14.54 International Trade
— Lecture 21: Trade Policy (II)—
Other Policy Instruments

1. Import Tariffs (Cont.)
2. Quotas
3. Export Subsidies

Graphs on slides 8-11, 14, 20, and 21 are courtesy of Marc Melitz. Used with permission.

1. Import Tariffs (Cont.)

'Optimal' Tariff and Market Power

- Optimal import tariff must be such that social marginal benefit of imports (SMB) is equal to its social marginal cost (SMC)
- What is SMB of one extra unit of import?
    - increase consumption by one unit or decrease production by one unit
    - social value of either is measured by domestic price p
- What is SMC of one extra unit of import?
    - it is *not* the world price, p_W, of that unit
    - it is p_W *plus* the impact on inframarginal units, $m\frac{dp_W}{dm} > 0$
- Optimal ad-valorem tariff is such that

$$p = p_W + m\frac{dp_W}{dm} \Leftrightarrow \frac{p - p_W}{p_W} = \frac{1}{\eta}$$

where $\eta \equiv \frac{d \ln m}{d \ln p_w}$ is the foreign supply elasticity.

'Optimal' Tariff: The Evidence

Broda, Limao, and Weinstein (2008)

Figure 3: Median Tariffs and Market Power Across Countries
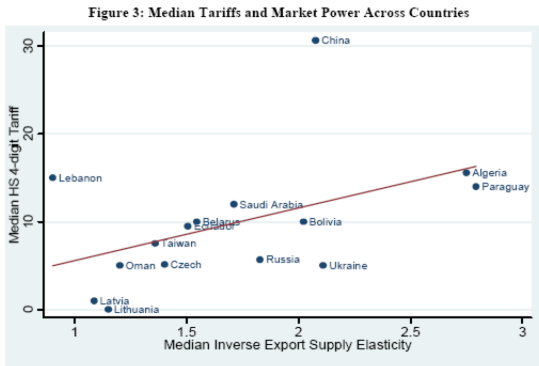
Courtesy of Christian Broda, Nuno Limão, David E. Weinstein and
the American Economic Association. Used with permission.

'Optimal' Tariff and Political Economy Considerations

- Tariff revenue will initially be increasing as t increases beyond t^*
- Also, producer surplus always increases with increases in t (so long as there are still some imports)
- So politicians often have an incentive to set tariffs above t^*
- Note that even the 'optimal' tariff generates global welfare losses:
  - Only source of gain is manipulation of terms of trade (which must reduce welfare to exporting countries)
  - If the exporting countries retaliate with similar tariffs on other goods, then welfare for each country is maximized by eliminating tariffs
  - This is the motivation behind the formation of the GATT (which has become the WTO)

2. Quotas

Quotas and Quantity Restrictions

- A quota is another policy that restricts imports and raises the equilibrium price of a good in the importing country
- Under perfect competition, the effects of a quota are always equivalent to those of a tariff that would induce the same import level
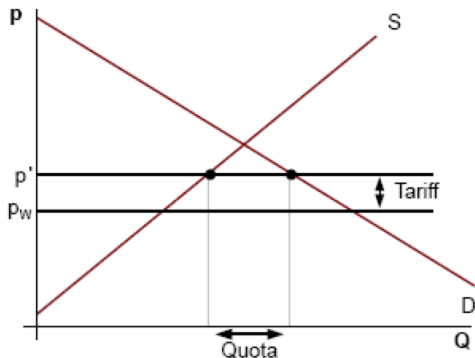
- The quota and tariff have the same effects on the price p', consumer surplus, and producer surplus

Quota and Tariff Equivalence
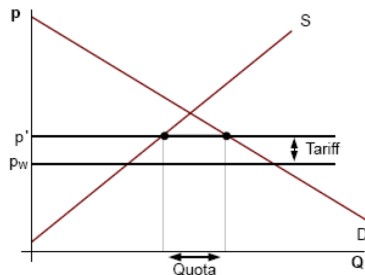
- Only difference between quota and tariff: collection of revenue generated by higher prices under the quota
- In some cases, the importing government auctions the rights to the quota to a domestic firm
- In other cases, the imposition of the quota is left up to the exporting country's government (Voluntary Export Restraint)
  - Why would the importing government forego this additional source of revenue?

