Outline

- Trade Policy with IRTS and Imperfect Competition
- Export Rivalry
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  - II: Bertrand Competition
- Cournot Competition: Adding Domestic Consumption
  - Cournot w/o Entry
  - Cournot with Entry
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- Summary
Governments act as agents in support of large domestic firms in the international marketplace.

Imperfectly-competitive firms are "under producing".

Strategic Trade Policy Literature:
A production subsidy or export subsidy may improve welfare.

The resulting literature is full of special cases and models.
This portfolio of special cases may help us to understand the world better, a world in which trade is increasingly dominated by large, multinational firms.
Export Rivalry under Imperfect Competition

- Environment:
  Imperfectly competitive firms with increasing returns to scale.

- Simplest model:
  Three countries. US, EU, and ROW. US and EU each have one firm (e.g., Boeing and Airbus).

- Assume that all output is sold to ROW.
  This assumption is made in order to make domestic welfare in the US and EU equivalent to each firm’s profits. That is, the governments’ strategic objectives are to maximize the profits of the domestic firm.

- I: Consider a Cournot game, in which two firms pick quantities.

- II: Consider a Bertrand game, in which two firms choose prices.
Iso-profit curves in $X_h, X_f$ space:

$\pi_{h3} > \pi_{h2} > \pi_{h1}$

Best-response (or reaction) function of the firm in country $h$:

$RC_h$
Export Rivalry I: Cournot Competition

Figure 20.2

- Cournot Equilibrium: $C$

- Strategic trade policy for the US: Induce a shift in Boeing’s best-response function so that Boeing makes the highest possible profits subject to being on the Airbus best-response function.
What type of policy does this?

We want Boeing to produce more output at each level of Airbus’ output. This can be done via a production subsidy.

Strategic trade policy = US subsidizes the US firm’s output.

Airbus is worse off.

This is known as a profit shifting argument.
Non-cooperative Game:
If both countries do this in a non-cooperative fashion, then the profits of both firms fall and airlines/consumers in the ROW are the beneficiaries.

Ideal Policy:
From the narrow interests of the US and the EU would be to collude to reduce production and raise prices.
Figure 20.3

- Iso-profit curves in $X_h, X_f$ space:
  \[ \pi_{h3} > \pi_{h2} > \pi_{h1} \]
- Best-response (or reaction) function of the firm in country $h$:
  \[ RC_h \]
Export Rivalry II: Betrand Competition

Figure 20.4

- Betrand Equilibrium
- Strategic trade policy:
  Shift Boeing’s iso-profit curve so that it hits the highest profit level subject to being on Airbus’ reaction function.
- What policy does this?
  We want Boeing to charge a higher price for each level of Airbus’ price. The policy to do this is a *tax* not a subsidy.
Bertrand competition is inherently much more competitive than Cournot competition.

In Bertrand, both firms are competing "too much", and the government wants to restrain that competition.

We also then reverse the earlier result, Airbus is helped by the tax, and the ROW purchasers are hurt.
Cournot Competition w/o Entry:
Autarky VS Free Trade

General equilibrium with two goods: Y - CRS, X - IRS
Cournot Competition w/o Entry

Figure 20.5 - Country \( h \)

Figure 20.6 - Country \( f \)
Countries $h$ and $f$ are at (identical) point $A$ respectively: the initial free-trade equilibrium for two countries, each with a monopoly producer of $X$.

Country $h$ imposes a subsidy on its $X$ producer. The subsidy expands production to point $B$. The subsidy forces down the world price of $X$, but country $h$ is still better off, exporting $X$ and consuming at point $D$.

This is a "second best" result: the subsidy counteracts the initial imperfect competition distortion between price and marginal cost.

The passive country $f$ is worse off: its firm reduces production to point $B$ and consumes at point $D$. 
Cournot Competition with Entry

Autarky VS Free Trade

\[ p^* = ac^* \]

\[ p = ac \]

\[ U^* \]

\[ U^a \]

\[ Y \]

\[ Y^0 \]

\[ X \]
Cournot Competition with Entry

Figure 20.7 - Country $h$

Figure 20.8 - Country $f$
Cournot Competition with Entry

- Countries $h$ and $f$ are at (identical) point $A$ respectively: the number of producers in each country is endogenous.

- The subsidy leads the firms in $h$ to expand production. However, the subsidy creates positive profits and leads to new entry.

- Under some special assumptions, in the new equilibrium all expansion of output is due to new firms, none due to expansion of the original firms.

- New production is at point $B$, but the price of $X$ has been driven down. Consumption is at point $D$.

- Country $f$ gains. Essentially, we are back to the results from the competitive case. Country $f$ can specialize in $Y$ and import the subsidized $X$ from country $h$. 
Import Protection as Export Promotion

Strategic Interaction of Import and Export Markets

- Protecting the home market spills over to a competitive advantage in the foreign market.

- First period: protect the home market.
  Home protection shifts foreign best response in.

- Second period: effect spills over into foreign market.
  Increased market share in home market lowers home firm marginal cost in foreign market, raises foreign firm’s marginal cost in its own market.

- This was being done systematically by Japanese firms in the 1980s and 1990s:
  Closing their domestic market to US firms lead to competitive advantages in the US market.
Voluntary Export Restraints as "Facilitating Practices"

- Trade policies can unintentionally facilitate collusion between domestic and foreign firms.

- The best example is a VER, which can restrain competition in the Bertrand (price strategies) case.

- Suppose that a VER quota is imposed at the free trade level of imports, so that it is apparently not binding.

- The home firm now knows that if it raises price, imports will increase and the foreign firm will be in violation of its import quota.

- Thus the foreign firm will have to respond by raising its price. Both firms may end up with higher profits.
Summary

- When a Home firm is competing with a Foreign rival for sales to third markets, the Home government can shift oligopoly rents in favor of the Home firm by a production or export subsidy.
  - This increases Home country welfare if the Home and Foreign firms are Cournot competitors.
  - Home welfare is reduced if the firms are Bertrand competitors.

- Then we added domestic consumption to the basic Cournot model. The traditional argument against production or export subsidies following from a competitive model may be reversed. However, the result is reversed back if there is free entry and exit.

- In some cases, domestic and foreign markets are linked in a way that produces interesting implications for strategic trade policy.
  - Import Protection
  - VER