The Global Produce Industry – Implications for the United States

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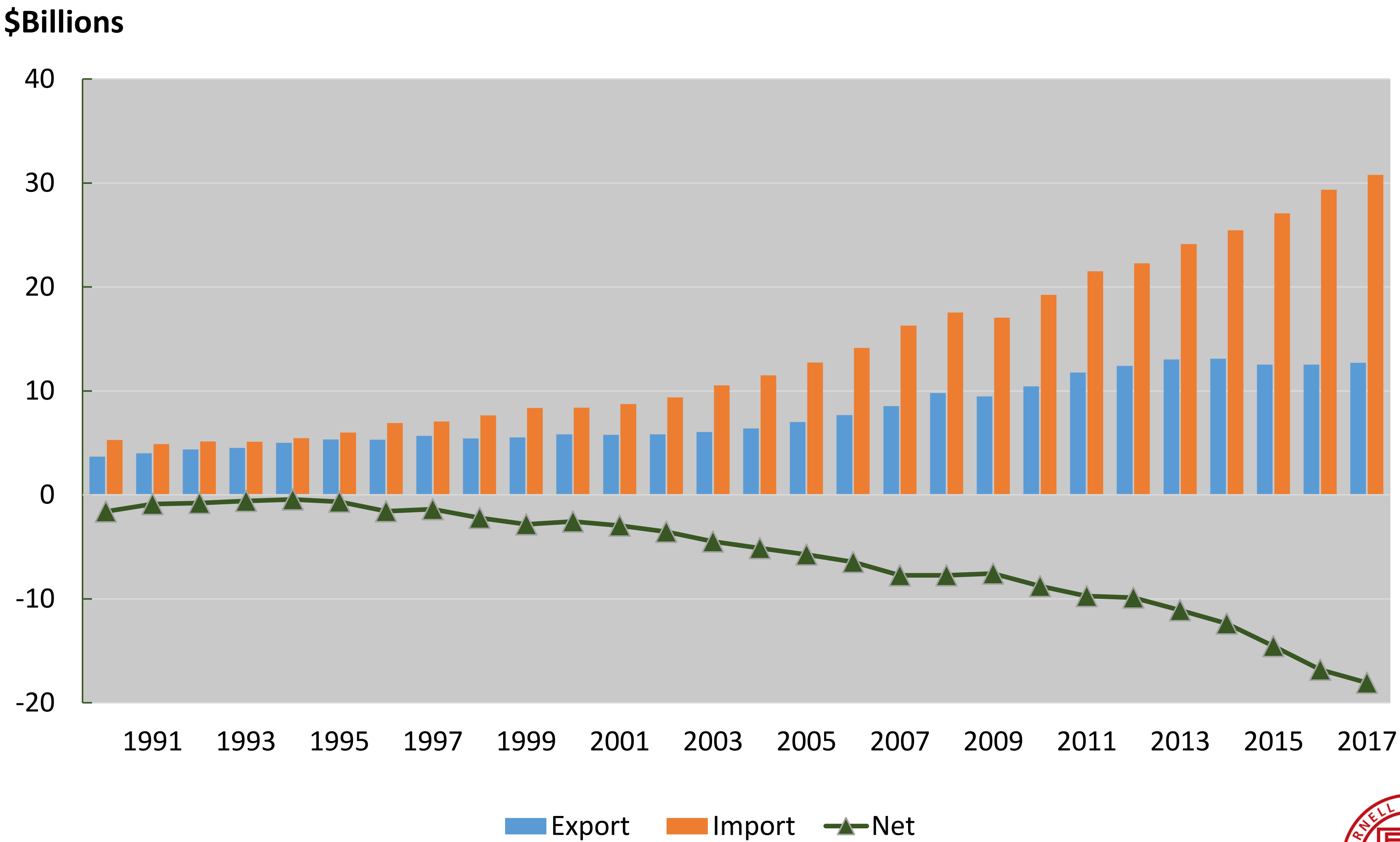
Agenda

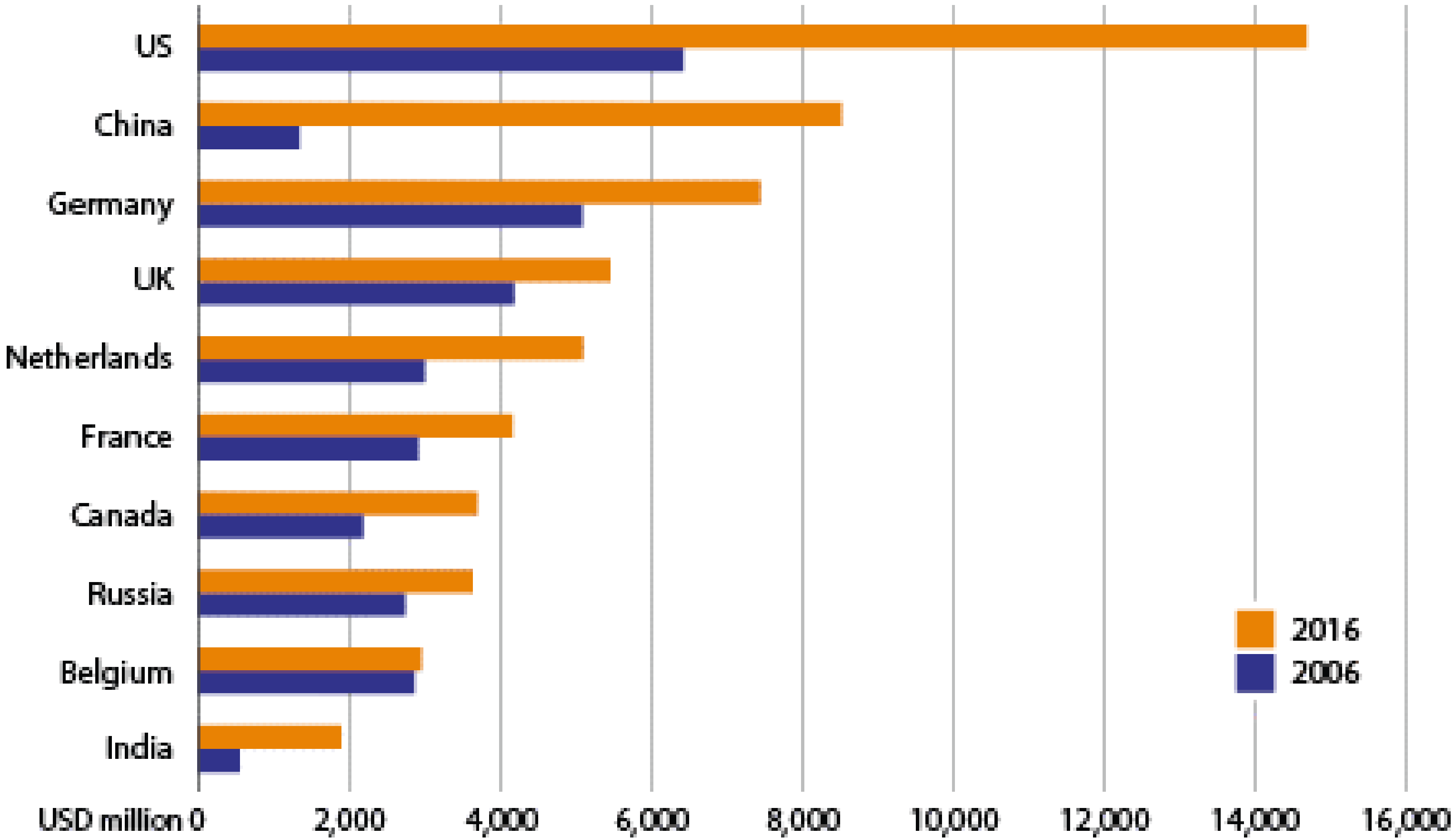
- Drivers and trends of international trade of fruits and vegetables (F&Vs)
- Key managerial issues in global produce supply chains
- The U.S. and the global produce industry