- If domestic producers have market power, then a quota will give those producers more market power than the 'equivalent' tariff
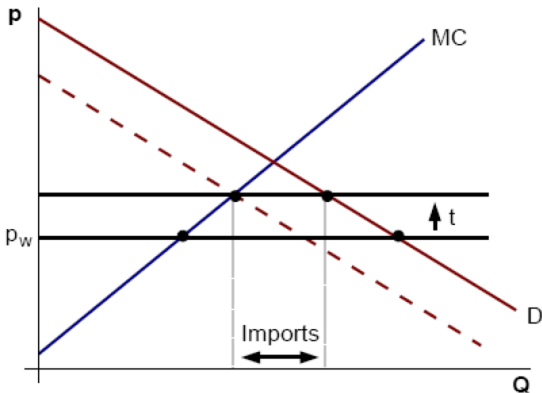

- With market power, a quota will lead to higher prices, lower consumer surplus, and lower welfare than the 'equivalent' tariff

Example: US Sugar Quota

- Background:
  - US guarantees sugar producers a 'break even' price on sugar production
    - (The USDA will buy any amount of sugar at this price)
  - Even at this price, domestic demand exceeds domestic supply of sugar, so the US imports sugar
  - In order to maintain this higher price (so the USDA does not stockpile vasts amounts of sugar), the US imposes a sugar quota (1.4M tons)
  - In order to make the quota politically viable, the US lets foreign governments administer the quota and retain the quota rents
  - Over the past 35 years, this higher price has been about twice as large as world market price of sugar
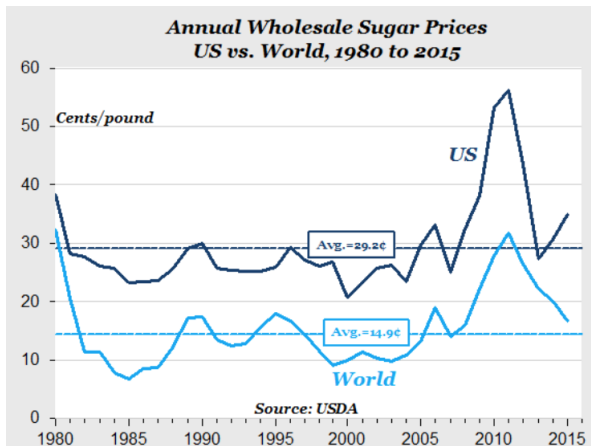
Annual Wholesale Sugar Prices
US vs. World, 1980 to 2015

US Sugar Quota: Welfare Effects in 2002
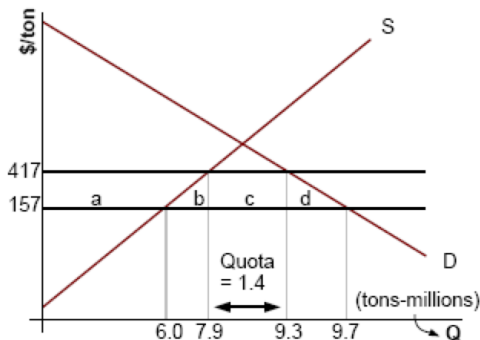
- CS loss (a+b+c+d): M$ 2,468   PS gain (a): M$ 1,806
- Distortion in: Production (b): M$ 247   Consumption (d): M$ 52
- Quota rents (c): $M 364   Net surplus loss (b+c+d): $M 662
- Consumption is distortion is relatively small
- Main part of social welfare loss is due to loss of quota rents
- Main effect of the quota is a redistribution of welfare from consumers

Political Economy of US Sugar Quota

- US sugar industry employs 12,000-38,000 workers
- PS gains represent $20,000-$90,000 per worker
- On average, each US consumer pays an extra $8 (per year) from the higher US sugar price ($30 per family)
- The quota does increase employment in the sugar industry: employment would be 20%-35% lower without quota
- The cost of the quota to consumers is $200,000-$500,000 per job saved

Political Economy of US Sugar Quota (Cont.)

- The US sugar industry is very concentrated geographically (Florida) and very well organized
- Political contributions also don't hurt:
  - US sugar sales $\equiv$ 1% of US farm receipts and .5% of employment
  - US sugar lobby contributions represent 17% of campaign contributions (1990-2004) from agricultural sector
- The Fanjul brothers who own Flo-Sun (the biggest US sugar cane growing and refining company) gave $1M in political contributions in each of the 2000 and 2004 election cycles
- In 1996, a congressional amendment was introduced to phase out the US sugar quota
  - The amendment was defeated by 217-209 in the house of representatives
  - Five co-sponsors of the bill 'switched' their support against their own amendment in the final vote
  - Within days of the vote, each received an average of $11,000 from the US sugar lobby

What's New?

