

PubPol/Econ 541

Class 13

Multi-Market Analysis

by

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2024

Announcement

- Quiz:

	Q4	Q5	Q6
Mean	8.72	9.08	6.92
Median	9	9	7
Max	10	10	10
Min	6.5	8	4
Standard deviation	0.96	0.79	1.89

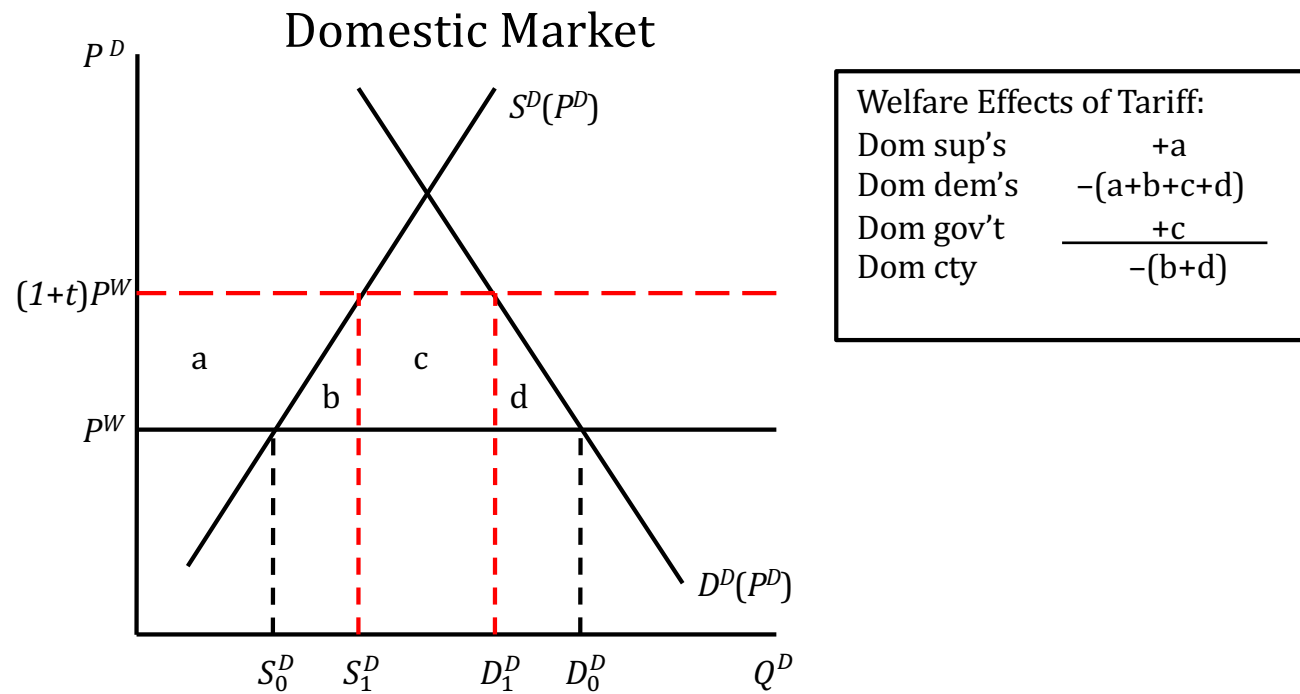
- No quiz this week
- Today's material will be covered on next week's quiz, along with what we do next Monday.

Pause for News

Outline

- Large country tariff
- Differentiated-Product Import, Small Country
- Imported Input to Production of Final Good
- Tariff on Import from One Country but Not Another

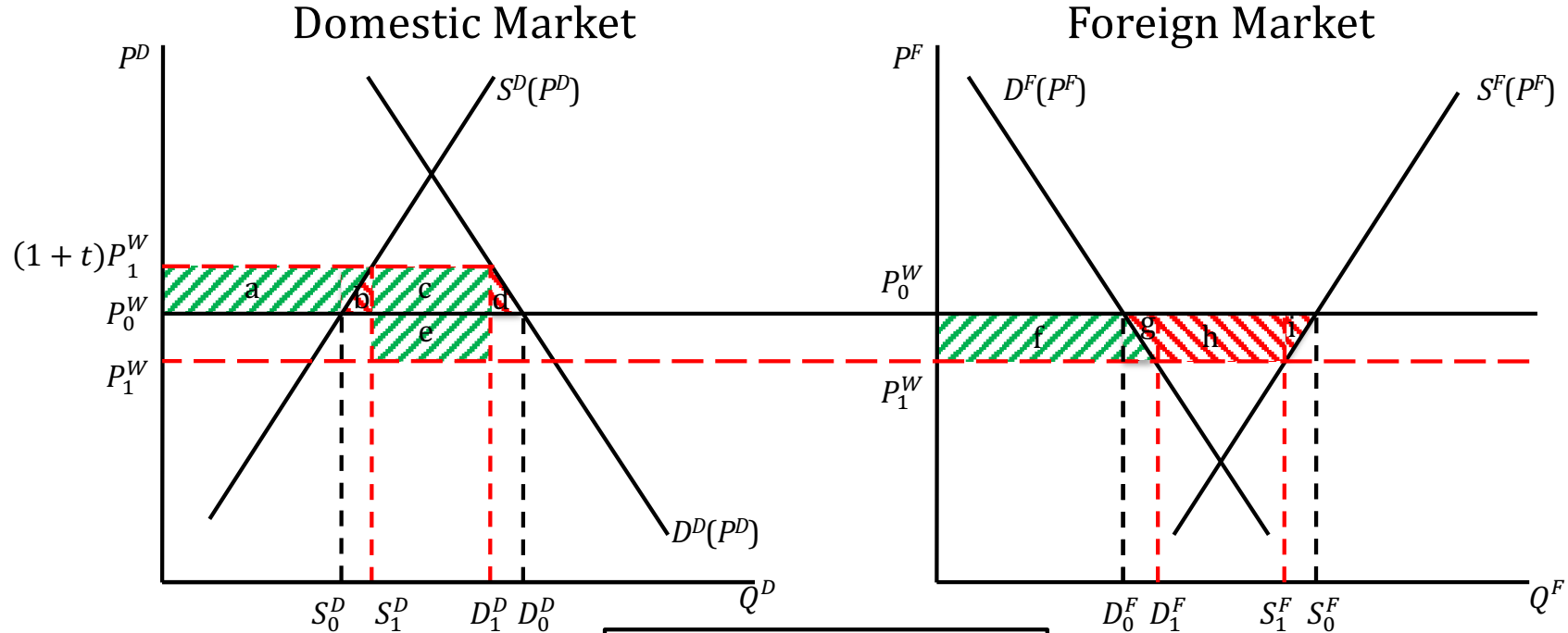
Recall: Small-Country Tariff



Outline

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Recall: Large-Country Tariff



