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Play it Again, Sam: A New Look at Trade and Wages

by

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T. N. Srinivasan has written profusely, and profoundly, on both development economics and on international trade. So, I could offer him my tribute by writing on either. But T. N. will appreciate, as the no-nonsense economist of integrity he has always been, that I must follow my comparative advantage and choose to write on trade. That I do today, tackling a question of immense topicality and great policy concern: to wit, and to put it strikingly, the effect of trade with poor countries on the poor in the rich countries.

Indeed, the prolonged decline in real wages of our unskilled workers, and the widely-shared sense that crystallised during the national debate over NAFTA that trade with Mexico would harm our workers, have produced arguably the most animated, and politically salient, debate among economists on the question: **does trade with the poor countries immiserize our unskilled workers?** [1]

Yet, despite the immense number of academic analyses, confusion reigns and general pessimism prevails. I propose here to remove the confusion and to reach a more optimistic conclusion.

I. Two Different Questions

In doing so, I first note that, as Deardorff and Hakura (1994) and Bhagwati and Dehejia (1994) noted earlier, the question posed is ambiguous.[2] Different questions must be distinguished, each appearing at first blush to be like the other while being quite distinct with different answers. In particular, I distinguish between two questions, both of

[1] In my view, this issue was created by NAFTA because bilateral trade agreements inevitably lead to a focus on the characteristics of products, endowments, governance etc. of the specific country with whom you are negotiating. Mexico being impoverished, with illegal workers streaming across the Rio Grande, it was inevitable that objections would arise as to how freer trade would indirectly hurt our workers the way illegal immigration from Mexico was allegedly doing. By contrast, there were no such questions raised vis-à-vis the Uruguay Round because the multilateral trade negotiations were with several countries, both rich and poor, and it would have therefore been simply absurd for anyone to object to them by raising the red flag over the implications of trade with countries such as India where there are even more poor than in Mexico! I have discussed this downside of regionalism, and more generally of PTAs (preferential trade agreements), in the course of discussing President Clinton's failure to secure fast-track authority from Congress, in " Think big, Mr Clinton", The Financial Times, Tuesday, November 25, 1997.

[2] These essays appeared in the volume edited by Bhagwati and Kosters (1994).

importance and each corresponding in some way to what seems to agitate policymakers in some vague, if not inchoate, fashion. As it happens, I argue that the answer to each question, for different reasons, is not as alarming as in the popular perception of the threat from trade (with poor countries) to our workers.

Question 1: **If the rich countries (the North hereafter) were to liberalize their trade with the poor countries (the South hereafter), or if the South were to liberalize its trade with the North, e.g. as NAFTA did for the US and Mexico, then would this reduce the real wages of workers in the North?**[3]

Question 2: **Can the observed changes in real wages in the North be explained by changes in trade (opportunities) coming from the South rather than by factors internal to the North?**

As I will presently argue, Question 1 focuses exclusively on trade liberalization in the South and/or in the North and their consequences for the real wages in the North. By contrast, Question 2 contrasts the effects on real wages in the the North as a result of all factors (that would not be confined then to trade liberalization alone but extend also to technical change and factor accumulation): these factors would then be grouped into those coming from the South and those coming from within the North, and interacting via trade.

In both cases, however, my answers are comforting rather than pessimistic. In each case, there are two steps involved in linking trade with real wages. The first step is to assert that the (relative) prices of labour-intensive goods have fallen within the North because of trade. The second step is then to argue that therefore, as in the Stolper-Samuelson (SS) theorem, the real wages of labour have fallen in the North. For Question 1, I show below (in the stylized 2x2 model) that step 1 certainly holds. But step 2, involving the empirical applicability of the SS theorem, is open to serious objections and the effect on real wages of all factors, including labour, could well be favourable.

Therefore one may well be optimistic on the impact of trade on real wages if the empirical relevance of the SS theorem is denied. As for the answer to Question 2. the answer I give below is decidedly optimistic in the sense that the first step itself cannot be taken: changes emanating from the South. in their totality (as distinct from merely trade liberalization in the South), will likely raise rather than reduce the prices of labour-intensive goods, ceteris paribus.[4]

II. Question 1: The " Exclusively Trade Liberalization" Question

This question refers to the effects of trade liberalization, whether in the South or in the North (vis-a-vis each other), on real wages of workers in the North. Thus, in a stylised 2x2 model where the South exports the (unskilled-)labour-intensive good Y while the North exports the capital-intensive good X, the answer to this question is straightforward.

