

Subsidies, Development, and Trade

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Why the title change?

- The title on the program “Fostering Economic Development without Distorting Trade” can be confusing because there does not seem to have a consensus on what trade distortion means.
- Cambridge dictionary defines “trade-distorting” as “used to describe a tax or action that changes the normal characteristics of trade”
 - But what do “normal characteristics” mean?

Why the title change?

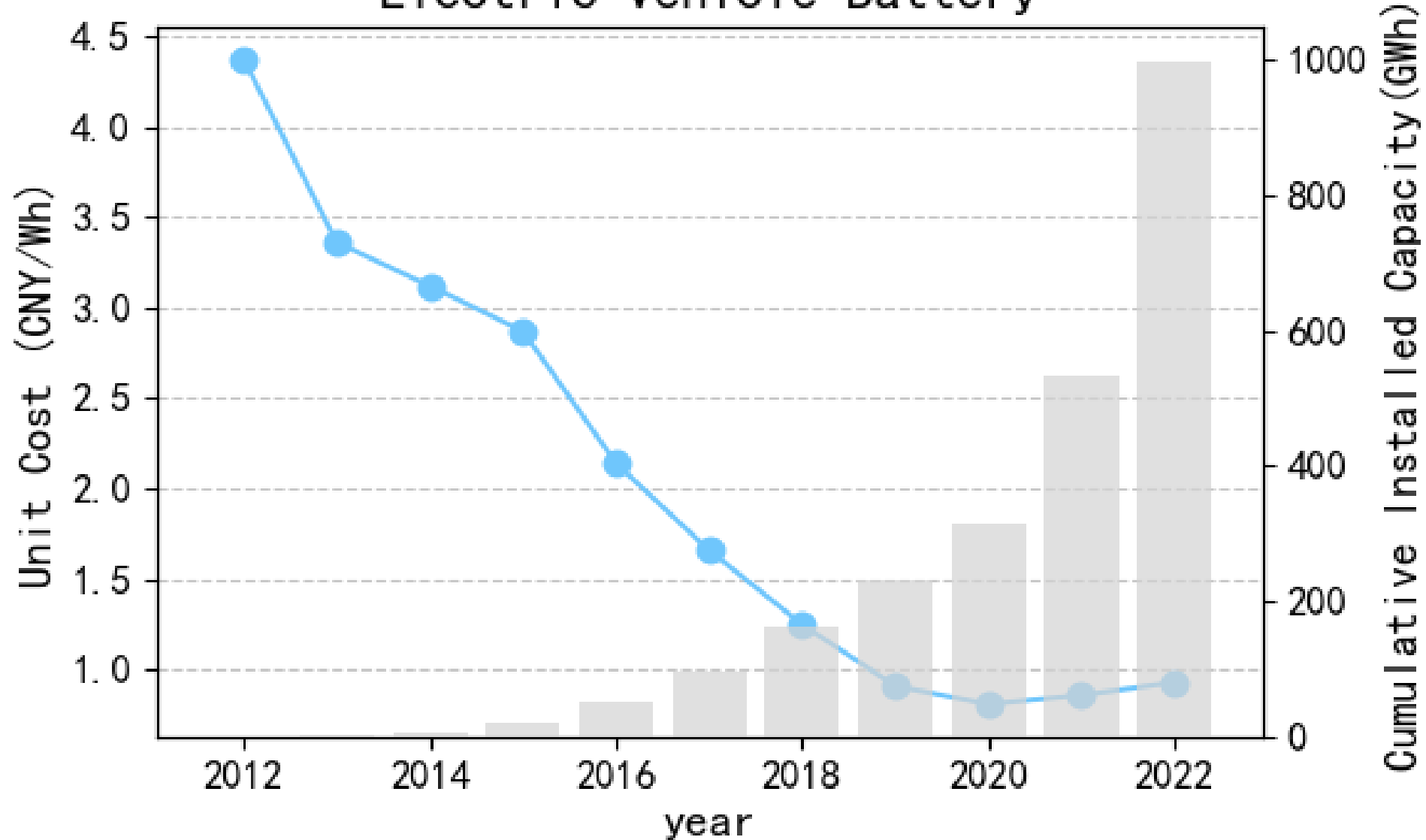
- The title on the program “Fostering Economic Development without Distorting Trade” can be confusing because there does not seem to have a consensus on what trade distortion means.
- Cambridge dictionary defines “trade-distorting” as “used to describe a tax or action that changes the normal characteristics of trade”
- WTO definition of distortion: When prices and production are higher or lower than levels that would usually exist in a competitive market.
 - But the market is not competitive as required by the First Fundamental Theorems of Welfare Economics