This was a
multi-market
analysis

Welfare Effects of Tariff:	
Dom sup's	+a
Dom dem's	-(a+b+c+d)
Dom gov't	$\frac{+(c+e)}{+e-(b+d)}$
Dom cty	
For sup's	-(f+g+h+i)
For dem's	+f
For gov't	$\frac{0}{-(g+h+i)}$
For cty	
World	-(b+d+g+i)

Figure 2

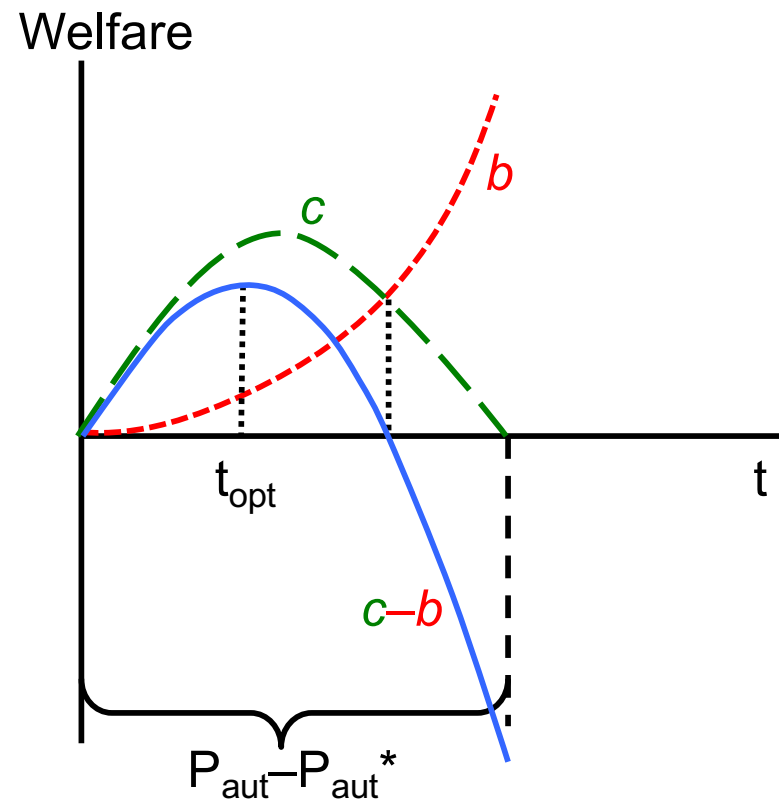
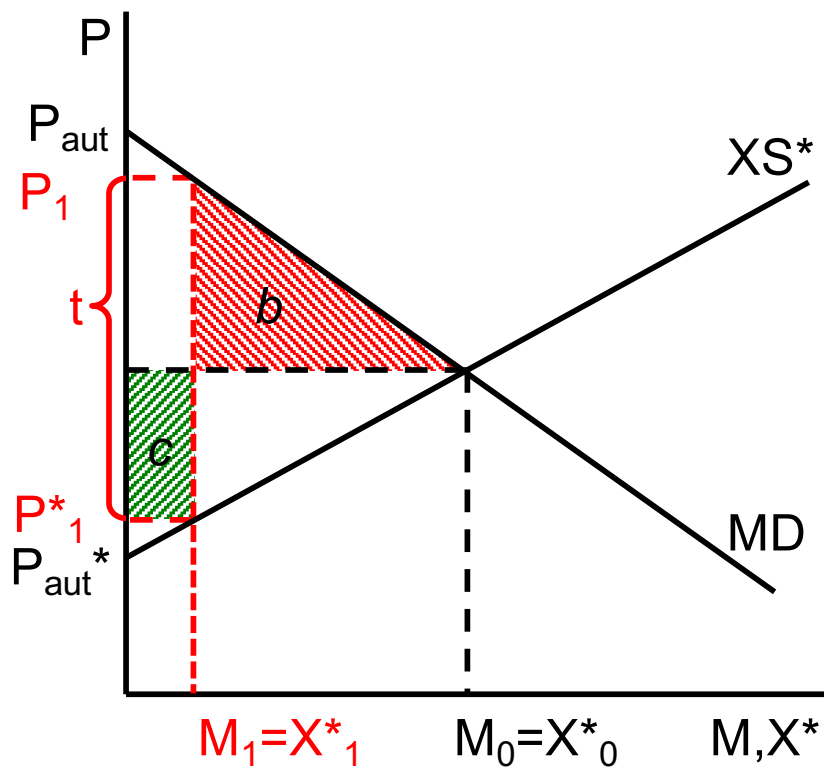
Tariff in a Large Country ("Domestic") on a Homogeneous Good

Pause for Discussion

Questions

- In the case of a large-country tariff, what would a graph of the welfare of the tariff-levying country look like as a function of the size of the tariff?

From Class 4, Sept 13:



Questions

- In the case of a large-country tariff, what would a graph of the welfare of the tariff-levying country look like as a function of the size of the tariff?
- With an unchanged tariff, what will happen to prices in the two countries if there is a right-ward shift of
 - Home supply
 - Home demand
 - Foreign supply
 - Foreign demand

Outline

- Large country tariff
- **Differentiated-Product Import, Small Country**
- Import Input to Production of Final Good
- Tariff on Imports from One Country but Not Another