In Figure 1, depicting the offer curves of the South and the North, with tariffs in each region leading to the tariff-ridden offer curves intersecting at Q, consider trade liberalization by South. This shifts its offer curve to OS' and the new trade equilibrium to R. Clearly, the trade liberalization will increase the supply of exports from the South at every relative goods price (i.e. terms of trade) and will reduce the world price of the labour-intensive good Y and hence, given any tariff in the North, also the domestic price of Y in the North.

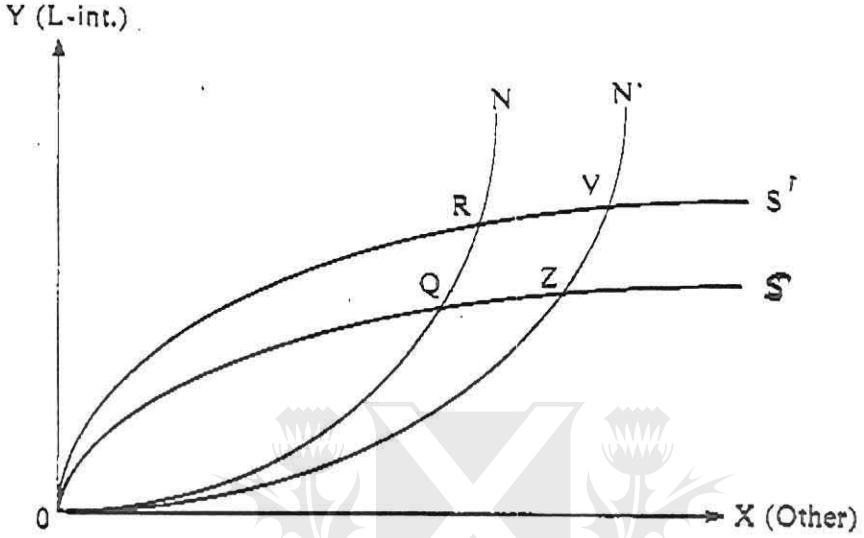
If, however, the North liberalizes its trade, ON shifts to ON' while OS is unchanged, leading to trade equilibrium at Z. But while this raises the world price of the

[3] If wages are inflexible downwards, then unemployment would increase instead of wages falling. The former is assumed generally to happen in the US, the latter in Europe.

[4] Of course, if you believe that the SS theorem does not apply, so that the terms of trade improvement implied by falling world prices of labour-intensive goods will improve both national income and the real wage of labour, then a rise in the price of these goods is not a cause for celebration! The conclusion in the text is therefore comforting only if you believe in the stranglehold of the SS theorem on reality.

labour-intensive good Y, its domestic price will fall in the North (unless the Metzler paradox obtains, so we must rule it out).

Figure 1



Thus, whether the trade liberalization occurs in the South or the North, we can expect it to lead to a fall in the domestic price of the labour-intensive good Y in the North. Hence, it inevitably sets the stage for the Stolper-Samuelson (SS) theorem.

If SS reigns, the fall in the domestic price of the labour-intensive good Y will lead to a fall in the real wage of labour in the North. Thus, while the first step in the argument linking trade liberalization to decline in our real wages, via a fall in the price of labour-intensive goods, is theoretically satisfied (though, as argued in the next section, the stylized facts show that the prices of labour-intensive goods, whose behaviour must reflect not just the trade liberalization we are discussing presently, actually rose slightly instead in the period when real wages declined), we still have to ensure that the second step, the applicability of the SS theorem, can also be taken.