U.S. Fruit and Vegetable Trade, 1990-2017



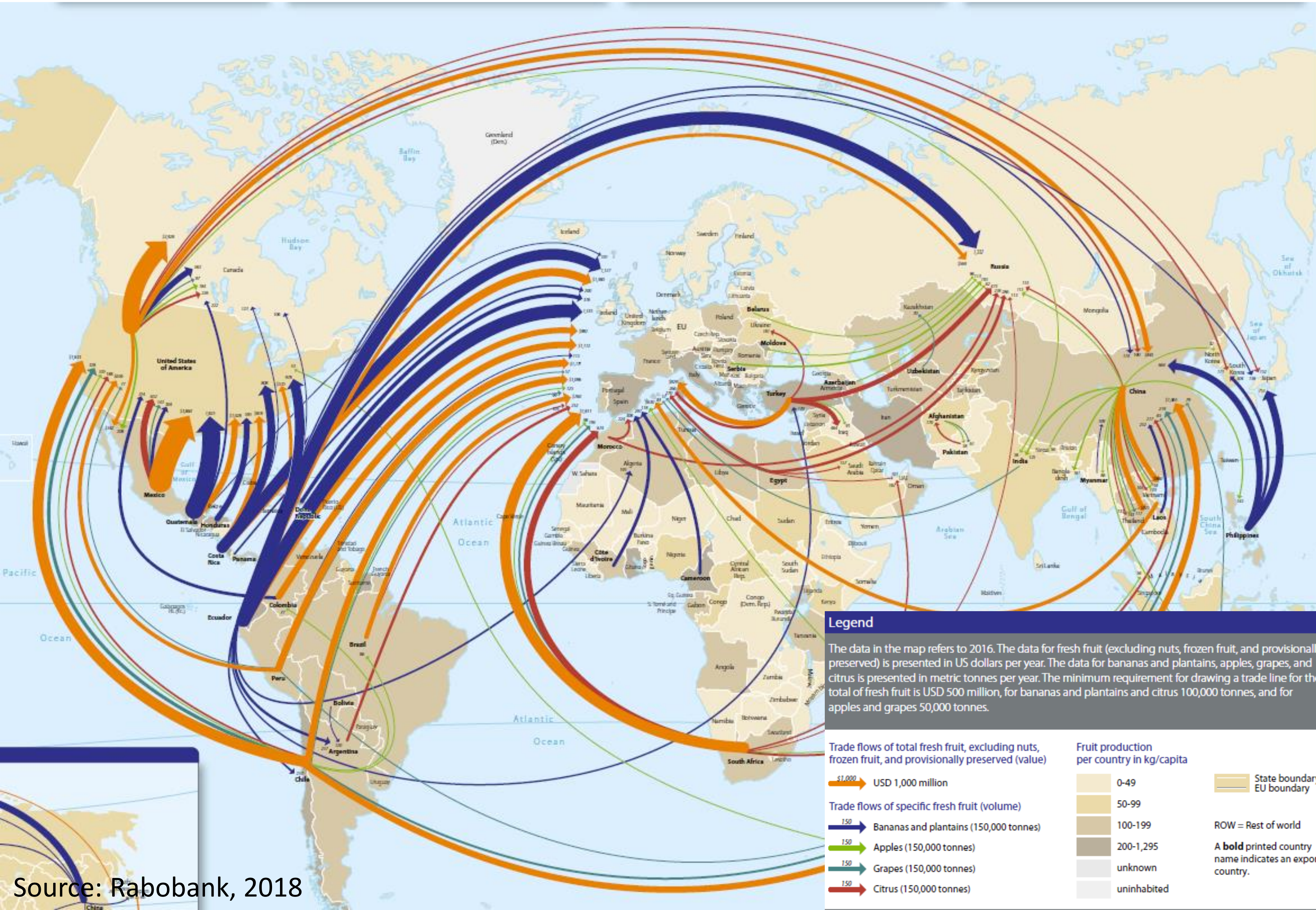
Source: Global Agriculture Trade System, ERS, USDA, Include fresh and processed products; exclude nuts

World Fruit Map Top 10 fresh fruit import countries, 2006 vs. 2016



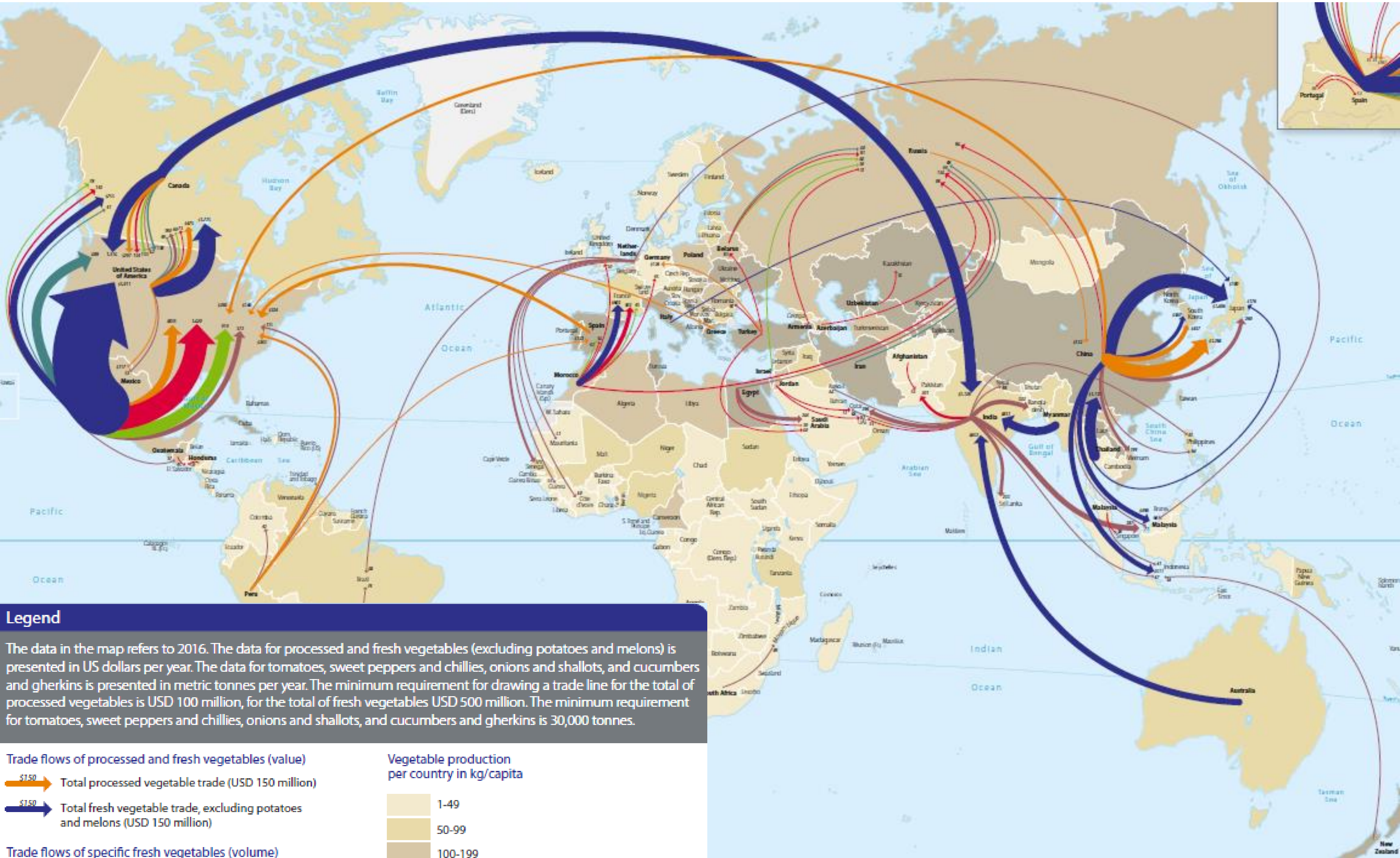
Source: Rabobank, 2019

World Fruit Map



Source: Rabobank, 2018

WORLD VEGETABLE MAP



Legend

The data in the map refers to 2016. The data for processed and fresh vegetables (excluding potatoes and melons) is presented in US dollars per year. The data for tomatoes, sweet peppers and chillies, onions and shallots, and cucumbers and gherkins is presented in metric tonnes per year. The minimum requirement for drawing a trade line for the total of processed vegetables is USD 100 million, for the total of fresh vegetables USD 500 million. The minimum requirement for tomatoes, sweet peppers and chillies, onions and shallots, and cucumbers and gherkins is 30,000 tonnes.

Trade flows of processed and fresh vegetables (value)

- $150 Total processed vegetable trade (USD 150 million)
- $150 Total fresh vegetable trade, excluding potatoes and melons (USD 150 million)

Trade flows of specific fresh vegetables (volume)

- 150 Tomatoes (150,000 tonnes)
- 150 Sweet peppers and chillies (150,000 tonnes)
- 150 Onions and shallots (150,000 tonnes)
- 150 Cucumbers and gherkins (150,000 tonnes)

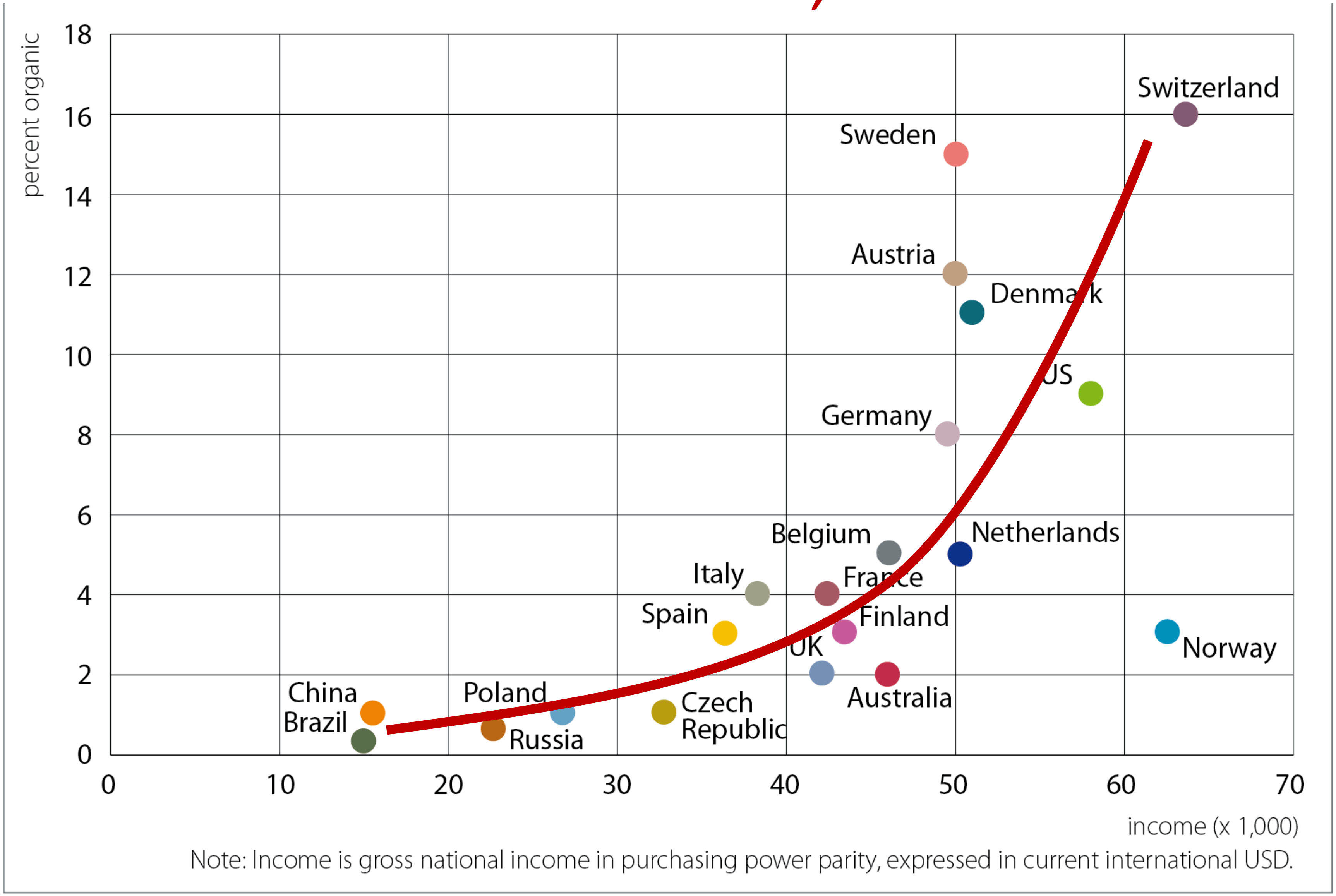
Vegetable production per country in kg/capita

