Today’s Plan

1. Tariffs, Import Demand, and Export Supply
2. Welfare Consequences of Tariffs

Graphs on slides 5-17 are courtesy of Marc Melitz. Used with permission.
Government can use many tools to affect the equilibrium prices of traded goods and the quantities of the traded good produced and consumed.

Most cases of such interventions involve the restriction of imports, but governments also tax or subsidize exports.

The tools of import restriction are:

1. Tariffs: specific or ad-valorem
2. Quotas or ‘voluntary export restrictions’
3. Regulations: testing, customs, labeling, domestic content requirement
Modeling the Effects of Trade Policy

- In the course so far, we have modeled trade in general equilibrium:
  - Trade affects all sectors in the economy
- Trade policy is most often directed at very specific sectors
- In these cases, it is reasonable to model the effects of trade in partial equilibrium:
  - We assume that the trade policy will have minimal repercussions on economy-wide factor markets and will not induce income effects in consumption
    - Thus, the sector in question must be small relative to the rest of the economy
  - We can then analyze the effects of the trade policy on a particular sector independently from the rest of the economy
    - This involves the standard tools of supply and demand analysis
    - ... which determine the equilibrium prices and outputs for that sector
Import Demand and Export Supply

- **Domestic Market**: Demand (D) and Supply (S)

- **Import Demand**: Demand (MD) and Supply (S)

- **Foreign Market**: Demand (D) and Supply (S)

- **Export Supply**: Supply (XS)
Note how $p_W$ must be in between the 2 autarky prices (which still determine the pattern of comparative advantage)
The Effects of Relative Country Size

- The relative size of the countries will affect the slopes of the import demand and/or export supply curves:

  ![Graphs showing the effect of relative country size on import demand and export supply curves.](image)

- As the relative size difference increases further, we obtain (in the limit) the case of the ‘small’ open economy.
For these economies, we can model domestic supply and demand, along with the exogenous world price.
The Effects of an Import Tariff for a Large Country

- A tariff is just a tax on imports (a specific tariff \( t \) is assumed):

- The tariff will raise the price of a good above its free trade level \((p_W)\)
  - ... and reduce imports
- It also reduces the world trade price: this is the terms of trade effect
  - ... so the price rises by less than the full amount of the tariff
The Effects of an Import Tariff for a Small Country

- The tariff does not affect the world trade price.
- The price will rise by the full amount of the tariff.
Recall that for competitive markets, the demand curve represents the marginal benefit of consumption and the supply curve represents the marginal cost of production.

- **Consumer surplus** represents the net benefit from consumption: \( CS = TB - P \cdot Q \)

- **Producer surplus** represents the variable profits from production (without accounting for the fixed costs): \( PS = P \cdot Q - TVC \)
Welfare Under Free Trade for an Importing Country
Welfare Effects of a Tariff for a Large Importer

The tariff will:

1. Reduce consumer surplus (area 1+2+3+4)
2. Increase producer surplus (area 1)
3. Generate tariff revenue (area 3+5)
4. Resulting in a net welfare gain or loss (area 5-2-4)
Note that the division of the tariff revenue between areas 3 and 5 depends on the terms of trade effect of the tariff:

- For a small country, there are no terms of trade effect, and area 5 disappears.
  - That area captures a welfare gain from the tariff induced by the improvement in the terms of trade.
- ... and the tariff then can only induce welfare losses (area 2+4).
Tariff Distortions and Welfare

- Area 2 always represents a loss to total welfare. What is generating this loss?

- Area 2 represents the domestic production distortion from the tariff.
- Each additional unit of output is produced at a marginal cost above its opportunity cost (the world price $p_W$).
Area 4 always represents a loss to total welfare. What is generating this loss?

Area 4 represents the domestic consumption distortion from the tariff.

The marginal benefit of the foregone units consumption are above their opportunity cost (the world price $p_W$).
Tariffs and Welfare

- For a large economy, what are the net changes in welfare induced by a tariff? i.e. the relative importance of the gain from the terms of trade improvement (lower $p_W$) and the production/consumption distortions

- For small tariffs, the gain from the terms of trade improvement dominates, but not for larger tariffs
- There is an ‘optimal’ tariff level $t^*$
  - The more the foreign export supply to a country is inelastic, the higher the optimal tariff $t^*$
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