Questions:

- How do we evaluate subsidy?
- Are there a reasonable set of rules for dealing with subsidy in international trade?

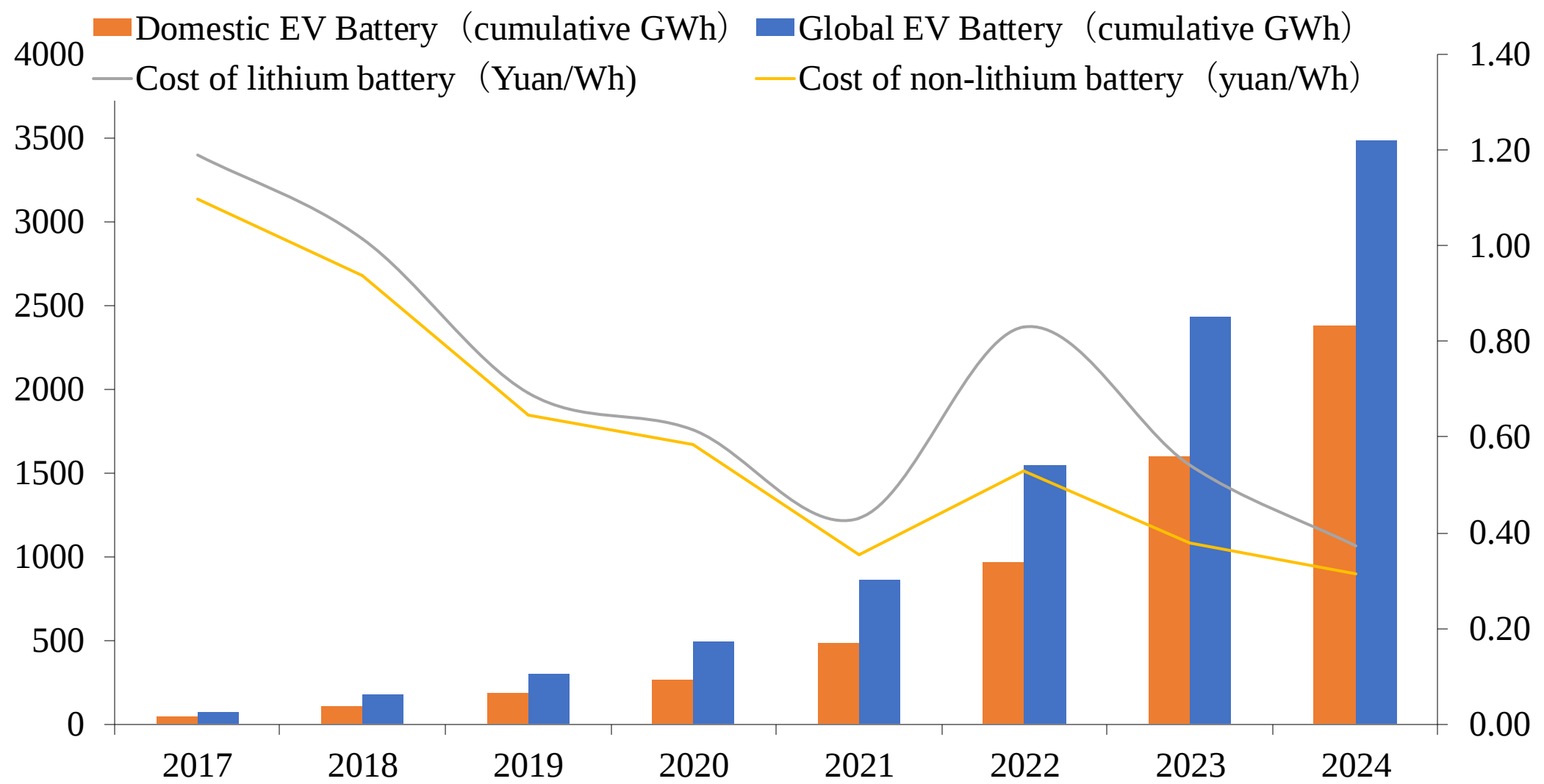
**How do we evaluate
subsidy?**

Electric Vehicle Battery

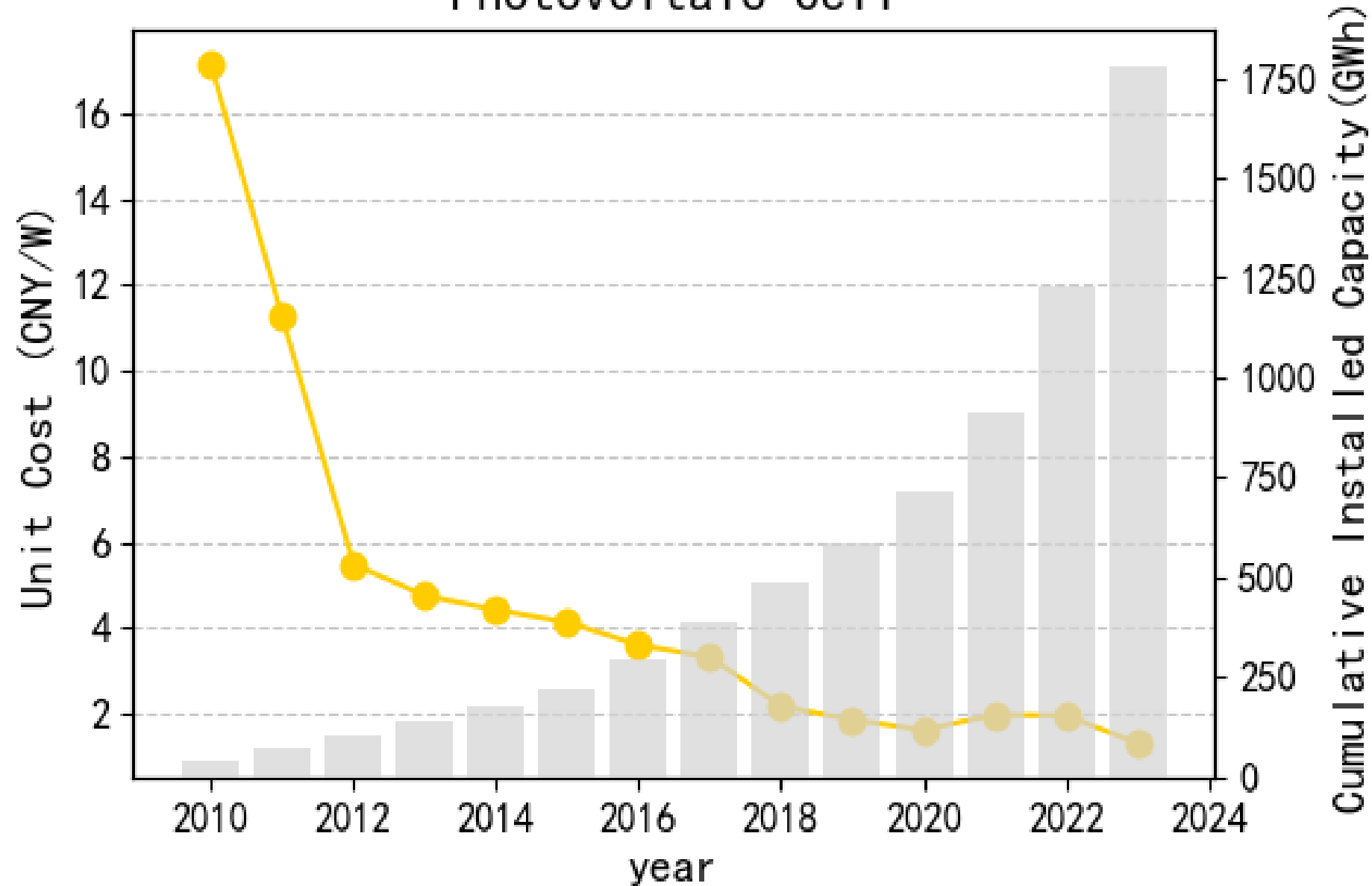


Data sources:

