# DOMESTIC DISTORTIONS AND THE
# DEINDUSTRIALIZATION HYPOTHESIS

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## ABSTRACT

It is widely believed that U.S. trade deficits have displaced workers from highly paid

manufacturing jobs into less well-paid service employment, contributing to declining incomes for

the nation as a whole. Although proponents of this view do not usually think of it this way, this

analysis falls squarely into the "domestic distortions" framework pioneered by Jagdish Bhagwati.

This paper models the deindustrialization hypothesis explicitly as a domestic distortions issue,

and shows that while it makes conceptual sense it is of limited quantitative importance.

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The theory of international trade and trade policy in the presence of distorted markets has had a paradoxical history. Market failures such as wage differentials between sectors and external economies were first emphasized by developing-country economists advocating protectionist policies. But when Jagdish Bhagwati formalized the analysis of distortions and welfare in terms of second-best theory -- a formalization which was one of the major achievements not only of his career but of international economics as a whole -- his analysis actually ended up serving primarily as an argument against protection.

The reason was that, as Bhagwati and Ramaswami (1963) showed (and as Johnson (1965) and Bhagwati (1971) were to reemphasize), protectionism is never the first-best policy response to a domestic distortion such as wage differentials. Instead, the appropriate policy is always a surgical strike on the source of the distortion. For example, suppose that manufacturing pays higher wages than agriculture. Then a tariff on manufactured goods may be better than complete laissez-faire; but such a tariff is too blunt a tool to fix the problem without damaging side effects. That is, while a wage differential leads to a less than optimal level of employment in the manufacturing sector, and a tariff on manufactured goods can induce labor to move back into the sector, the tariff will at the same time introduce new distortions, both in the allocation of productive factors other than labor and in consumption. The right policy is

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therefore to eliminate the wage differential if possible, to adopt a labor market tax-cum-subsidy scheme if not. If, as is usually the case, objections are raised to such a scheme -- it is too costly, and it involves subsidizing the wages of the very workers who are already the best paid -- the answer is that a protectionist solution is even more expensive, and has distributional consequences just as undesirable, with the only difference being that these adverse effects are less visible to the voters.

Today the domestic distortions argument for protection is rarely heard in developing countries, many of which have indeed turned with remarkable enthusiasm to liberal trade policies. Yet the analysis has acquired a new source of relevance: many of the arguments made by economists who are concerned about the "competitiveness" of advanced nations are (though their proponents rarely are aware of it) domestic distortion arguments very similar to those analyzed by Jagdish Bhagwati and his followers in the 1960s and 1970s.

In this paper I want to focus on one of these arguments -- the claim of many American pundits that the loss of high-paying manufacturing jobs to import competition is a major source of our economic difficulties. I will argue that in this case, as in the case of the domestic distortions arguments confronted by Jagdish Bhagwati and others in the 1960s, a serious analysis of the argument -- an analysis that grants that markets are indeed imperfect, but that attempts to use

economic theory to derive the policy implications of market failure, rather than taking the imperfection of markets as a license to abandon systematic analysis altogether -- does not support these pundits' view.[1]

There will be some differences between the approach taken here and that in the classic Bhagwati papers on the subject. In particular, he and his colleagues were largely concerned with normative analysis based on qualitative arguments. That is, they tried to show that on logical grounds protectionism was the wrong policy. In the current "competitiveness" debate -- which takes place in an intellectual environment in which economists are constantly attacked for disregarding reality -- I have found it essential to offer a positive analysis based on quantitative arguments. In other words, it turns out to be very useful to be able to offer calculations that show that the emperor of competitiveness is wearing no clothes, or at least not enough clothes to cover the places that matter.

