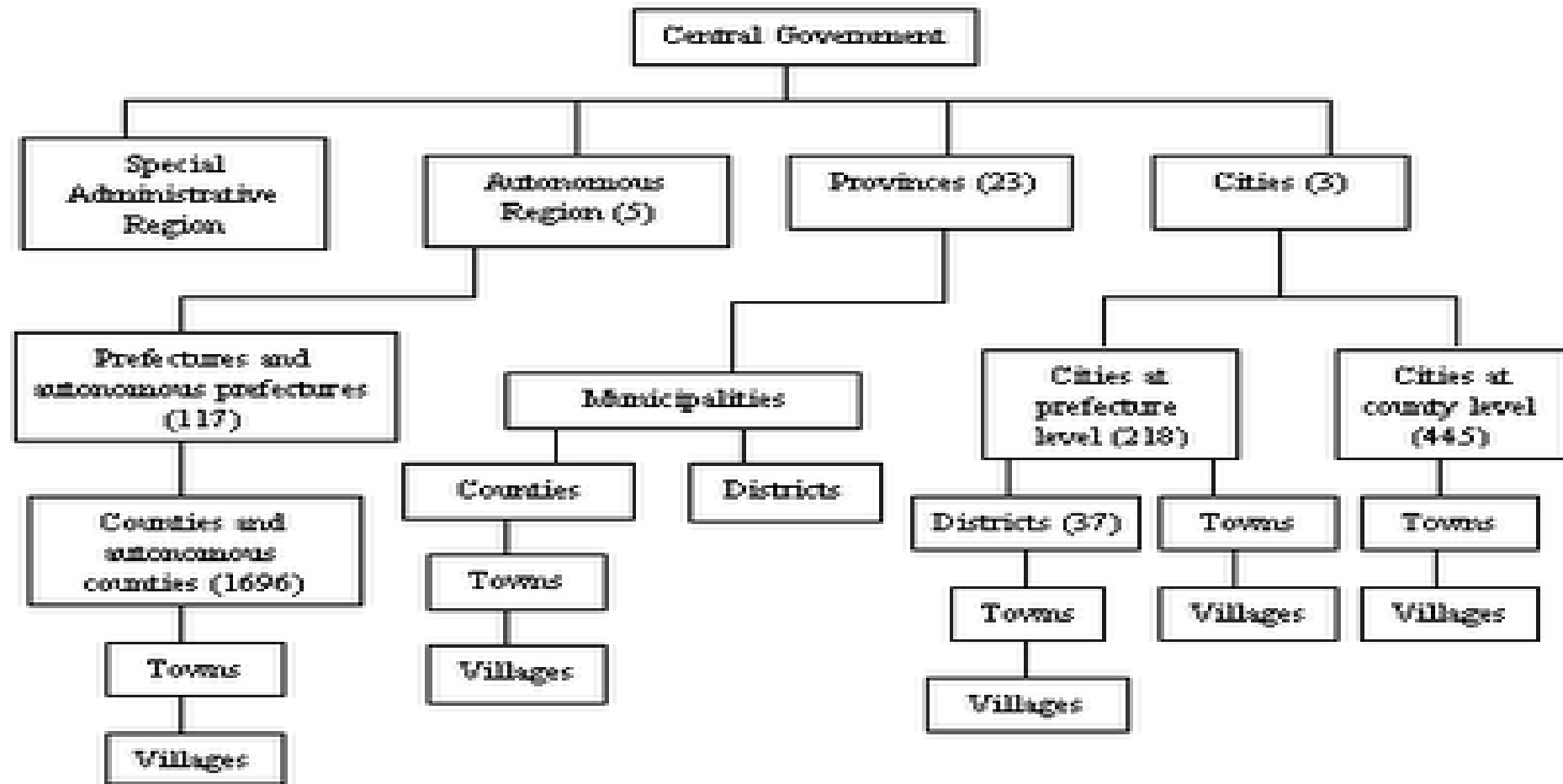


Figure 3. Stylized Governance Structure of Imperial China

New additions: VA, ICE (following US governance structure)

