

SPECIFIC FACTORS MODEL

- Effects of immobile factors
(especially relevant in short-run)
- Conflict between sectors
(e.g. agriculture versus industry)
- Continue to use Neo-classical model –
basis for trade is still differences in
endowments.
- Main Prediction:
 - Different **sectors** affected differently
by trade (not just K vs. L)
 - Politics: We see industry lobby
groups

Why is this important?

In the short run, it is unrealistic to assume factors perfectly mobile between sectors.

Example: In US today there is rising demand for doctors i.e wages for doctors much higher than wages in other sectors. As an economics major, you CANNOT enter the medical sector immediately in response to the higher wages. But you can become a doctor in 5 years. So your skill set is not perfectly transferable between the economics profession and the medical profession in the short run.

In the long-run however, factors can be considered fully mobile => we are in HO model.

Thus, SF Model is short-run version of HO model.

Assumptions

Two sectors: food (F) and clothing (C)

Goods produced with:

one mobile factor - labor (L)

one factor used only in C - capital (K)

one factor used only in F – land (S)

Fixed endowments of L, K, and S

-endowments differ between countries

Owner of K owns the C sector

and

Owner of S owns the F sector

Perfect competition

implies price equals cost

Notation

S_A endowment of land in A

for country B, replace A's with B's

What's Different from HOM?

- K locked into employment in sector C and S locked into employment in sector F!!
- Means that when sector C gains (eg., through trade), real income for K will rise – industry C will lobby for trade (vice versa if sector C loses with trade)
- When will sector C gain from trade?
 - Use lessons from HOM
 - Price of C (and profits in C sector) rise if C is **exported**.
- When will C be exported?
 - When country A has a comparative advantage in producing C

Comparative Advantage in SFM

- **Ricardo:** Comparative advantage in C when A has relatively better technology to produce C (compared to B)
- **HOM:** Comparative advantage in C when A has relatively more of the factor needed intensively to produce C.
- **SFM:** Comparative advantage in C when A has more of the factor needed specifically to produce C!!!

Main Predictions

- Country exports the good which uses the more abundant **specific** factor (example: C in country A)
- Exports of C => production of C (in A) will rise
 - Labor (mobile factor) gets pulled out of F sector, into C
 - How to attract labor? Wages rise in both sectors
- Exports of C => Price of C rises with trade
 - Profits of C sector rise
 - **Real** profits on C sector rise!
 - Nominal and real profits in F fall
 - Real wages fall into C, rise in terms of F
- Upshot:
 - C sector (software in USA) lobbies for trade, F sector (steel in USA) lobbies against trade.
(*Why?*)
 - Labor unions in USA: ambivalent, could go either way

Intra-Industry Trade Model

- Ricardo, HOM, SFM explain trade between countries with
 - Different technologies
 - Different endowments
- Then why do US and EU trade?
- Why export and import the same good?
 - Export Mustangs, import BMWs
 - Export California wine, import French wine
- Relax an important assumption: constant or increasing cost of production
- What happens with decreasing costs?

Decreasing costs?

- Define: costs per unit falls as production rises
- Nomenclature:
 - Decreasing costs
 - Increasing returns to scale
 - Economies of scale
- Internal Economies: cost per unit falls as firm's production rises
 - Industries with high set up costs
 - Learning-by-doing
- External economies: cost per unit falls as industry's production rises
 - Silicon valley firms take advantage of availability of skills and technology
 - Bargaining power to get better infrastructure

What happens with Decreasing costs?

- Tremendous pressure to completely specialize!! This irrespective of endowments or technology =>

Under decreasing costs even US and EU (identical countries) might trade with each other!!

- Upshot: Each country completely specializes and exports 1 good, imports the other
- Do we see this in real life? No!
- Still unanswered: why export and import same good?

Reconcile fact and theory: Bring in the consumers!

