PubPol/Econ 541

Class 25

Subsidies and Countervailing Duties

by
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2023

Announcements

- Paper #3
  - Is due Wednesday at start of class, 8:30 AM, Dec 6
  - I am still available to answer questions by email or to meet with your group by zoom

Announcements

- Quiz #12

Announcements

- Quiz #13
  - Available from 10:00 AM today.
  - Due by Friday 12/8 midnight,
  - Accepted until Saturday 12/9 midnight with 1 point penalty
  - Covers material from today only (Subsidies and Countervailing Duties)

Announcements

- This is NOT our last class together
- Class this Wednesday, Dec 6:
  - No required reading
  - Class will be review and discussion
    - What have you learned from this course?
    - What would you still like to know?

Announcements

- Course evaluations
  - Please do them
  - Due by
    - ?

Subsidies and Countervailing Duties

- Subsidies are assistance provided by government to firms or industries
- Here they will take the simple form of a fixed payment per unit of output or per unit of export
  - In practice they are seldom that simple
- Countervailing duties (CVDs) are permitted by the GATT/WTO under specified circumstances

Pause for Discussion

Questions on Jackson Ch. 11

- Why does Jackson view the issue of subsidies as “perplexing”?
- In what ways can a subsidy have international effects – that is, effects on other countries? (Jackson lists three.)
- What is meant by the three colored “baskets” or “boxes” of subsidies?
- What is the importance of “specificity” and “general availability” in the context of subsidies?

Outline

- "Unjustified" Subsidies
  - – Effects of subsidies
    - Export
    - Production by Small Country
    - Production in 2-country world
  - – Effects of CVDs
- "Justified" Subsidies
- Subsidies with Imperfect Competition
- Recent subsidy issues

Categories of Subsidies

- There are several ways of categorizing subsidies
  - Export versus domestic (=production)
  - Direct versus indirect
  - Trade distorting versus not
  - “Justified” versus “unjustified”
- I’ll use the latter term:
  - “Justified” means being used appropriately to correct a distortion
  - “Unjustified” is any other

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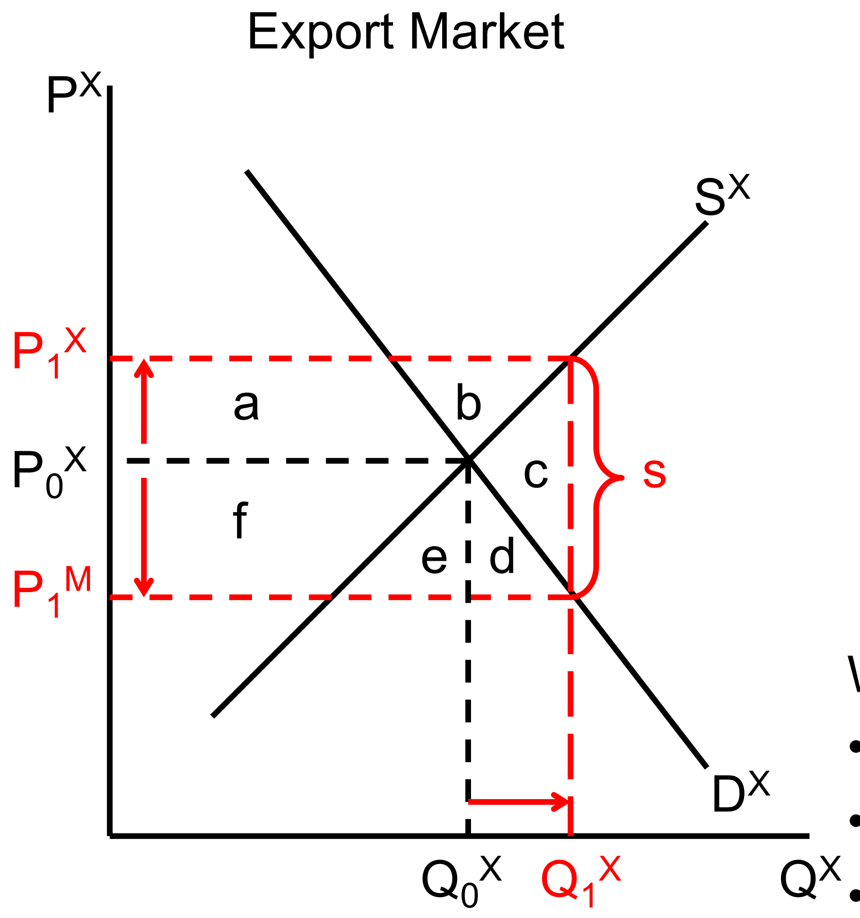
Export Subsidy



- The export subsidy, s per unit of the good exported, gives exporters price P_1^X which is larger than what foreign importers pay, P_1^M, by the amount s.
- Home price (inc. subsidy) rises
- Foreign price falls
- Exports rise

Welfare effects

- Dom. private gains +(a+b)
- Dom. govt loses –(a+b+c+d+e+f)
- Dom. cty loses –(c+d+e+f)
- For. private gains +(d+e+f)
- World loses –c

“Dead Weight Loss” =

Pause for Discussion

Questions on KOM, Ch 9

- Can an export subsidy benefit the country that uses it (in perfect competition)? If so, how? If not, why not?
- Why does the text say that an export subsidy has effects that are “exactly the reverse of those of a tariff,” given that the export subsidy raises the domestic price above the world price and (if the country is large) pushes down the world price?

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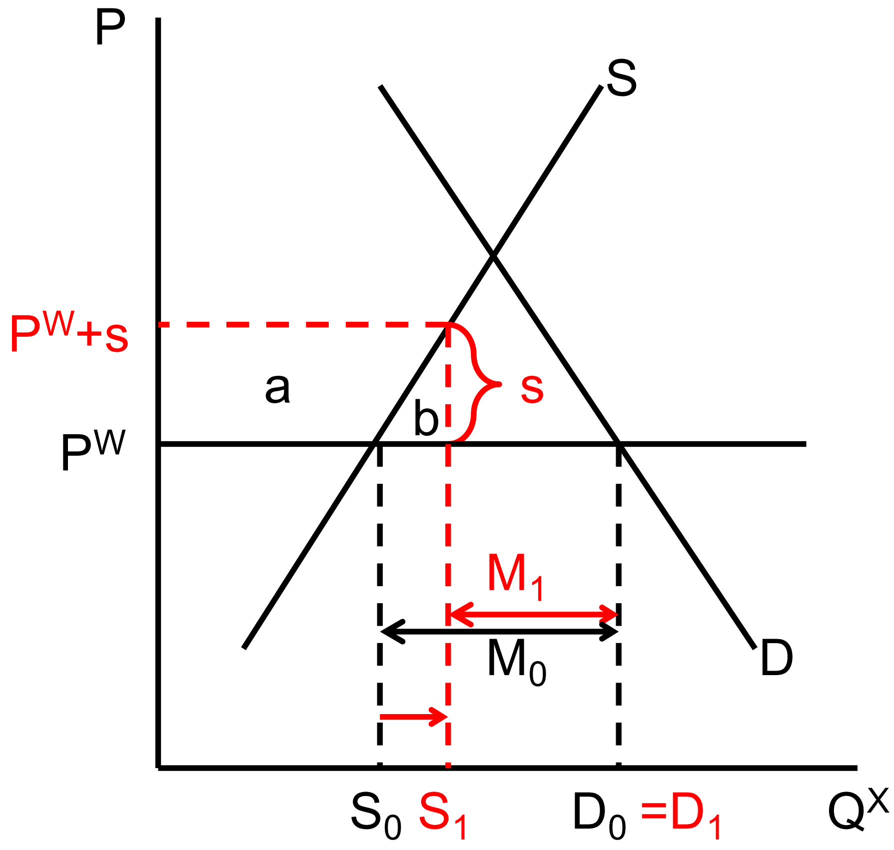
Production Subsidy, Small Country Importer