Differentiated-Product Import, Small Country

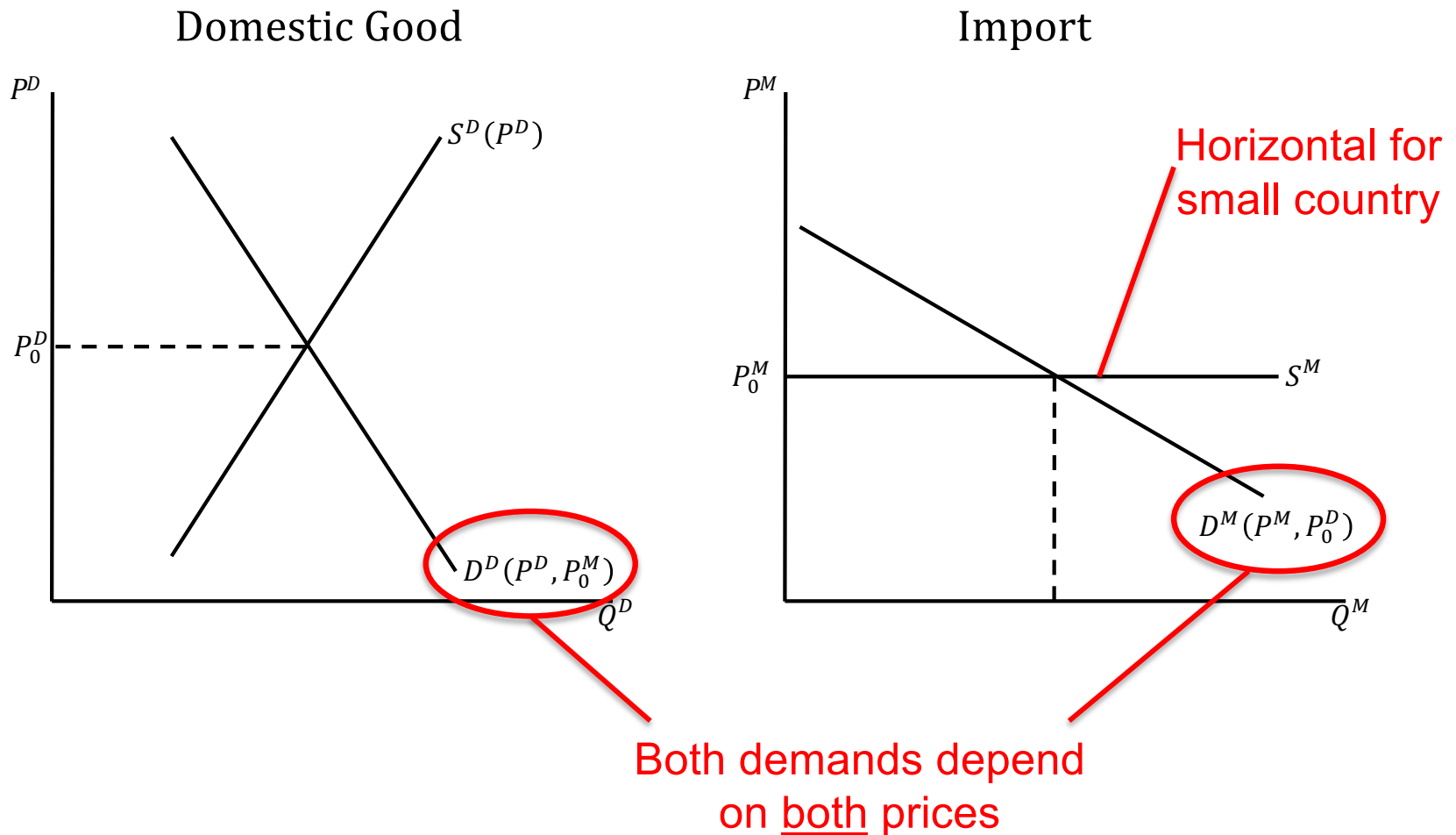


Figure 4
Tariff on Imported Imperfect Substitute for Domestic Good

Differentiated-Product Import, Small Country

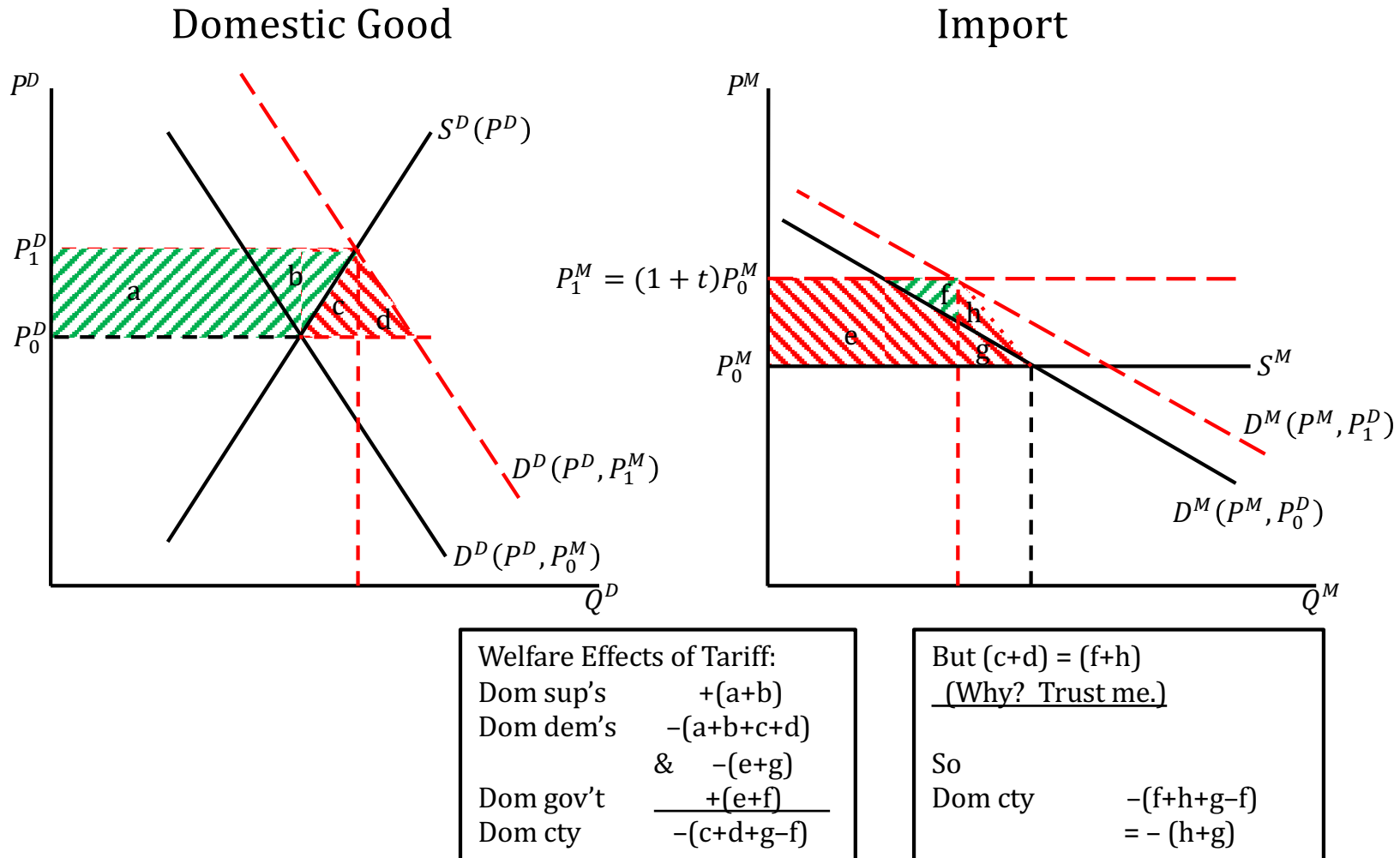


Figure 4
 Tariff on Imported Imperfect Substitute for Domestic Good

Differentiated-Product Import, Small Country

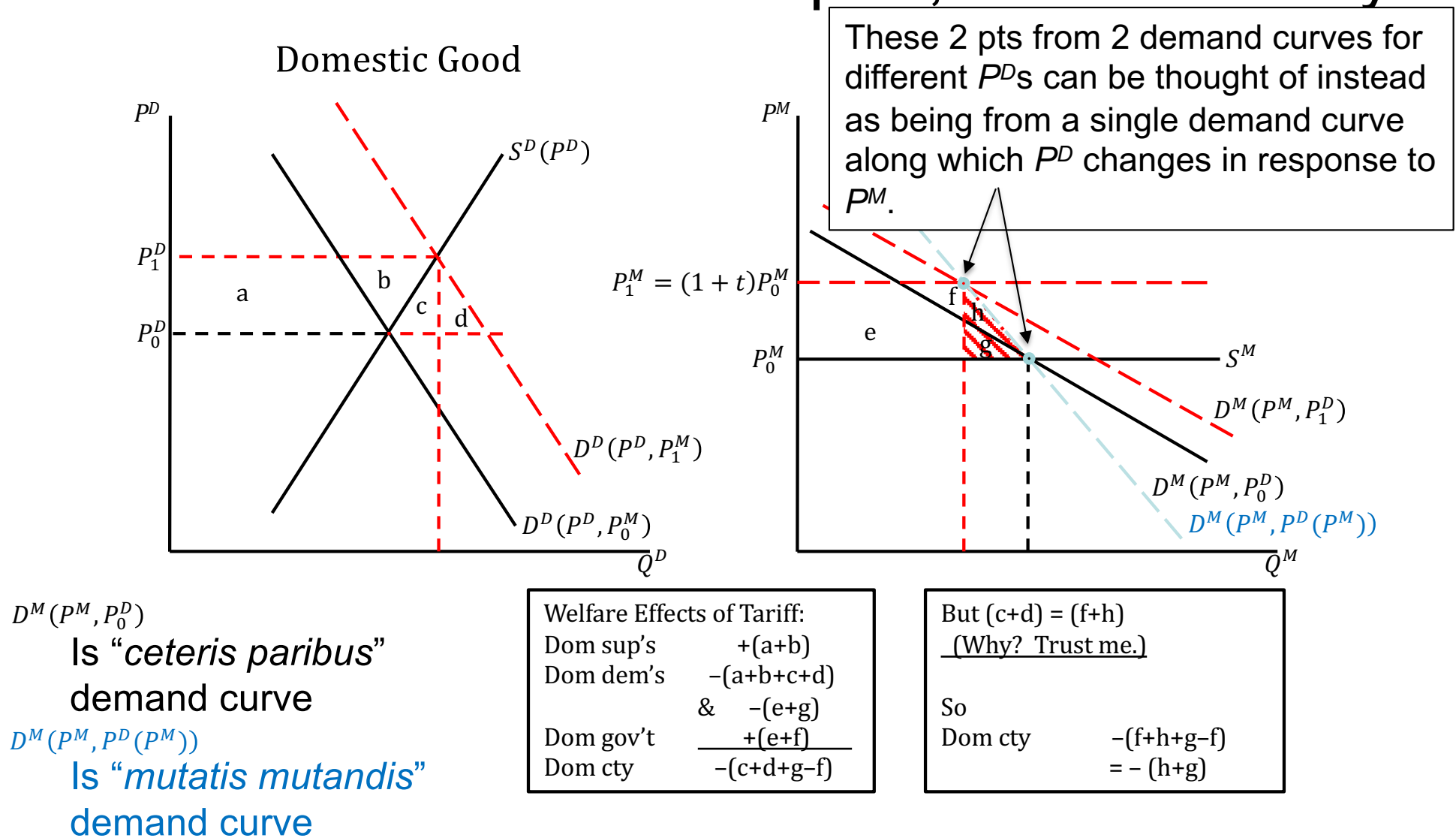


Figure 4

Tariff on Imported Imperfect Substitute for Domestic Good

Note on the Latin

- *Ceteris paribus* =
 - “other things being equal”
 - or here: “other prices being held constant”
- *Mutatis mutandis* =
 - “with things changed that should be changed”
 - or here: “other prices changing in response”

Differentiated-Product Import, Small Country

- Bottom line:
 - You can correctly analyze a tariff on a differentiated import if you
 - Use just the market for it
 - With “*mutatis mutandis*” import demand curve
 - That is, one that does not hold the domestic price constant
 - But rather allows that price to change in response to the change in price of import
 - This will not, however, tell you what happens to
 - Price and quantities of the domestic good

Differentiated-Product Import, Small Country

- What is needed to fully analyze a tariff on a differentiated product
 - “Cross elasticity of demand”
 - The elasticity of demand for the domestic good with respect to the price of the import:
 - The elasticity of demand for the import with respect to the price of the domestic good:

$$\chi^{MD} = \frac{\Delta Q^D}{Q^{D0}} / \frac{\Delta p^M}{p^{M0}}$$

$$\chi^{DM} = \frac{\Delta Q^M}{Q^{M0}} / \frac{\Delta p^D}{p^{D0}}$$

Differentiated-Product Import, Small Country

- Cross elasticities
 - These will both be positive if the goods are substitutes
 - As they will be for differentiated products
 - Larger cross elasticity means closer substitutes
 - They would both be negative if the goods were complements, such as different products that are typically used together (e.g., bread and butter, wine and cheese, cars and gasoline)
 - These are even harder to find out values for than (own) supply and demand elasticities

Pause for Discussion

Questions

- If a country does not produce a good that is identical to something that it imports, does it follow that there would be no interest in levying a tariff on those imports?
- How would the analysis in Figure 4 differ if the imported good were a complement to the domestic good rather than a substitute?

