

What Industries

Does Multiple-Equilibrium Trade Theory Recommend?

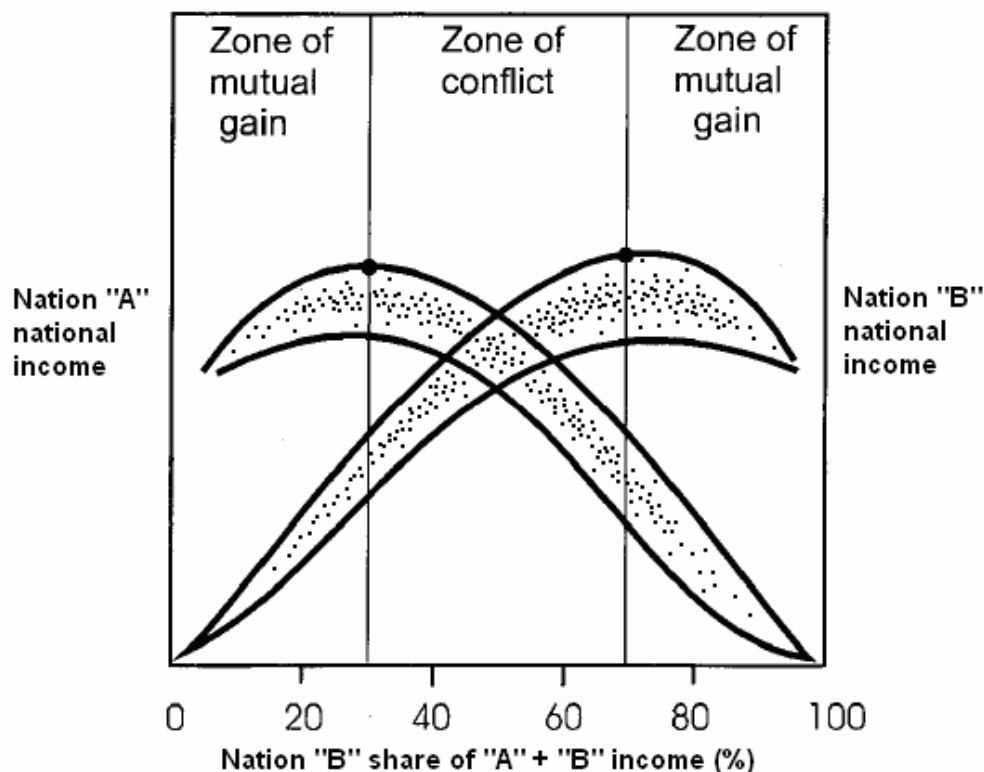
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In trade theory, one major recent theoretical breakthrough has been that of Ralph Gomory and William Baumol (hereinafter GB), who have propounded a multiple-equilibrium model of world trade in their book *Global Trade and Conflicting National Interests*.

The GB model holds that if one assumes increasing economies of scale, then the distribution of industries among nations under free trade will exhibit not *one* equilibrium, as in the classic Ricardian model, but multiple equilibria. Each such equilibrium will be locally optimal (more efficient than any similar equilibrium) but may or may not be globally so (more efficient than any possible equilibrium). Which equilibrium the world economy settles on will be an historical accident, driven by such things as which nation entered which industry first. Therefore, any actually existing equilibrium can be sub-optimal, both from the point-of-view of maximizing world output, and the output of any given nation.

It follows that the free market will not necessarily give any given nation the highest output it could possibly attain. The natural question this implies, for self-interested nations, is how can they, under GB assumptions, maximize their output? In a nutshell, the model implies that their best move is to be "greedy, but not too greedy." That is to say, those equilibria in which a given nation wins *all* the industries in the world, result in its having less output than one in which it wins the lion's share, but not all. A graph representing this, in the simplified two-nation world the GB model uses, is below:



Each dot represents a possible equilibrium assignment of industries between nations A and B; the lines represent the upper and lower bounds of the dotted regions. When either nation has 100% of the world's industries – and thus 100% of world income – that nation actually has *less* national income, than when it has only about 70% of the world's industries, and its trading partner the rest. This happens because the existence of scale economies enables it to “lock in” (“retain,” in GB terminology) industry assignments that would otherwise be inefficient, and thus be competed away, under classic Ricardian conditions of decreasing scale economies. In other words, the ability to retain industries entails the ability sometimes to retain industries *inappropriate* for the nation retaining them! Another nation would have been the lower-cost producer, had historical accident produced an equilibrium assigning the industry to it.