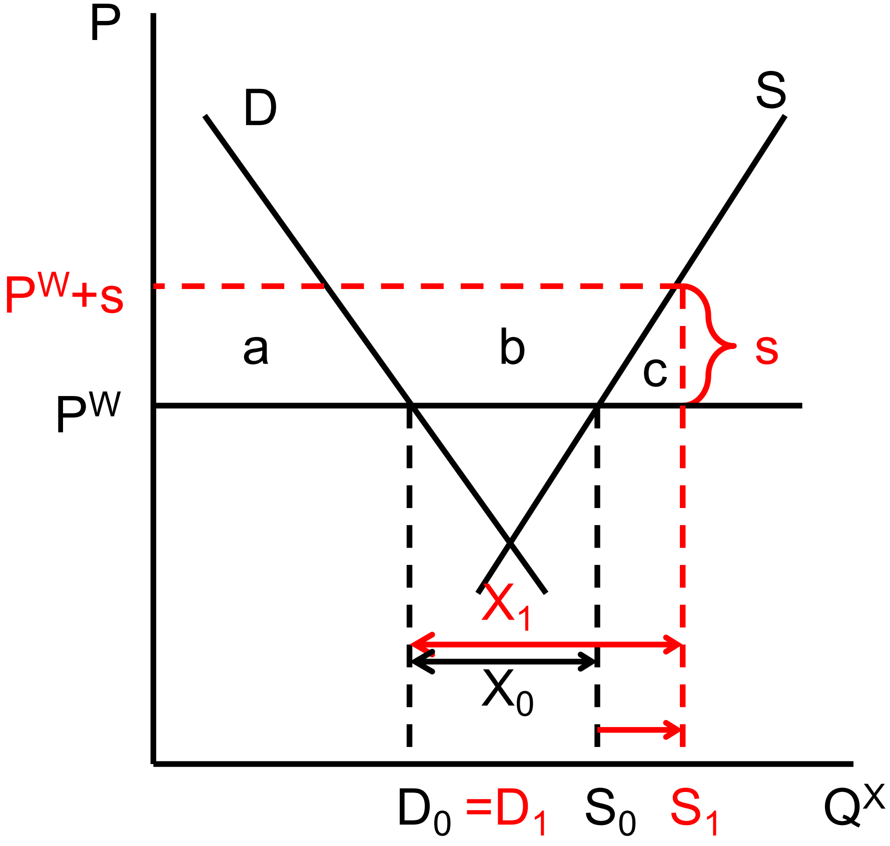
- The production subsidy, s per unit, gives suppliers s in addition to the world price, P^W. Demanders can still buy at P^W.
- Output rises
- Imports fall

Welfare effects

• Suppliers gain	+a
• Demanders	0
• Govt loses	–(a+b)
• Cty loses	–b

"Dead Weight Loss" =

Production Subsidy, Small Country Exporter



- The production subsidy, s per unit, gives suppliers s in addition to the world price, P^W. Demanders can still buy at P^W.
- Output rises
- Exports rise

Welfare effects

Suppliers gain	+(a+b)
Demanders	0
Govt loses	–(a+b+c)
Cty loses	–c

“Dead Weight Loss” =

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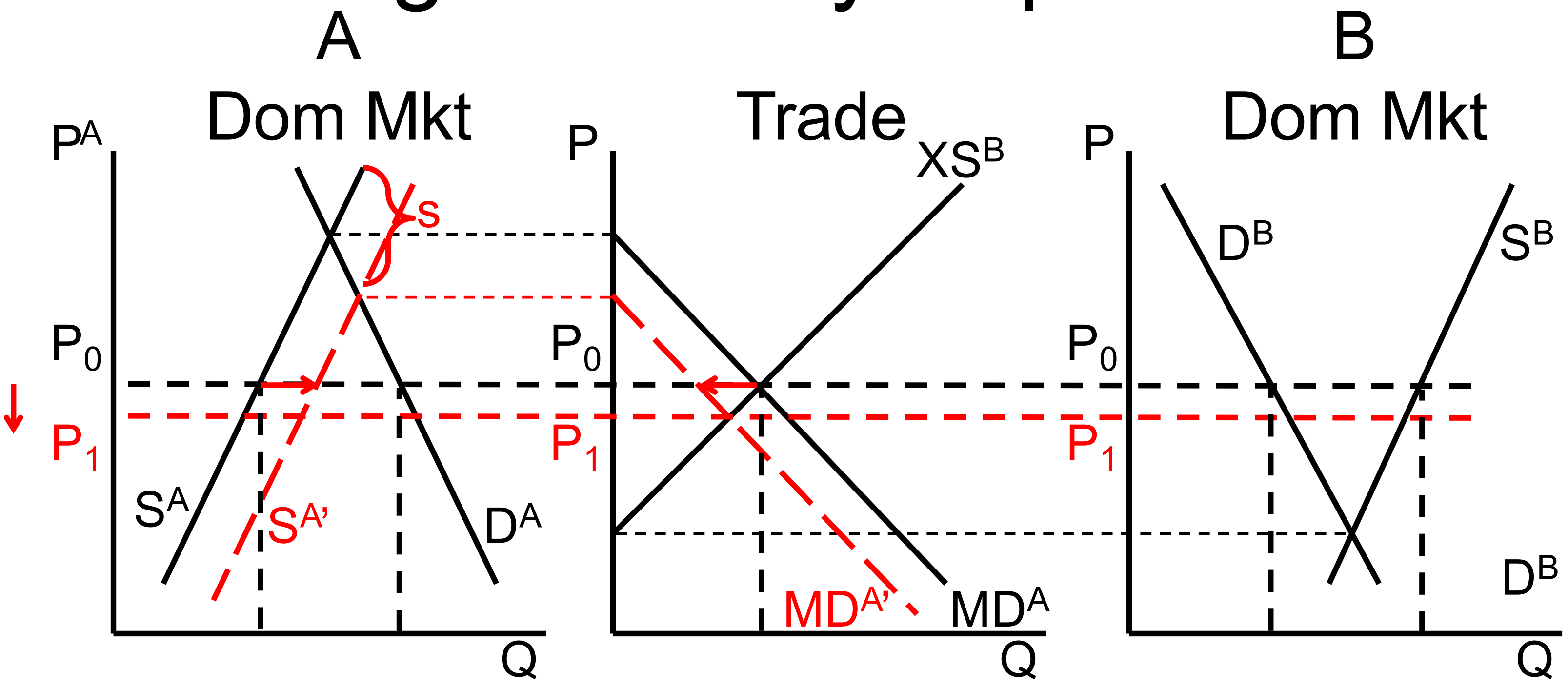
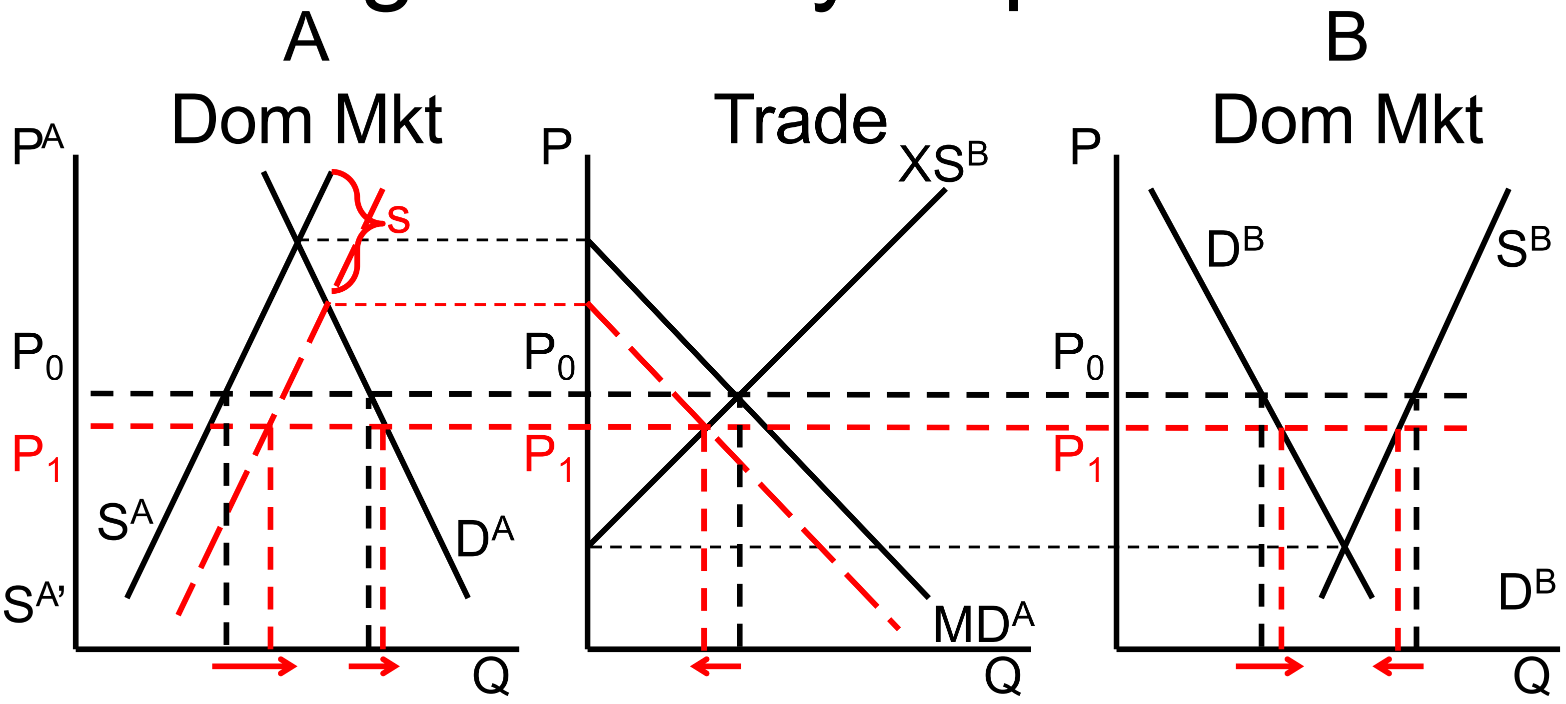
Production Subsidy, Large Country Importer



