The Heckscher-Ohlin Model: Features, Flaws, and Fixes

III: So What Do We, Like, Do?

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Themes of the 3 Lectures, Again

• The HO Model is largely well behaved in 2 dimensions, even when you include trade costs
• In higher dimensions, it is not so well behaved, especially when you include trade costs
☞ Various modifications and extensions of the HO model offer some promise of making it behave better
Outline

• Ways to Make HO Behave?
  – Specific factors
  – Armington Preferences
  – Lumpy Countries
  – Monopolistic Competition
  – Heterogeneous Firms
  – Variable Trade Costs
  – Aggregation

• Conclusion
Ways to Make HO Behave?

• Not a new question
• CGE modelers have had to deal with it
  – Models based too closely on HO don’t fit the data
  – Most obviously (for me, via Bob Stern): Estimates of price elasticities of imports are much smaller than they would be in HO models taken literally
  – We’ve used several of the fixes mentioned here
Specific Factors

• Also called the Ricardo-Viner Model, this was how Samuelson (1971) and Jones (1971) got the HO Model to behave

• Each sector has its own “specific factor”
  = Factor that is either
    • useless in, or
    • immobile to and from,
  all other sectors
Specific Factors

- Implications
  - Supplies likely remain positive at all prices
  - Supplies increase smoothly with price
  - There is no indeterminacy
  - Trade does not equalize factor prices (Hence, “Ohlin was right”)
Specific Factors

• Problems
  – Makes perfect sense for short run, but not for long run
  – Doesn’t solve problem of hypersensitivity of bilateral trade to trade costs
  – With specific factor in each industry, model no longer “explains” trade, except tautologically: countries export products of their abundant specific factors
Armington Preferences

• Due to Armington (1969), who used it in a macroeconomic, not HO, context
• Products are differentiated by country of origin
• Examples?
  – French wine
  – Italian shoes
  – Swiss watches
Armington Preferences

• Implications
  – Trade need not equalize prices of same “good” from different countries
  – Trade elasticities much reduced
    • hence hypersensitivity eliminated
Armington Preferences

• Problems
  – Trade now depends preference parameters as well as on factor endowments
    • France exports wine because people like French wine, etc.
    • (This is fine in CGE models, which don’t seek to explain trade, but use trade data to inform trade policy)
  – Preferences give every country market power in trade
Lumpy Countries

- Due to Courant and Deardorff (1992)
- Countries have multiple regions, across which there is not FPE
Lumpy Countries

• Implications
  – May alter pattern of trade from HO prediction
  – Internal regions may specialize
  – Regional limits on trade? Hence lower elasticities?
  – Specialization at regional level without specialization nationally? Hence less specialization?
  – Continuum of regions?
Lumpy Countries

• Problems?
  – Don’t know yet
  – Hardly any of this has been worked out
Monopolistic Competition

- Goods are differentiated by firm, while increasing returns at the firm level limit product variety.
Monopolistic Competition

• Implications
  – Most obviously, model explains intra-industry trade
  – Implications for specialization and factor prices are the same as the standard HO Model, so it does not help much with some of that
  – Product-differentiated bilateral exports remain positive from any country that produces, avoiding hypersensitivity to trade costs
Monopolistic Competition

• Problems
  – Only makes sense for (some) manufactures and services, not for agricultural products, minerals, or some other inputs
  – Doesn't change extremes of specialization
Heterogeneous Firms


• Individual firms each have a randomly chosen productivity parameter, as well as differentiated products
Heterogeneous Firms

• Implications
  – Industry gets small, but doesn’t disappear, when factor prices move against it, since most productive firms survive
  – Thus avoids extremes of specialization
  – Supply responds to prices through entry or survival of less productive firms
Heterogeneous Firms

• Problems
  – Hard!
Variable Trade Costs

• I (think I) suggested in Deardorff (1984) that HO would be better behaved if trade costs varied appropriately
• Assume that trade costs for a particular good along a particular route (pair of countries) rise with the volume of trade
Variable Trade Costs

• Implications
  – This makes bilateral export supply curves upward sloping even when supplies of goods are infinitely elastic
  – Indeterminacy of trade is eliminated
  – Volume of trade may then vary smoothly with size of autarky price differences
Variable Trade Costs

• Problems
  – Hard to imagine that this assumption could be valid
  • If anything, transport seems more likely to have decreasing costs, not increasing
Aggregation

• Davis and Weinstein (2001) suggest this in motivating part of their empirical work
• Industries that are observable are actually aggregates of unobservable industries with heterogeneous factor intensities
Aggregation

• Implications
  – Observed industries represent different mixes in different countries, leading to cross-country correlation between factor endowments and factor intensities, even with FPE (Davis and Weinstein)
  – In a multi-cone model, even though countries specialize in actual industries, observed industries operate at positive output due to products that unobservably belong to another cone
  – In response to price changes, instead of whole observed industry responding hypersensitively, only unobserved components do and observed industry responds gradually.
Aggregation

• Problems
  – This has not been worked out as a formal model (I think)
Conclusion

• It is unlikely that any one of these fixes will take hold by itself
• More likely that trade theorists will
  – Continue to use the unmodified HO model for most purposes
  – Choose among these fixes when necessary to deal with particular issues where flaws are most serious
  – Use several of these at once (as in Davis and Weinstein) as basis for empirical work
• Meanwhile, I will dream of a single fix that will make the HO Model both
  – Better behaved, and
  – As simple to use as the Lerner Diagram