- 1-49
- 50-99
- 100-199
- 200-428
- unknown
- uninhabited

State boundary
EU boundary

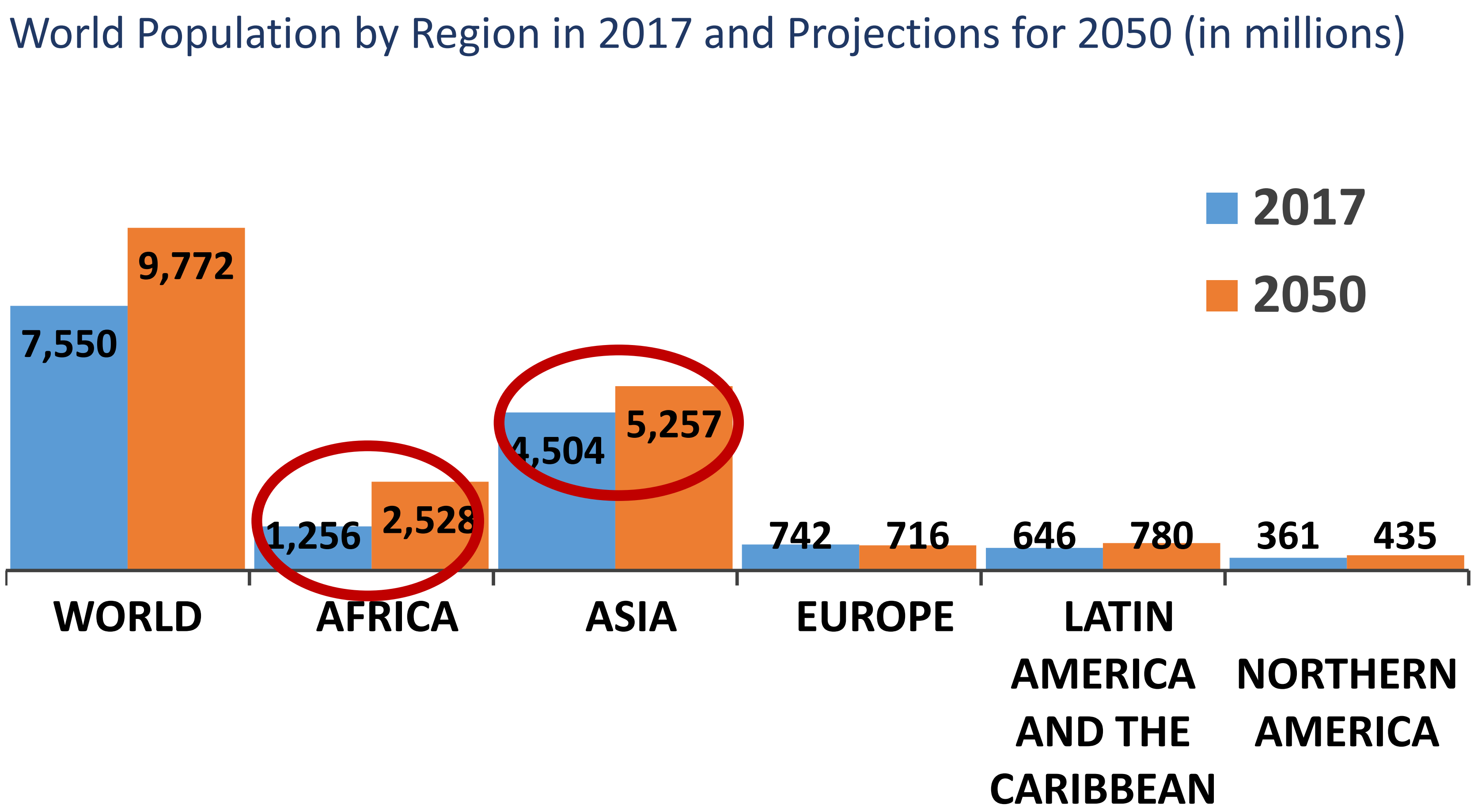
Source: Rabobank, 2018

Share of Organic Fresh Fruit and Vegetable Sales vs. Income, 2016



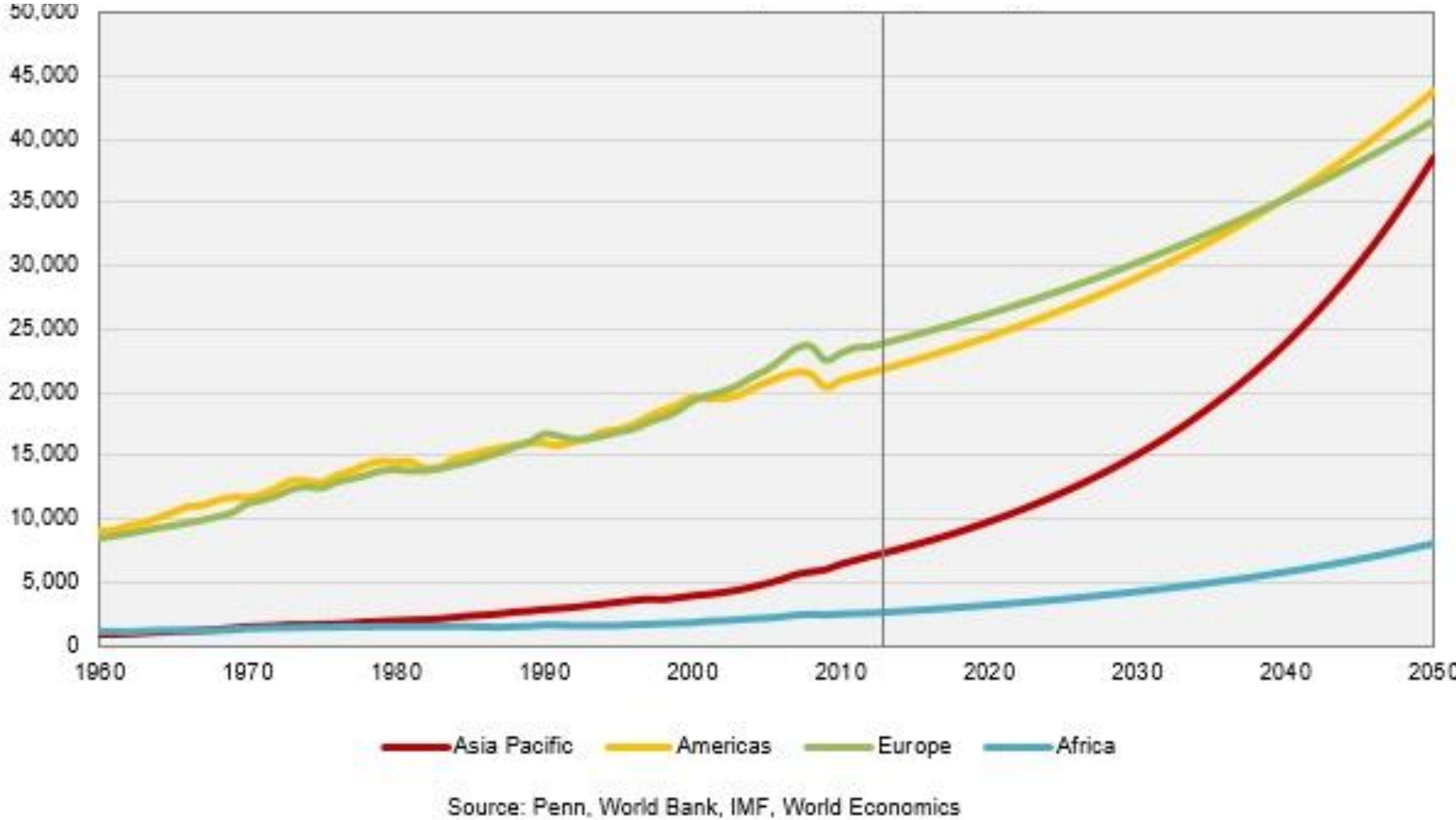
Source: Rabobank, 2019

World Population

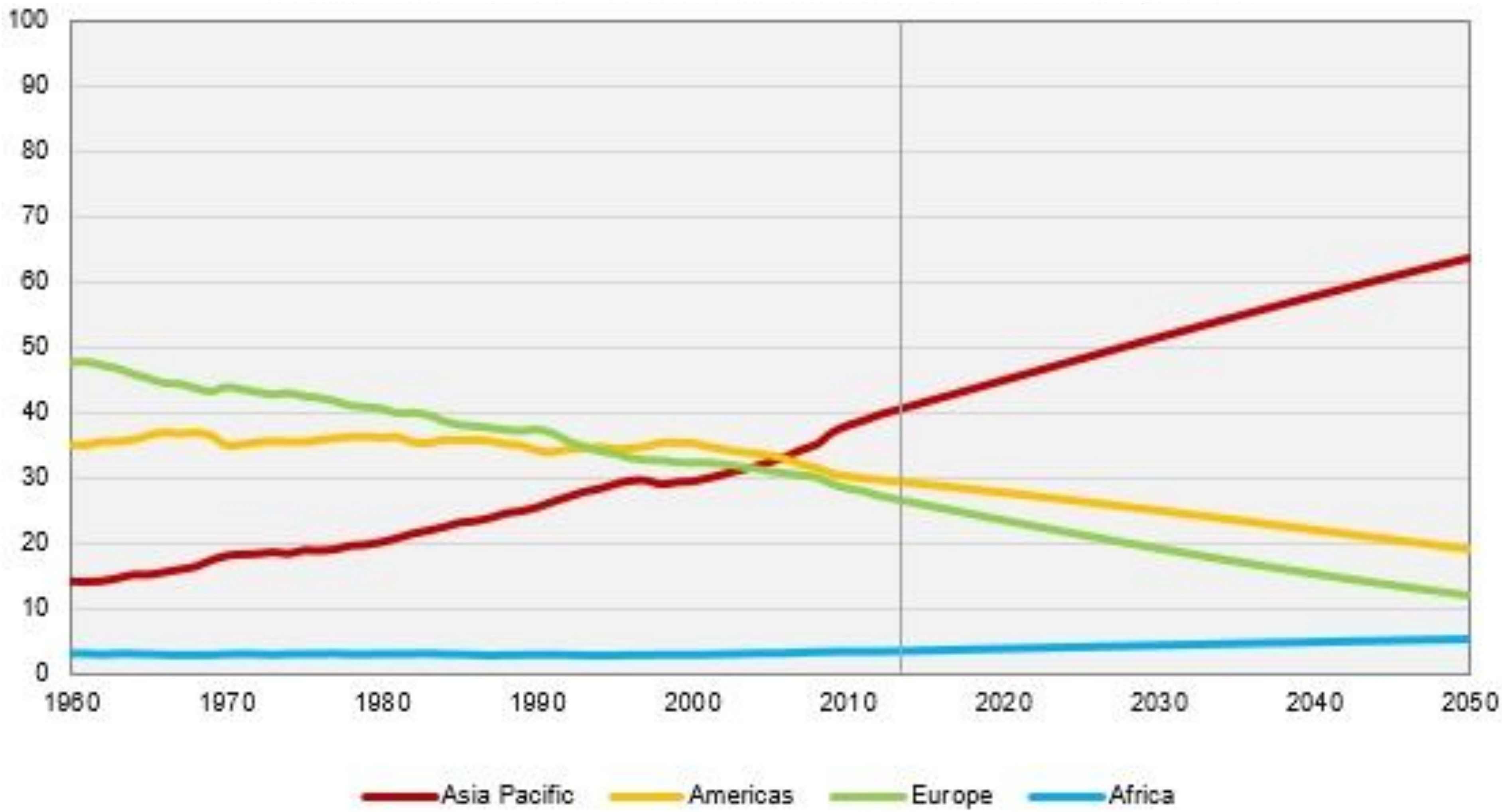


Sources: United Nations, Department of Economic and Social Affairs, Population Division (2017). World Population Prospects: The 2017 Revision, custom data acquired via website.

Real GDP Per Capita (PPP $)