- The subsidy, s, is here most simply thought of as reducing the cost of suppliers in A and thus shifting its supply curve down by the amount s
- This causes A's import demand curve to shift to the left.
- The world price falls from P_0 to P_1.

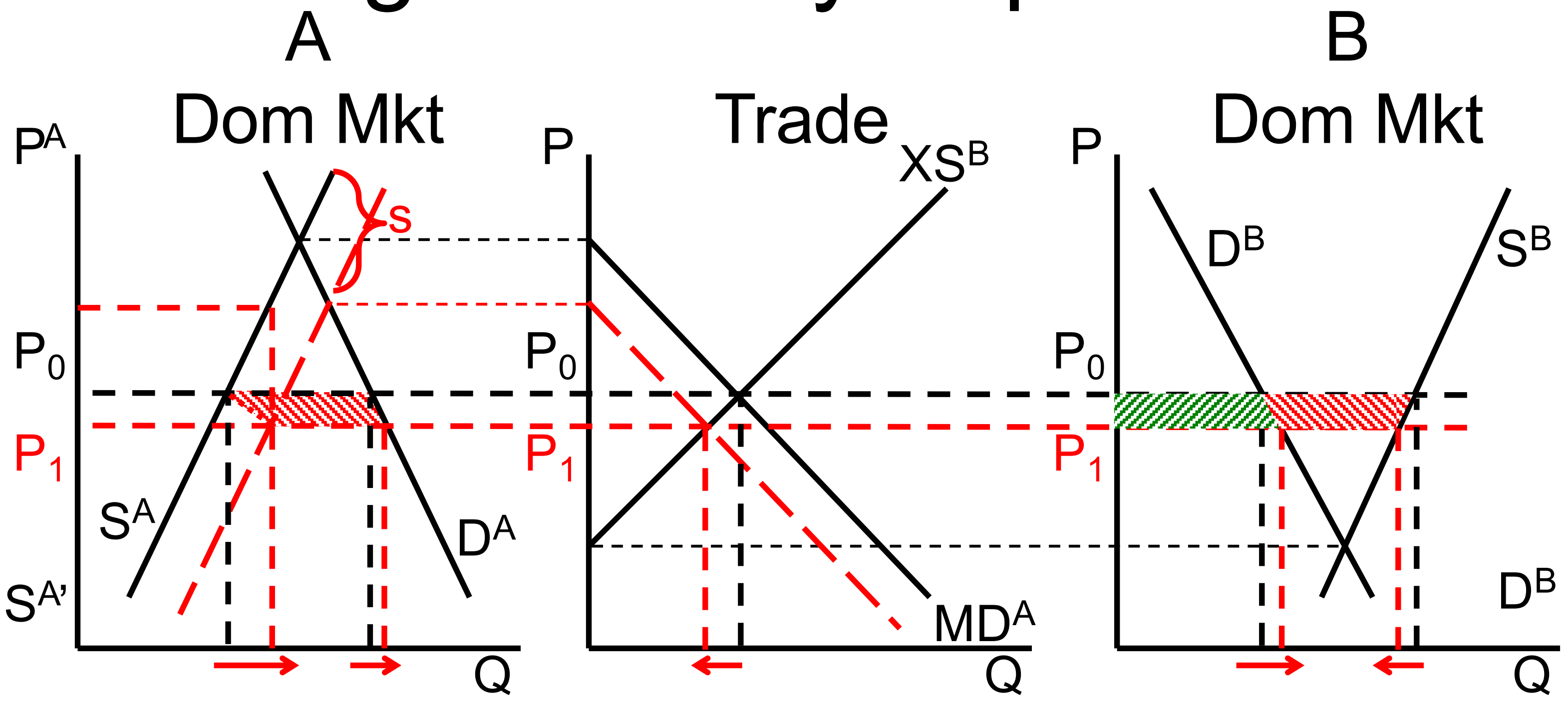
Production Subsidy, Large Country Importer



Results:

- A: Supply and demand both rise
- B: Demand rises; supply falls
- Quantity traded – export and import – falls

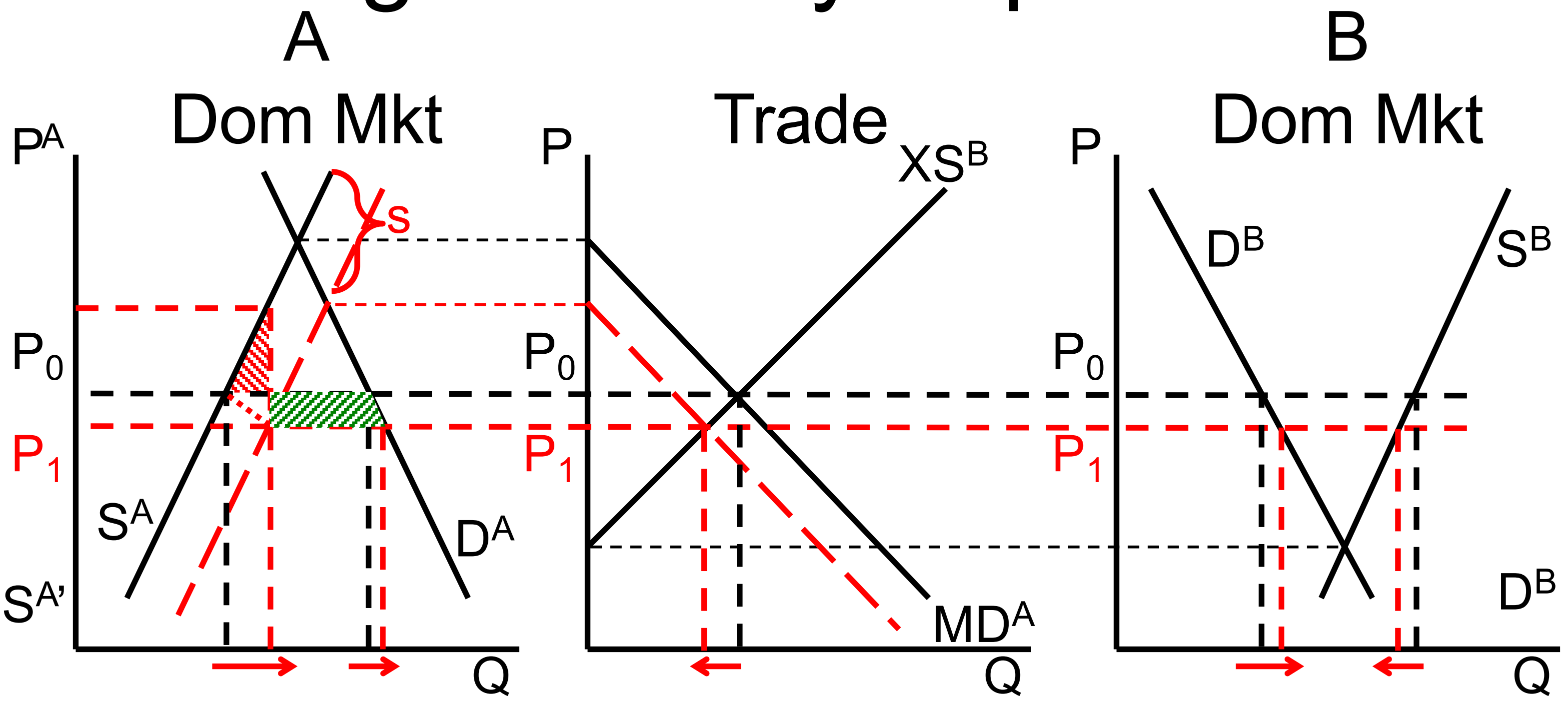
Production Subsidy, Large Country Importer