But then we must recall that the SS theorem cannot be regarded as necessarily defining the empirical reality. In fact, the theorem became well known precisely because it simply established a possibility when no one thought it possible to do so. In particular, these distinguished authors managed to show that, under certain restrictive conditions, one could indeed infer an unambiguous effect on real wages from a change in the goods prices. Until SS did so, it was generally believed that, while nominal wages would fall for workers intensively employed in the good whose price had fallen, the effect on real wages was ambiguous: it would depend on the consumption pattern of the workers since a fall in the nominal wage could be offset by a preference in consuming the good whose price had fallen. The SS result, by showing that (given their model and its assumptions) we did not need to know what consumer preferences were to infer the impact on real wages, became a theoretical curiosum, as it were; few regarded it as an inevitable empirical reality or even as capturing a central tendency. Today, however, in a supreme irony, it seems as if it is regarded as our inescapable fate.

And that is a singular mistake. For, as discussed extensively in Bhagwati and Dehejia (1994), we must recognize that specialization in production will mean that, instead of one factor being hurt while the other benefits from the change in the goods price as in the SS case, both (of the two) factors will benefit from the price fall. Scale economies can also do this. Improvement in overall efficiency following trade competition can do it too. In fact, these "lift-all-boats" effects can kill the SS "redistributive" effect. As it happens, the calculations of Brown, Deardorff and Stern (1993), with the aid of their well-known computable Michigan model during the NAFTA debate, allowing for the restrictive SS conditions not to be fully met, showed a real wage improvement for American workers from NAFTA. So, the asserted link between trade and real wage decline, as precisely postulated here, breaks down; the SS theorem, whose applicability is not inevitable or in my judgment even likely, is then not the dagger aimed surely at our workers' jugulars!

I might add that there is nothing in what I have said above about the Factor Price Equalization (FPE) theorem. The FPE theorem requires a great deal of added baggage: structure must be put on the South so as to make, for instance, its production functions identical to those of the North, to rule out factor intensity reversals, to assume identity of tastes across counties. Indeed, many of these assumptions are unrealistic (e.g. we know from the work in the 1960s by Minhas, Arrow-Chenery-Minhas-Solow that factor intensity reversals are not merely possible, since estimated CES production functions have different cross-sector elasticities, but also likely because endowments lie on different sides of the factor-intensity-crossover point). But that is no cause for concern, of course, unless we also wish explain what is happening in the South as a result of trade liberalization. All we need to do, in explaining the past and future link between trade (with the South) on the real wages of the unskilled in the North is to start from the fact that the South is a net exporter of labour-intensive goods and then to examine the effects of trade liberalization, as we have done, on goods prices in the North and therefrom on the real wages in the North. That is just what I have done here.

III. Question 2: The "Total Trade" Question

But then let me ask the altogether different Question 2, distinguished above, which relates to whether a shift in the offer curve of the South, arising from the totality of all relevant factors such as factor accumulation and not merely trade liberalization, can explain the decline in real wages in the North. Again, we would have to argue that this shift leads to a decline in the average world prices of labour-intensive goods, by augmenting their supplies (i.e., the offer curve shifts outwards), and then again via the SS theorem to a decline in real wages. The second SS step runs into the same difficulties as with Question 1 in the preceding section. But so does the first step now, because we must now reckon with factors such as capital accumulation and technical change as well, as I demonstrate presently.

The analysis of what happens to the offer curve of the South, as a result of several factors distinguished below, explains why the offer curve will not necessarily shift outwards so as to push down, ceteris paribus, the prices of labour-intensive goods in world trade (and hence be the cause of the declining wages in the North by triggering the

SS theorem), but in fact can be expected to have exhibited the opposite tendency of reducing the overall excess supplies of labour-intensive goods and hence led to a rise in their prices instead, as seems to have happened. It also explains a number of other stylised facts. I show this now, first by stating the stylised facts, and then developing the shift-of-the-offer-curve explanation.