This paper, then, is in six parts. The first part is a brief review of the emergence of the doctrine of "deindustrialization", a doctrine which has largely bypassed the professional economics journals but

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[1]There is a quite different issue that is often confused with the deindustrialization argument: the claim that international trade leads to the loss of *low* wage manufacturing jobs, with adverse consequences for the distribution of income. Most recent efforts to quantify this impact have suggested that it is real but limited in size; in any case, that is not the issue in this paper.

has had a deep impact on the thinking of policy intellectuals. The second part offers a simple model that attempts to use a domestic distortions framework to formalize the concerns expressed by those who believe that deindustrialization is a problem. The third part then shows how that model -- a model that in principle justifies the concerns of the "deindustrializers" -- can be used to produce an estimate of the actual importance of these concerns, and that as a practical matter such concerns are of quite small importance. The fourth part discusses several objections that have been raised when I and others have offered similar calculations. The fifth part reviews some qualifications to the model which suggest that if anything a more realistic analysis would find that the true importance of deindustrialization is even smaller than this paper's estimates. Finally, I offer some concluding remarks.

1.      The deindustrialization hypothesis

Those who listened to President-elect Clinton during the "economic summit" he held in Little Rock during December 1992, and who focussed on what we might call his implicit model of the US economy rather than on his impressive command of facts, noticed that he consistently returned to one theme: the loss of manufacturing jobs to international competition. Indeed, Clinton went so far as to propose a numerical target, suggesting that we should try to find a way to get the share of manufacturing in total employment from its then 17

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percent back up to at least 20 percent. The reason Clinton returned again and again to this theme was that he believed it to be a settled fact that the loss of the high-paying jobs that manufacturing used to offer was a major reason for American economic difficulties.

It was not surprising that Clinton should have held such a view. Concern about deindustrialization among liberal (and some conservative) intellectuals dates back to the late 1970s, when a number of observers, especially Bennett Harrison, Barry Bluestone, and Robert Kuttner began warning that America's industrial base was eroding. Bluestone and Harrison's 1982 book <u>The Deindustrialization of America</u> struck a responsive chord with many liberals, with its argument that the loss of high-paying manufacturing jobs was eliminating the American middle class.

Let me call this view -- more specifically, the view that the loss of high-wage manufacturing jobs <u>due to foreign trade</u> (as opposed to purely domestic shifts in demand or technology) has been a major cause of stagnating or declining incomes among American workers -- the <u>deindustrialization hypothesis</u>.

Few economists with mainstream credentials have taken the deindustrialization hypothesis seriously. Those few who worried about the issue at all before the early 1980s immediately noticed that the US trade balance in manufactures had remained in rough balance from 1970 to 1980, suggesting that while growing import penetration might have eliminated some manufacturing jobs, growing exports must have

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had a more or less offsetting job creation effect -- in other words, the declining share of manufacturing in employment had little to do with international trade. Robert Lawrence (1983) carried out an elaborate input-output analysis which reached the conclusion that there had been essentially no net effect of trade on the level of manufacturing employment during the 1970s. And although the US began to run large manufacturing trade deficts during the 1980s, most economists associated these deficits with the Reagan-era combination of budget deficits and tight money, rather than viewing them as a structural issue.

The proponents of the deindustrialization hypothesis, however, essentially ignored the professional economists. Instead, they continued to propound their views in influential books such as Cohen and Zysman's 1987 Manufacturing Matters, articles by Robert Kuttner, Lester Thurow and others in such magazines as The Atlantic, The New Republic and The New York Review of Books, and documents such as the 1998 Cuomo Commission report. These views achieved very wide acceptance. Indeed, it would be misleading to say that by the time of Clinton's election liberal intellectuals had come to discount the objections of economists to the deindustrialization hypothesis. Rather, for the most part they were unaware that there were any objections. The image of former steelworkers earning minimum wage flipping hamburgers had become part of what everyone knew to be true. Of course the loss of high-wage jobs in

manufacturing was one of the biggest problems facing the American economy; the only question was what to do about it.

It is interesting to ask how an intellectual consensus could emerge about an economic issue with essentially no support from professional economic research; it is also interesting to ask why only a handful of economists made any effort to argue in public forums with this consensus, and were ineffective when they did. But in this paper I want to focus on the substantive economics of the deindustrialization hypothesis.

