Distributional Consequences of Globalization

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Four prevalent, if incommensurate, models in IPE offer specific predictions about the distributional consequences, between and among nations, of cross-border trade in products and in factors of production.[1,2] While virtually all models conclude that trade improves *world* welfare,[3] some allow that trade can in some circumstances diminish *national* welfare, chiefly in the advanced industrial societies. One of the models predicts factoral (e.g., workers win, capital loses) within-country effects, the other three mainly sectoral (computers win, textiles lose), effects.

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[1]The between-nation impact is usually called a Awelfare effect,≅ and trade in factors of production is commonly labeled Amigration≅ or Aforeign investment.≅ For reasons I hope the memo makes clear, I think the full impact of globalization can be understood only if we look at these effects as a whole, and if we consider trade both in products and in factors. Welfare effects, in particular, constrain efforts to alleviate distributional problems via social insurance or redistribution.

[2]I omit any discussion of the familiar Ricardo (or, as some would have it, Ricardo-Pangloss) single-factor, single-good model, since it predicts no distributional consequences: every group in every country gains from trade.

[3]I note one small, but potentially important, exception below.

At the obvious risk of vulgarization, and with the even more obvious risk that I am misunderstanding some of the economics involved, I shall label the four main models I have in mind (1) **Heckscher-Ohlin (H-O)**, (2) **specific factors, including Samuelson-Jones (S-J) and Ricardo-Viner (R-V)**, (3) **neo-Ricardian**, and (4) **economies-of-scale (EOS)**. As the name given to the last implies, the first three all assume constant returns to scale (doubling all inputs exactly doubles output). All but the neo-Ricardian normally assume, in addition, that the same production technology is available in all countries, i.e. all have identical production functions, but differ (obviously) in their assumption about mobility of factors among sectors X an issue that also becomes important within the neo-Ricardian model. All models make the conventional assumption of diminishing marginal returns to any individual factor.

(1) **Heckscher-Ohlin**. (a) *Trade in products.* In the simplest two-factor, two-good variant of this workhorse model, trade in goods and services benefits every country as a whole (and hence, obviously, improves world welfare) but harms, in every country, owners of locally scarce resources. The well-known Mayda-Rodrik paper (1999) accurately applies this model to a world in which the only factors are human capital and labor: in the developed countries, abundant in human capital, trade would harm (and be opposed by) the unskilled; in developing countries, abundant in unskilled labor, opposition to trade would come from the owners of (scarce) human capital.[4] Since the model assumes costless mobility of factors among sectors, sectoral employment does not matter: in developed countries *all* unskilled, in developing ones *all* skilled, workers are harmed. Again following the basic model, in developed economies globalization would increase the returns to human capital, the incentives to acquire it, and the extent of economic inequality; while in developing economies all of these would diminish. Politically, since in each country the gains to the abundant factor outweigh the losses to the scarce one X otherwise trade could not be welfare-improving for the country as a whole X smart politicians and credible institutions can shape compensation schemes that sustain free trade.

(b) *Migration and investment*. Imagine, however, a Heckscher-Ohlin world in which no products, but only factors of production, can move. Locally abundant factors will seek the higher returns of areas in which they are scarce; and migration and investment, just like trade in products, will benefit locally abundant factors, harm locally scarce ones, and X in the classical Amissing triangle≅ MPL diagram of migration X will improve world welfare. Less often noted, however, is that in advanced economies not just the wages of the unskilled, but *per capita income,* can fall as a result of migration and foreign investment: the world=s welfare gain accrues more to the developing than to the developed countries; and, within the developed countries, the losses to the scarce factor can actually outweigh the gains to the abundant one(s).[5]

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[4]Empirically, Mayda and Rodrik also find sectoral and ideological effects.

[5]In the simplest Cobb-Douglas production function, for example, with only capital and labor as inputs, per-capita output y (=Y/L) is always increasing in (indeed, is log-linear in) the capital-labor ratio k (=K/L). As trade opens to factors, capital-abundant countries export capital and import labor, decreasing k. Since, in the model, the marginal gain in productivity in the capital-scarce countries outweighs the marginal loss in the capital-abundant ones, world welfare

Add to this what is suggested by the impressive historical work of O=Rourke and Williamson (2001), namely that migration equalizes factor prices more quickly and thoroughly than either investment or trade, and we perhaps begin to see why: (a) developed-country politicians have found it far harder to construct pro-immigration than pro-free trade coalitions and (b) only highly undemocratic regimes (think the Berlin Wall) have been able to restrict *emigration*.