(i) Stylised Facts: A number of stylised facts have emerged in the empirical studies spawned by the trade-and-wages debate:

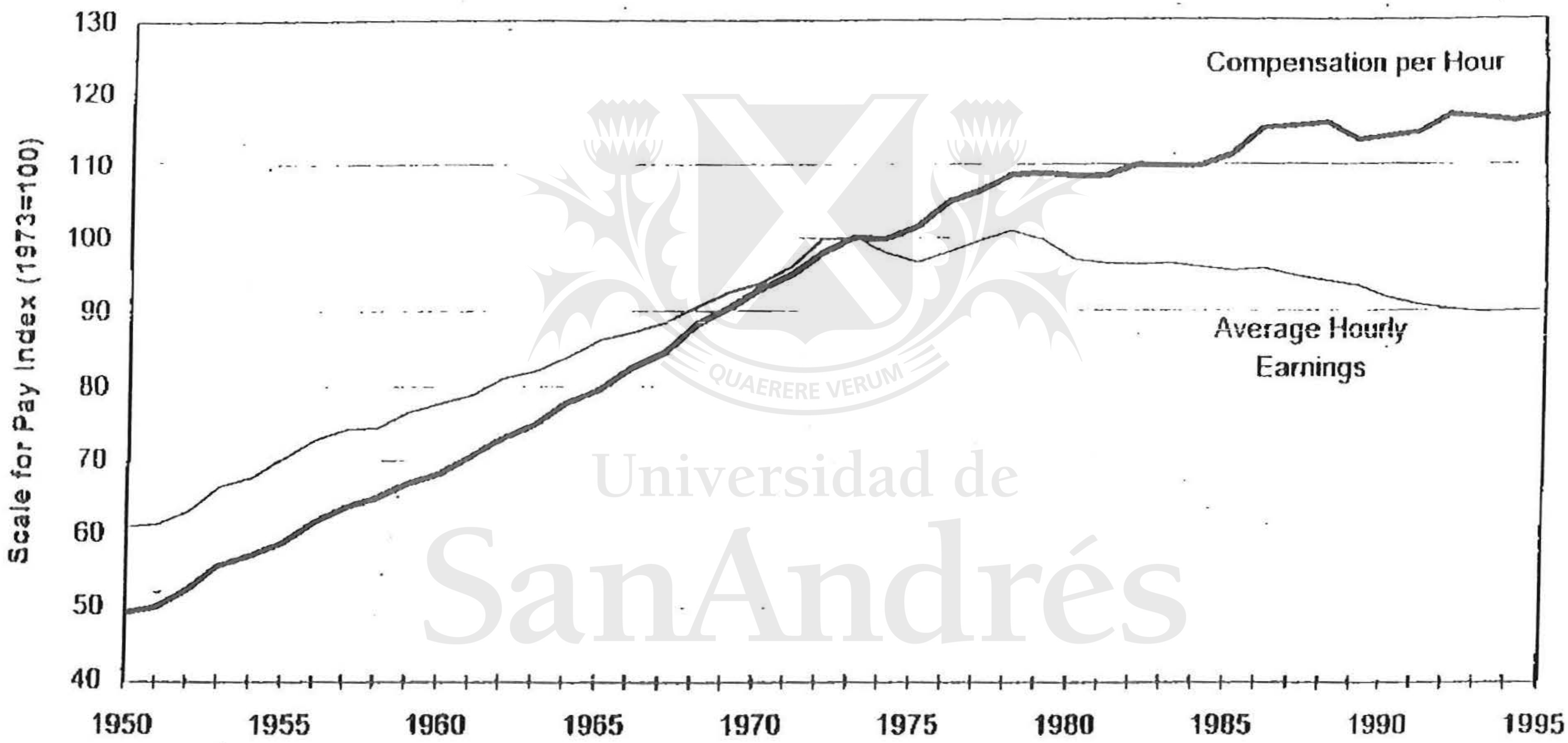
- The most important fact is evidently the behaviour of the prices of labour-intensive goods in world trade, and in the US, fell in the 1970s but (slightly) rose in the 1980s and early 1990s. The latter phenomenon is now conceded by all serious scholars, including the early skeptics such as the world class econometrician and trade economist Ed Leamer who has done a considerable amount of careful empirical work on the subject.[5]

- However, in an eyescan "refutation" of the SS theorem, US real wages (of unskilled workers), defined first as "compensation per worker" and next as the less satisfactory "average hourly earnings, continued to rise during the 1970s while they fell by the latter measure and their rise was seriously moderated by the former measure , during the 1980s and early 1990s (Figure 2).

[5] The only exception is provided by Sachs and Warner (1994) in the in-house journal of the Brookings Institution. However, their evidence to the contrary is not compelling in view of their regression failing to meet the requisite standards of statistical significance. Even then, these authors get their insignificant regression to show only a slight fall in the prices of labour-intensive goods and that too by excluding computers without plausible justification.

