Chapter 6

Trade between similar countries

International Economics

- How can we explain that most trade occurs between rich countries, i.e., countries with similar factor endowments and technologies?
- Need for a new theory.
- IRS and monopolistic competition

Trade between similar countries

- Assume:
  - IRS
  - Differentiated goods
  - Consumer preferences for variety
- There are trade gains between similar countries:
  - Lower prices due to higher productivity (scale economies)
  - More variety
- **Remark:** The industry's long-run equil. requires:
  1. Zero-profit (due to free access)
  2. Each firm is profit maximizing (Nash Equil.)

IRS and Monopolistic Competition

- 1989: Canada and USA sign a FTA.
- 1994: Mexico joins in (NAFTA)
- What did studies show in terms of effects of FTA 15 years later?
- **Remark:** Negotiations on FTAs are influenced by "new trade theory" ideas on the effects of FT.

The effects of NAFTA

Trefler AER 2004

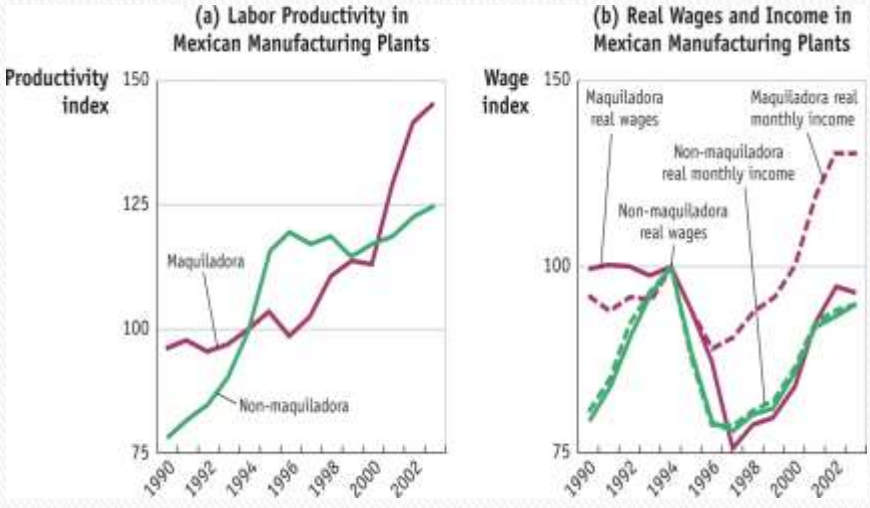
Effects on Canada

- SR costs: 100 000 manufacturing jobs were lost between 1988 and 1996 (5% of manuf jobs).
- No LR job losses.
- 15% productivity gains (over 8 years) among industries most affected by tariff cuts, i.e., those most protected before. Consistent with monopolistic comp model.
- Productivity growth among "hardly" protected industries was just 6%.
- Coincidence with slight rise in worker real earnings.

NAFTA and Canada

- Study published in 2005. (fig next slide)
- **Maquiladora:** Plants located close to border with USA and produce for exports to the USA.
- Productivity increase in maquiladora estimated at 45% over 1994-2003. (Panel a)
- Increase in non-maquiladora is 25%.
- Consistent with Monopolistic competition model.

NAFTA and Mexico



LR effects

- Effect on wages is harder to isolate because confounded by Peso crisis in 1994.
- Estimates show that in the LR, real wages stayed relatively constant for workers.
- Mexican workers did not seem to gain much from NAFTA.
- But real monthly income did increase. This suggests that higher wage workers (skilled) did gain from NAFTA.
  - NB Wages concern only production workers. Incomes refer to all workers, including managers and engineers.

NAFTA and Mexico

SR effects

- Due to worries about disrupting effects on agricultural sector, agri-goods tariff reductions were phased in over 15 years.
- Contrary to expectations, corn production in Mexico actually increased.
- In manufacturing sector, maquiladora employment increased rapidly between 1994 and 2000.
- Employment fell afterwards, attributed to USA recession and increased competition from China.
- There is suggestion that trade increases volatility in production and employment.

NAFTA and Mexico ›

- For USA, no estimates of productivity gains.
- But estimates of gains from product variety and SR costs of NAFTA.

NAFTA and the USA ›

Product variety

- Estimated changes in Mexico's export variety to the USA.
- Ex of interpretation:
  - In 1990, of all agri good varieties imported by the USA, Mexico also took part in 42% of variety. (NB Not about quantities.)
  - By 2001, this percent increased to 51%.
- Table suggests that NAFTA did increase significantly variety offered in the USA.
- NB We don't have the counterfactual.

NAFTA and the USA

	Agriculture	Textiles and Garments	Wood and Paper	Petroleum and Plastics	Mining and Metals	Machinery and Transport	Electronics	Average
1990	42%	71%	47%	55%	47%	66%	40%	52%
2001	51	83	63	73	56	76	66	67
Annual growth	1.9	1.4	2.6	2.5	1.7	1.3	4.6	2.2

SR costs

» Numbers from Trade Adjustment Assistance (TAA) program: Between 1994 and 2002, 58 000 workers per year lost their jobs or were adversely affected by NAFTA (13% of all manufacturing worker displacement).

» **Remark:** The above are temporary losses. Variety gains are permanent. This is similar to technological progress.

NAFTA and the USA ›

» It would be interesting to determine whether trade in an industry is based on the traditional trade models or the new ones.