- Agreement about Trans-Pacific Partnership (TPP) was reached on October 5, 2015
- Agricultural tariff cuts across the board, but U.S. sugar quota remains
- U.S. agreed to raise Australia's sugar exports by 65,000 tonnes
- In 2013-2014, U.S. sugar consumption was 11,000,000 tonnes...

3. Export Subsidies

Export Subsidies

- An export subsidy (amount s paid per-unit exported) will raise the domestic price of the good relative to the world market price: $p' = p'_W + s$
- Re-imports of the same good must therefore be prohibited (often, an offsetting tariff is used)

Export Subsidy in a Small Open Economy
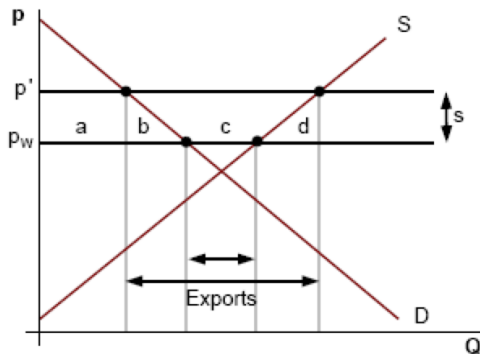
- The subsidy will:
  1. Reduce consumer surplus (area a+b)
  2. Increase producer surplus (area a+b+c)
  3. Require a subsidy revenue (area b+c+d)
  4. Resulting in a net welfare loss (area b+d) –the production and consumption distortion

Export Subsidy in a Large Economy

- If a country is large enough, then the export subsidy will also generate a terms of trade deterioration
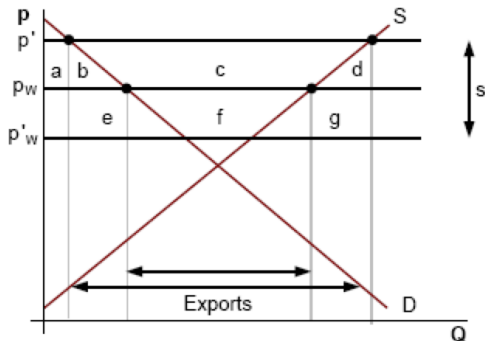
- Generating further welfare losses
  - The subsidy payment increases by area $e+f+g$

Example of Export Subsidy: The EU 'Common Agricultural Program' (CAP)

- This policy was not originally intended to be an export subsidy
- The policy started as a price control to insulate farmers from price fluctuations
- Over time, the political power of the agriculture sector grew, and the controlled prices did not decrease with productivity gains
- Starting in the 1970s, the surpluses generated by the price controls started to grow
  - By 1985, the EU had stockpiled 780,000 tons of beef; 1.2M tons of butter, and 12M tons of wheat
- The EU then started selling these stockpiles on world markets – generating an implicit export subsidy

The EU Common Agricultural Program

Figure 8-12 from *International Economics* removed due to copyright restrictions.

- Given the current pattern of comparative advantage, the EU should be a net importer of most agricultural products at current world prices
- The CAP also generates further decreases in the world price of many agricultural products

The EU Common Agricultural Program: Some Numbers

- New Zealand recently starting phasing our agricultural subsidies and price controls
- Relative to New Zealand the EU prices for agricultural products are
  - 70% higher for milk
  - 94% higher for sugar
  - 221% higher for beef

The US Farm Policy

- 1996 farm bill support: $100 billion
- 2002 farm bill support: $200 billion
- Farm bill in 1996 cut direct subsidies and moved to direct payment of farmers
- Farm bill in 2002 vastly increased direct subsidies and introduced new subsidies to the production of
  - Honey, wool, and mohair (which were eliminated in 1996)
- 3/4 of the subsidies goes to 10% of US farms
- US political contributions from agribusiness:
  - $37 million in 1992
  - $53 million in 2002

Rationales for Export Subsidies

- Political economy: political influence of producers
- Strategic interactions between large exporting firms from different countries
- Production externalities
  - Production in some sectors is inefficiently low if the social benefit of production is above the private benefit
  - If the good in question is imported, then a tariff (or quota) on competing goods can be used to boost domestic production
  - If the good is exported, then an export subsidy can be used to boost domestic production
  - In both cases, a production subsidy would be more efficient –but this requires higher levels of government revenues

14.54 International Trade
Fall 2016