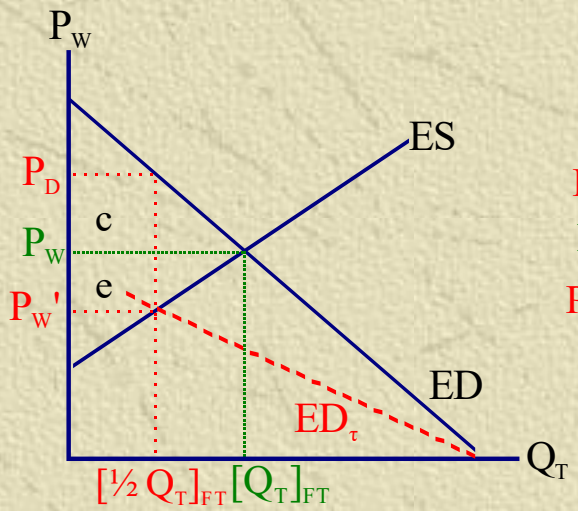
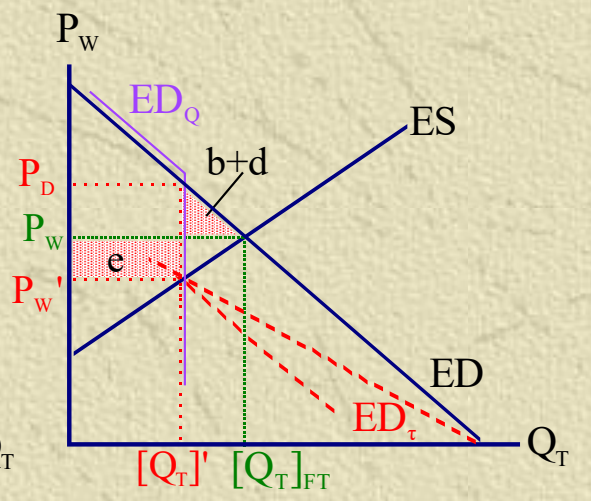
Exercise 3. Real-world application of tariff

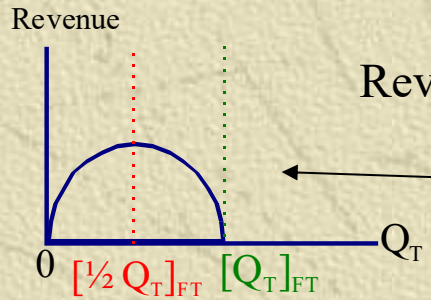
- Revenue objective, maximum revenue, and strategy

Interpreting area c and e?



Strategy in terms of ΔNSW





Revenue maximization

Peter Navarro, Trump's tariff man calculates:

revenue = \$6trn in 10yrs [2024 import bill = \$3.3trn so an avg tariff of 20% that amounts to \$600bn/yr]

Trump reduced China's tariffs from 145% to 30% after a "cool down" to allow a deal. At 145% the tariff was on the wrong side of the "Laffer curve", the point at which higher $\tau \rightarrow \downarrow$ revenue.

Economist, "Trade war: Bonanza denied", 24 May 2025, p. 62.

Exercise 3. Real-world application of tariff

- Retaliation: tit-for-tat trade war?
  - Large country tariff – China's soybean mkt

2017: China took 60% of US soybean exports; US supplied 40% of China's import

2018: US planted big crop in response to high demand and poor crop in Argentina; US bumper crop as China applies tariff

Economist, "Soyabeans: Soy sources", 23 Feb 2019, p. 73.

Exercise 3. Real-world application of tariff

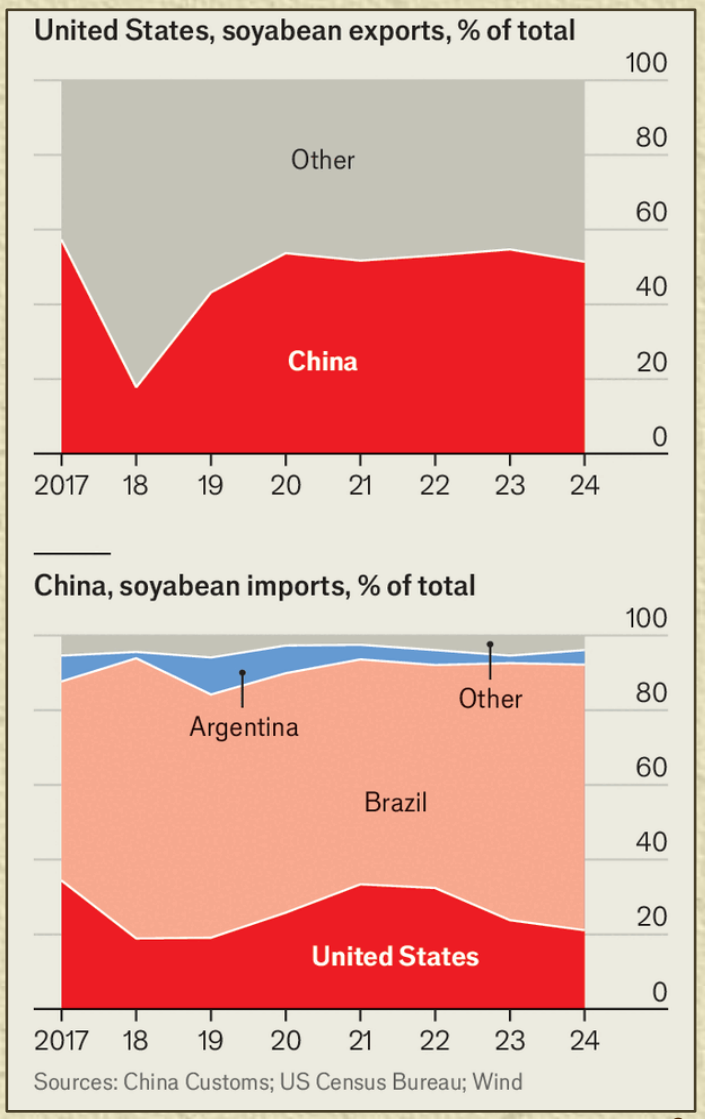
- Import tariff: large country case in soybean mkt

Trump-1.0: tit-for-tat → τ =25% on US soybeans. ↓ US exports to China. A deal with China restored US exports but covid-19 prevented China from meeting import targets as part of the deal.

Biden continued Trump's trade policy on China

Trump-2.0: tit-for-tat re-escalation; τ > 20% on US soybeans → ↑ P relative to US rivals and ↓ mkt share.

Trump: "We're going to take some of that tariff money that was made and give it to our farmers."



Economist, "Agricultural trade: Soyabeans or has-beens?", 27 Sep 2025. p. 73.