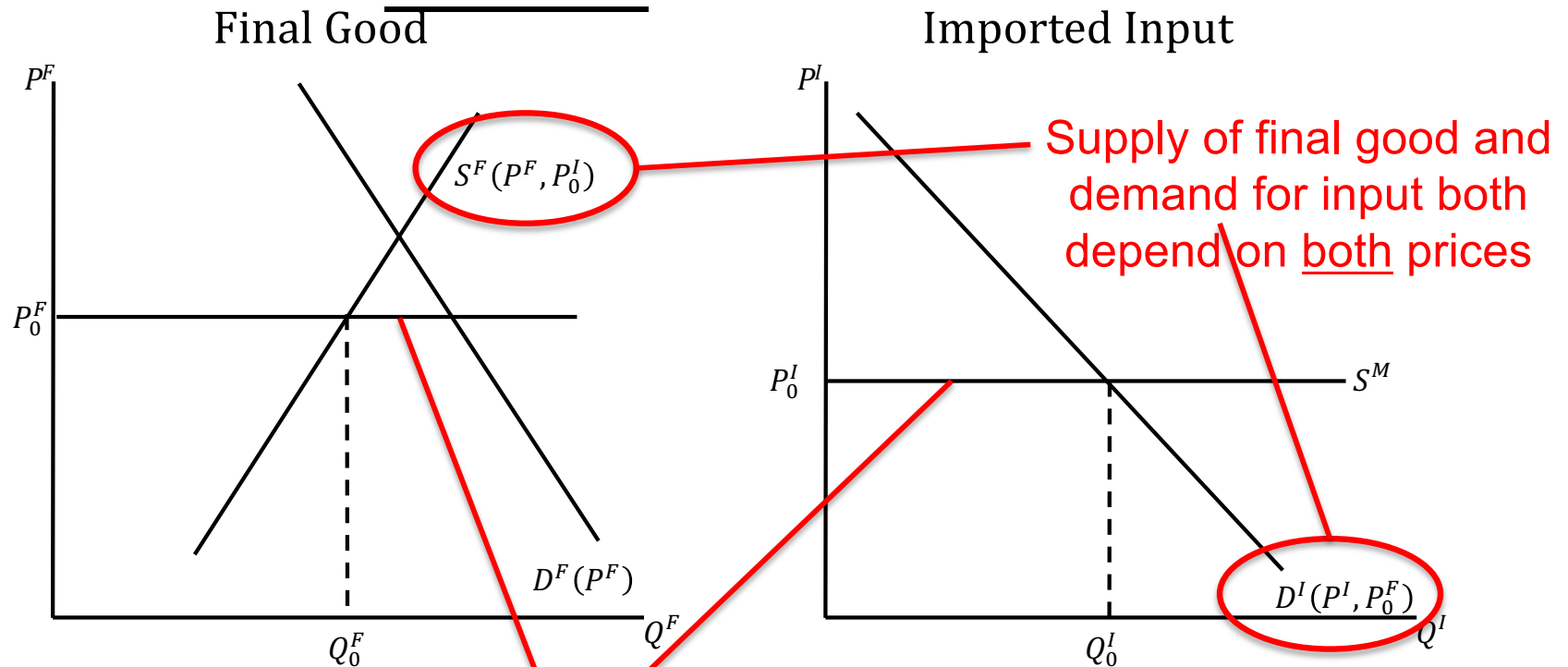
Questions

- How does the effect of a tariff in a small country differ depending on whether the import is identical to the domestic good or it is differentiated?
- With an unchanged tariff in the two-country model with imperfect substitutes, what will happen to prices in the two countries if there is a right-ward shift of
 - Home supply
 - Home demand
 - Foreign demand

Outline

- Large country tariff
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- **Import of Input to Production of Final Good**
- Tariff on Imports from One Country but Not Another