Hongliang Zhang,
Md Farhan Ishrak,
Xiaoqiao Liu, 2024;



Photovoltaic Cell



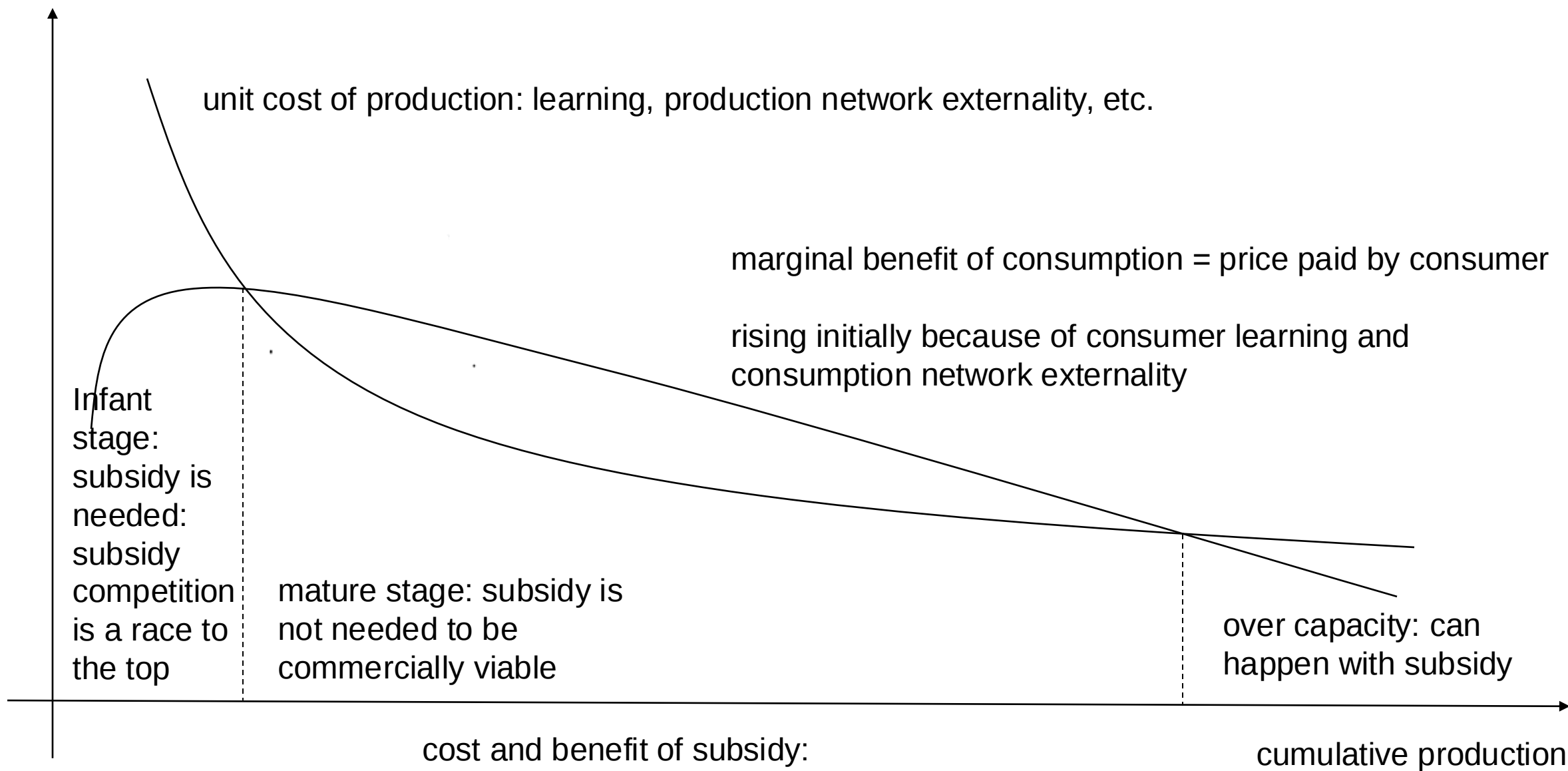
Data sources:

Zhuo Chen, Baihe
Gu, Donghui Yu,
Chen Wang, 2025;

Arnulf Jäger-
Waldau, 2024

Observations

- The initial cost is very high, and there may not be any transaction without extraordinary measures.
- If more experience is accumulated, the cost can drop significantly, and it is worthwhile to accumulate experience.
- If the capital market is not perfect, the producer may not be able to fund the extraordinary measures by itself.
- In this case, government subsidy may be necessary for the market



cost and benefit of subsidy:

- accelerate green transition
- subsidy competition can be a race to the bottom

**Are there a reasonable
set of rules for dealing
with subsidy in
international trade?**

"Normal Characteristics of Trade"

A benchmark position

- Free trade without any subsidy and tariff
- Well defined security considerations
 - Should not view other countries' development as a security threat
 - An example of an acceptable demand: domestic production share of food is above a threshold.
- Surge protection
 - Domestic production share does not drop too fast
- Opportunity for development
 - If domestic production share is below a threshold, protective measures can be taken

"Normal Characteristics of Trade"

A benchmark position

- Free trade without any subsidy and tariff
- Well defined security considerations
- Surge protection
- Opportunity for development
 - If domestic production share is below a threshold, protective measures can be taken
 - Protective measures should be restricted to domestic subsidy, except for low income or lower middle income countries

Rules on Subsidy Beyond the Normal

- In the infant stage, subsidy race should be allowed, without the threat of countervailing measures, because such race can facilitate learning and lead to mutual benefits ex ante.
- In the mature stage, countervailing measures can be taken against subsidy. An exporter should pay an export tariff based on the difference between the subsidy it receives and the subsidy received by its competitors in the importing country, replicating the benchmark position.
- If after the subsidy race in the infant stage, domestic production share is below the threshold set on the last slide, this country should be given the opportunity for development introduced there.

Other issues

Alternative forms of subsidies

- Consumer subsidy vs. producer subsidy
- Consumer subsidy is less likely to intensify trade disputes.
 - Consumer subsidy may quickly increase sales and adoption.
 - It also lowers producer costs if there is substantial scale effect, through learning by doing, for example.
 - When the scale effect diminishes, consumer subsidy no longer lowers producer costs and do not affect international competitiveness, while producer subsidy often helps build up international competitiveness.