» An index of intra-industry trade was developed:

$$(\text{index of intra-industry trade}) = \frac{\text{Minimum of imports and exports}}{\frac{1}{2}(\text{Imports} + \text{exports})}$$

» A low value corresponds to a good that is mostly imported or exported, but not both. This suggests a traditional motive for trade.

» A high value means that imports and exports are of similar importance, which suggests the "new" motive for trade.

An index of Intra-industry trade ›

Product	Value of Imports ($ millions)	Value of Export ($ millions)	Index of Intra-Industry Trade (%)
Golf clubs	284	226	89
Vaccines	2,027	2,763	85
Whiskey	1,166	752	78
Mattresses	133	48	53
Golf carts	29	86	50
Small cars	40,527	11,778	45
Natural gas	12,391	2,790	37
Sunglasses	848	184	36
Frozen orange juice	3	17	33
Apples	139	752	31
Large-passenger aircraft	4,955	31,322	27
Telephones	761	71	17
Men's shorts	542	9	3

- Vaccines and whiskey are clearly instances of new trade theory. Indeed they are very differentiated products and are produced with similar techniques and costs.
- OJ and natural gas are rather homogeneous goods. Hence the low index value.
- Telephones are differentiated goods. What is going on?

Phones can be produced more cheaply in other countries.

An index of Intra-industry trade

» Newton's law of gravitation:

$$F_g = G \cdot \frac{M_1 = M_2}{d^2}$$

The gravity equation ›

» A trade gravity equation:

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

» B can be interpreted as "all other factors" that also influence trade.

» Larger countries export more because they produce more varieties.

» Larger countries import more because their demand is higher.

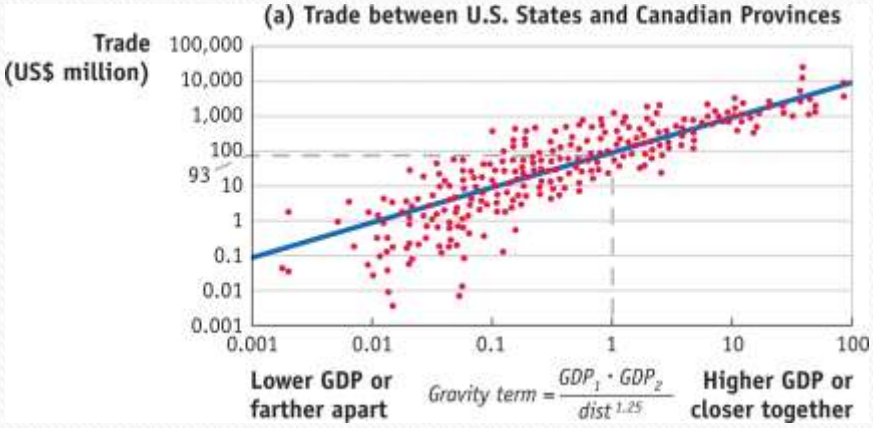
The gravity equation ›

» Results from an application of the gravity equation to trade between Canadian provinces and USA states.

$$\text{Gravity term} = \frac{GDP_1 \cdot GDP_2}{dist^{1.25}}$$

» Figures report 1993 exports between a USA state and a Canadian province, or conversely.

Gravity between Canada and the USA



» The best-fit line is:

$$\text{Trade} = 93\frac{GDP_1 \cdot GDP_2}{dist^{1.25}}$$

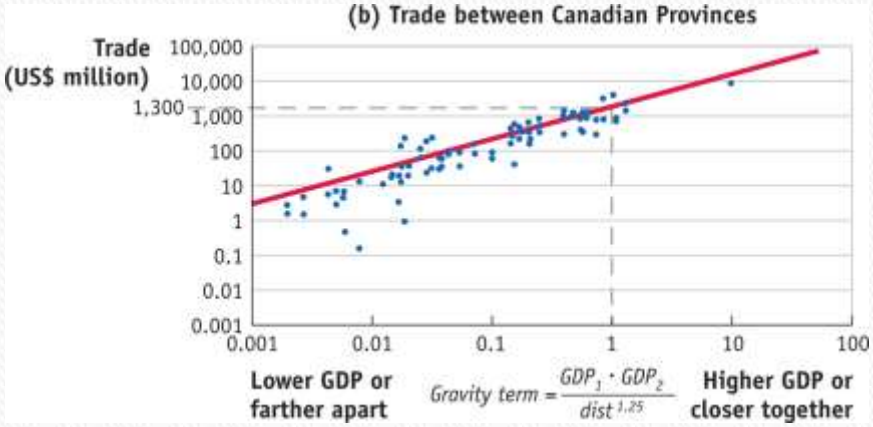
» Ex: Alberta and New Jersey have a gravity term approx equal to 1 and Alberta actually exports $94 million to NJ.

Gravity between Canada and the USA

» Same study applied to trade between Canadian provinces yields best fit:

$$\text{Trade} = 1{,}300\frac{GDP_1 \cdot GDP_2}{dist^{1.25}}$$

Gravity between Canadian provinces



- Alberta and BC have a gravity term of 1.3 and BC exported $1 400 millions to Alberta.
- Parameter B is much larger between Canadian provinces than USA states and Canadian provinces.

Why?

Border effects

- Trade between Canadian provinces is 1300/93=14 times more important.

Gravity between Canadian provinces

Border effects

- Tariffs
- Quotas
- Regulations, administrative rules, laws
- Common border
- Culture and language
- Common currency?