But the *pattern* of trade predicted by the H-O theory, independent of its distributional implications, has increasingly seemed at odds with reality. Even in the 1980s, H-O would have predicted capital to have earned about 60 times as much in India as in the U.S., making it something of a marvel that X even allowing for a lot of political risk X capital did not flood from the rich countries to the poor ones (Lucas 1990). Today, H-O predicts with equal clarity that skilled labor should be migrating in droves from the rich to the poor countries (just as it predicts, far more accurately, that unskilled labor will migrate the other way: cf. Davis and Weinstein 2005, discussed at greater length below).

That important issue to one side, the H-O model predicts the same factoral coalitions on migration and investment as it does on trade: in developed countries, all unskilled workers should oppose immigration and outward foreign investment; in poor countries, all skilled workers and capitalists should oppose emigration and inward foreign investment.

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improves; but, in theory, developed-country welfare can easily decline.

(2) **Specific factors**. (a) *Trade in products*. The conventional (and largely correct) understanding is the Ricardo-Viner (R-V) one: that the SF model allows even an abundant factor that is Astuck≅ in an import-competing sector to adopt a protectionist view, or a scarce one that cannot readily be replaced to embrace free trade. In general, developed-country capitalists should favor free trade, but owners of (e.g.) textile factories, swamped by third-world imports, may nonetheless advocate protection. Hence the usual prediction, notably in Hiscox 2002, that as factors become more specific, coalitions will become more sectoral. We should recall, however, that the specific-factors model developed by Samuelson and Jones[6] emphasizes the ambiguous distributional consequences for the *mobile* factor (depending, in essence, on its owners= consumption budgets). In that model, effects on *specific* factors may well continue to be governed by conventional factor-abundance considerations.

Imagine an advanced economy with abundant physical capital, above-average human capital, but scarce unskilled labor, producing high- and low-tech goods. The physical capital can be used only in the high-tech sector, the unskilled labor only in the low-tech; skilled labor is used in both sectors and is fully mobile between them. Then moving to free(r) trade will benefit owners of physical capital, harm unskilled workers, but have ambiguous effects on skilled workers (i.e., owners of human capital), depending chiefly on their relative propensity to consume high-tech products (which will rise in price) vs. low-tech ones (which will fall). Certainly one possible political scenario, in such an S-J world, is a protectionist coalition of unskilled and (at least some) skilled workers; and the current Aoutsourcing≅ anxieties of developed-country skilled workers X seemingly one of our most mobile groups X make this version of the SF model seem quite relevant.

The broader specific-factors model, in short, predicts that even owners of relatively abundant factors can become protectionist, if (a) their particular Abrand≅ of the factor is specific to an import-competing sector or (b) *other* factors are specific to exporting or import-competing sectors, while theirs is mobile. Exactly as in the H-O model, however, trade improves all countries= (and hence world) welfare.

[6]Samuelson 1971, Jones 1971; but see any conventional textbook treatment, e.g. Krugman and Obstfeld 1994, chap. 3.

As an aside, it seems that human capital is likelier to be specific than physical capital (i.e., owners of the latter can more easily hedge their portfolios against trade-related risk); and Estevez-Abe *et al.* (2001) have noted, importantly, that decisions about specificity of human capital are to a large extent *endogenous*, conditioned on subsidies to training and social insurance mechanisms (i.e., generous welfare states are likelier to have more specific human capital).

(b) *Migration and investment*. Here, it seems to me, the S-J and the R-V variants of specific factors come to rather different conclusions. In S-J, group preferences regarding immigration and foreign investment will remain just as in H-O: scarce factors opposed, abundant ones in favor. Coalitions on this issue will remain wholly *factoral*. Under the R-V model, however X and here I am probably swimming out of my depth X we should probably observe an *interaction* of sectoral and factoral effects. In a capital-abundant, labor-scarce economy, workers should most oppose immigration in the most import-competing, wage-pressured sectors: their preferences for trade should correlate with their views on migration. But capitalists, precisely in those most import-pressured sectors, should most *favor* immigration, as a way of cutting costs further. Capitalists= views on free trade should correlate *inversely* with their positions on protection.[7]

In the specific-factors model, as in the H-O one, trade in factors improves world and poor-country welfare; it may, however, not raise per-capita real income in developed countries.

[7]If, that is, we consider only the factor-returns story. In a recent paper, Hanson, Scheve, and Slaughter (2005) emphasize that, at least in tolerably generous welfare states, the post-redistribution implications of migration may depart considerably from those of free trade. In this brief compass, I abstract away from such considerations, but we will almost certainly have to include them in the larger project.