Figure 2

Real Average Hourly Earnings and Compensation



Note: Compensation per Hour includes wages and salaries of employees plus benefits (employers' contributions for social insurance and private benefit plans). It covers the nonfarm business sector. Average Hourly Earnings does not include non-wage benefits. It covers production and nonsupervisory workers in the private nonfarm sector of the economy. Both measures are adjusted for inflation using CPI-U-X1

Sources: Bureau of Labor Statistics, Economic Report of the President, 1996
M Kosters, AEI, May 1996

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- The wage differential between unskilled and skilled workers has risen not just in the US and other OECD countries, but also in some other countries. e.g., in Chile, Uruguay, Colombia, Costa Rica and Mexico in the last decade.[6]

Trade in labour-intensive manufactures of the poor countries has not been a story of all these countries becoming ever more exporters of such manufactures. Over time, per capita incomes grow more rapidly in some (e.g. East Asia in the 1970s and 1980s) as against other countries. The former subset of poor countries then become net importers of labour-intensive manufactures themselves so that the net exports of the poor-countries group (constituted by the two subsets of countries taken together) to the group of rich countries grow less dramatically than many fear due to their erroneous assumption that each poor country will become an increasing supplier of labour-intensive manufactures to the rich countries, leading to an avalanche of exports. International economists, among whom the late Bela Balassa deserves pride of place, have long understood this phenomenon empirically, calling it the phenomenon of "ladders of comparative advantage.

This, more comforting picture is exactly what Ross Garnaut (1996) of ANU has

[Continue]

[6] See Robbins (1996).

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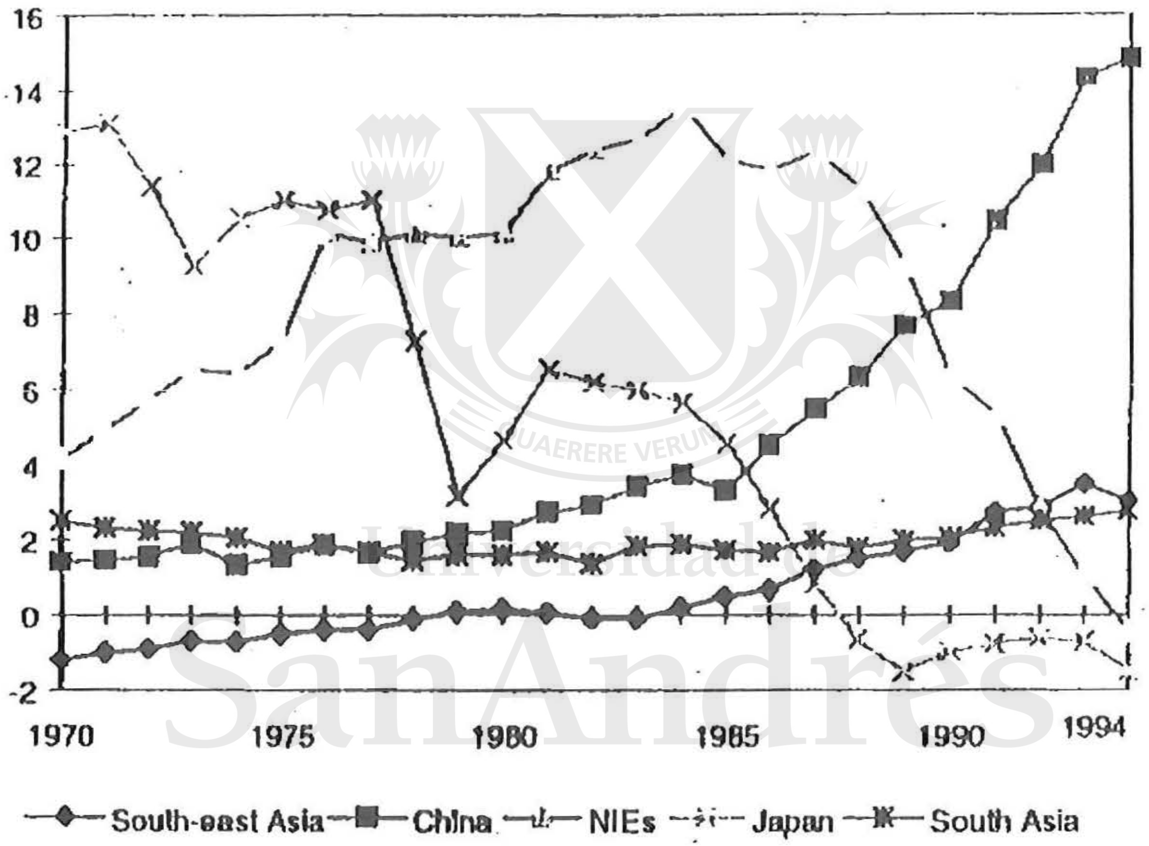
Figure 3 Ratio of net exports to world imports of labour-intensive manufactures, East and South Asia 1970-94 (%)