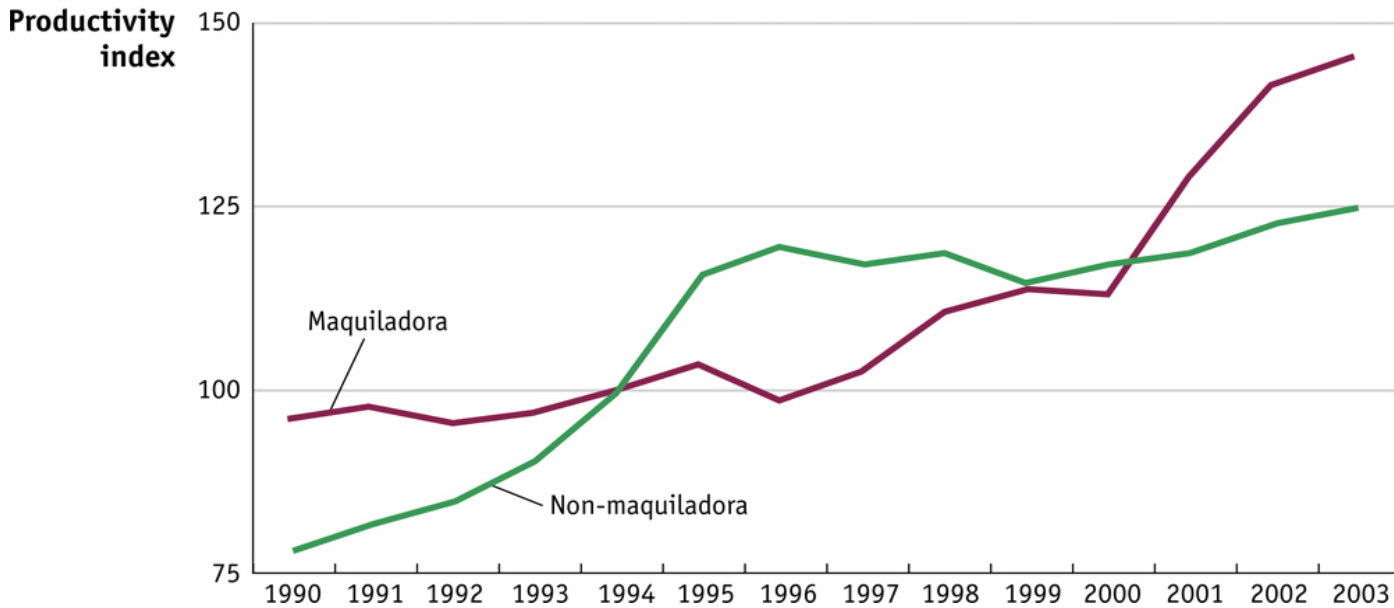
- Love of variety: consumers get happiness through quantity *and* variety of products
 - Differentiated products like cars, toothpaste, cereal etc
 - Break from perfect competition
- Upshot: Different countries specialize in different varieties of the same basic product
 - Decreasing costs => US completely specializes in Mustangs, Germany in BMWs
 - But consumers in US(Germany) want BMWs(Mustangs) as well!
- Explain all features of the real world
 - Identical countries trade
 - Intra-industry trade
 - Incomplete specialization
 - Many varieties of same good

- Predictions
 - Rise in productivity of surviving firms (due to IRS)
 - Rise in productivity => fall in prices, rise in real wages
 - Welfare gain due to Rise in varieties available for consumption
 - Intra-industry trade
 - Large countries will trade more with each other
 - Larger size => more varieties produced and exported
 - Larger size => more demand for varieties too
 - We will look at evidence from Mexico, Canada, and the US under the North American Free Trade Agreement (NAFTA)

- Gains and Adjustment Costs for Canada
 - Studies in Canada as early as the 1960's predicted substantial gains from free trade with the US
 - Firms would expand their scale of operations to service the larger market and lower their costs
- In the long run, large positive effects on productivity were found
 - 15% over eight years in industries most affected by tariff cuts—compound growth of 1.9%/year
 - 6% for manufacturing overall—compound growth of 0.7%/year
 - The difference of 1.2%/year is an estimate of how free trade with the US affected the Canadian industries over and above the impact on other industries

- Productivity in Mexico
 - Panel A in Figure 6.8 shows the productivity over time for two types of manufacturing firms
 - Maquiladora plants—close to the border and produce almost exclusively for export to the US
 - Non-Maquiladora plants
 - Maquiladora plants should be most affected by NAFTA
- Impact on Wage
 - Not much increase in real wages
 - Some due to exchange rate stuff & US economy
 - Other due to imperfect labor-market in Mexico?

(a) Labor Productivity in Mexican Manufacturing Plants



Maquiladora plants, productivity growth = 45% from 1994 to 2003—compound growth rate of 4.1%/year

Non-maquiladora plants, productivity growth = 25%—compound growth rate of 2.5%/year

The difference, 1.6%/year, is an estimate of the impact of NAFTA on the productivity of maquiladora plants over and above the increase in productivity that occurred in the rest of Mexico

- Adjustment Costs in Mexico
 - Agriculture main concern
 - Tariff reductions in agriculture were phased over 15 years
 - The evidence to date shows the corn farmers did not suffer as much as was feared. Why?
 - The poorest farmers consume the corn they grow, not sell it
 - Mexican government subsidies
 - Current Concerns:
 - Competition from Asia (despite distance advantage)
 - Bio-diversity
 - Ethanol

- Gains and Adjustment Costs for the US
 - Use rise in welfare due to availability of more varieties
 - Def: # of types of goods Mexico sells to US/Total # of types US imports from all countries
 - 42% to 51% rise in 11 years - BIG number
 - Interpretation:
 - Impact on consumer welfare of rise in variety = 1.2% decline in tariffs!
 - Worth \$5.5 billion per year.....and growing!

- Adjustment Costs in the US
 - Firms exit the market due to import competition => temporary unemployment
 - From 1994–2002,
 - Job loss = 58,000 per year
 - 13% of displacement in US manufacturing – significant number
 - Lost wages = \$5.4 billion per year
 - Upshot: As of now, gains = losses from NAFTA
 - But gains from variety grow over time!