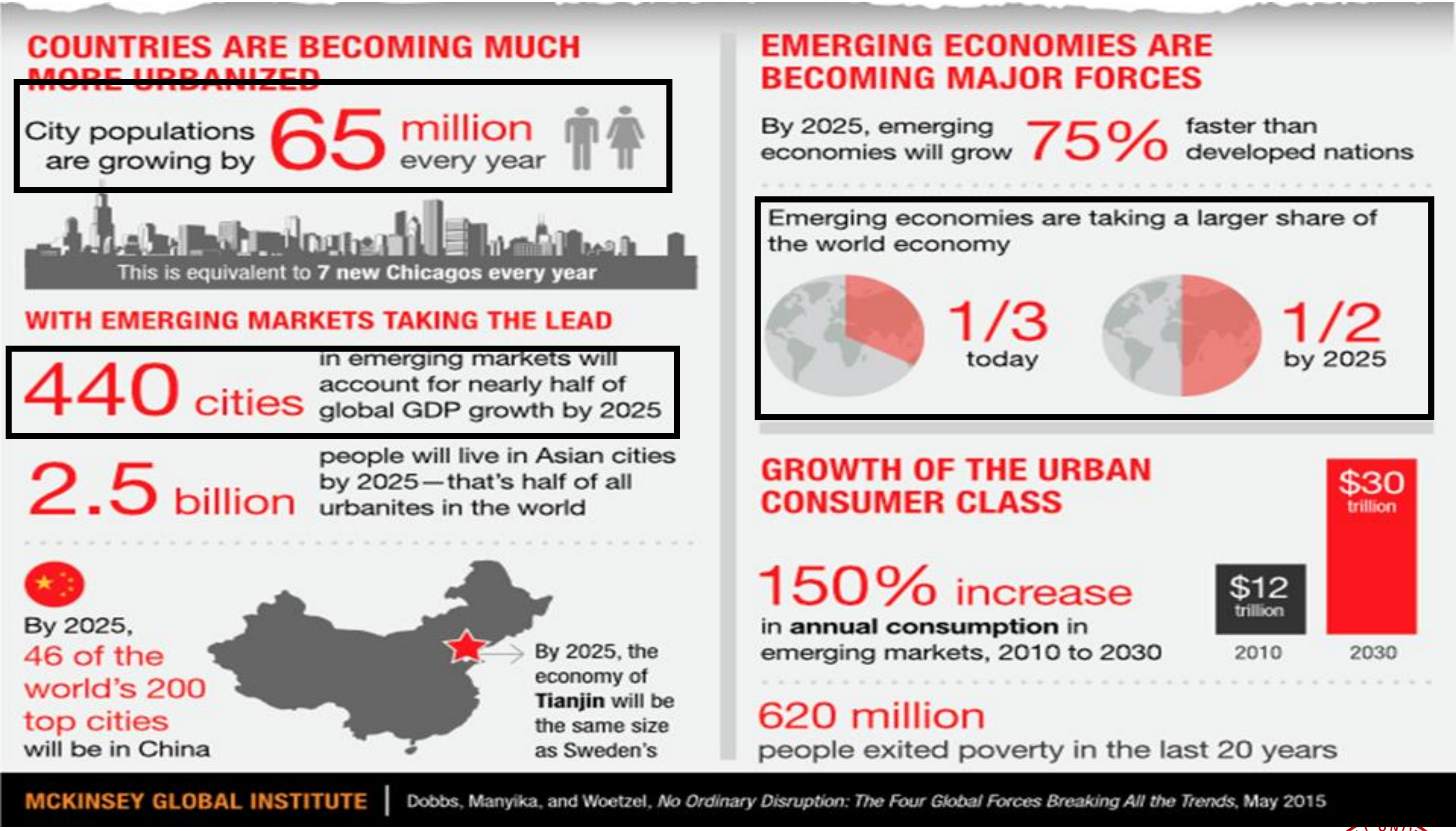


Percent Share of Worldwide Real GDP 1960-2050

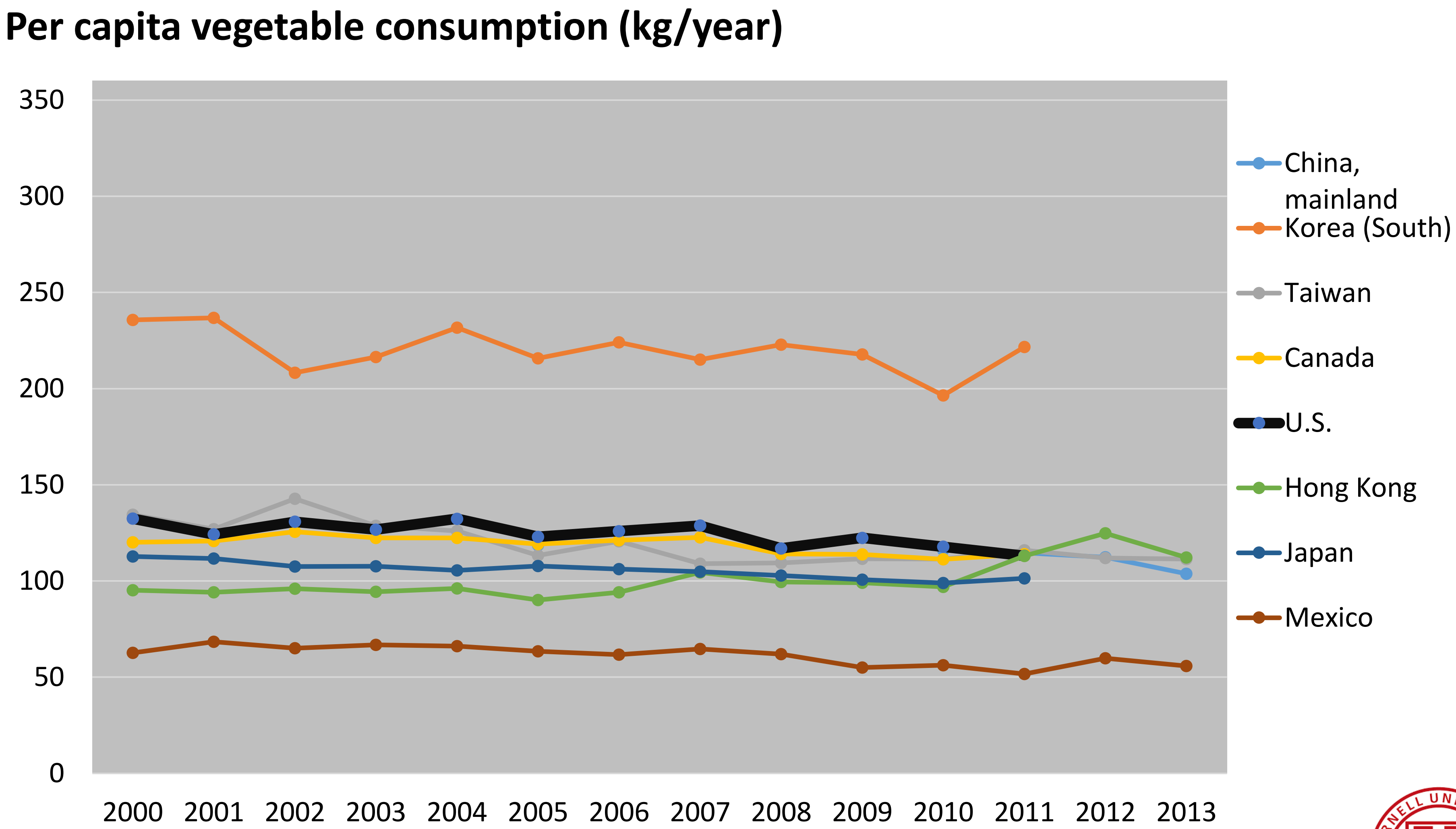


Source: Penn, World Bank, IMF, World Economics

The Age of Urbanization

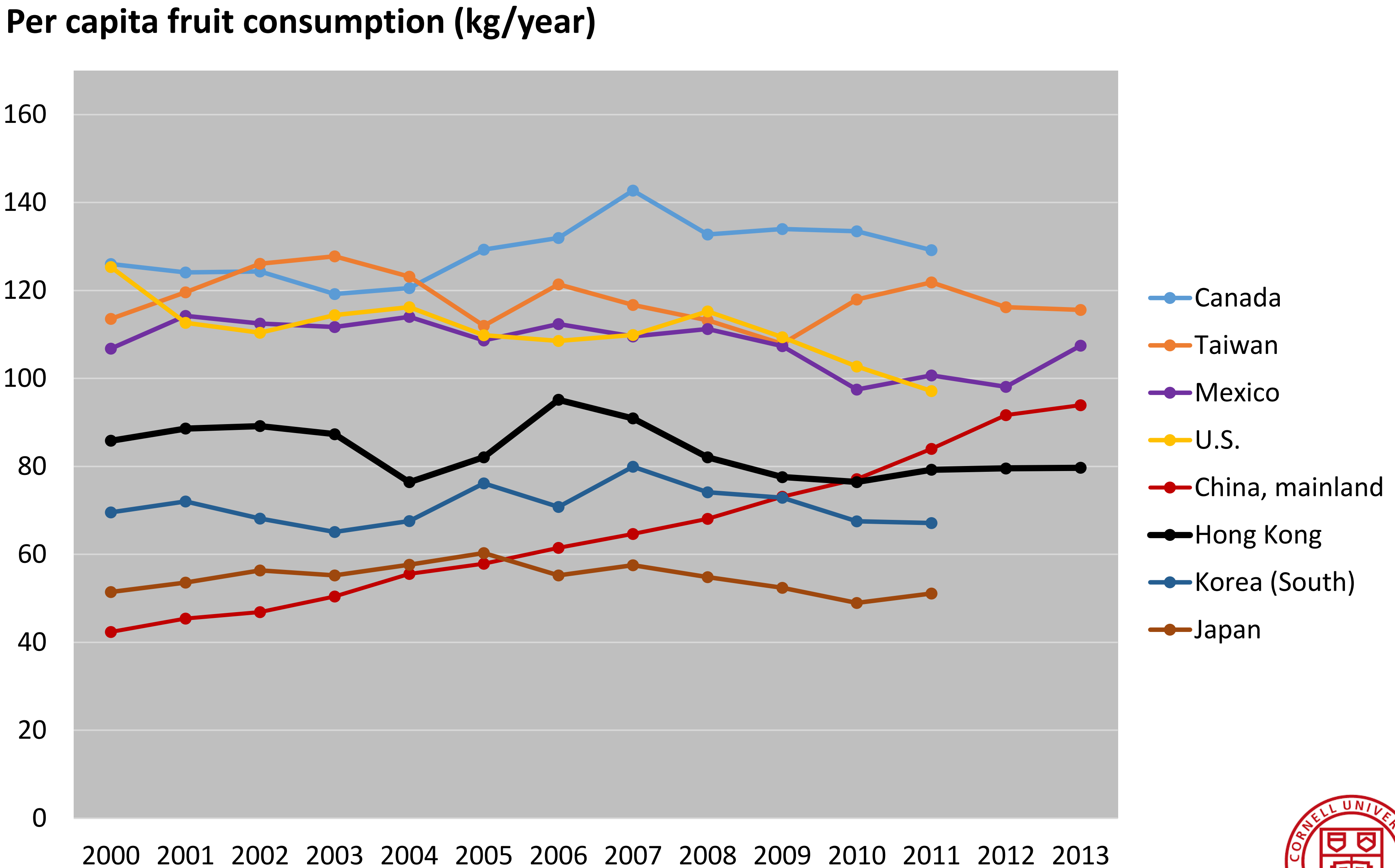


Consumption Trends—Vegetables

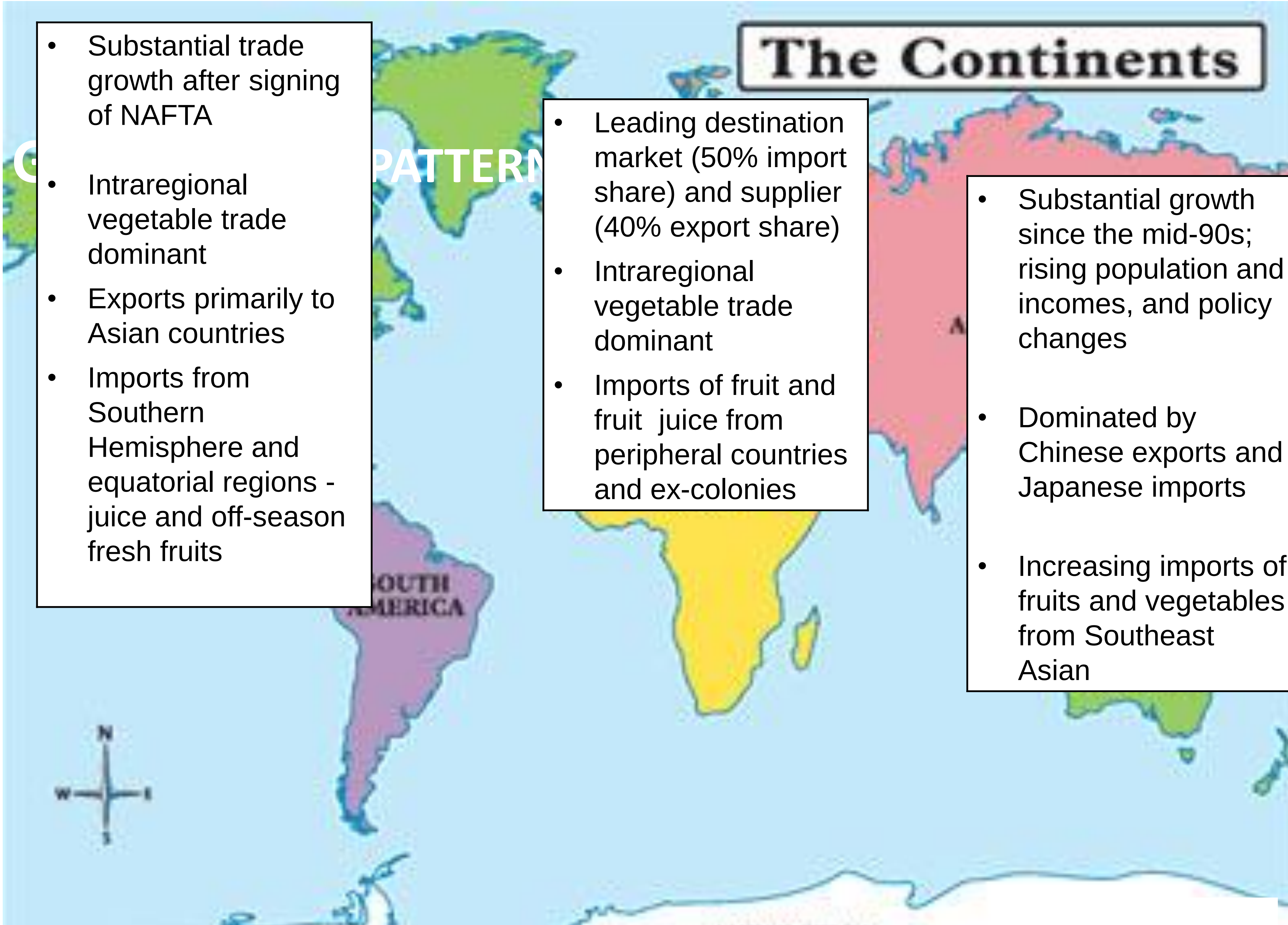


Source: FAOSTAT, Author's calculations based on food disappearance data

Consumption Trends—Fruits



Source: FAOSTAT, Author's calculations based on food disappearance data



- Substantial trade growth after signing of NAFTA
- Intraregional vegetable trade dominant
- Exports primarily to Asian countries
- Imports from Southern Hemisphere and equatorial regions - juice and off-season fresh fruits