China's Governance Hierarchy



2000 yrs of imperial history

- huge legacies on governance structure
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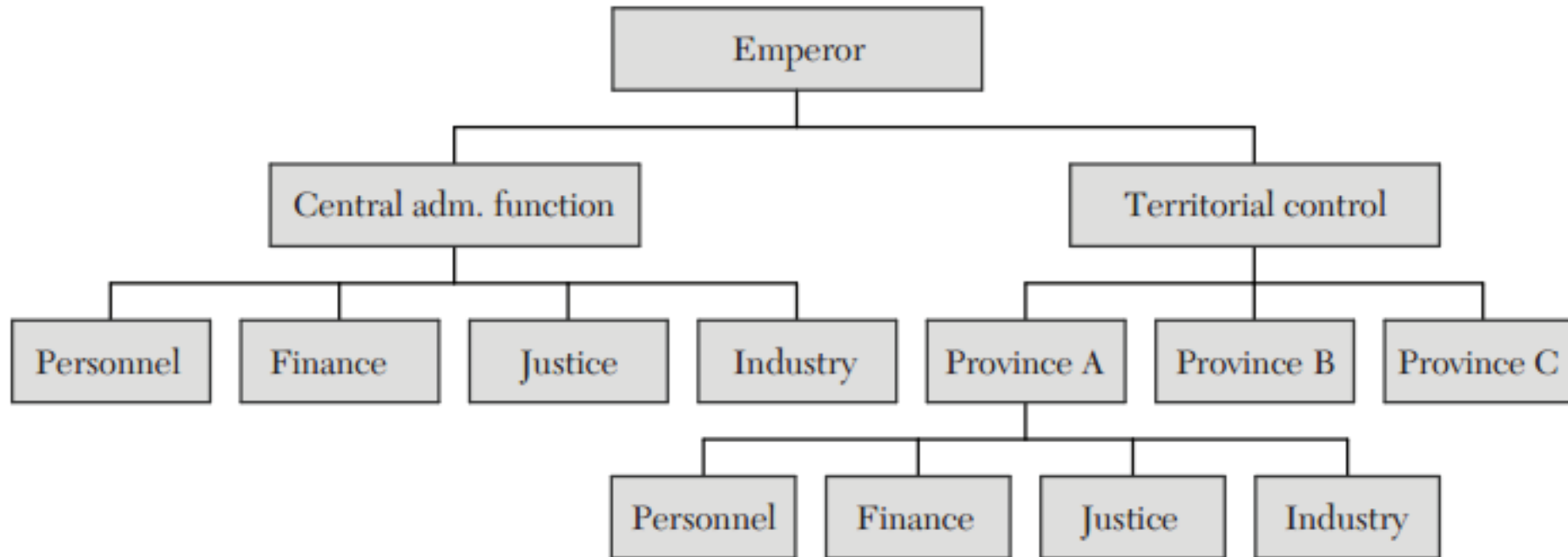


Figure 3. Stylized Governance Structure of Imperial China

New additions: VA, ICE (following US governance structure)

China's Regional Decentralized Authoritarian (RDA) Regime

CHINA'S POLITICAL-ECONOMIC
INSTITUTIONS AND DEVELOPMENT
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CHARACTERISTICS OF CHINA'S RDA REGIME COMPARED WITH OTHER REGIMES

	China's RDA regime	Soviet system	Federal State
Composition of national decision-making body	Central, regional and ministerial officials	Central and ministerial officials	Federal legislature representing regional constituencies
Decision-making process	Central-regional bargaining; consensus building; local experiments as a strategy	Top-down; SOE-Ministry bargaining	Voting in legislation; federal-state bargaining
Subnational officials' incentives	Promotion: absolute and relative performance; accountable to superiors; personnel control	Promotion: absolute performance; accountable to superiors; personnel control	To be elected; independent from the federal government; accountable to local constituencies
Regional competition	Tournament-like competition; competition affects governor's promotion	Not important	Fiscal (Tiebout) competition; competition affects governor's re-election
Regional experiment	Local experiments as part of central decision-making; experimental results may become national policy	Not important	States are "laboratories" for policy; voluntary adoption of experiments by states

THE EFFECT OF ECONOMIC PERFORMANCE ON THE TURNOVER OF PROVINCIAL LEADERS

(Ordered probit regressions)

	Dependent variable: turnover (0 = termination, 1 = same level, 2 = promotion)					
	(1)	(2)	(3)	(4)	(5)	(6)
Provincial annual GDP growth rate	1.615** (2.05)	1.581* (1.87)				
Provincial average GDP growth rate			4.727*** (4.34)	4.540*** (3.90)		
Provincial average per capita GDP growth rate (A)					3.001** (2.10)	
Provincial average per capita GDP growth rate of the immediate (B) predecessor (B)					-3.584** (2.36)	
(A)-(B)						3.309*** (3.41)
Age		-0.026* (-1.91)		-0.023* (-1.68)	-0.071*** (6.81)	-0.070*** (6.77)
Age 65		-0.974*** (-5.27)		-0.976*** (-5.25)	-0.303** (2.07)	-0.303** (2.07)
Education		0.154 (0.96)		0.187 (1.17)	0.183 (1.48)	0.184 (1.50)
Central connection		0.384*** (2.79)		0.404*** (2.89)	0.082 (0.74)	0.085 (0.77)

Who get promoted as Governor?