(c) **The neo-Ricardian model**. Davis and Weinstein (2005) stress the bizarre implications of the H-O model noted earlier in this memo: that skilled labor and agricultural land, both abundant in the U.S., should command higher real returns in a densely-populated third world country, say Haiti; and should, if they could, seek to migrate from the U.S. to Haiti. In fact, they argue persuasively, the U.S. may well offer higher returns than the rest of the world even to many factors that with which it is quite abundantly endowed; and they suggest that the only explanation must like in U.S. technological superiority. In short, they advocate (as, to be sure, have many students before them) abandonment of the traditional H-O assumption of identical production functions in all countries and an admission that technology (or total factor productivity) X the AA≅ term in most production functions X is simply higher, in many or all sectors, in advanced economies. (In fact, they adopt for simplicity a classical Ricardian single-factor, many-goods model.)

As Davis and Weinstein note, however, the distributional, welfare, and pattern-of-trade implications of this assumption are often equally strange, and sometimes downright alarming. Trade in products continues to be welfare-improving for all countries, just as in the original Ricardo model (although of course, exactly as in that model, factor prices no longer equalize between countries); but migration, while it improves world and sending-country welfare, may (and, in their empirical estimation, does) harm *all* sectors in the receiving country, chiefly by eroding the more productive country=s terms-of-trade advantage.

(a) *Trade in products*. Since in the D-W model there is only one factor, labor, which can move costlessly among sectors, distributional effects within countries disappear: everybody will favor free trade. If (as D-W do not do), one assumed instead that labor was differentiated and specific to sectors, the neo-Ricardian model would predict an ordinal relationship: the more productive the given sector, the likelier it would be to benefit from, and to favor, free trade. This is not an altogether empty prediction, but it is less informative than we might wish X both because the source of the productivity advantage remains a Ablack box,≅ and because productivity must to some extent be endogenous.

(b) *Migration and investment*.[8] Here the D-W model has its real Abite.≅ Because trade can no longer equalize wages between countries, migration will continue (if allowed) even under costless trade in products, until wages equalize; and production will then locate according to absolute, not comparative, advantage. Migration is unambiguously welfare-lowering for the more productive country, but welfare-improving for the less productive one and for the world as

[8]In the strict D-W model, there is no capital, hence no cross-border investment; but obviously if K were the only factor instead of L, the same logic would apply: all owners of capital (which is to say, everybody) within the advanced economy would oppose cross-border investment.

a whole. If labor is freely mobile between sectors, everybody in the advanced country will oppose immigration (even as all favored free trade); to the extent that labor is immobile among sectors, presumably immigration will be most opposed by those sectors in which the country=s absolute advantage is *greatest* (since precisely those sectors have wages most above Aworld≅ levels and hence will attract the most immigrants and see their terms-of-trade advantage erode most quickly).[9] Conversely, in LDCs: (a) if labor is mobile, all should *favor* migration; and (b) if labor is immobile among sectors, emigration should be favored most by those whose comparative *dis*advantage is greatest.

The testable implication of note is that, quite in contrast to the H-O or S-J models, attitudes toward free trade and free migration are likely X again, only in advanced economies X to be *negatively* correlated. More precisely, the specific-factor version of the D-W model suggests for such economies that, the more productive the sector, the more it should (a) favor free trade, but (b) oppose immigration.

(d) **Economies-of-scale trade**. While these models[10] have somewhat lost favor in recent years, and while the Krugman monopolistic competition variant (as Mitra notes, memo for this Conference) predicts unambiguous welfare gains from broader trade via greater variety, two other classes of such models may still be relevant and do predict unambiguous distributional effects. First, one cannot understand something like the U.S.-EU Awar≅ over Boeing and Airbus without a picture of economies of scale internal to the firm. In essence, it appears, world demand for big civilian aircraft intersects the firm average-cost curve well before it minimizes, so that in the end only one firm will survive. As in the older Brander-Spencer picture, sizeable

[9]A particularly counterintuitive implication is that Abrain drain≅ X migration of highly skilled labor from less to more productive societies X should be opposed by high-skill workers in the developed countries but favored by high-skill ones in LDCs.

[10]Common to all of them is the assumption that, whether at the level of the firm, the locale, or the country, there are increasing returns to scale, i.e. doubling all inputs more than doubles output. Hence, taking factor prices as fixed, the biggest producer can always produce most cheaply.

monopoly rents will accrue to the firm (and the country) that wins the competition, motivating both firms and governments, not to protect against imports, but to subsidize exports. Most of us (including I think Paul Krugman) no longer see this model as having very general applicability, but we cannot leave it altogether out of consideration.