- Leading destination market (50% import share) and supplier (40% export share)
- Intraregional vegetable trade dominant
- Imports of fruit and fruit juice from peripheral countries and ex-colonies

- Substantial growth since the mid-90s; rising population and incomes, and policy changes
- Dominated by Chinese exports and Japanese imports
- Increasing imports of fruits and vegetables from Southeast Asian

Source: Global Trade Patterns in Fruits and Vegetables, ERS, USDA

Make Versus Buy Decision

- Firms typically retain activities that provide competitive advantage, and outsource the rest

- If a firm depends on suppliers for both capacity and knowledge, it runs the risk of experiencing disruptions

Global Versus Local Sourcing Decision

- Produce industry is constrained by seasonality of production across geographies

- But there are other considerations:
  - Production and transport costs
  - Impact on product shelf-life
  - Probability of supply chain disruptions
  - Environmental and ethical regulations
  - Business culture differences
  - …

Growing Interest In Controlled Environment Agriculture

VEGETABLE GREENHOUSES

Gotham Greens

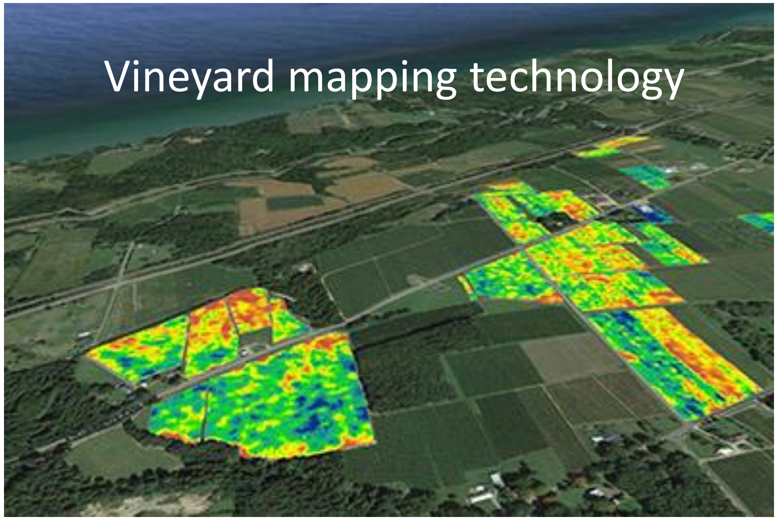
Stacked (multi-layer production

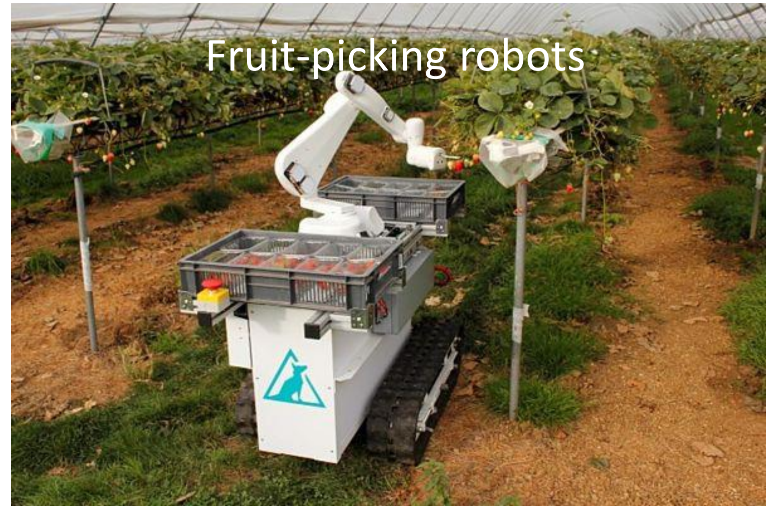
4 ha greenhouse strawberries in Hokkaido, Japan

Controlled Environment Agriculture: Drivers

- Increased concerns about climate change
- Recent regulation allowing organic certification in CEA systems
- Higher pressures to reduce food safety risks
- Pest and diseases increasingly becoming resistant to agrichemicals
- The attribute 'Local' valued by consumers
- More efficient use of water resources