Exercise 3. Real-world application of tariff

- Macroeconomic effects of Trump's tariffs
  - *Fin Times*, "Bond investors count on …revenues to rein in US debt", 6-7 Sep 2025, p. 11.
    - Bond mkts focus on debt and deficits
    - Will tariff revenue offset loss in tax revenue from tax cuts?
  - *Fin Times*, "Trump to direct Japan's trade deal cash", 9 Sep 2025, p. 4.
    - Japan to let Trump decide where $550bn of its capital is invested in the US to avoid high tariffs. The projects chosen by US should include Japanese suppliers to provide good and services …
    - S. Korea and EU also agreed to invest in the US economy to avoid tariffs higher than 15%.
  - *Economist*, "Six months on: The tariff paradox", 11 Oct 2025, p. 66-7.
    - No runaway US inflation, economy growing, stockmkt booming
    - Why have the concerns not played out?

Exercise 3. Real-world application of tariff

- China's response to US tariffs

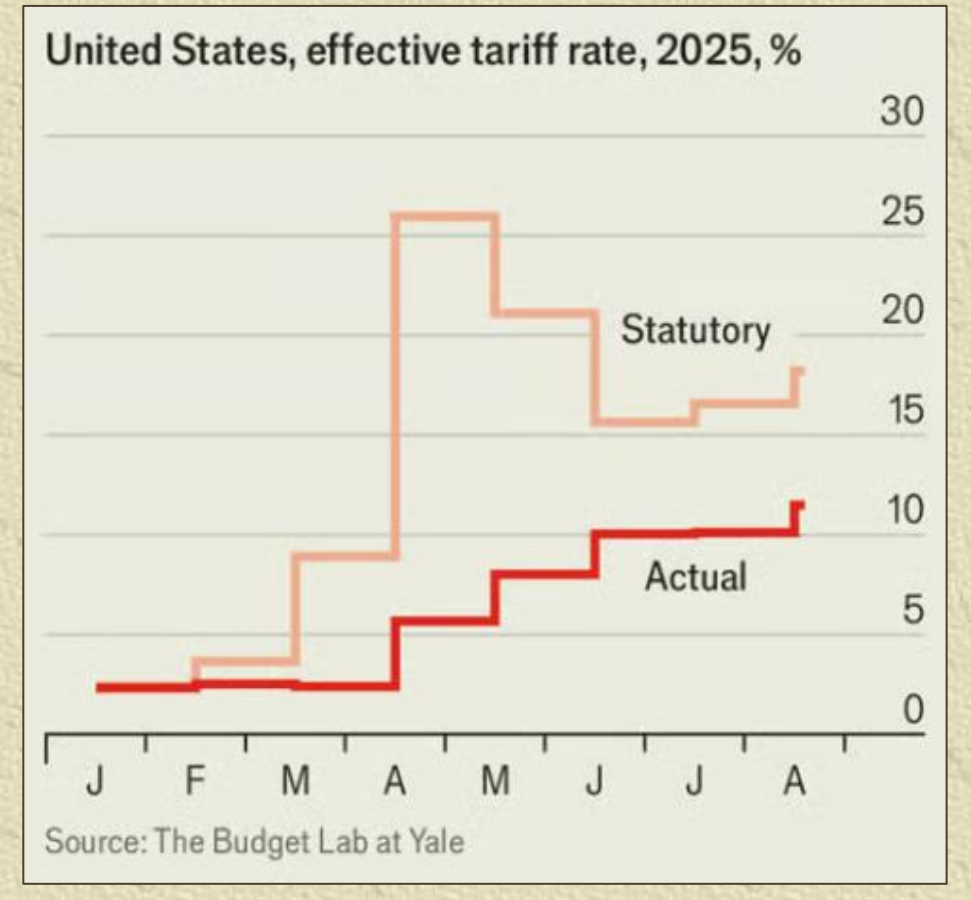
Economist, "China's export machine: Trading places", 19 Jul 2025, p. 44.

US tariffs → China to shift X mkts

- Major trader with +140 countries
- "Front loaded" – US ↑ M from China before ↑τ in Apr 2025
- Gap between what China reports as X to US and what US M from China
- China's X classifies or undervalues finished goods as "raw materials" to pay lower τ
- China's X transshipped thru Vietnam with lower τ – US admin threatens to ↑τ to 40% on Vietnam's X

Exercise 3. Real-world application of tariff

- Announced rates vs actual applied rates



US applied tariffs are really lower than what is announced

- Carve outs – exemptions of tariffs for some sectors, e.g. electronics – smart phones, computers, pharma
- Canada's 35% rates avoided by making its X "compliant with" the US-Mexico-Canada trade agreement (large share of US M from Canada is suspected to be relabeled)
- Lags in implementation and deals; retaliation has been limited

Economist, "Six months on: The tariff paradox", 11 Oct 2025, p. 66-7.

4. Import and Export Quotas as a Policy Tool

4.1 Basics of import quota

- Economic and political issues
  - Quotas are prohibited with exceptions on ag commodities
  - Efficiency, non-discrimination, predictability and transparency
  - Political administration, politics and quota rents

4.2 Graphical analysis: trade, economic and welfare effects

- Voluntary export restraints – import quota administered as an export quota
- Orderly marketing arrangements – importers and exporter agree to manage trade volumes

Import/Export Quotas as a Policy Tool, … continued

- Experiences with import quotas: case of Norway
  - Total cheese import quota
    - 1995: Duty-free 4 500 ton EU quota
      - 3430 tons licensed thru historical allocation
      - 340 allocated to processors
      - 730 tons by application, 1st come, 1st serve
    - 2011: 2 700 ton EU quota by auction (25,26 kr/kg bid price in 2016)
    - Imports exceeding quota volume subject to 200+% tariffs
    - 2021: 75,000 tons produced in Norway (imports ≈ 15% of consume)
    - https://www.toll.no/en/corporate/import/free-trade/quotas/
  - Small country case