Welfare of Country B:

- Demanders gain 🟩
- Suppliers lose 🟥
- So country B loses 🟥
- Note that B's loss also appears in A as 🟥

Production Subsidy, Large Country Importer



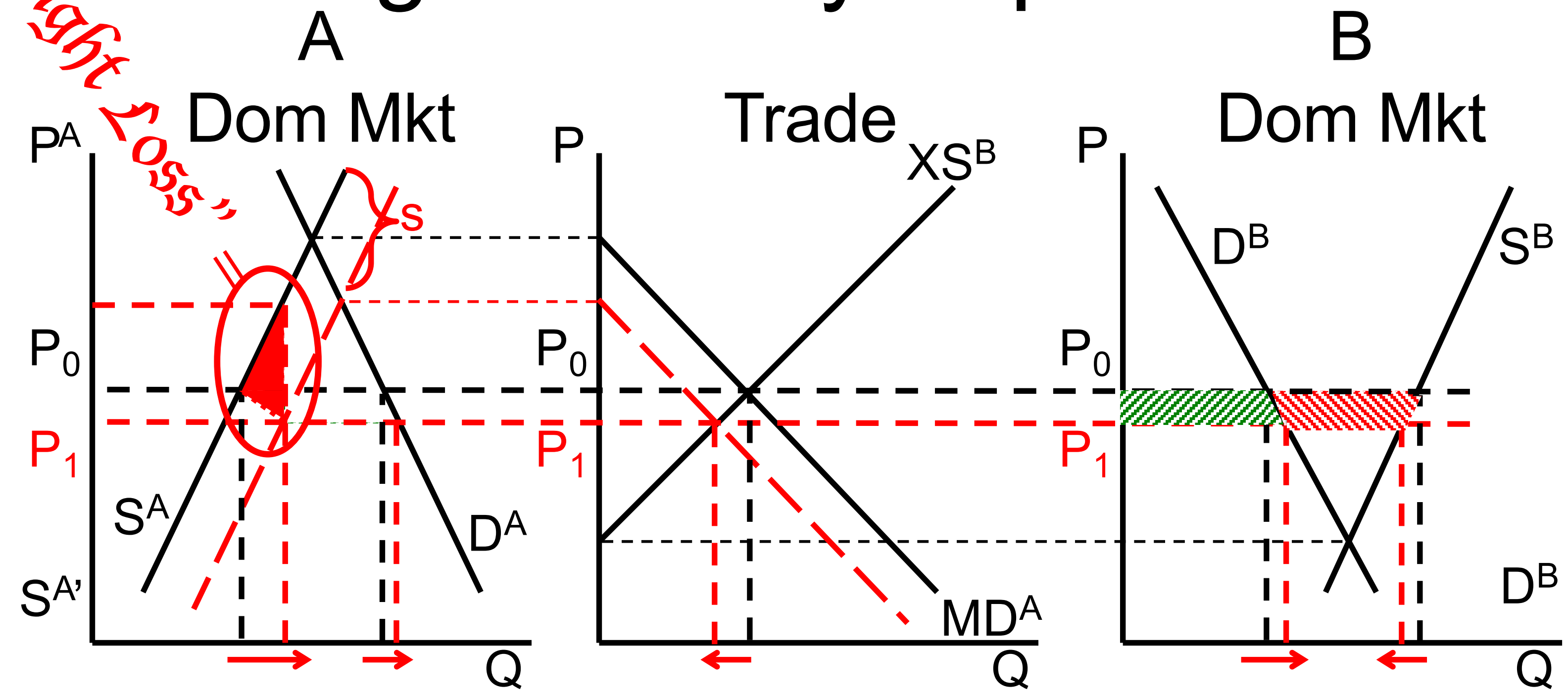
Welfare of Country A:

- Suppliers gain 🟩
- Demanders gain 🟩
- Government loses 🟥
- So country A gains 🟩 but loses ◢

Result:

- Large importer may (but need not) gain from subsidy
- Why? Improves terms of trade

Production Subsidy, Large Country Importer



Welfare of Country A:

- Suppliers gain 🟩
- Demanders gain 🟩
- Government loses 🟥
- So country A gains 🟩 but loses 🟥

Deducting the loss for Country B

- World loses ◢

Pause for Discussion

Questions (Not asked before)

- We didn’t look at a production subsidy for an exporter. (You should be able to do it yourself now.) How would you expect it to differ from the case of an importer?

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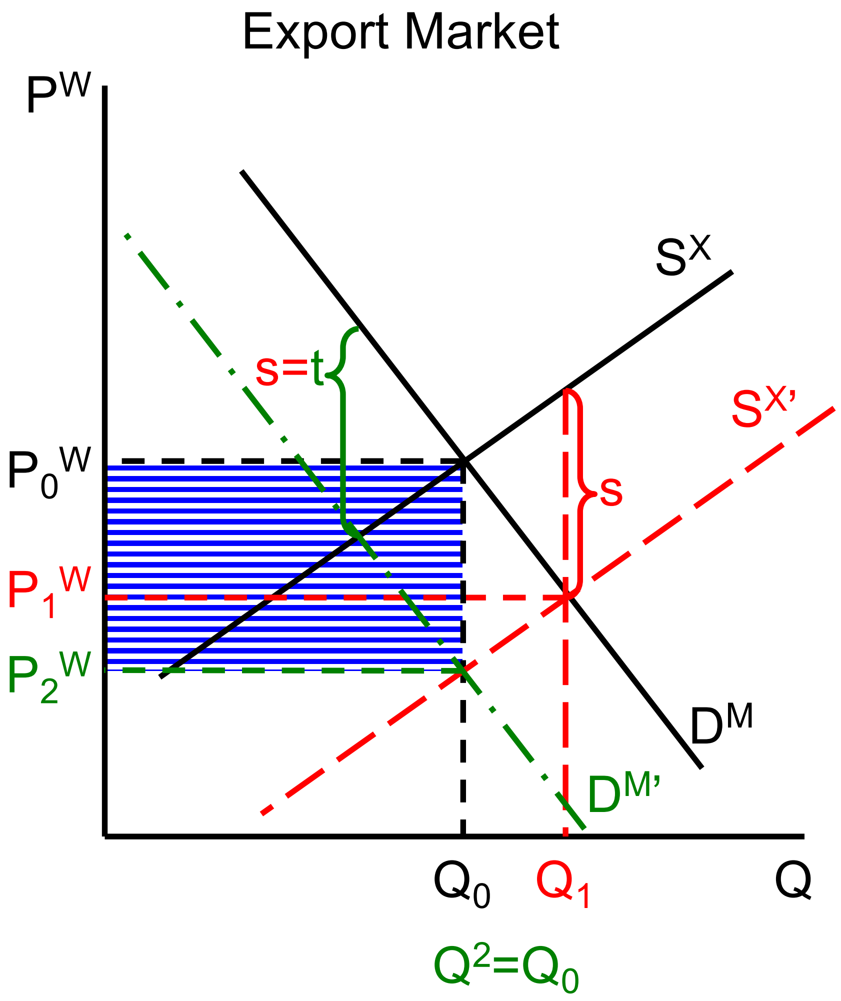
CVD and Export Subsidy



- The export subsidy, s, shifts the export supply curve down by the amount s
- This lowers the world price to P_1^W and increases quantity traded to Q_1
- The CVD is a tariff, t, equal to the subsidy, which shifts the demand curve for imports down by t
- Quantity traded returns to Q_0
- World price is now below its initial level by t=s. But domestic prices in both countries are returned to P_0^W
- Thus the only effect of the combined s&t is a transfer of $s \times Q_0$ from the exporting government to the importing government

Pause for Discussion

Questions on Jackson Ch. 11

- How are export subsidies handled in the WTO? Why does Jackson suggest that perhaps importing countries should be required to levy countervailing duties against export subsidies?