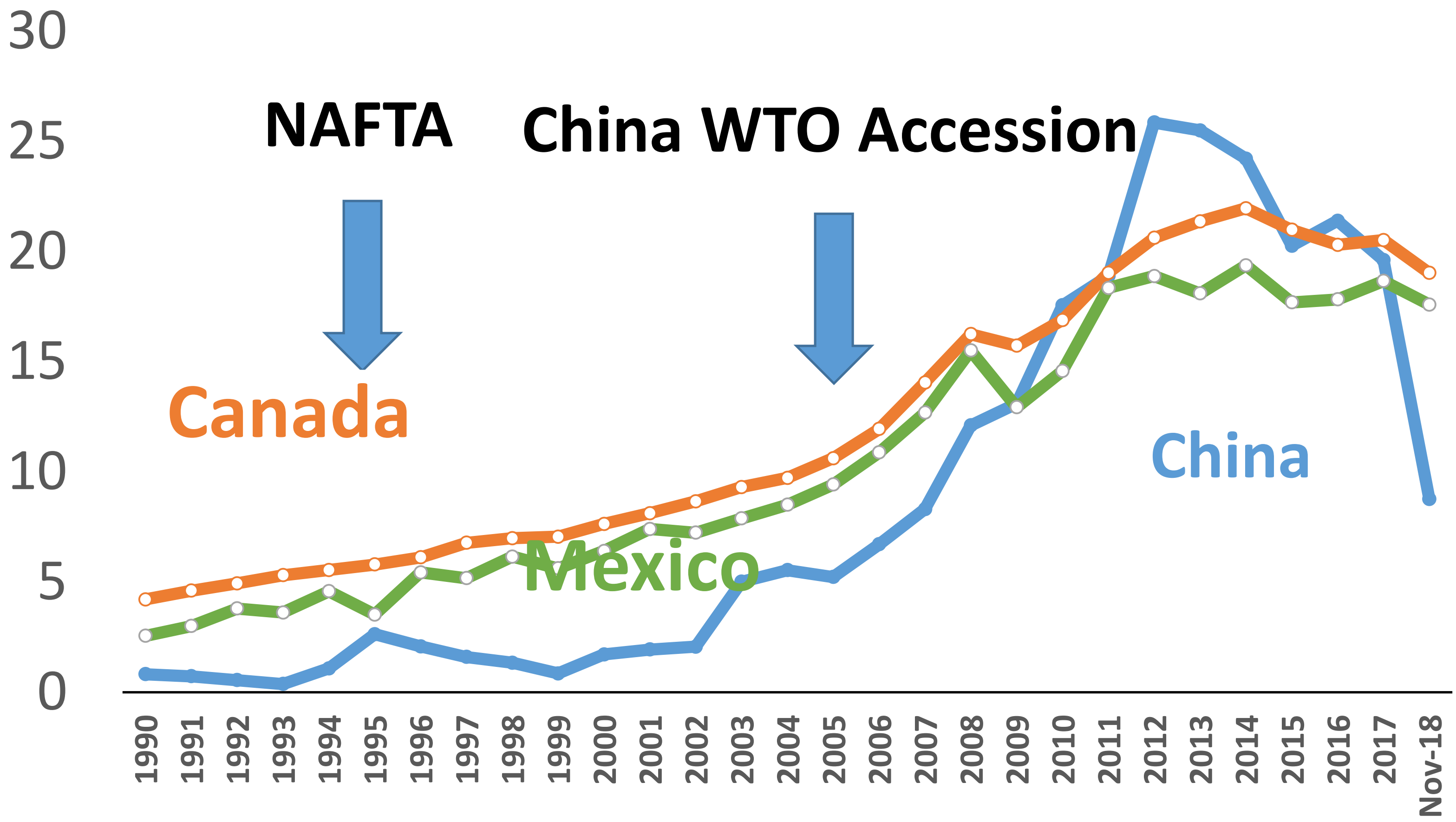
TECHNOLOGY WILL IMPACT THE GLOBAL PRODUCE INDUSTRY IN YEARS TO COME





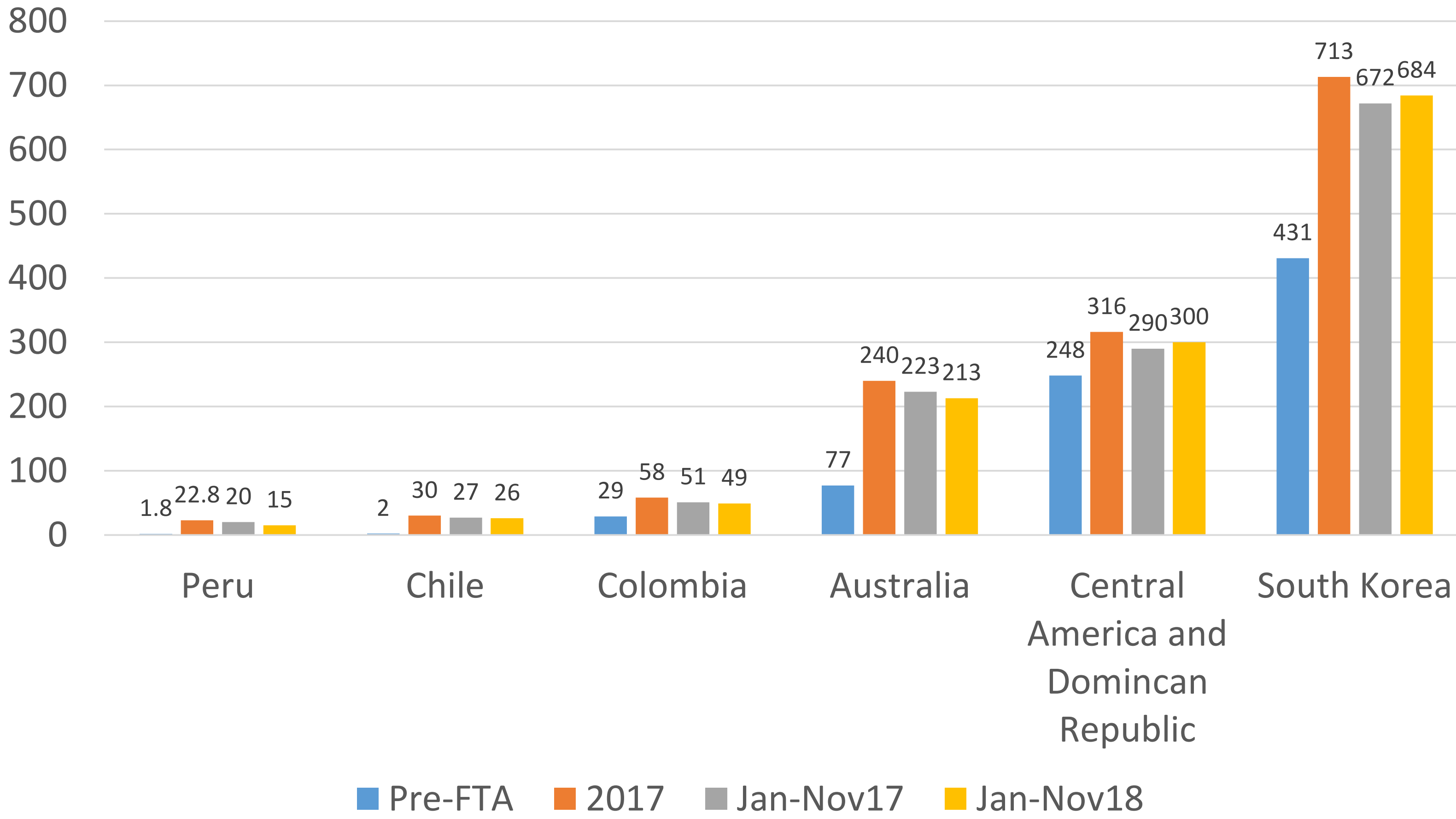
U.S. And The Global Produce Industry

U.S. Agricultural Exports to Canada, Mexico and China, 1990-2017



Source: USDA/FAS GATS online queries.

U.S. F &V Sector Benefits from Preferential/Free Trade Agreements



Source: USDA/FAS GATS online queries.

GOODBYE NAFTA, HELLO USMCA

U.S. Leading Fresh F&V Import Suppliers ($ Billion)

	2013	2014	2015	2016	2017	Nov-18	2018 shares	% Chg. Over 5 yrs
Mexico	7.84	8.56	9.28	10.71	11.66	10.8	55%	5%
Chile	1.56	1.53	1.62	1.91	1.74	1.77	9%	2%
Canada	1.41	1.42	1.44	1.53	1.64	1.67	8%	3%
Guatemala	1	1.08	1.15	1.2	1.3	1.24	6%	4%
Peru	0.54	0.72	0.83	0.92	1.1	1.17	6%	14%
Costa Rica	0.9	0.99	0.87	0.96	1.03	0.92	5%	0%

Source: Global Agriculture Trade System, ERS, USDA, Include fresh produce only.

Leading Fresh F&V Export Destinations ($Billions)

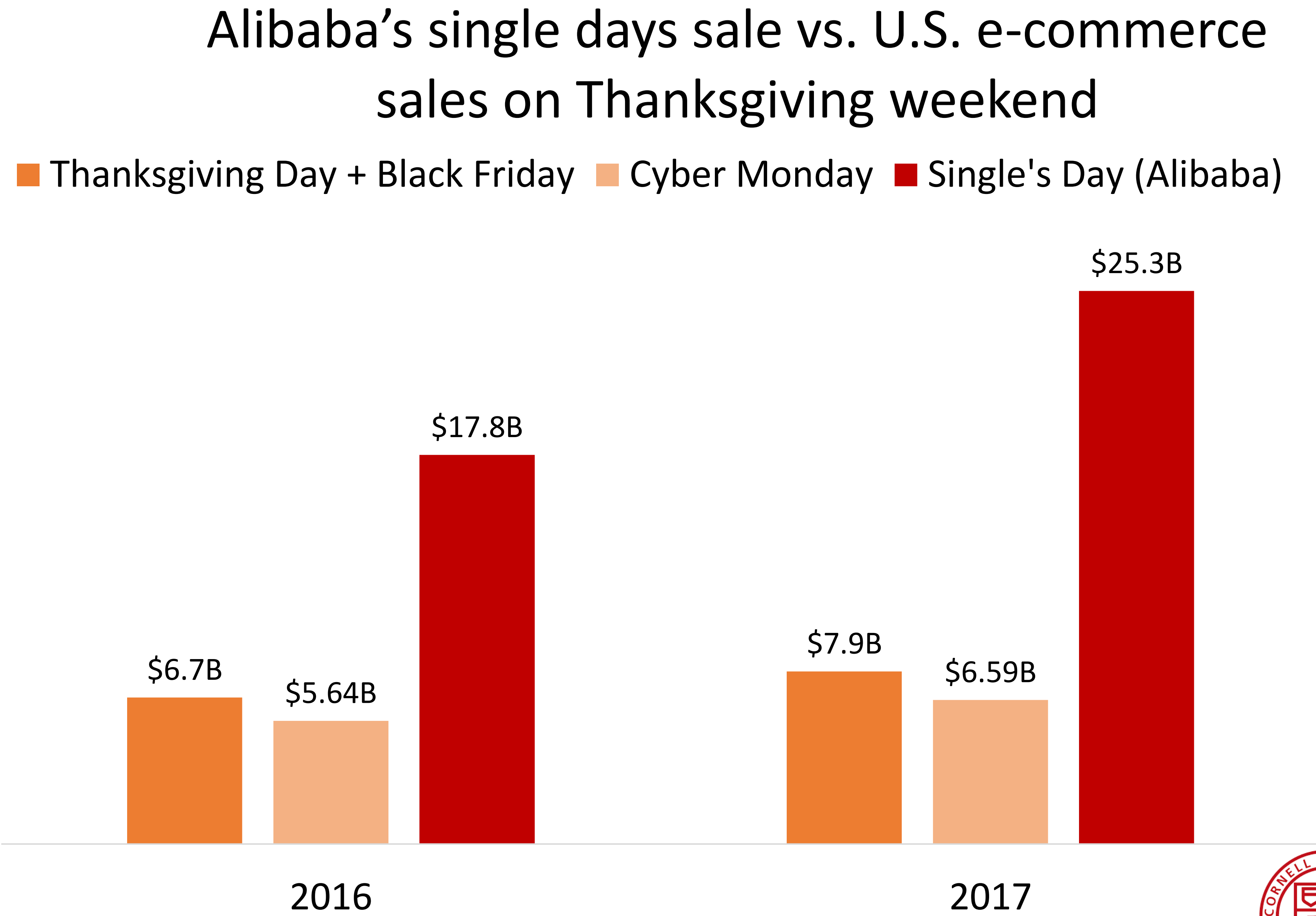
Country	2013	2014	2015	2016	2017	Nov-18	2018 shares	%Chg. Over 6yrs
Canada	3.6	3.6	3.5	3.4	3.4	3.7	57%	0%
Mexico	0.8	0.7	0.7	0.6	0.7	0.7	11%	-2%
Korea South	0.4	0.4	0.4	0.4	0.5	0.5	8%	4%
Japan	0.5	0.5	0.4	0.5	0.4	0.4	6%	-4%
Hong Kong	0.4	0.4	0.3	0.3	0.3	0.24	4%	-8%
China	0.1	0.1	0.1	0.2	0.2	0.18	3%	10%

Source: Global Agriculture Trade System, ERS, USDA, Include fresh produce.

Export Destination - China

- China and Hong Kong represent 18% of U.S. agricultural exports to the world, the U.S. is China’s leading supplier
- U.S. fruit has 7% market share of Chinese fruit market
- Challenges—Potential new trade policies on agricultural products, China slowing economy, other competing countries e.g., Chile, Canada
- Opportunities— growing demand, but constraints to increase production widens

E-COMMERCE--ALIBABA



Source: Alibaba, Adobe Digital Insights.