Source: WTO, *Trade Policy Review: Norway*, doc number WT/TPR/S/373, 23 Apr 2018

Import/Export Quotas as a Policy Tool, … continued

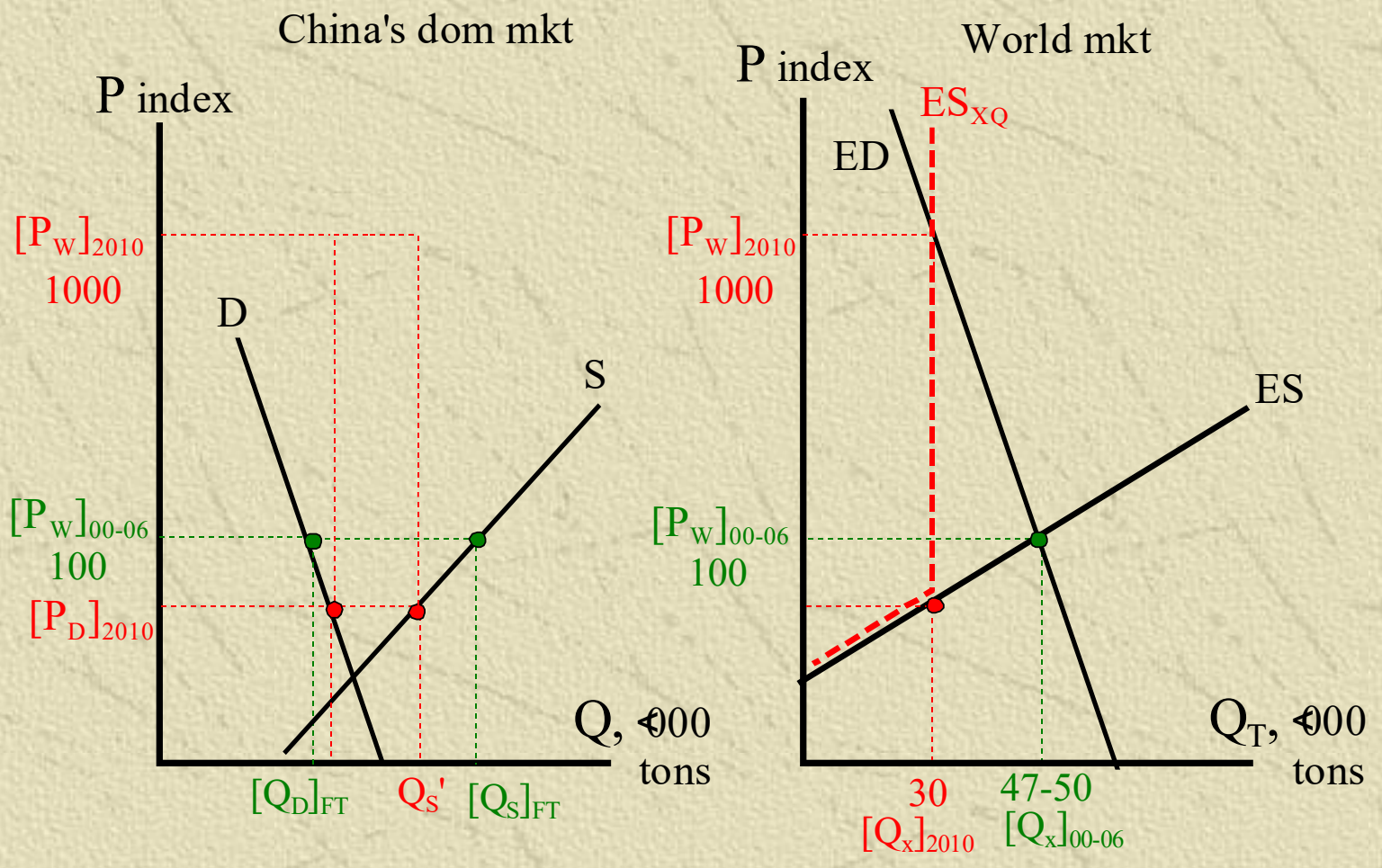
- Export quota: case of rare earth elements
  - Background
    - Key manufacturing input
    - China global supplier/exporter

Background information	
Share of world Q, 2000-10	**97%**
Share of reserves	50%
Avg export vol, 2000-09	47 000 – 50 145 tons
Export quota, 2010	**30 000 tons**

  - What is the policy objective?
    - Address environmental concern
    - Improve TOT at expense of others

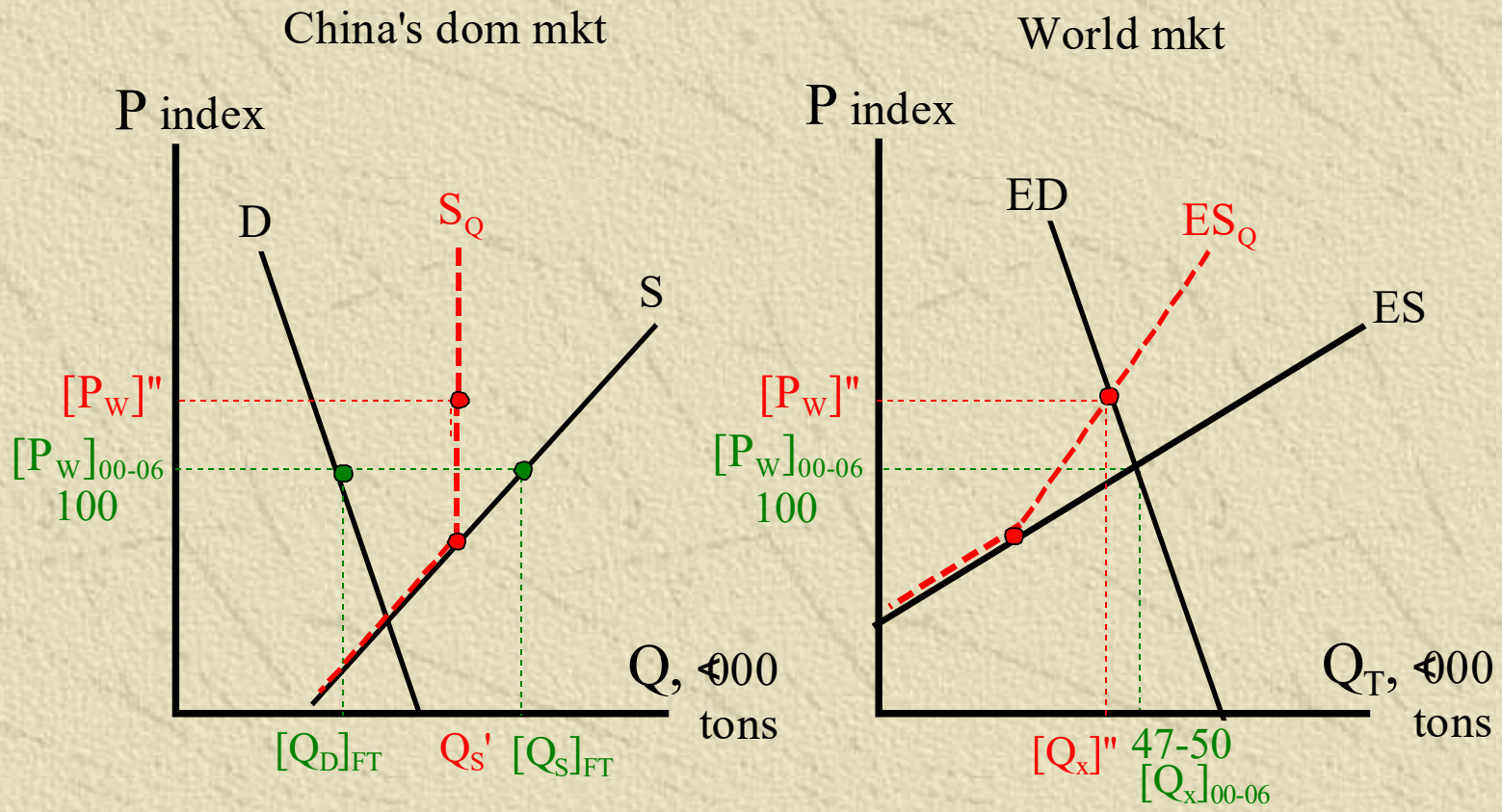
Import/Export Quotas as a Policy Tool, … continued

- Is an export quota an appropriate tool to meet an environmental objective?



