

Modeling the International Trade Order: Absolute and Relative Gains

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Absolute/Relative Gains

- Absolute gains
gains in absolute terms
 - Relative gains
gains in comparison to the others
- e.g. “Which scenario of economic growth would you prefer?” (Reich 1990)
A: U.S. 25% Japan 75%
B: U.S. 10% Japan 10.5%

Absolute/Relative Gains

Neoliberalists

- Homo Economics: Absolute-gains-minded states
- Measure gains only in absolute terms.
cooperation possible. (ex. Keohane 1984)
open world trade order?

Neorealists

- Homo Politics? Relative-gains-minded states
- Do not agree if the agreement is more favorable to the opponents, even if it benefits everyone.
difficulty in cooperation. (ex. Grieco 1990)
mercantilism? protectionism?

The Purposes

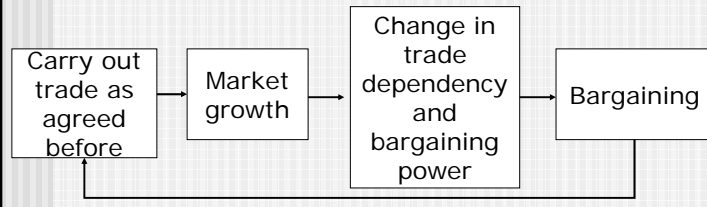
- To see what happens if states with absolute and relative gains bargain and trade each other.

Do the created orders fit the prediction of IR theories?

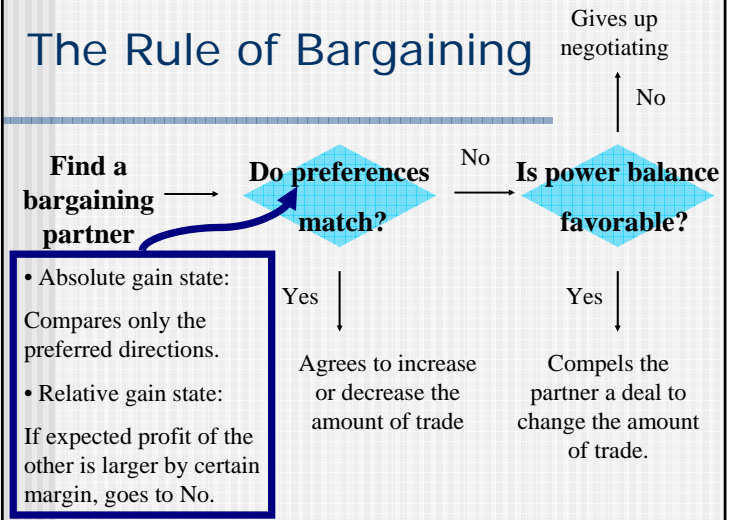
Do the created orders resemble the real world trade order?

Basic Features of the Model

- Agents: 20 states which have markets.
- States engage in trade.
- The amount of trade is determined by interstate bargaining.
- Preference and power are functions of trade dependency and market size



The Rule of Bargaining

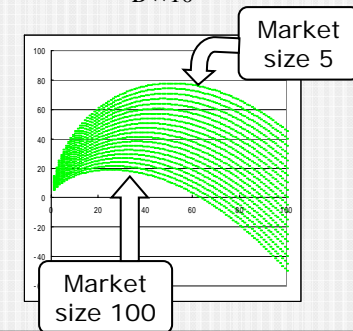
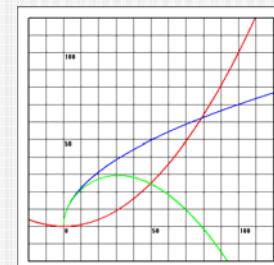


Cost/Benefit Calculation

- Benefits of trade
 - *Positive correlation with trade dependency
 - *Marginal benefit decreases
 - *The smaller the market size, the larger the benefit becomes
- Costs of trade
 - *Positive correlation with trade dependency
 - *Marginal cost increases
- Total Profit
 - *Convex: the apex represents the most preferred dependency.