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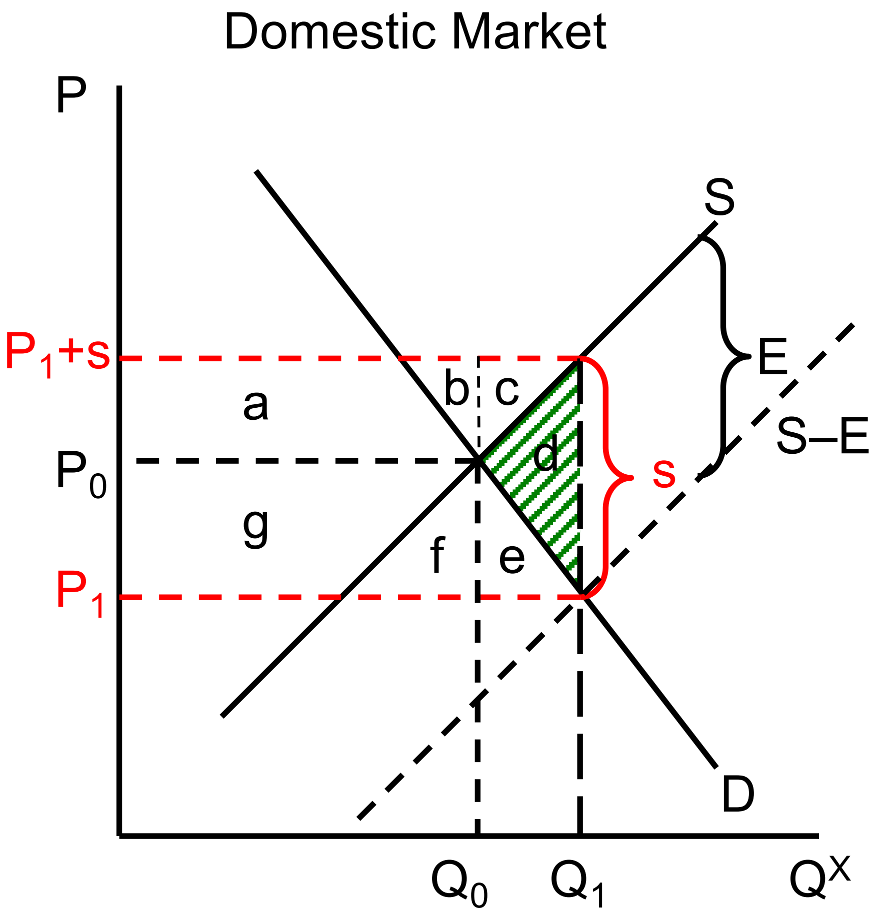
“Justified” Subsidies

- The only example I will consider here is a positive external economy, E, per unit of a good produced (you should try others)
- It is well understood that in a closed economy the optimal policy is a production subsidy s=E
- The question here will be how this affects an open economy and its trading partners

External Economy in Autarky

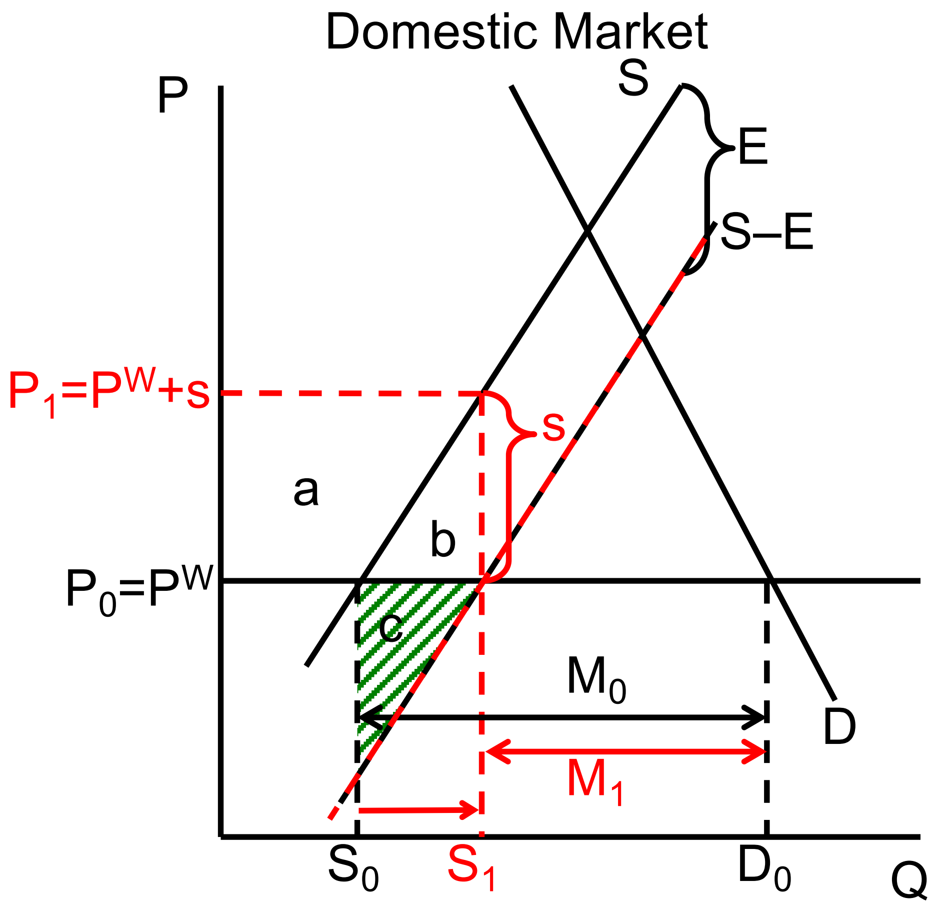


- The externality means that the social cost of this good is less than the private cost by E per unit, so the marginal social cost is shown by S–E
- Therefore the optimal output is Q_1
- A subsidy, s=E, shifts the supply curve down to coincide with S–E and raises output to the optimum

Welfare

- Demanders +(e+f+g)
- Suppliers +(a+b+c)
- Gov't –(a+b+c+d+e+f+g)
- Externality +(c+d+e)
- Country +(c+e) = +d