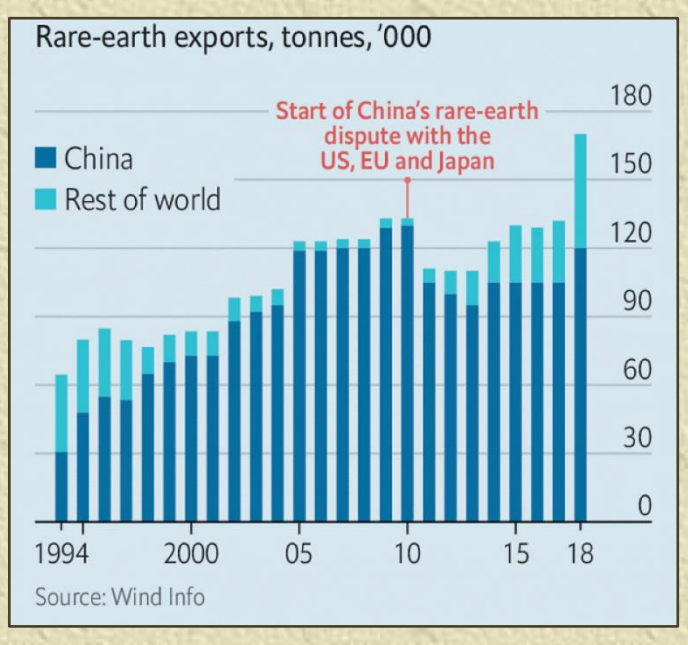
Import/Export Quotas as a Policy Tool, … continued

- Is a production quota an appropriate tool to meet an environmental objective?



Import/Export Quotas as a Policy Tool, … continued

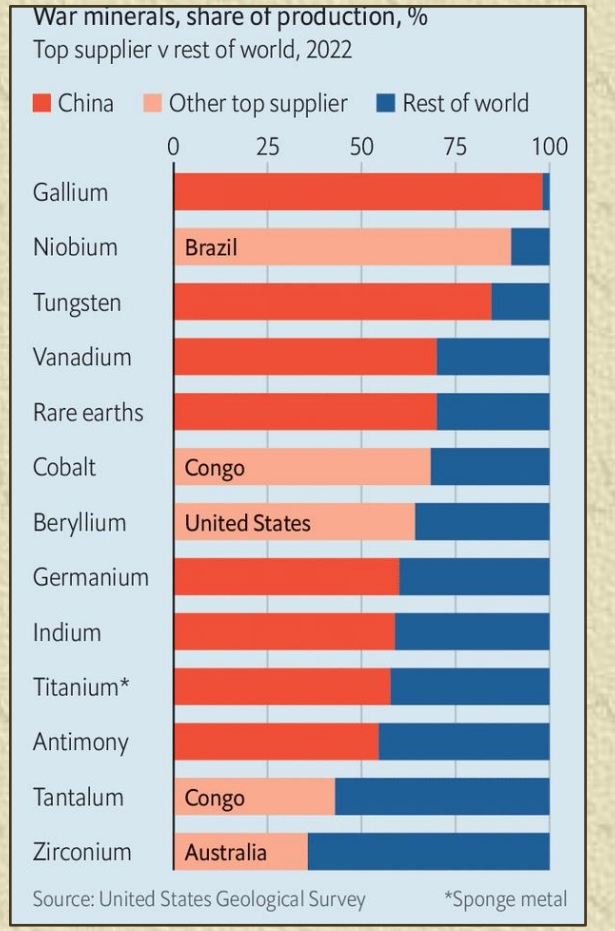
- Aftermath of the policy and trade dispute



2010: WTO found China's policy was more about controlling raw materials for dominance in value-added - turning oxides into metals and metals into products - not environmental protection.

Concern with China's dominance of rare earths led to increased mining in the rest of the world.

Economist, "Rare earths: Magnetic attraction", 15 Jun 2019, p. 47-8.



Economist, "War supplies: Mission-critical", 15 Jul 2023, p. 5.

Vanadium – metal resistant to fatigue; Cobalt – resistant to high temperatures; Titanium – strong as steel, 45% lighter; Tungsten – vital for warheads; Beryllium with copper is conductor of electricity and heat; Gallium – input into chipsets of communications systems, fibre-optics and avionic sensors; Germanium – transparent to infrared radiation, used in night-vision; rare earths go into higher performance magnets.

5. Export Taxes as a Policy Tool

5.1 Basics of an export tax

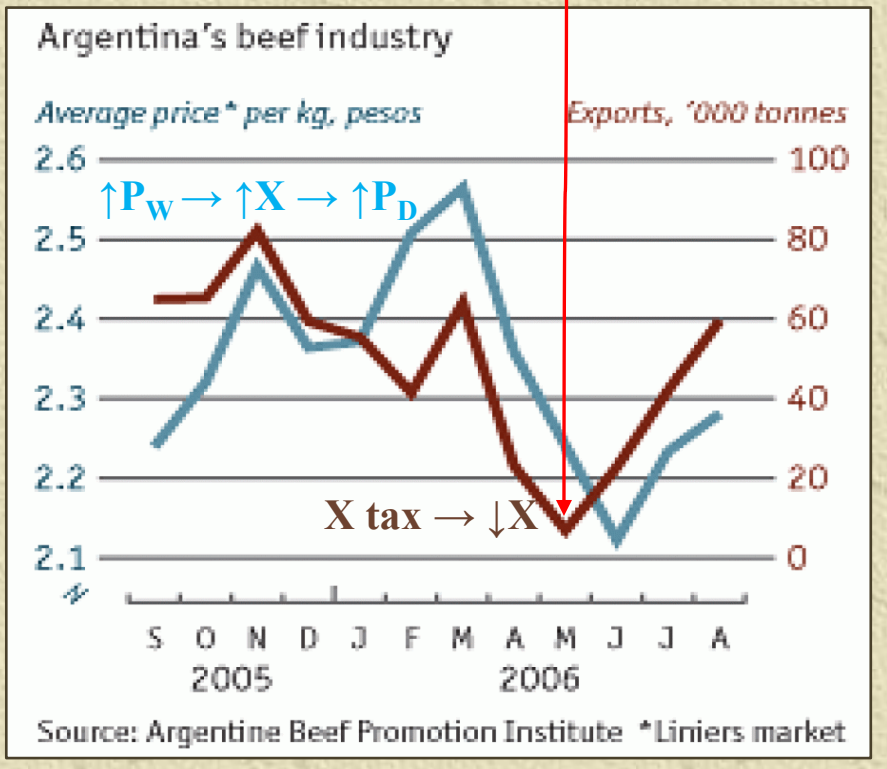
- Definition by type
- Objectives and economics
- Economic and political issues
  - WTO rules on exports more weakly enforced than imports
  - Economic: logic of WTO principles; efficiency
  - Political: Where is X taxed? On what? Why care?