Notes: South-east Asia include ASEAN (excluding Singapore) and Vietnam; NIEs include Taiwan, Hong Kong, Korea and Singapore; and South Asia include India, Pakistan, Bangladesh and Sri Lanka.

Source: UN trade data, International Economic DataBank, The Australian National University.

shown in Figure 3. There, the 1970s witness East Asia steadily increasing net exports of labour-intensive manufactures while Japan reduces them. The same pattern repeats itself in the 1980-1994 period when East Asian (NIE) net exports decline from over 10% of world trade in labour-intensive manufactures to nearly zero while China goes almost in a crossing diagonal from around 2% to over 14%, the difference between the two leaving greatly reduced the net impact on what Garnaut calls the "old industrial countries" on the average.This is, of course, what I just recalled as the "ladder of comparative advantage" and countries climb up on it with growing per capita incomes.

(ii) Analysis: These stylized facts can be explained, and their underlying causes understood, by returning to the offer curve analysis. Essentially, I plan to answer Question 2 at the outset by analyzing immediately how South's offer curve would shift, as a result of various reasons such as capital accumulation. [In the final Section IV, I will then go on to discuss the corresponding shifts in North's offer curve as well, for identical reasons, seeking to enact the whole story of what happened in the recent period.]

The underlying changes that shift each offer curve are clearly: (1) capital and labour accumulation; (2) technical change and (3) trade liberalization.[1] Consider each of the three factors in turn.

(1) When capital and labour accumulate at the same rate (say, x%), the offer curve will obviously expand outwards by an identical rate. But if capital accumulates more rapidly (say, at y%), then we have to account for the effect of that extra non-uniform expansion of capital ((y-x)%).

[1] I say "trade liberalization" instead of the more generic "trade policy change" because we have been witnessing liberalization rather than growth of trade barriers in the last few decades.

This latter effect, which international economists call the Rybczynski effect, reduces the excess supply of the labour-intensive good Y . It will thus contract or shrink the offer curve.

The net effect of factor accumulation will then depend on the relative strength of these two effects. But evidently, if capital accumulation is considerable, as it has been in East Asia for over two decades[2] , that could well be a cause of their offer curve exhibiting a shrinking of their production of labour-intensive goods and their withdrawal from exports of such goods in world markets.

(2) If technical change is occurring and is contributing to the expanding per capita incomes as well, we can generally expect it to be occurring faster in the modern industries that use human and conventional capital intensively. In that case, one can expect again a pull of resources away from the labour-intensive industries towards the production of the progressive industries, thus contributing to a decline or shrinking of the South's offer curve rather than to its further outward expansion.[3]

(3)Trade liberalization, on the other hand, will expand the offer curve, as already discussed in analyzing Question 1.[4]

Hence, there are two factors (trade liberalization and uniform expansion of all factors of production) which push the South's offer curve out, and two factors (beyond-uniform accumulation of capital and technical change) which would pull it in. Very likely, the former two factors were more important than the latter two in the

[2] In fact, the East Asian "miracle" has been precisely in the "miraculous" investment rates that these countries chalked up, as I have argued in Bhagwati (1996).

[3] This tendency is conclusive when the technical progress is Hicks-neutral but may not be so decisive if it is biased.