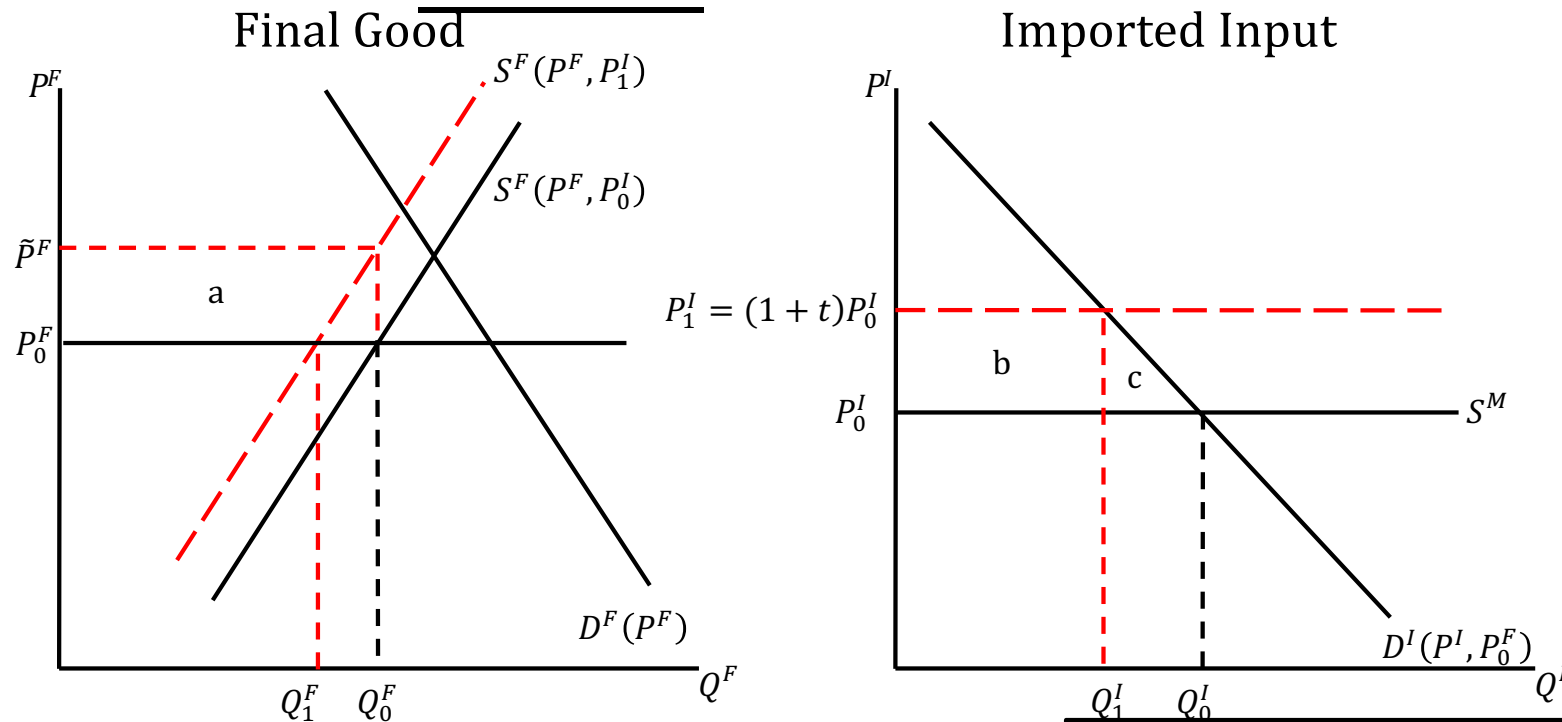
Tariff on Input to Production of Traded Final Good



Note: In this case the position of DF does not matter, since P^F does not change. Final good may be imported or exported.

Figure 5
Tariff on Imported Input to Traded Final Good Production

Tariff on Input to Production of Traded Final Good



Welfare Effects of Input Tariff

- Dom sup's lose $-a = -(b+c)$
- Dom dem's unhurt 0
- Dom gov't +b
- Dom cty -c

Why a?

- S^F shifts up by cost increase.
- If P^F had risen to $\tilde{P}^F$ then suppliers would have been unharmed.
- Their loss from price not rising is area a