5.2 Graphical analysis: economic, trade and welfare

Export Taxes as a Policy Tool

- Case of Argentina (soybeans, beef)
  - Export taxes: overall; soybeans
    - 2005 overall ag export taxes
      - 80% of all X earnings
      - 6% of total revenue – for soy, tax was 23.5% of soy revenue
    - 2008: soy tax ↑ to 40%
      ↑ 95% when P_W > $600/ton
    - 2023: 33% tax on soy
  - Beef, 2005-06
    - 15% tax; near-ban if P_W ↑ too much
    - Trading in ag futures stopped
    - Farmers striked/blocked roads
    - Domestic P (slaughterhouse):
      - ↓ P_D to farmers by 30%
      - ↓ P_D to consumers by 7.5%

In 2006, President reversed policy allowing export volume to ↑ to 65% of 2005 level: ↑ P_D → ↑ X



Economist, "Farming in Argentina: Biting the Hand that Feeds" 26 Oct 2006; and "Argentina: Deadlock", 31 May 2008, p. 60

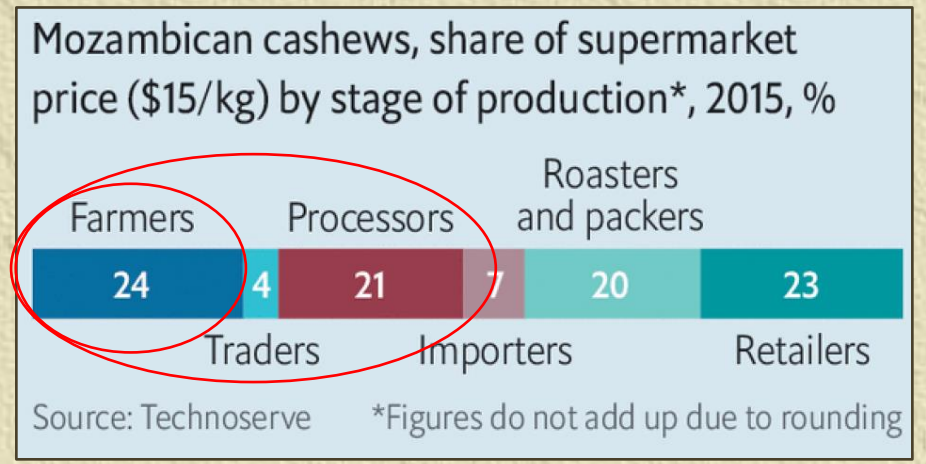
Export Taxes as a Policy Tool

- Case of Mozambique's cashew nut sector
  - Background
    - 1960s: ½ of world crop production and domestic nut processing
    - 1977-92: civil war left sector in ruins
    - 1990s: World Bank has gov't cut export tax and remove controls
    - 2001: X ban on nuts during harvest; 18-22% X tax; 0% if processed
  - Result:
    - Some smuggling: $P_W > P_D$, $P_D \downarrow$ hurts producers, helps processors
    - $\downarrow Q_S$, $\downarrow$ quality, $\downarrow$ investment in new trees
    - Gov't hurts 1.3m smallholders to ↑ 17 000 jobs in 16 processing plants

Tax is intended for survival of sector: 50% of share of value not 24%.

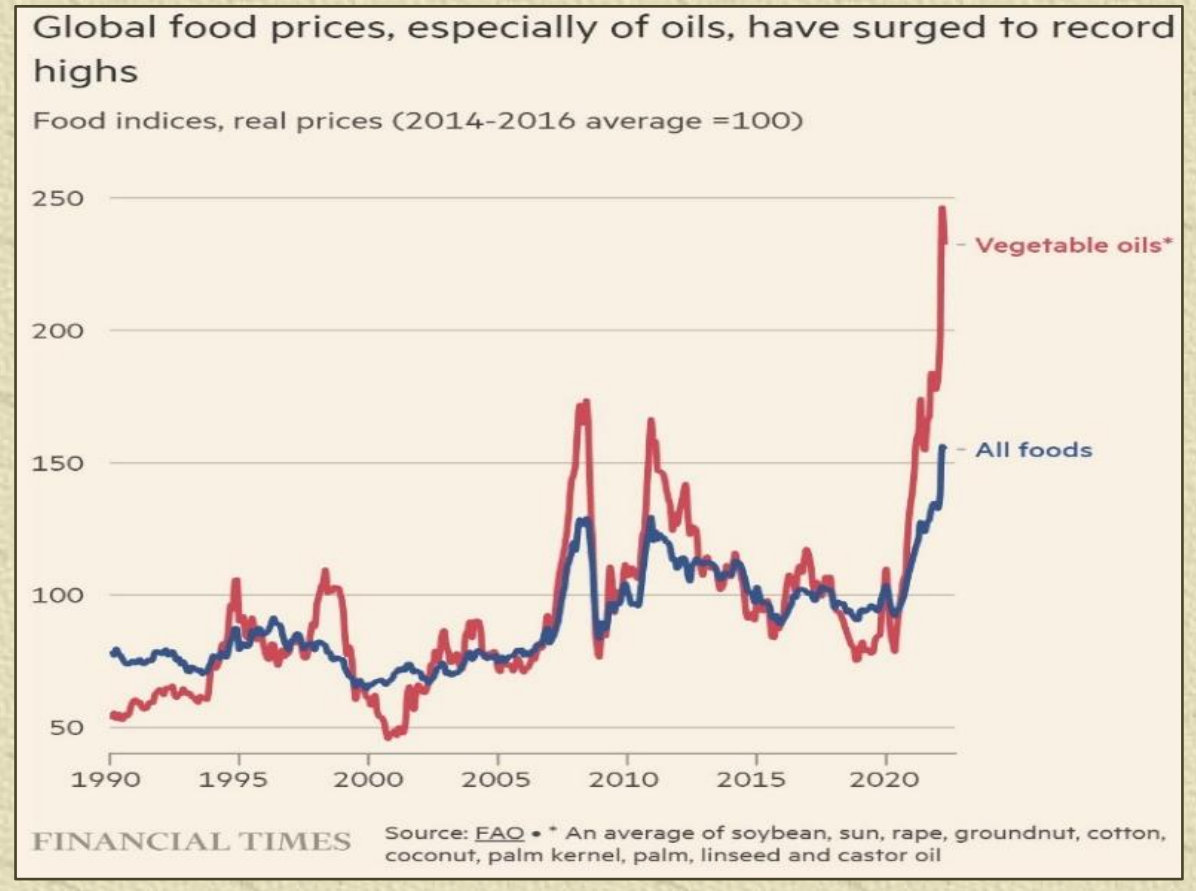
Problem: India is world's biggest consumer/processor. In 2019, India ↑ tariff to 70% on processed nuts

Economist, "Mozambique's nutcrackers: Cashews and cash", 14 Sep 2019, p. 35.



Export Taxes as a Policy Tool

- Commodity P-shocks: 2007, 2011-13 and 2021-22



Financial Times, "Export bans and protectionist policies worsen disruption in food markets", 11 May 2022, p. 8.

2007: food P spikes → 30+ gov'ts from Ukraine to China, to introduce X restrictions on farm produce, cutting supply on world markets. Rice was worst hit – only 4% of total crop was traded globally. On news of X bans prices tripled.

2023: India banned half of its rice X and applied X tax on the other half; immediate impact was panic buying. Rice trade is now 10% of total.