[4] I might add that import protection could, as emphasized by Paul Krugman in his classic work, lead to export promotion eventually. This possibility is being ignored.

1970s when the oil shock had generally depressed growth rates of per capita incomes in many developing countries while trade liberalization continued only at a moderate pace. From early to mid-1980s through 1990s, however, the growth rates in developing countries were generally more robust, with the huge East Asian growth rates continuing more or less, while the "miracle" spread to other countries in Asia westwards. I would expect therefore that in the 1970s, compared to the later period, the expansion of the South's offer curve would be greater, and hence the downward pressure on the prices of labour-intensive goods, ceteris paribus, would be less. In fact, my stylized view, which I develop shortly, is that the later period actually saw a shrinking of the net, group offer curve of the South due to these effects, leading to a price rise of labour-inetnsive goods, and that the moderately expanded quantitites of trade despite that is to be attributed to a simultaneous outward shift in the group offer curve of the North as its demand for imports of labour-intensive goods rose for the same reasons operating in the North.

Given the asymmetries I have just argued for the South between the two periods, the 1970s and later, it is then not surprising that the stylized facts on prices of labour-intensive goods show that the 1970s witnessed a fall in them whereas there is a reverse behaviour in the later period.

Furthermore, if capital accumulation is a major factor in some Southern countries, one should also expect the "ladder" phenomenon that Garnaut has documented (Figure 3). And if conventional capital is a complement to skilled labour but a substitute for unskilled labour, the accumulation of capital would generally tend to widen the differential in reward in favour of skilled labour, as has happened in some of the better-performing countries.[5]

[5]This statement about the wage differential means, of course, that we depart from the 2x2 structure on factors and goods. But nothing qualitative that was derived within that framework needs to be modified.

To recapitulate the main conclusion, therefore, the analysis of the factors that shift the South's offer curve shows that changes in trade with the poor countries, which arise from the totality of changes coming from them, can be plausibly argued to have been, in the recent period and on balance, benign as far as the fear of falling (average) world prices of labour-intensive goods is concerned. And if we then expect these forces to continue operating, with rapid growth diffusing through the developing world as broad economic reforms take root, then we can well expect that the future will also be benign.

Thus, the answer to Question 2, posed above, is essentially benign.The picture is dramatically different from the one we get (as when we discuss Question 1) if we focus exclusively on trade liberalization by the developing countries[6] : a process which, in any case, is spread out over time in most cases and therefore not likely to outweigh at any time the effect of rapid growth rates.

IV. The Full Story:

To grasp fully what happened in the recent period, however, we need to bring into the analysis also the shift in the North's offer curve, arising from the same constellation of causes that were discussed in relation to the South's offer curve.

When this is done, we confront an interesting contrast: the factors that worked to reduce the supply of labour-intensive goods from the South work in reverse for the North's offer curve since it imports labour-intensive goods. Hence, all factors

[6] The difference is in the first step of the two-step argumentation outlined above: the prices of labour-intensive goods may now be expected to rise, rather than fall, once factors other than trade liberalization are taken into account

tend to increase the demand by the North for labour-intensive goods, reinforcing the upward pressure on the prices of labour-intensive goods that come from the South itself.

(1) Thus, while uniform expansion of factor supply will push out the North's offer curve, capital accumulation beyond that will reduce the output of labour-intensive goods and thus reduce their net supply and increase import demand, thus reinforcing the outward shift in the offer curve.

(2) A similar result would follow from technical change concentrated in the capital-intensive industries, disallowing complexities that can follow from biased technical change.

(3) And trade liberalization, of course, will shift the offer curve out also.

So, we have then a situation where all factors tend to reinforce one another, raising the demand for imports of labour-intensive goods and hence, ceteris paribus, raising their world prices. Associated with this, there would also be expanded trade volumes. We would thus observe increasing "import penetration ratios" in the import-competing industries of the North: as, in fact, we have done. [Note that this outcome is a result of purely domestic factors, and is not to be attributed to an exogenous increase in export supplies originating from the South.In fact, as I argued above, my informed guess is that the export supplies from the South shrank, not rose, in the post-1980s period.] The world prices of labour-intensive goods would then be expected to rise with the North's increased demand for them, as in fact they have done.[7]

Insofar as these shifts in the two offer curves, one (for the South) shrinking and the other (for the North) expanding, translate into increased domestic prices for

[7] So would the domestic prices of the labour-intensive goods in the North, except when the cause of the change is trade liberalization by the North (as discussed in the analysis of Question 1).

the labour-intensive goods and in the quantitities traded, we are left with the question: what can we say about the accompanying effects on the real wages of unskilled labour in the North?