External Economy & Subsidy in Small Importer

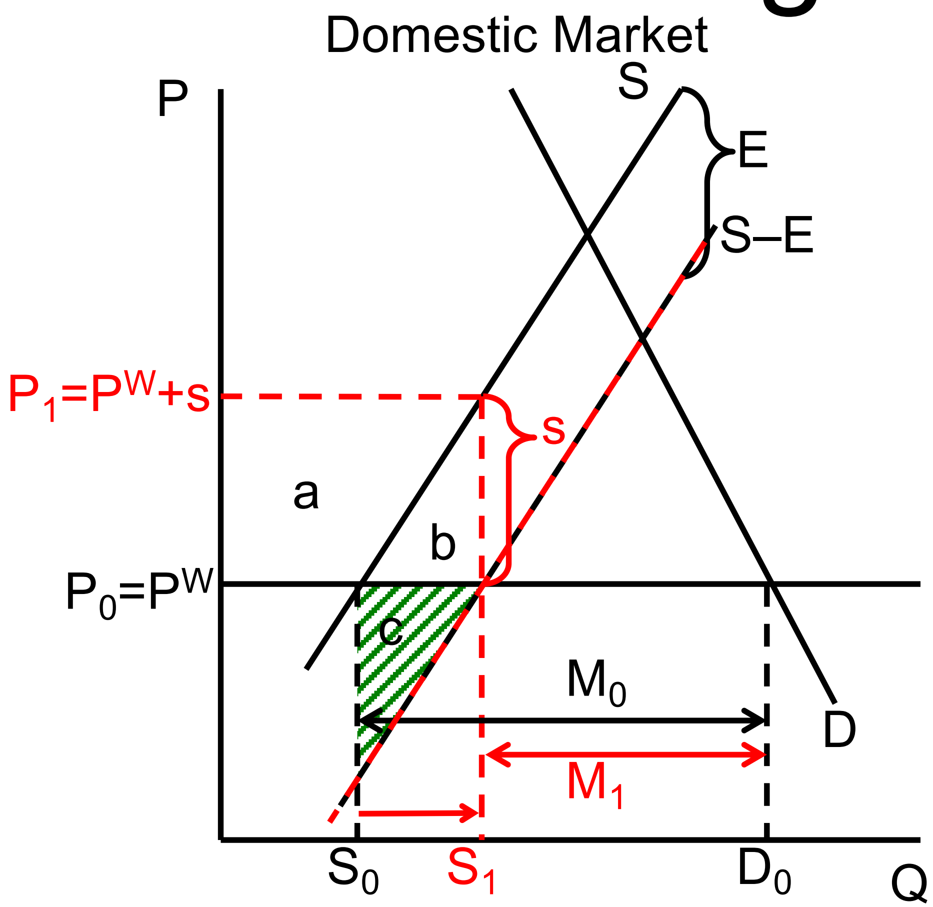


- Subsidy s = E shifts supply down by s to match S-E
- Supply rises
- Demanders still face P^W so demand does not change
- Imports fall

Welfare

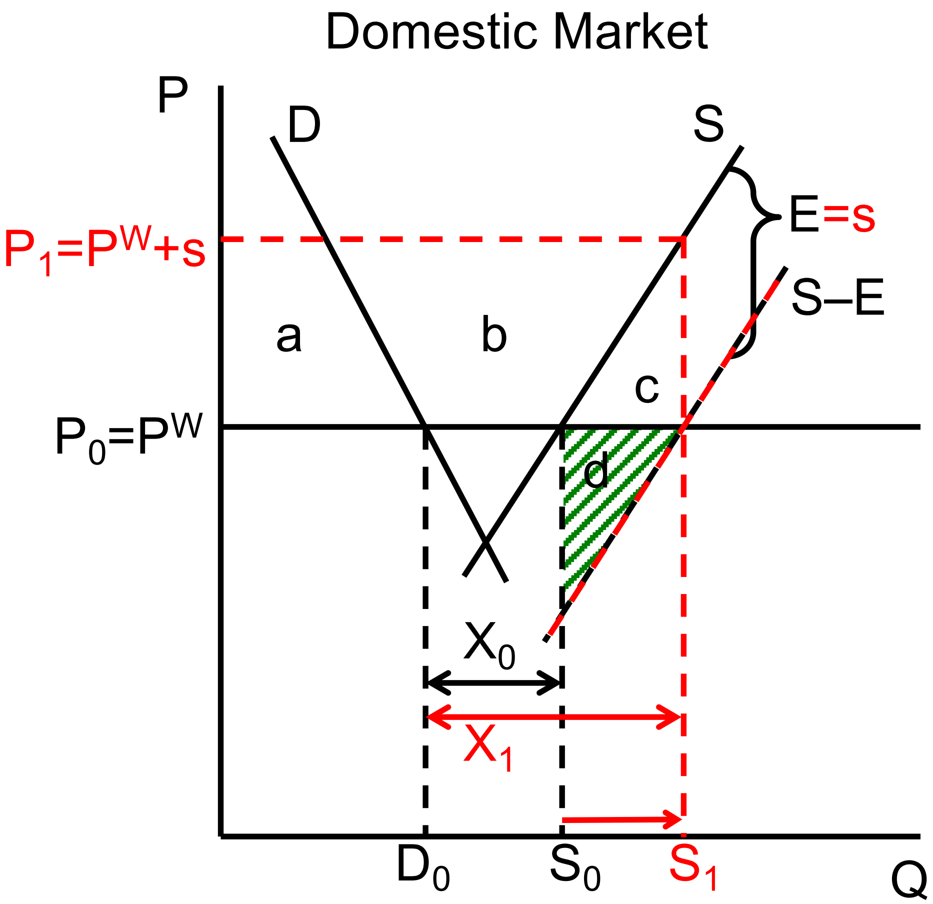
- Demanders 0
- Suppliers +a
- Gov't –(a+b)
- Externality +(b+c)
- Country +c

External Economy & Subsidy in Large Importer



- The same figure shows what will happen for a given world price for a large country
- The decline in imports means that world demand shifts down, reducing world price (not shown)
- This (also not shown) causes additional gain for the importer and loss to the rest of world

External Economy & Subsidy in Small Exporter



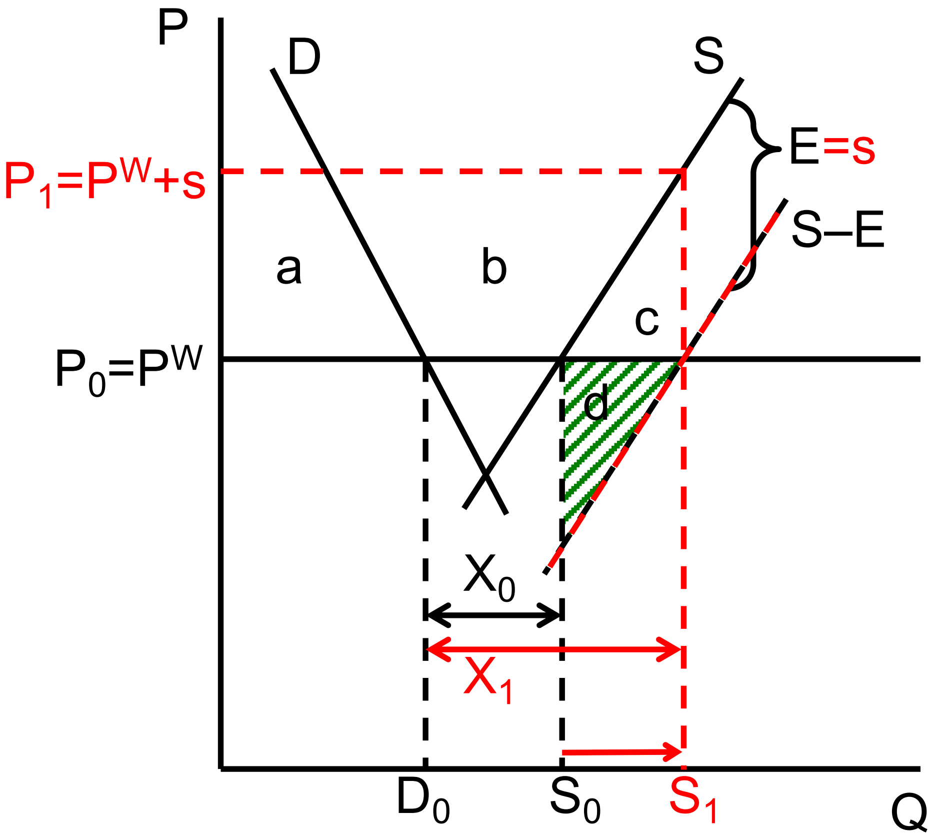
- The analysis is essentially the same for an exporter, except that now exports rise

Welfare

Demanders	0
Suppliers	+(a+b)
Gov't	–(a+b+c)
Externality	+(c+d)
Country	+d

External Economy & Subsidy in Large Exporter

Domestic Market



- Again, the same figure shows what will happen for a given world price for a large country
- The rise in exports now means that world supply shifts out, again reducing world price
- But this causes offsetting loss for the exporter and gain for the rest of world

Pause for Discussion

Questions (Not asked before)

- Do justified subsidies (based on the analysis here) always hurt or always help the rest of world?