TMALL GLOBAL

- Launched in 2014 - International brands to test the Chinese market

- Take advantage of a Chinese government program that grants preferential status without having a license to operate in the country

On 11/11/2017 (single's day), Tmall sold

- ***1 Million lbs. of*** Mexican Avocados

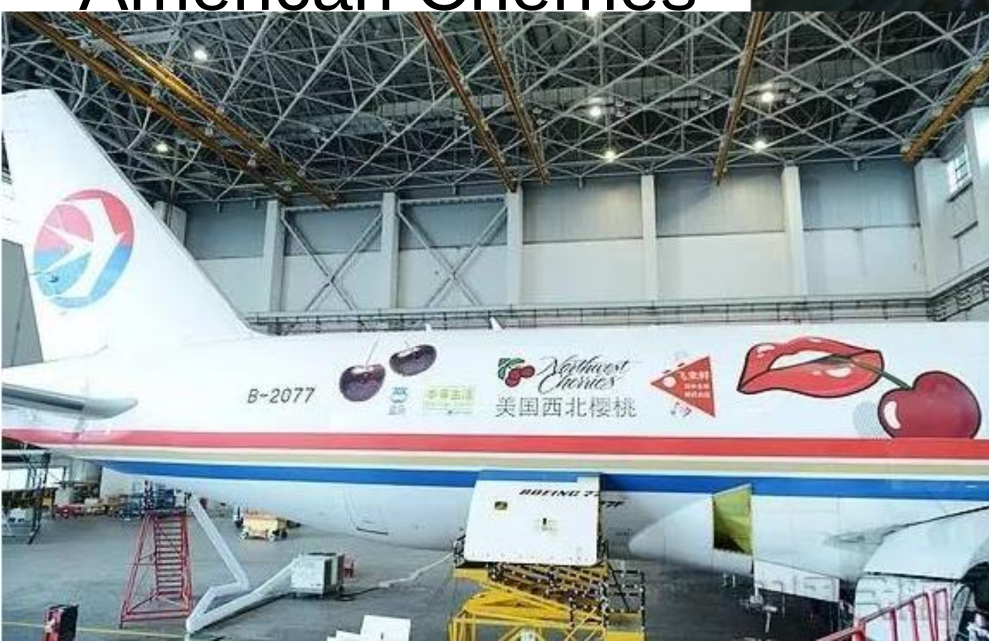
- *40,000* New Zealand Kiwis in **10 hours**

U.S. F

- *6 out of 10* top fruit p
  Washington State ha

- Driscoll's started an
  2017

- On Nov 11/2016 (sir
  American Cherries



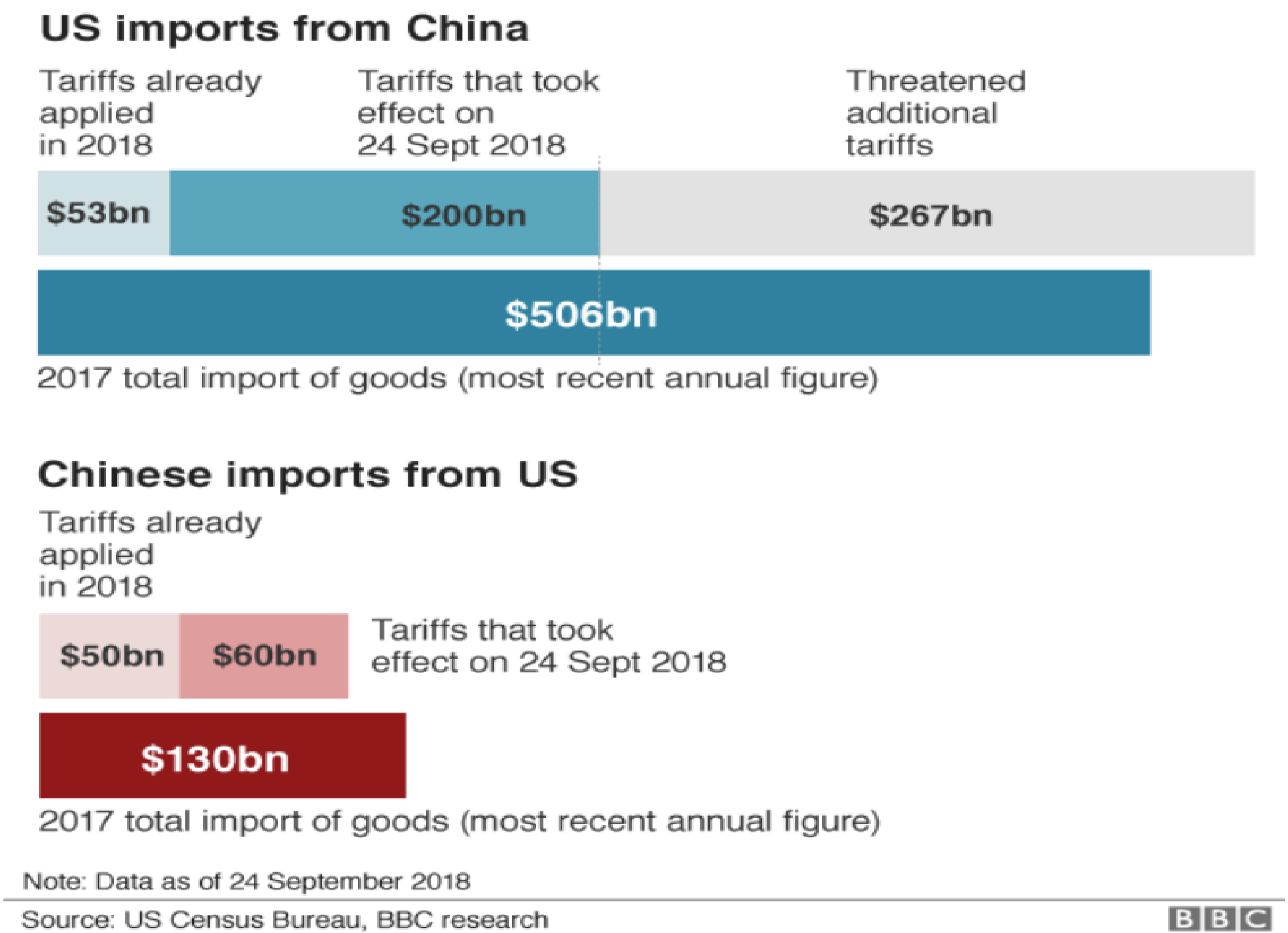
Northwest Cherries in ***2***

shington Cherries to be
nipped to Chinese

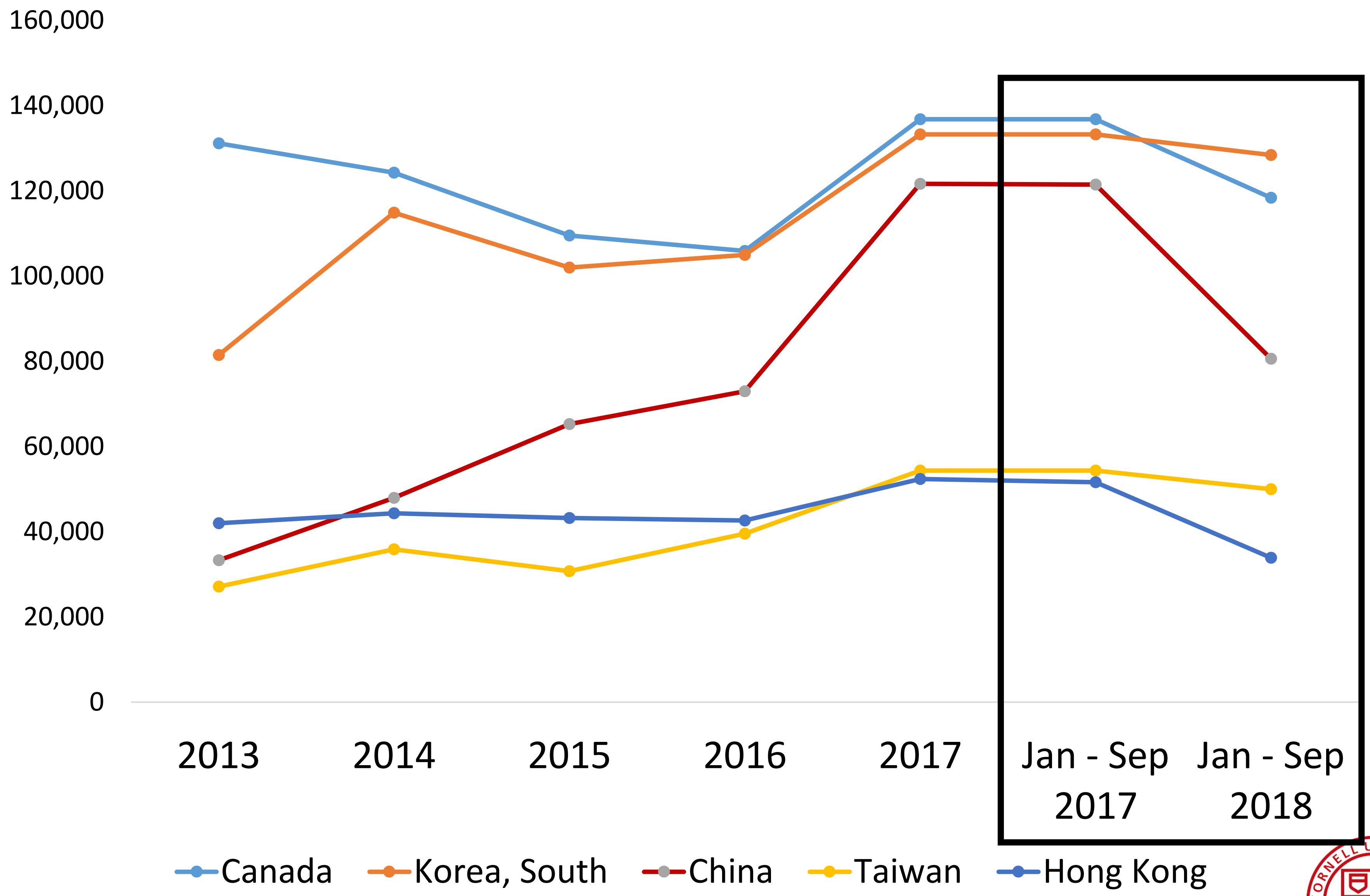
COSTCO IN TMALL

- First lunched in 2015, breaking the Guinness World Record for selling 7,238 tons of mixed nuts in one day
- In September 2017, second official store opened in Tmall aiming to imported fresh produce

U.S. CHINA TRADE



US Cherry Export 2013-2018 ($1,000)



CONCLUDING REMARKS

- The globalization of the produce industry will accelerate in the coming years
- Technological change will have fundamental impacts business' ability to succeed in a changing environment
- Overseas markets expanding fast - how to take advantage of export opportunities?
- Pay attention to opportunities and threats associated with changes in global trade policies
- Consumers are the big winners of having a global produce industry – businesses should emphasize being "consumer centric'
- These are exciting times for the produce industry!

Thank you!
Questions? Comments?

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