It follows that when a nation holding 100% of world industries sheds some of these industries to its trading partner, it benefits, realizing well-known Ricardian gains from trade. Unfortunately, the GB model, as elaborated in *Global Trade*, does not say *which* industries the 100% nation should shed, nor specify criteria for identifying them. Unfortunately for the 100% nation, it will be no use to simply shed industries at random; it must shed those which it inappropriately retained. Observe that, in the graph above, the fact that equilibrium outcomes form a band of dots, not a line, means that for nation A to simply shed industries at random, when it is left of its income peak, does *not* guarantee that its income will go up. It is perfectly possible for it, when shedding an industry, to move from one equilibrium dot to another that is “southeast” of the first dot. Such an equilibrium will indeed locate fewer industries in nation A, as revealed by the fact that A now enjoys a smaller percentage of the world income than before – this is why it has moved “east”. But nation A would *not* get any payoff in terms of increased absolute income – this is why it has moved “south,” and in fact receives less!

So which industries is nation A shedding, as it moves from the “too greedy” position at the extreme left of the graph towards its optimal position – the peak of its national income line, at roughly 70% of combined incomes? These: it is shedding those industries for which the following is true:

$$\frac{\text{Nation B production cost, at the far end of the scale-economies curve} + \text{Nation B margin of monopoly profit}}{\text{Nation A production cost, at the far end of the scale-economies curve}}$$

When the above is true, nation A is gaining income for the classic Ricardian reason: it is ceasing to allocate scarce factors of production to producing a given good, when it could buy it cheaper from another nation – enabling those scarce resources to move to a more productive use.

Why is there a term above for nation B's monopoly profit? Because the existence of monopoly profits is implied by the assumption that these industries are retainable. Whoever ends up with these industries, A or B, will be in the position to extract such profits. Which means that its trading partner must factor in the cost of paying a margin of monopoly profit to some other nation, when deciding whether to shed the industry or keep it.

Why does the phrase “at the far end of the scale-economies curve” appear above? Because the relevant question is *not* what are the two nations' production costs today. By the standard of *today's* production costs, nation A should hang onto all its industries – because its costs are lower, due to its having moved down the scale-economies cost curve.

This is precisely why it is able to retain such a disproportionate share of the world's industries, despite competitive pressures, in the first place. The relevant question is what will be the two nations' production costs *after* they have both run down the scale-economies curve. We can call this construct "clairvoyant Ricardianism."

What this means, is that the optimal trade outcome is that which *would* be correct, not on the basis of where every nation's industries are on the cost curve today, but on the basis of where they would be, if they had run down their cost curves and achieved their economies of scale. By definition, this hypothetical cost position cannot be observed, only predicted – that's why it's clairvoyant. Naturally, the free market cannot generate this outcome on its own, because the market only has access to information about how things are today.

To give an example, this means that if nation A can potentially reach world-beating productivity in the emerging widget industry, then it should protect that industry, so that it can use domestic sales to help this industry move down its economies-of-scale cost curve *before* any foreign industry can do the same thing. Then nation A will own this industry, and own it retainably, realizing super-normal profits as a result.

Conversely, if nation A *cannot* potentially reach world-beating productivity in the emerging widget industry, then it is a waste of its scarce factors of production to try to muscle its way into the industry with a tariff, subsidies, or any other non-market policy devices. It would be better off buying its widgets from the foreign lower-cost producer and allocating its factors of production to some other industry, in which its productivity will be higher.

This theoretical result accords well with a number of traditional, if non-theoretical, ideas of protectionists from Hamilton and List to the developmentalist technocrats of contemporary East Asia:

1. Infant industries must at some point become able to survive on their own, without protection, or protecting them was a mistake.
2. Protectionism is only good, insofar as it pushes the national economy towards higher ultimate productivity, and worthless as a mere "hammock," or device to enable low-productivity industries to survive.
3. The existence of monopoly profits in retainable industries makes it worthwhile to subsidize "breaking into" some industries, even if this is unprofitable in the short run.

For policy, the above model suggests two approaches:

1. Have a bunch of really smart technocrats figure out where various industries are going to end up, in terms of cost, and act accordingly. (Dynamic tariff)
2. Figure out a some set of static characteristics, that the industries you want to select for will have, and enact a fixed tariff to do that. (Fixed tariff).

The choice between these turns on issues outside the scope of this paper, many of them political. The key question will be which of the above choices is more likely, given

realistic assumptions about the competence and honesty of the political system, to *approximate* the clairvoyant ideal described above.

This paper should not be taken as arguing that the dynamic analysed herein is the only valid argument against free trade; there are of course other dynamics, which would have to be factored into any real-world policy solution.

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