India defended the ↓ X for dom food security

Economist, "Of froth and fundamentals", 11 Oct 2008. *Financial Times*, "Return of rice crisis", by S. Savage, 24 Oct 2023, p. 15.

Import/Export Quotas as a Policy Tool, … continued

- Export restriction: case of sanctions on Russia
  - Fallacy of "strategic commodity" –substitutes do exist
  - Transshipments via central Asia – alternative suppliers exist

- US-China: tit for tat export controls (chips and rare earths)

Economist, "Russia: Any which way you can", 24 Aug 2024, p. 19-20.

6. Trade Subsidies as a Policy Tool

6.1 WTO definition of a subsidy / export subsidy

6.2 Basics of ***trade*** subsidies

- Types: ad valorem or specific
  - Import subsidy not common – food aid instead
  - Export subsidy require rules on their use
- Objectives
- Economics and political issues

6.3 Modeling: partial eqlbm analysis

Trade Subsidies as a Policy Tool

- Alternative programs to facilitate or promote exports
  - Mkt and product promotion
  - Special economic zones (SEZs)
    - Tax-free imported inputs
    - Reduced tax on profit
    - Other subsidies

Economist, "Special economic zones: Political priority, economic gamble", 4 Apr 2015, p. 59-60

Trade Subsidies as a Policy Tool

- Shanghai SEZ: Shift to services from manufacturing

Six sectors opening for investment in the SFTZ

Industry	Sub-sector
Financial	Banking
	Health insurance
	Leasing
Shipping	Ocean shipping and management
Commercial	Value-added telecom services
	Sales and service of game machines
Professional	Legal services
	Credit investigations
	Travel agencies
	Investment management
	Construction services
Cultural	Entertainment venues
Social	Educational and vocational training
	Medical services

Source: HSBC

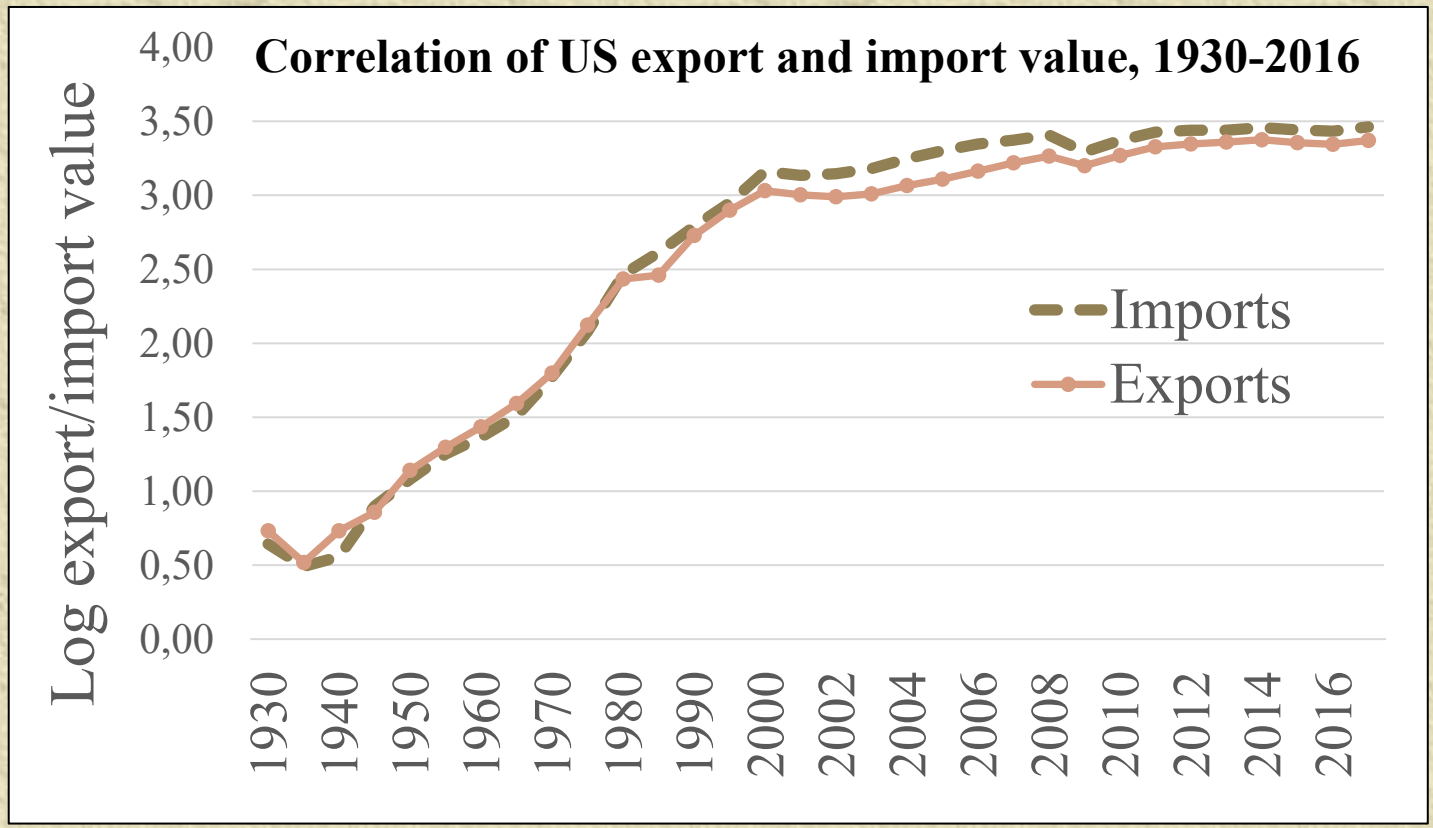
In China, services ↑ to 62% of GDP in 2013 (in Hong Kong it is 90%); Officials are experimenting with deeper reforms in services within a tightly-sealed zone.