Cost/Benefit Calculation II

$$PROFIT = A\sqrt{DEPENDENCY} - \frac{(DEPENDENCY)^2}{B \times 10}$$



Bargaining Power Calculation

- Advantage
 - * The larger the market, the more advantageous the state will become.
- Disadvantage
 - * The more dependent the state is, the weaker it will become.

$$POWER = C(SIZE) - D(DEPENDENCY)$$

The Experiments

- Distributions of market size
 - RANDOM: random sizes between 1-100
 - UNIFORM: 5, 10, 15...100
 - HEGEMONY: one-polar system of 1970
- Recognitions of interests
 - ABSOLUTE: all states are absolute-gains-minded
 - HALF & HALF: each state has 50% chance of being relative-gains-minded
 - RELATIVE: all states are relative-gains-minded

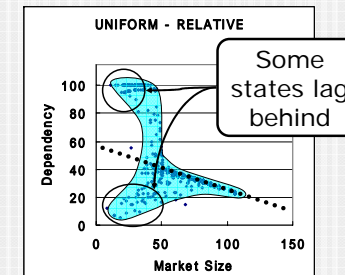
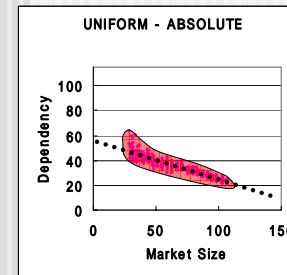
3 × 3 sets of experiments

Basic Results

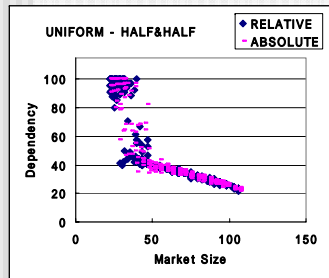
		All states' profits	Distance to the most preferred dependency	World trade dependency	Average profit of large states	Average profit of small states
RANDOM	0% ABS	792.76	28.00	0.3262	23.59	56.65
	50% HALF	715.98	156.58	0.3537	24.21	43.90
	100% REL	693.92	240.04	0.3693	24.08	38.63
UNIFORM	0% ABS	781.48	27.36	0.3215	23.94	55.43
	50% HALF	710.08	153.40	0.3498	23.94	43.50
	100% REL	685.98	235.68	0.3569	23.95	38.25
HEGEMONY	0% ABS	1187.20	46.46	0.4142	18.69	61.50
	50% HALF	1152.42	90.26	0.4270	18.69	59.66
	100% REL	1044.54	270.96	0.4737	18.71	53.98

Less trade in the world of absolute gains.

Market Sizes and Simulated Dependencies (1)



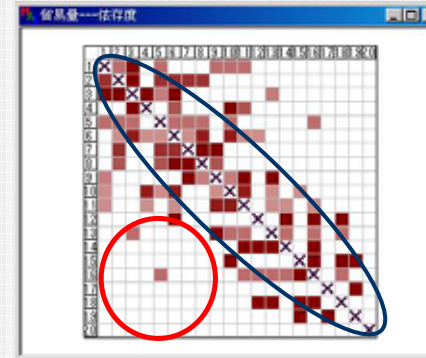
Market Sizes and Simulated Dependencies (2)



The patterns of two kinds of states are almost identical.

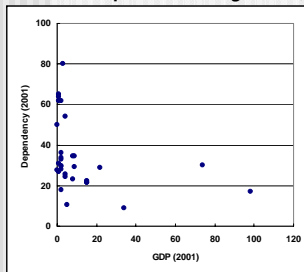
Individual state cannot change its trading pattern by adopting particular strategy.

the simulated order



The Real Order

31 OECD nations in the year 2001
 $\text{Dependency} = (\text{Import} + \text{Export}) / \text{GDP}$



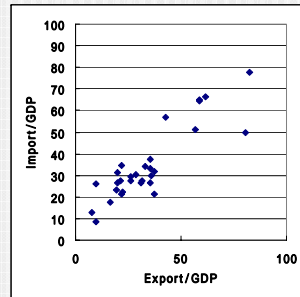
- High dispersion of trade dependencies of small states.
- Low dependencies of medium and large states.

Conclusions

- The ratio of absolute and relative-gains-minded states have robust effects on the trade order.
- A more open trade system results from relative-gains-minded states.
- The real trade order resembles the one created by relative-gains-minded states.

Appendix 1

Most nations have roughly equal value of import and export.
(31 OECD nations in the year 2001)



Appendix 2

- What if only the dependency on rival nation counts?
opposite results...
relations with third party matter

World Trade Dependency

	0.1	0.5	1	2	4
Absolute	0.320311	0.320774	0.321114	0.320629	0.320871
Half	0.318779	0.318855	0.317791	0.316718	0.319505
Relative	0.304171	0.303608	0.306141	0.296248	0.312953