Figure 5

Tariff on Imported Input to Traded Final Good Production

Tariff on Input to Production of Non-Traded Final Good

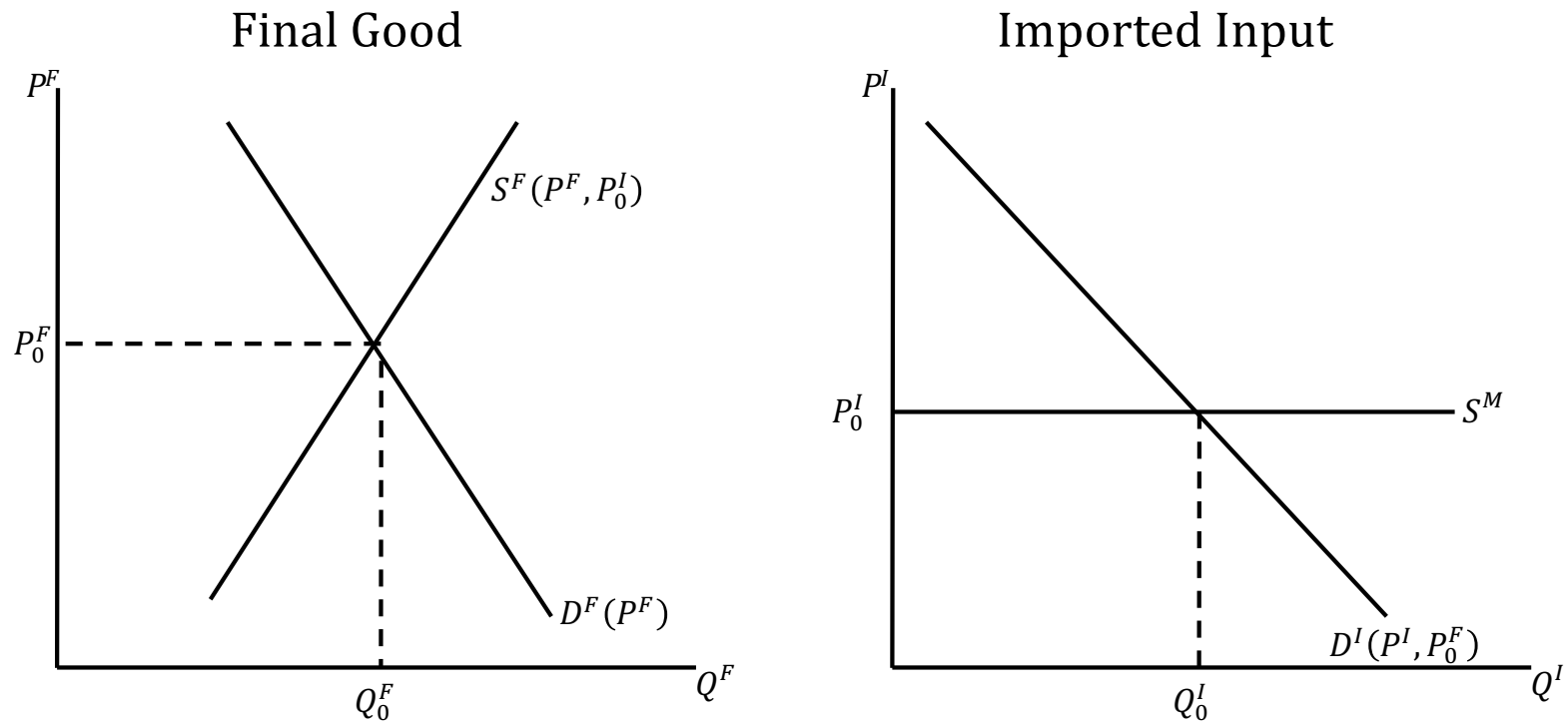


Figure 5

Tariff on Imported Input to Production of Non-traded Final Good

Tariff on Input to Production of Non-Traded Final Good

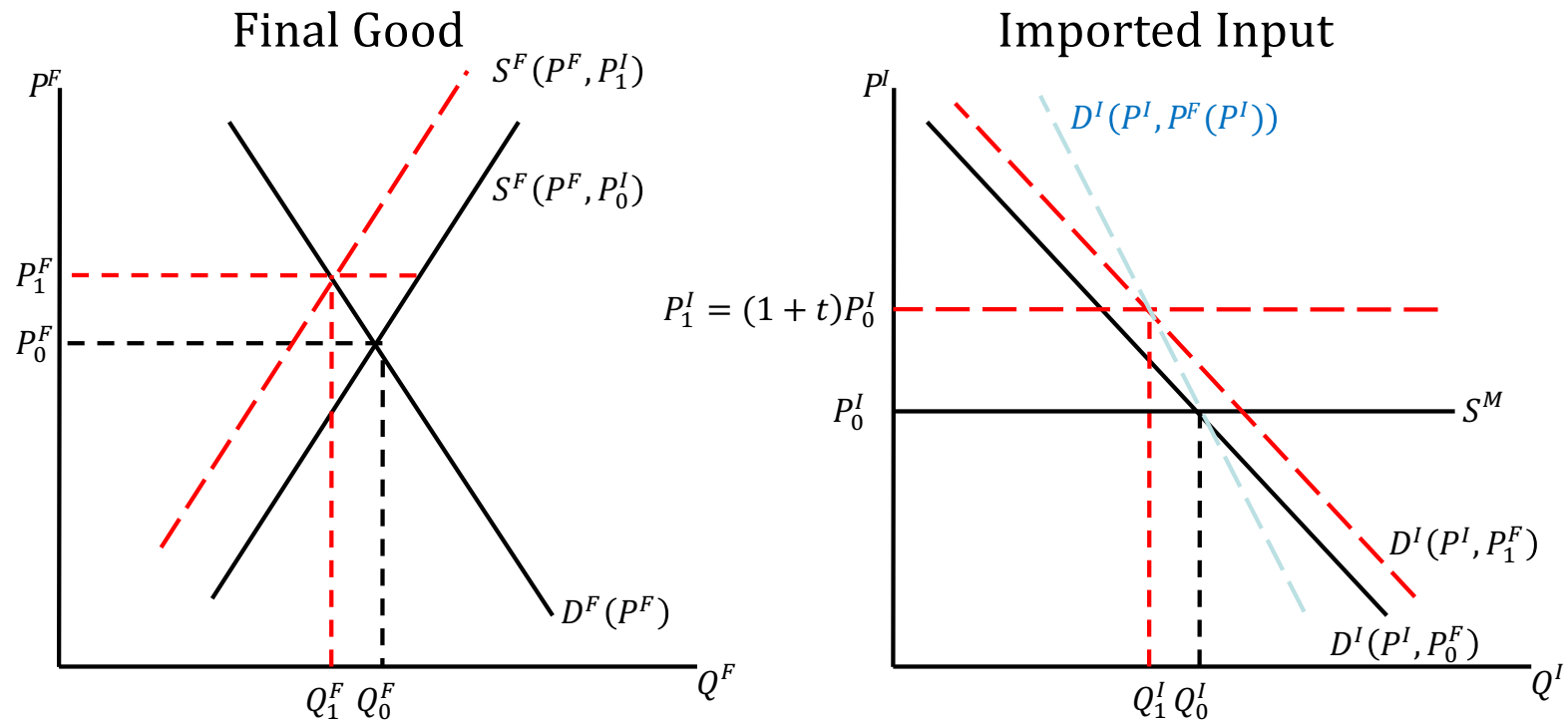
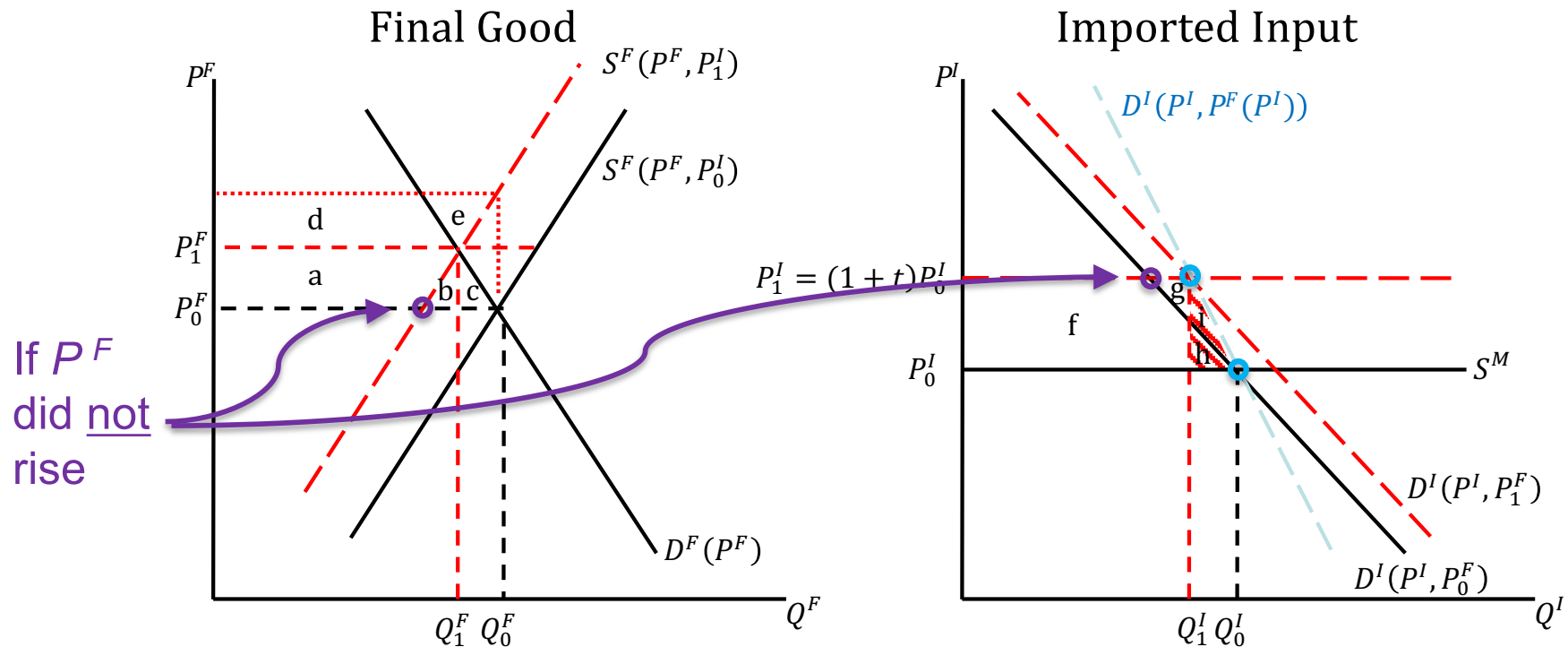