Alternative forms of subsidies

- It is hard for a government to subsidize the consumers of other countries or other regions in the case of a local government and more coordination among governments is needed to have wide-spread consumer subsidy.
- It is easier for a government to subsidize domestic or local producers.
- Consumer subsidy may lead to choice of product specifications minimizing the cost of getting subsidy instead of maximizing efficiency.
- Producer subsidy can better incentivize innovation.
- Producer subsidy is more common if the government aims to (1) to build up industrial capacity, (2) to encourage exports of domestic products.

Responses to trade conflict motivated by subsidies

- Trade Retaliation and Disputes: Countervailing Duties: Countries may impose countervailing duties (CVDs) or anti-dumping tariffs on products imported from countries that subsidize domestic industries. For instance, the European Union has imposed tariffs on Chinese solar panels and EVs due to concerns over subsidies.
- Negotiations and Agreements: The EU-U.S. Trade and Technology Council includes discussions on technology, trade, and industrial policies, where both parties may seek to address concerns over subsidies and state support for green technologies like electric vehicles.
- Decoupling, Reshoring or Diversification: Countries may respond to subsidies by reshoring or diversifying their production capabilities to avoid dependence on foreign subsidies and ensure domestic industries remain competitive.
- Competition in industrial policy: Governments may respond by creating new industrial policies or adjusting fiscal frameworks to respond to foreign competition or subsidies in strategic sectors.

Responses to trade conflict motivated by subsidies

- What kind of responses should be adopted if there should be any?
 - Tariff
 - Import tariff
 - Export tariff
 - Price floor
 - Voluntary export restraint
 - Mandatory import quota

Responses: Historic lessons

China-EU solar panels trade dispute (2012-2018)

- Solution: price floor + ceiling on export quantity.
 - The price floor of €0.56 per watt was determined by considering the production costs of Chinese solar panel manufacturers and the prevailing market prices in the European Union at the time.
 - The quota of 7 GW was largely based on the current and projected market demand for solar panels in the European Union at the time.
 - The allocation of the 7 GW was based on factors like market share, production capacity, and historical export volumes. The goal was to ensure that each manufacturer received a share of the quota that was proportional to their previous level of exports and capacity.
- Impact: Chinese exports of PV products to EU declined significantly.
- Long term effect: Chinese firms set up factories in third countries to bypass trade barriers.

US-Japan automobile trade dispute (1981-1994)

- Solution: voluntary export restraints (VER), setting an upper limit of export units per year.
 - The initial quota of 1.68 million cars per year (starting in 1981) was largely based on a compromise that aimed at reducing the trade deficit between the two countries without completely halting Japanese imports.
 - The level of Japanese exports to the U.S. in the years leading up to the VER agreement was an important starting point. In 1980, Japan exported about 1.9 million cars to the U.S.
 - The quota was divided among Japanese automakers by the Japanese government, with input from the Japanese automobile manufacturers' association (JAMA), which represented the major carmakers. The specific breakdown of the allocation typically followed a general formula based on the relative market share of each automaker in the U.S.
- Impact: share of high quality cars increased, with the total export units below the limit, and American consumers face higher prices.
- Long term effect: Japanese firms set up factories in US to produce cars locally; while the protected US auto industry lost its competitiveness.

Japan-US semiconductor trade dispute (1986-1996)

- Solution: Japan-US Semiconductor Agreement, MITI agreed to increase the price in US and third-markets, and increase the foreign share in Japanese market.
- Impact: foreign chip share in Japan increased, Japan lost comparative advantage in foreign markets.
- Long term effect: global market share of Japanese firms shrunk.

Thank you!

Alternative forms of subsidies

- Aghion et al. (2015) use Chinese manufacturing firm level data and show that industrial policies allocated to competitive sectors or fostering competition in a sector increase productivity growth.
- Barwick, Kwon and Li (2024) design an attribute-based subsidy scheme. Under multi-product oligopolies, optimality conditions require higher subsidies to products that exhibit potentially high welfare gains for the marginal unit and products whose demand is more responsive to subsidies