- Prediction: Intra-industry trade between identical countries
- “Identical” wrt technology and resources
- Measure:

$$\text{Index} = \text{Min}(M, X) / (M + X) * .5$$

- Index = 100% => equal amounts of product imported and exported
- Ex: cars, whiskey
- Index=0% => product either imported or exported
- Ex: Apples

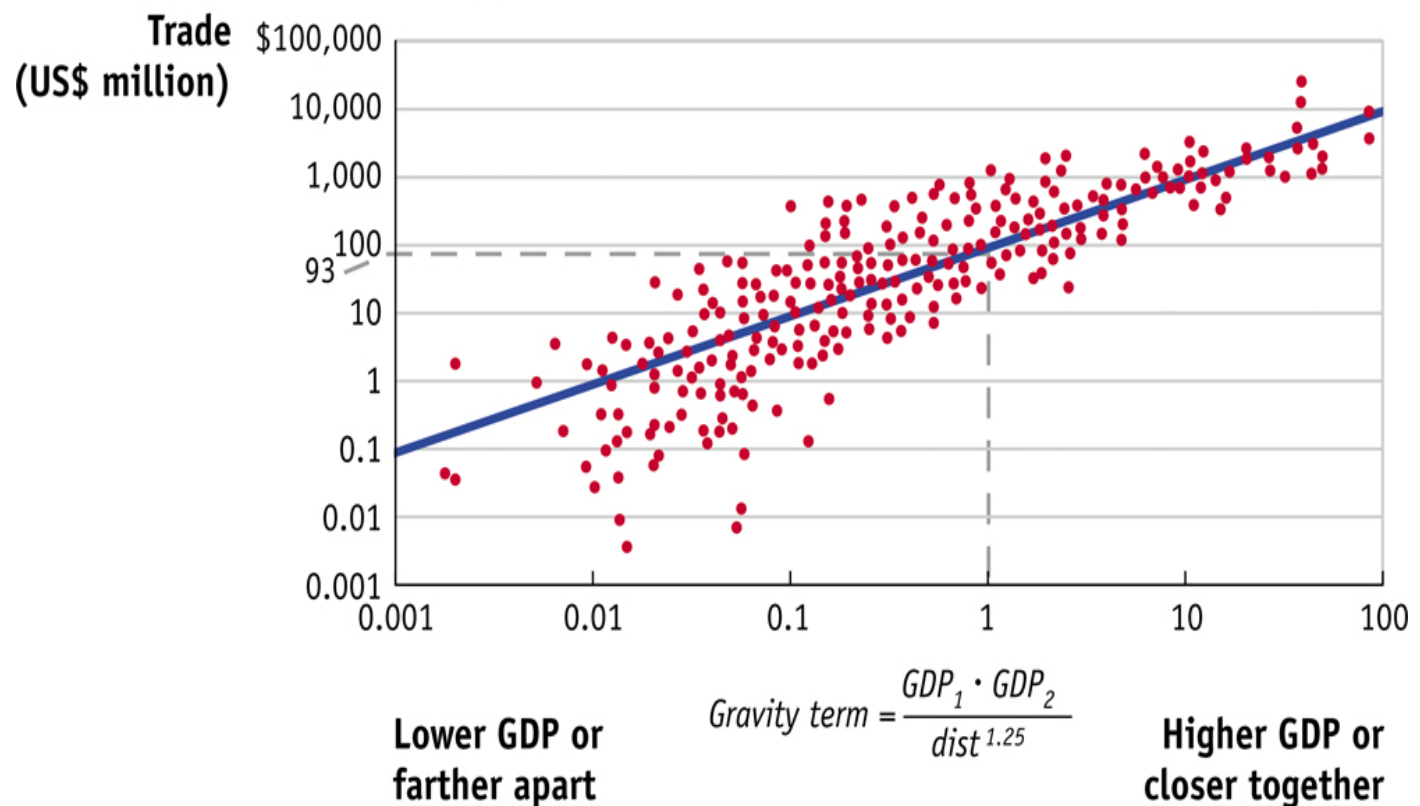
- Prediction: large countries trade more with each other
- Gravity model:
 - Objects with larger mass or those that are close together have greater gravitational pull between them
 - The gravity equation for trade states that countries with larger GDPs or that are close to each other will have more trade between them

$$Trade = B \frac{GDP_1 GDP_2}{dist^n}$$

B=the effects of all factors, other than distance and size, that influence the amount of trade between two countries

- **Strong Positive Correlation!**
 - B=93 => When the gravity term equals 1, then the predicted amount of trade between that state and province is \$93 million

(a) Trade between U.S. States and Canadian Provinces



- Border Puzzle!
- $B=1300$ for trade between Canadian provinces!
 - When gravity term is 1, the predicted amount of trade is \$1.3 billion
- Why this difference? Why do borders matter?
- Border effects:
 - Tariffs
 - Quotas
 - Other administrative rules and regulations
 - Geographic factors
 - Cultural factors