More important are probably models of *locational* or *network* economies of scale: for the former, think Hollywood; for the latter, the QWERTY keyboard or the Windows operating system. In these cases, there can be a lot of competition among firms X Hollywood has many studios, and even more producers of such intermediate services as casting, editing, lighting; and lots of vendors offer Windows-based software X but it=s just too daunting, at least for a long time, for anybody to set up a rival Hollywood (Bollywood? China?) or a rival operating system (*pace* Linux). Welfare losses can easily ensue, as the dominant locale or network extracts monopoly rents (Hollywood wages, Microsoft prices), and these can actually grow as barriers to trade erode. In the AFable of the Keys≅ version of this story, an inferior and/or higher-cost product or locale repeatedly crushes superior and cheaper rivals. There is probably no easy answer to this story, as the EU=s antitrust efforts against Microsoft suggest; but it seems clear that the countries, locales, and even firms that wind up losing such a struggle are harmed X and, in the strongest variant of the story, world welfare is suboptimal also: we=d all be more productive (allegedly) with Linux, or would get cheaper watches from Thailand than from Switzerland, if we could just make the switch.

In the locational variants of this model, incentives to immigration persist even (or especially) under free trade: migration and trade are complements, not substitutes (cf. Krugman 1991). Such migration improves world, national, and likely even sectoral, welfare.

Summary. Looking at all of this another, and perhaps more helpful, way, we can see effects at the level of the world, the country, the factor, and the sector; and we can think of the coalitional and redistributional mechanisms that might ameliorate distributional conflicts.

(a) The **world** is better off from trade and migration except in some locational and network economies-of-scale cases. This means that, in theory, global redistribution could nearly always handle the distributional issues surrounding globalization.

(b) In the great majority of models, each **country** is also made better off by migration and trade, i.e. per-capita income rises. Only in the EoS models does trade sometimes make a nation worse off; but *migration* can reduce the welfare of receiving countries even in the classical H-O model, and definitely does so in the neo-Ricardian cases. Concretely, this means that coalitions in favor of free migration will be harder to build than ones in favor of free trade in products, and will be virtually impossible where trade is based on technological superiority rather than differences in factor endowments.

(c) Gains and losses from trade, and hence preferences over trade, will divide along **factoral** lines in the H-O and in the S-J specific-factors models, abundant factors normally favoring, and scarce factors normally opposing, free movement of products and factors. (In the S-J case, the position of the mobile factor cannot be predicted *ex ante* by its relative abundance: skilled workers in the U.S. precisely because of their mobility in an otherwise specific-factors economy, can conceivably lose from trade.) Perhaps more importantly, however, factors= preferences on trade will correlate almost perfectly with their preferences on migration and foreign investment: free traders will favor free migration (again, abstracting away from any fiscal or cultural impact) and free movement of capital, and protectionists will also oppose migration and foreign investment. The difference, as indicated earlier, is that under free trade the winners= gains will outweigh the losers= losses; under migration this need not be the case.

(d) In the R-V, the neo-Ricardian specific factors, and the firm-specific EoS models, gains and losses from trade will divide very much along **sectoral** lines, but X again, so far as I can see X with very different specific implications. In both the R-V and the neo-Ricardian pictures of the world, the most productive, export-successful sectors should most favor free trade; the least productive, most import-threatened ones should be protectionist. Under R-V, however, workers should most oppose immigration (and owners should most favor it) in the least productive, most import-pressured sectors; while workers in a neo-Ricardian specific-factors world will most oppose immigration in precisely the economy=s most productive sectors.

Where economies of scale are internal to the firm X again, think Boeing or Airbus X workers and owners should again unite, not on behalf of protection but in favor of the subsidies and opening of foreign markets that will permit them to achieve an eventual world monopoly. Where EoS are external to the firm, workers and owners will favor free trade and, in most cases, free immigration.

Crucial variables, survey questions, and research questions. Taking all of the above as given, I think we isolate a half-dozen or more sets of variables on which we want information; nd only some of these will be amenable to survey research.[11] I=ll try to proceed from Apure≅ rhs to relatively Apure≅ lhs variables, with admixtures in between.