The key point to notice is that while its proponents did not and do not put it this way, the deindustrialization hypothesis is essentially a second-best argument based on domestic distortions. Manufacturing, the proponents of this hypothesis believe, is where the high-wage jobs are -- that is, for some reason there is a wage differential between manufacturing and other sectors. And growing international trade leads to the loss of many of these jobs -- that is, something which would be a good thing in an undistorted economy (increased opportunities for trade) turns out to be a bad thing because of that pre-existing domestic distortion. This is a classic form second-best argument, the same in logical structure as the arguments that customs unions can cause harmful trade diversion or that growth can be immiserizing.

The standard answer to this argument, the one that Bhagwati taught us, is that even if you believe this story the appropriate

response does not involve trade policy. That is, we should not follow Kuttner's advice to impose MFA-type managed trade on all manufactured goods. Instead, we should attack the domestic distortion at its source: eliminate the wage differential between manufacturing and other sectors, or subsidize high-wage employment.

This answer is certainly correct. It is also a complete non-starter in real-world discussions, where the general belief is that economists know nothing about reality, and that their a priori arguments are of no practical importance. Thus it is important to supplement Bhagwati's answer with a different kind of answer: one that puts the shoe on the other foot, and shows that on the contrary it is the deindustrialization hypothesis which is of hardly any practical importance.

## 2. Modeling the deindustrialization hypothesis

To be useful, a model of trade in the presence of domestic distortions (or of anything else) must involve strategic simplifications. Even if one is willing to specify the nature of the distortion, there are other crucial aspects of the model that must be decided on the basis of some mixture of evidence, intuition, and analytical convenience. In particular, the literature on domestic distortions suggests three important dimensions along which modeling choices must be made.

First, what is the production structure of the model? Should it be Ricardian, Heckscher-Ohlin, specific factors, or something more

elaborate?

Second, how should trade be modeled? Should we think of the model economy as a small country facing world prices, or should it be regarded as a large country whose "rest-of-world" presents it with a nonlinear offer curve?

Third, how should we model the shock that the economy faces? In the context of the deindustrialization hypothesis, this amounts to the question of what we think of as the driving force behind the emergence of a U.S. trade deficit in manufactures.

In this paper I will make a particular set of strategic simplifications that seems to me to offer the clearest way to make sense of the deindustrialization hypothesis, and that has the major additional virtue of allowing easy quantification. I will try to examine how different assumptions would affect the conclusions in parts 4 and 5 of the paper, but meanwhile here is the assumed structure of the model.

First, the production structure is the simplest possible: a Ricardian framework in which one factor, labor, can be used to produce two goods, Manufactures and Services.

How can such a radical simplification be justified? For one thing, nothing about the deindustrialization hypothesis as described seems to involve capital or other factors in any essential way -- the important thing is high-wage versus low-wage jobs for workers of equivalent skill. It is of course nonetheless possible that a one-factor

model could give misleading estimates about the effects of trade on the sectoral composition of employment, because it rules out by assumption changes in relative goods and factor prices that might be important in practice. As a numerical matter, however, the production possibility frontiers implied by two- or three-factor models with any reasonable elasticity of substitution are quite flat, so that trade flows of the magnitude discussed below would have only minor impacts on relative factor and good prices; some preliminary experiments I have conducted with semi-realistic CGE models suggest that the Ricardian model is a pretty good approximation for these purposes. By using a one-factor model, of course, we miss the possibility of changes in the distribution of income between factors; and by using a two-good model we exclude the possibility of saying anything useful about the fact that the United States exports as well as imports manufactures. I will return to both issues in parts 4 and 5.

With regard to the modeling of trade, I will not assume that the model economy is a price-taker. Instead, it faces a rest-of-world offer curve. This assumption may be justified simply by noting that the United States is indeed a large economy. There is also, however, a crucial issue of modeling convenience. If one wants to avoid corner solutions -- and as we will see, the reality of US trade experience is very much not a corner solution -- then one must either build decreasing returns into the production structure or get the necessary decreasing returns out of the foreign offer curve. (On this, see Brecher

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(1974)). So if the technology is Ricardian, it is a great help to adopt a large-country approach to trade.