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Imperfect Competition

- Strategic Trade Policy: Boeing-Airbus Game

  P=produce, N=not produce

  No subsidy,

Equil. If Boeing moves first, since now Airbus will not enter

Boeing choice: depends on Airbus

Payoff Matrix

		Airbus	
		P	N
Boeing	P	−5 −5	0 100
	N	100 0	0 0

Imperfect Competition

- Strategic Trade Policy: Boeing-Airbus Game

  P=produce, N=not produce

  No subsidy

Now Airbus choice does not depend on Boeing

		Airbus	
		P	N
Boeing	P	−5 −5	0 100
	N	100 0	0 0

Imperfect Competition

- Strategic Trade Policy: Boeing-Airbus Game

  P=produce, N=not produce

  No subsidy, Airbus Subsidy = +10

Equil. With no subsidy if Boeing moves first

Equil. with subsidy and exit

		Airbus	
		P	N
Boeing	P	−5 (+5) −5	0 100
	N	100 (110) 0	0 0

Imperfect Competition

- Boeing-Airbus Game results
  - If Boeing moves first, without subsidy Airbus will not enter
    - Boeing and US gain +100
    - Airbus and EU gain 0
  - If EU pays subsidy, Airbus will enter and Boeing will exit
    - Airbus gains 110, EU gains 100 (=100-10)
    - Boeing and US gain 0
  - Thus EU gains and US loses from EU subsidy

Imperfect Competition

But note caveats: These arguments are <u>not</u> likely to be usable:

- Empirical difficulties: Hard to know where to intervene
- Entry: Benefits will be dissipated by new firms
- General equilibrium: Help in some sectors hurts others
- Retaliation: Other countries may react
- Political economy: Industries lobby for help

Pause for Discussion

Questions on KOM

- In the Boeing-Airbus example, Airbus benefits from the subsidy. Is that all that is needed for the example to be a valid basis for a subsidy?
- The textbook warns that correctly using the Brander-Spencer analysis as the basis for an export subsidy relies on getting the numbers right. Where would a government go to learn these numbers? Is that a problem?

Questions on Hollinger, “Airbus and Boeing subsidy battle far from over”

- What did Airbus and Boeing object to with regard to the other company?
- Does this agreement end those actions that each objected to? If not, what does it do?
- How had the WTO dealt with this dispute?
- What are Airbus and Boeing probably more worried about than each other?

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Recent subsidy issues

- EU puts tariff on “glass fiber fabrics” from Egypt, based on China’s subsidy
- EU and China reach agreement on investment, but without addressing subsidies

Pause for Discussion

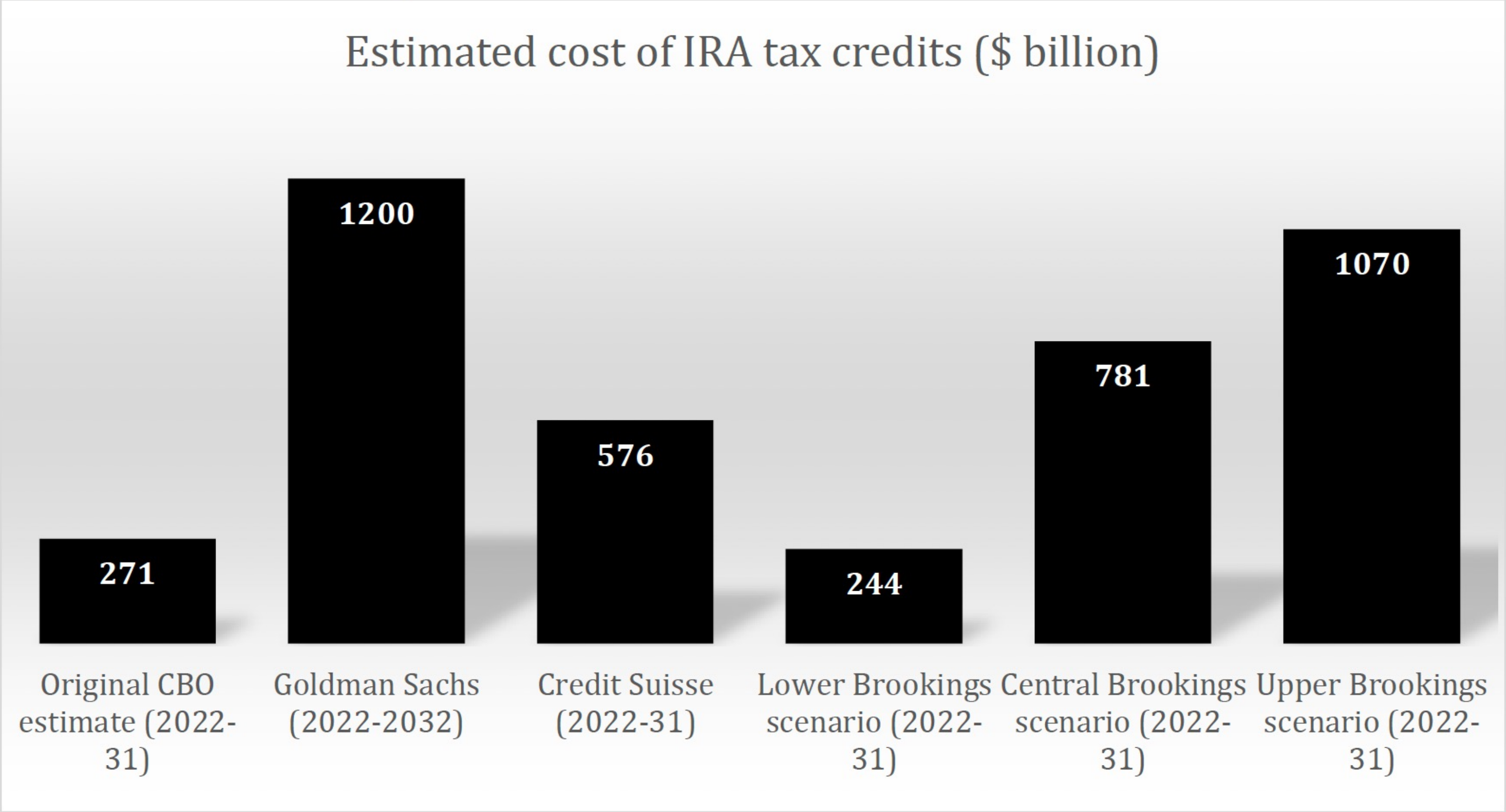
Questions on Stearns, “EU Challenges China’s Trade Expansion”

- Why is this a “landmark tariff”?
- What product is subject to the tariff, from where into where, and what is the size and duration of the tariff?
- Might more such tariffs be used in the future?

Recent subsidy issues

- US started a “subsidy war” with subsidies for clean energy and technology
  - Especially electric vehicles
- EU and others are responding with their own subsidies
- US subsidies are more trade distorting than our model:
  - They are conditional on firms getting inputs from US, North America, or US FTA partners