(a) *What kind of trade?* Some trade in factors and products is driven by differences in factor endowments, some by differences in technology, some by economies of scale. It may make sense, within each country or within the overall sample, to make sure that we get some examples of each. Surely China=s exports of labor-intensive toys and Mexico=s of low-skill

[11]I have revealed enough ignorance in this document without venturing into proposals for specific survey questions, a topic which I leave to my betters X which is to say, virtually anyone X in this domain.

labor are driven by factor endowments; but America=s or Sweden=s imports of high-skill labor, with which they are already abundantly endowed, must be a result of technological superiority.[12] I would also lobby for taking up some of the Krugmanesque cases of trade based on locational economies of scale (though not necessarily Hollywood). Here data will probably speak louder than surveys, though we may well want to elicit something about propensity to migrate, to outsource, or to invest abroad.

(b) *How specific are the factors?* Presumably we will want, at a minimum, to look at physical capital, human capital, and labor, and to map X following Mike Hiscox=s work, but with a greater variety of indicators X cross-national (and very possibly cross-sectoral) differences in their specificity, recognizing that a lot of that specificity is endogenous (conditioned by welfare and labor-market mechanisms, educational systems, capital markets, social insurance, union contracts, etc.). Again we should seek to maximize variation on this; and it may make sense to look particularly at cases where the degree of specificity has recently changed or is changing (Denmark, Germany, China, Japan?). To the extent that both the perception and the reality matter, or that we treat this as a lhs variable X globalization-driven changes in trade-union practices or individual readiness to re-train X survey questions may help us to tap it.

(c) *Is specificity correlated with factor abundance?* In a multi-factor model, if the factors in which a country=s endowment is most extreme are most specific, while the ones that look closer to the world average are most mobile, the S-J argument about ambiguity of impact and preferences would presumably hold; and the mobile factors= attitudes would depend on consumption patterns (e.g., age might matter more) and could be subject to rapid change. Whether this is a real-world scenario worth worrying about I do not know, but I=d suspect it might be in a case like Argentina X abundance of land, scarcity of labor, something closer to world average in human capital, perhaps leaving skilled workers= preferences ambiguous and volatile. If we have good answers on (a) and (b), we can presumably answer (c) with little trouble.

[12]I take it for granted that we will want basic information about the countries, including (a) factor endowments, (b) Adistance≅ of country (natural barriers to trade; cf. Redding and Schott 2003), and (c) Asize≅ of country, in the sense both of (i) can its policies affect world prices (the U.S. tariff on steel did, presumably a Danish tariff would not) and (ii) what would its costs of closure be (presumably smaller for the U.S. than for Sweden, albeit large in both cases)? The simple point, emphasized as long ago as Peter Katzenstein=s book on *Small States in World Markets*, is that, the smaller the country, the greater are politicians= incentives to cobble bargains that avert protectionism.

(d) *What are existing compensation mechanisms, and how efficient and reliable are they?* Losers from globalization may accept it if they will be compensated from the social gains (assuming those exist, as in most theories they do). On the other hand generous mechanisms may make factors more specific or impede adjustment. It=s important to gauge (a) how generous the mechanisms are, (b) what incentives they create, and (c) how effective and reliable people judge them to be (i.e., are they confident that they will be compensated for any losses from trade or migration?). Again, we can take some advantage of recent changes (e.g., AHarz IV≅ in Germany, or welfare reforms in the U.S. and some of Europe). There=s obvious room for survey work here, including sources and extent of opposition to these changes.

(e) *Support for / opposition to free trade, migration, investment*. Obviously this is the meat of the matter. We want to look at popular attitudes (usually not well tapped by survey instruments), voting behavior, elite opinion, lobbying, and politicians= positions / maneuvering. Are the patterns we observe well predicted by the theories, and does the accuracy depend, in the way argued, on country, factor, and industry characteristics? Do positions (e.g., on trade and migration) correlate with one another as predicted?

Conclusion. I take for granted, as does the Milner-Hiscox manifesto for this meeting, that the backdrop to all of this is growing global economic integration. But it may also be worth noting that the *pace* of that integration has varied greatly, even in recent years; and we may want to expand our set of countries to increase variation on that aspect. All of the developed economies in the set have long been pretty open (Canada being the most recent convert), or were not particularly closed to begin with. Do we want to include a developed-world case of more extreme change, say New Zealand? (On the developing-world side memories, or actual experience, of change will probably be strong enough in places like India and Mexico.)

What I have tried to emphasize in this memo, as does Devashish Mitra in his, and do the organizers in theirs, is that this project will differ from previous efforts in the extent to which its empirical research is informed by the rather well-developed theories of IPE. While patterns of trade and migration, and observed (changes in) labor-demand elasticities, can tell us a lot about the relative accuracy of the theoretical models, probably only the supplementation by surveys that is proposed here can go very far to settle questions about the political consequences of globalization.

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