Clearly, if we ask a ceteris paribus question, namely what is the effect of the shift in the South's offer curve on real wages in the North, then that has to be (if the SS theorem holds): positive. For that leads to a rise in the prices of labour-intensive goods, not a fall. If we bring both shifts into the picture, and look for a total answer, then clearly the ansxwer has to be: the factors underlying the North's expanding demand for labour-intensive imports may have reduced the real wages of labour, ceteris paribus, but that fall will have been moderated by the effect of the exogenous shift in the South's offer curve. In short, I would maintain that the answer to Question 2 that I posed above is: **trade with the South has moderated the adverse impact,such as may be from technical change, on real wages in the North.**

To recapitulate the substance of my argument, if I was asked then to put the most plausible story together from the previous analyses of the shifts in the South's and the North's offer curves, it would be as follows, based on a simultaneous shift in the offer curves of the South and the North (as in Figure 1 where we go from an initial trade equilibrium trade at Q to V where both the shifted curves ON' and OS' now intersect):

* Ongoing changes in capital accumulation and technical change, working alongside and offsetting the effects of trade liberalization, are likely to have been predominant in the world economy, causing a mildly upward, instead of a substantial downward, shift in the average, world prices of labour-intensive manufactures.

* The net effect of these forces has also been to raise the domestic prices of labour-intensive manufactures in the North as well.

* Insofar as only the factors operating within the South, and affecting its offer curve (i.e. the "trade opportunities" the South offers us or, in popular imagination, threatens us with), are considered, my conclusion is that they likely have been, on balance, increasing the average prices of labour-intensive goods in world trade during the years when real wages have fallen in the North.

* If therefore the SS theorem is invoked, these changes exogenously emanating from the South cannot be responsible for the decline in the real wages in the North: they push the goods prices in the wrong direction.

* But the overall increase in the world prices of labour-intensive manufactures also reflects shifts away from the production of labour-intensive goods in the North due to endogenous factors such as capital accumulation and technical change. By adding (as argued above) to the deterioration in the North's terms of trade that the exogenous shrinking of the South's supply of labour-intensive exports entails, they further reduce the primary gain in income that these per capita-income-augmenting fundamentals imply.

* Whatever the effect on real wages in the North of the fundamental factors underlying the shifts in import demands for labour-inbtensive goods in the North itself, however, there is no way we could argue that the forces shifting the export supplies from the South have added an adverse effect to them. Rather, they have made the real wages better than they would have, if the SS theorem holds, since the ceteris paribus effect of trade with the South will have been to improve the real wages in the North since it will have raised, not lowered, the traded prices of labour-intensive goods.

I think that this conclusion is pretty plausible. It puts me on the side of those who deplore the usual declamations against globalization on the ground that trade with poor countries hurts our workers. But it puts me right at the edge of that group since the most that they have said, in ways that I am not enthusiastic about analytically, is that the adverse effect is small or even negligible. I actually say that it is favourable, not adverse! And I expect it to remain so in the foreseeable future.

So, I claim the distinction of counting myself out of the "consensus" that is often asserted in Washington, especially in the think tanks distinguished by their armour rather than by their grey cells, and even in the Bretton Woods institutions that seek amiably-agreed views, that economists "believe" that the adverse effect of trade on real wages is around 10-20% or 15-20%.

This was the range that Dani Rodrik recently included in his alarmist pamphlet on Globalization for the Institute for International Economics; it also is to be found in an IMF pamphlet reported on in The Economist. The former was based on negligible work; the latter simply averaged, under instructions, all empirical studies on the subject and ignored the fact that, in science, the average of good and bad is bad. If I am wrong, it will not be because of these forgettable contributions but because of the fault lines in my own argumentation. However, I hope to stand, alone for now, but not lonely for long.