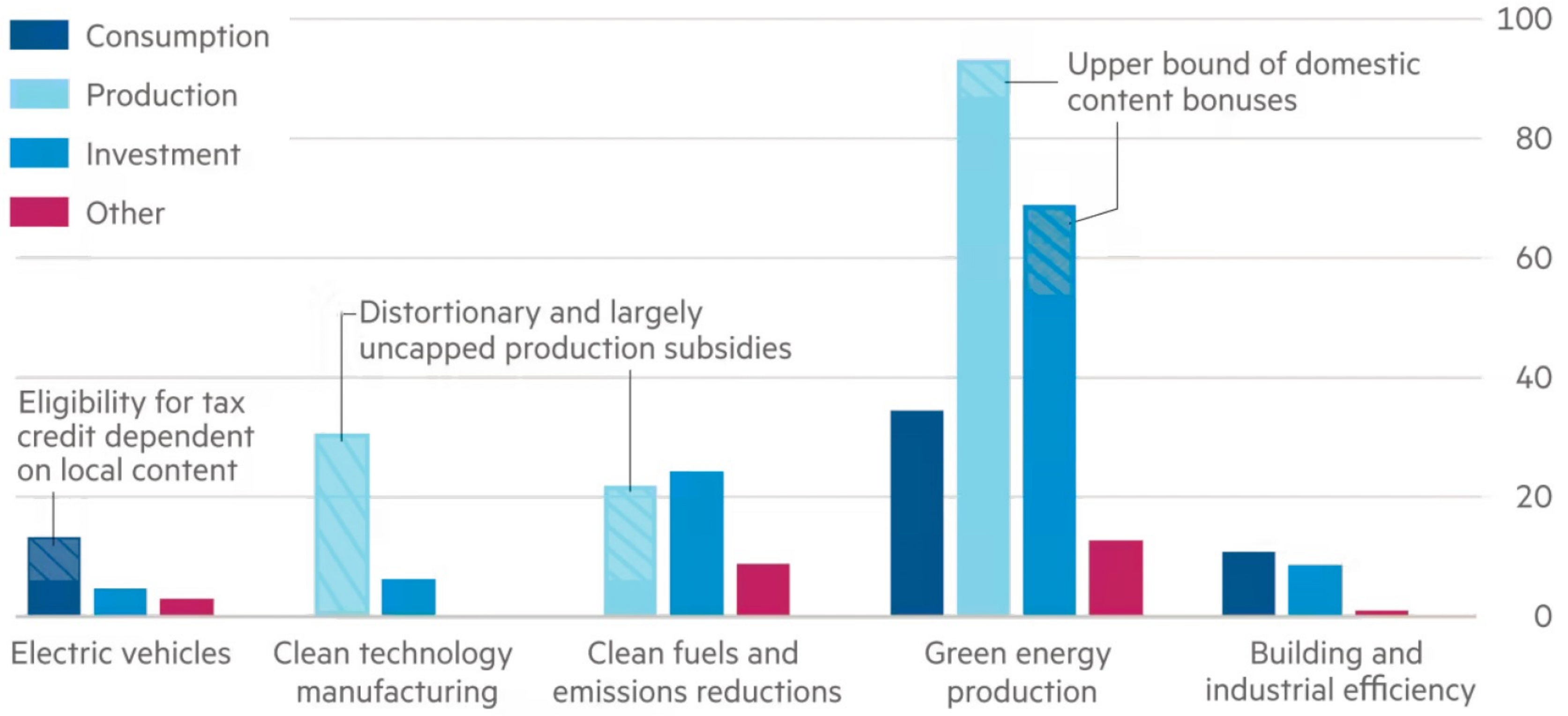
Figure 1: There is a wide range of estimates of total current US dollar value of the IRA's tax credits, $billion.



Notes: 1. In the original CBO analysis, no tax credit revenue-related losses were expected in 2022. 2. The Goldman Sachs estimate covers one more year than the others.

IRA subsidies and their likelihood of distorting trade

By type, $bn (shaded areas represent trade-distortive spending*)



Eligibility for tax credit dependent on local content

Distortionary and largely uncapped production subsidies

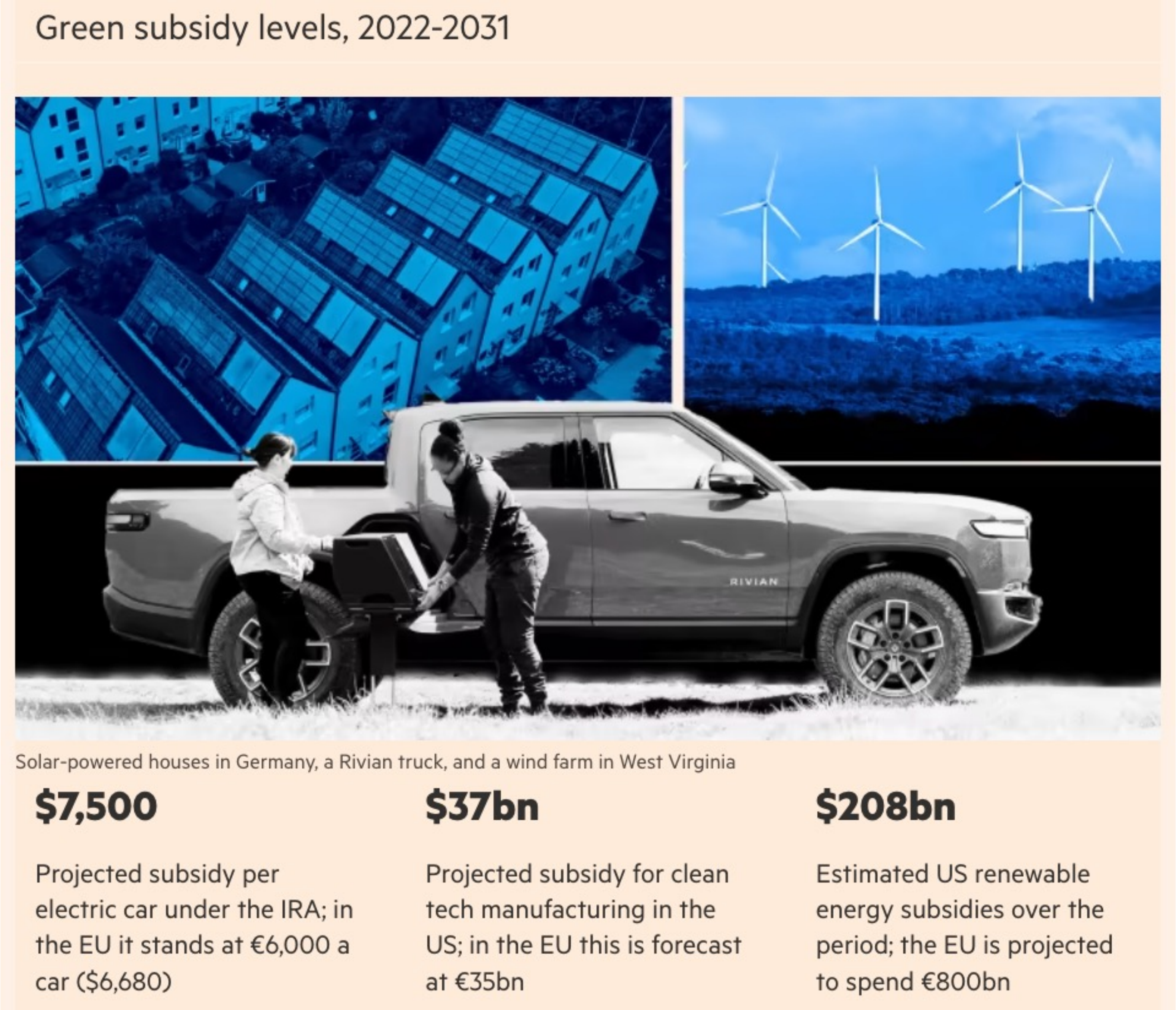
Upper bound of domestic content bonuses

* Includes prohibited local content requirements for the consumer electric vehicle tax credit, the domestic content bonus in the gre
subsidies for clean-tech manufacturing and clean fuel that are actionable under WTO rules. For the domestic content bonus, the shaded area represents how much would be spent on domestic content bonuses if all relevant projects qualified for them.

Source: Bruegel, based on US Congressional Budget Office estimates (2022)

Recent subsidy issues

- US electric car subsidies (see optional reading by Baschuk)
  - “Consumers can claim as much as $7,500 in federal tax credits if they purchase a clean-energy vehicle that satisfies certain US rules regarding critical minerals and battery components.”
  - “Countries eligible for exemptions because they have FTAs with the US:
    - Canada, Mexico, Japan, South Korea
    - NOT EU



Green subsidy levels, 2022-2031

Solar-powered houses in Germany, a Rivian truck, and a wind farm in West Virginia

$7,500

Projected subsidy per electric car under the IRA; in the EU it stands at €6,000 a car ($6,680)

$37bn

Projected subsidy for clean tech manufacturing in the US; in the EU this is forecast at €35bn

$208bn

Estimated US renewable energy subsidies over the period; the EU is projected to spend €800bn

Pause for Discussion

Questions on Chazan et al., “A global subsidy war?”

- What are the two pieces of legislation in the US that are at the heart of this subsidy war?
- What are the motives for these acts, according to the US and to others?
- How are EU, Japan, and South Korea responding to this?