Figure 5

Tariff on Imported Input to Production of Non-traded Final Good

Tariff on Input to Production of Non-Traded Final Good



Welfare Effects of Input Tariff:

Dom sup's	$-(d+e)$
Dom dem's	$-(a+b+c)$
Dom gov't	$+(f+g)$
Dom cty	$-(a+b+c+d+e)+(f+g)$

But $(a+d+e) = (f+h)$

= what suppliers would have lost if P^F had not risen

$$\begin{aligned} \text{So Dom cty} & -(a+b+c+d+e)+(f+g) \\ & = -(b+c) - (f+h) + (f+g) \\ & = -(b+c+h)+g \end{aligned}$$

And $(b+c) = (g+i)$

The extra net loss to the private sector due to price rise from P_0^F to P_1^F

$$\text{So Dom cty} \quad -(i+h)$$

Figure 5

Tariff on Imported Input to Production of Non-traded Final Good

Tariff on Input to Production of Traded or Non-Traded Final Good

- In either case, if we don't need to see the separate effects on domestic suppliers and demanders...
 - The net welfare effect of the tariff can be found from just the import demand curve.
- BUT:
 - If the final good's price will rise with its increase in cost (thus other than the small country traded final good), the import demand curve should be the *mutatis mutandis* one that takes account of that final good price increase.

Pause for Discussion

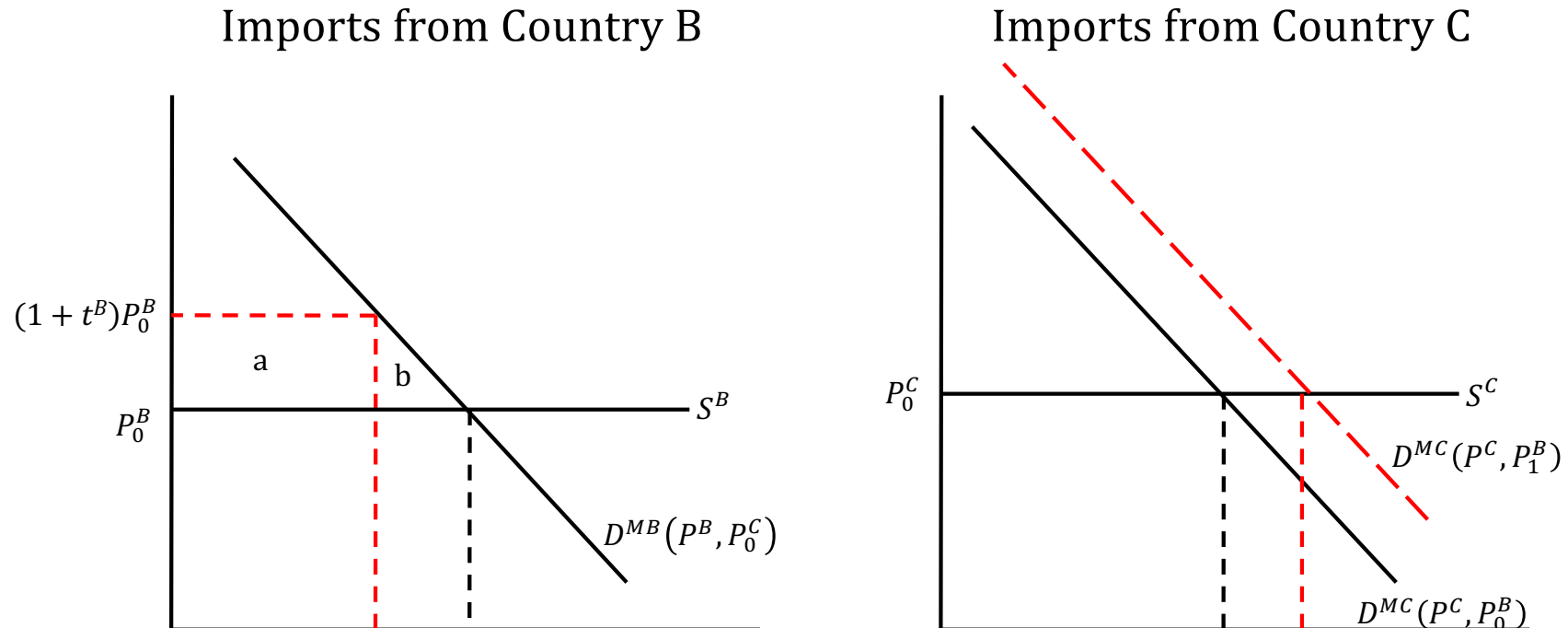
Questions

- What, if anything, does this analysis tell you about the effects of Trump's tariffs on steel and aluminum? Aside from producers of the metals themselves, who is hurt and who is helped?

Outline

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- **Tariff on Imports from One Country but Not Another**

Tariff on One Country but Not Another with foreign countries exporting imperfect substitutes



Effects on Welfare of Country A of Tariff on only B:	
Dom pvt	-(a+b)
Dom gov't	+a
Dom cty	-b

Figure 6
Tariff on imports from only Country B,
imperfect substitute for imports from Country C

Pause for Discussion

Questions

- Trump levied large tariffs on exports from China.
 - Based on this analysis, what would you expect the effects of those tariffs to be
 - On the exports of China?
 - On the exports of other countries?
 - How would it be different if foreign export supply curves were upward sloping?
 - How would it be different if imports from other countries were perfect substitutes?