Economist, "Shanghai free trade zone: The next Shenzhen?", 5 Oct 2013, p. 51-2

Trade policy analysis: concluding comments

6.5 Lerner symmetry: empirical evidence

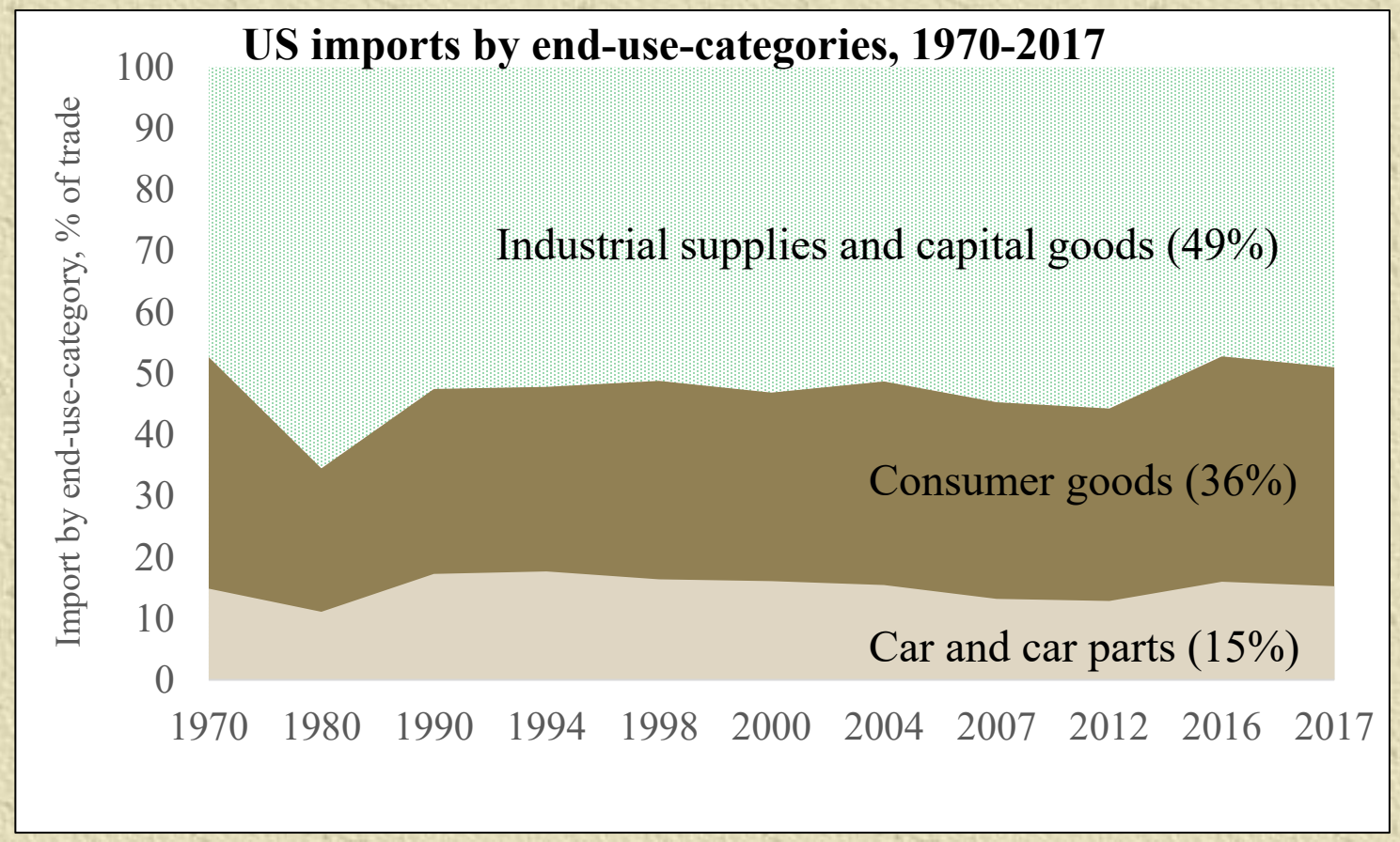
- Taxing imports is taxing exports



Source: US Census Bureau, https://www.census.gov/foreign-trade/statistics/historical/gands.pdf, accessed Sep 2018.

Trade policy analysis: concluding comments

- Businesses are consumers too



Data source: US Dept. of Commerce, *Survey of Current Business*, Mar issues year after date.

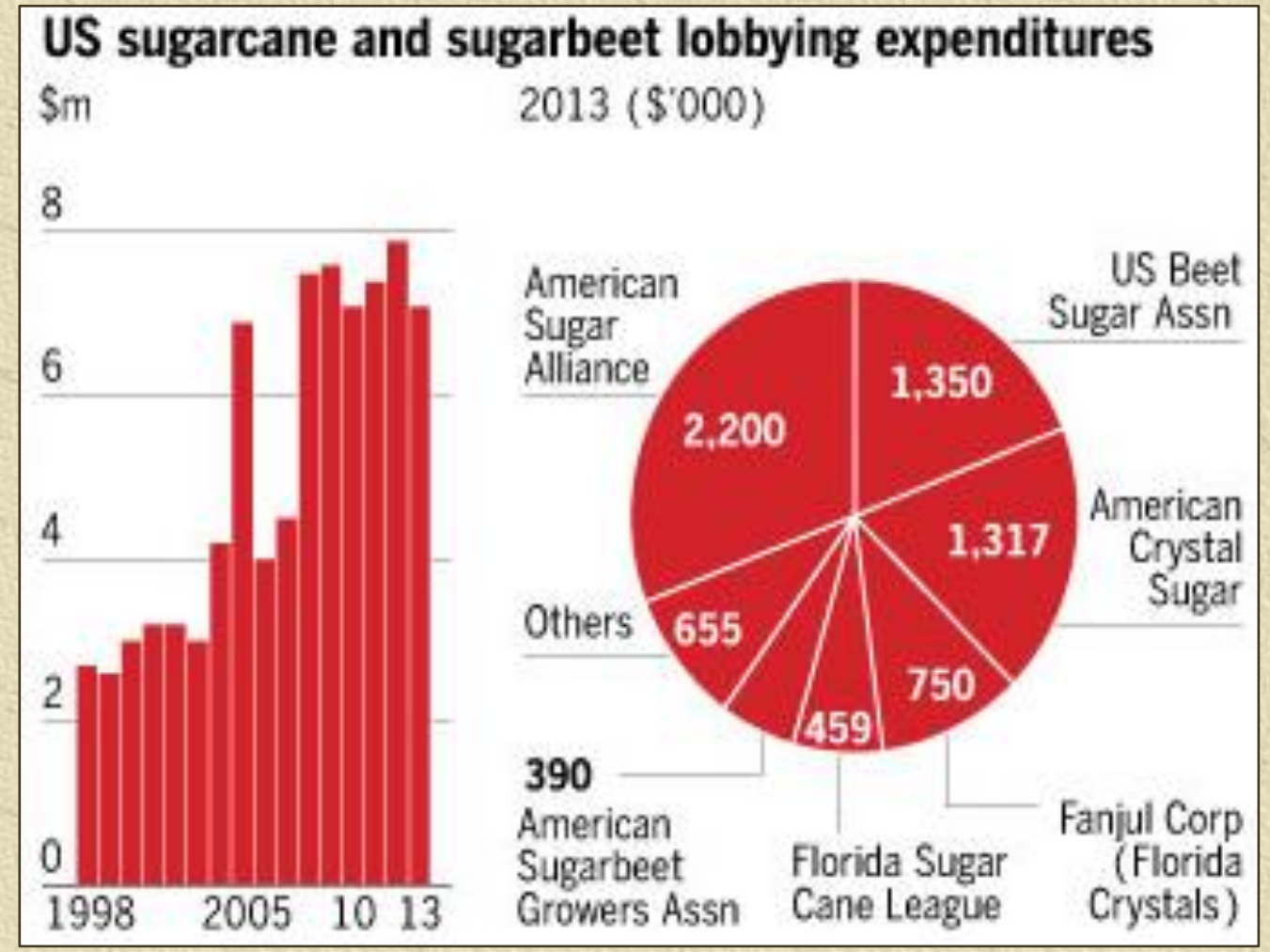
7. Government Intervention: Case for/against Trade

7.1 Case for free trade

- Short-run gains
- Long-run efficiency gains
- Political-economy argument
  - Policymaking captured by special interests / lobbying
  - Trade policy easier to pass than domestic tax/subsidy

Government Intervention: Case for/against Trade

- Case: US sugar lobby capturing policymaking

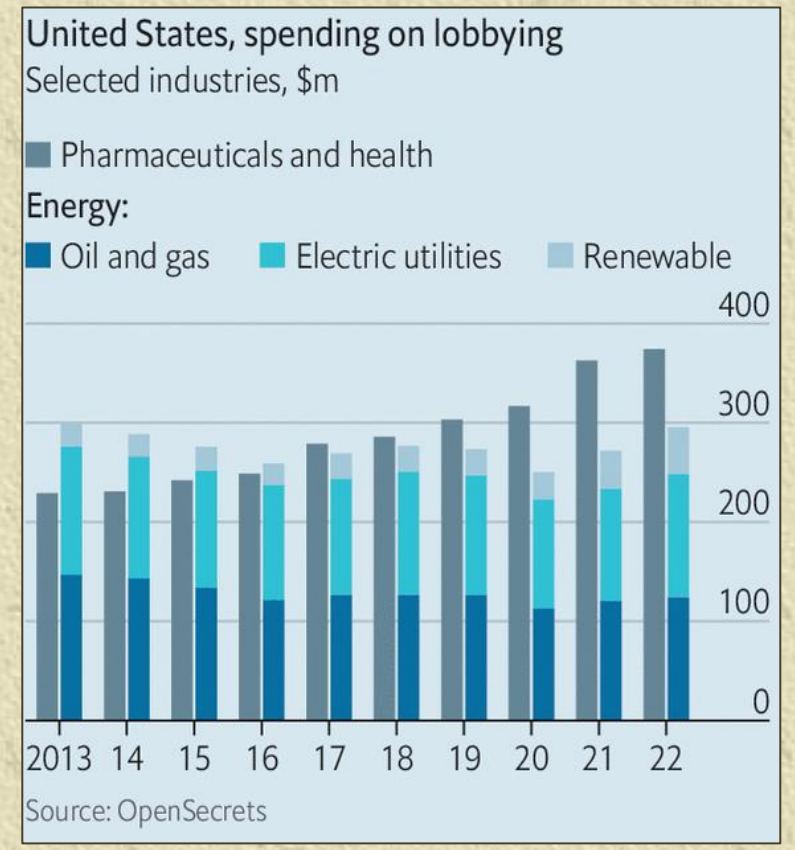


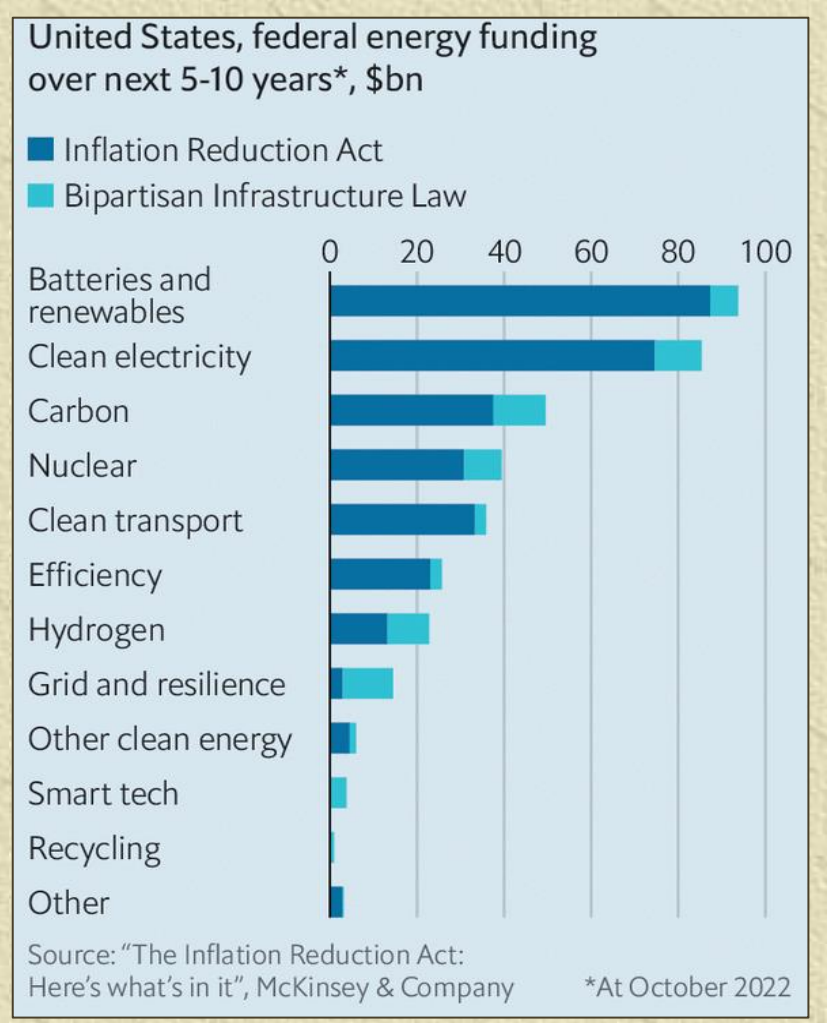
Meyer, G. and S. Kirchgaessner, "Commodities: A sweet deal", *Fin Times*, 15 Nov 2013, p. 7

US commodity groups support each other politically. US sugar industry unites southern cane and northern beet producers. Cane and beet can rot so they are processed into crystal sugar before traded and stored. US sugar program is aimed at processors not farmers: loans to processors; mkting quotas for dom sale; and an import quota. Industry argues that it is public interest to not depend on foreign countries…

Government Intervention: Case for/against Trade

- Industrial policy and lobbying





Economist, "Lobbying in America: Welcome to the green swamp", 15 Apr 2023, p. 53-4.

Government Intervention: Case for/against Trade

7.2 Case against free trade

- Case for policy intervention when mkts do not work
  - Theory of the 1st best: P = MSC = MSB = MC = MB
  - Theory of the 2nd best: case for intervention
    - External cost: MSC > P_W
    - External benefit: MSB > P_W
    - Imperfect competition: P_W > MC or MB
- Goods mkts do not function as per theory
  - Example: over-fishing
  - Example: agriculture is a non-trade concern, multifunctionality

Marginal social cost (MSC) is total cost society pays for production of an additional unit, whereas MC are private costs a producer faces to take another unit to market; marginal social benefits (MSB) are the value of benefits that come from the public consuming an additional good or service provided; MB are private benefits that accrue to the producers or consumers, measured as willingness to pay for the additional unit of the good

Government Intervention: Case for/against Trade

- L,K-mkt failures: factor mkt imperfection/immobility
  - L-mkt failure: wage inequality, high urban wage + unemploy
  - K-mkt failure: K-immobile scarce even where K-returns high
  - What causes these situations? What is appropriate policy?
- Institutions are weak
  - Courts, land title registry and related rule of law not enforced
  - Revenue collection agencies
  - Mkt support functions and regulatory agencies