Finally, how should we model the shock that is supposed to cause deindustrialization? Most people, including professional economists, would grant that over the past generation there has been a process of "globalization" of the US economy, whose measurable impact is a sharp rise in the share of both exports and imports in GDP. Surprisingly, however, it is quite hard to be explicit about the sources of this increased trade share. A country might be induced to engage in more international trade if given an incentive to do so, that is, if its terms of trade improve -- but US terms of trade, at least as measured, have if anything deteriorated slightly over the past generation. Or there could be a fall in transport costs, which would raise the ratio of f.o.b. to c.i.f. prices -- but while there has indeed been a decline in transport costs for goods, even a generation ago these costs were so low that their continuing decline cannot explain the rapid growth in trade. The same is true of trade liberalization, which has reduced tariffs, but from an initial level that was fairly low by historical standards.

What, then, is the nature of globalization? The best available answer would be that it involves the reduction of invisible transaction costs in international trade, a reduction that is presumably due to improvements in communication and information processing -- that is, we invoke the magic of silicon to explain trade trends. And how

should this be modeled? The easiest way is simply to imagine that some goods and services that were previously nontradeable become tradeable.

In the context of a two-sector model, this boils down to starting with a situation in which the United States is in autarky, and then opening up the possibility of trading services for manufactures; the result is then a trade deficit in manufactures, which implies a contraction of manufacturing employment.

The objections to this description are obvious. First of all, the United States is an exporter as well as an importer of manufactured goods -- and manufactures exports have grown almost as rapidly as imports. Second, for the most part the emerging deficit in manufactures has not had service exports as a counterpart, but rather has been reflected in a current account deficit.

The first of these objections is essentially an objection to a two-sector model; I will try to discuss the ways in which the results might change if manufactures were disaggregated in parts 4 and 5 of the paper. The second objection amounts to saying that we cannot deal with the issue of deindustrialization except in terms of an intertemporal model. Indeed: the advocates of the deindustrialization hypothesis are notably unconcerned about the implications of intertemporal budget constraints, and sometimes seem to imagine that the United States can run trade deficits forever. It is therefore a charitable gesture to represent their views by imagining that the

country exports something to pay for its imports of manufactures. As an empirical matter, we may play somewhat dirty and argue that there are substantial unrecorded US service exports; or we may claim that "services" are a proxy for export of IOUs, to be repaid at a later date with a future trade surplus in manufactures. This raises some obvious questions about the interpretation of what must then be a transitory deindustrialization, but let us postpone that discussion until later parts of the paper as well.

Finally, then, we are prepared to lay out the model, which after all that will be very simple. We imagine a two-sector economy, in which one factor, labor, may produce either Manufactures or Services under constant returns to scale. For some reason, say the existence of unions, workers in Manufactures must be paid a higher wage than those in Services; let the ratio of the Manufactures to the Services wage be $w>1$. We consider an initial equilibrium in which no trade is allowed, and a subsequent equilibrium in which Services may be traded for Manufactures, with the rest of the world represented by an offer curve.

Figure 1 then shows the pre- and post-trade equilibria. The line PF shows the economy's production possibility frontier. In a one-factor model, the wage differential will not put the economy inside that frontier, but it will distort the prices consumers face: the autarky relative price of Manufactures will be $w$ times the opportunity cost of Manufactures in terms of Services. Thus the autarky equilibrium will

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be at a point such as A, with BB the perceived budget line.

Now we allow trade with a rest of world, whose import demand/export supply is represented by the offer curve QR. As long as the country remains nonspecialized, the relative price of Manufactures must be the same after as before trade (which also implies, incidentally, that even an undistorted economy would not gain from trade -- in other words, this model is biased toward producing losses). But the possibility of Manufactures imports leads to a decline in Manufactures production; the production point shifts to Q. Consumption C must be on the new budget line B'B', and the implied trade vector QC must be a point on the rest-of-world offer curve. (One can think of finding the new equilibrium by sliding Q northwest along PF until C lies on the consumption expansion path OE which passes through A).

It is immediately apparent that welfare is reduced. The opening of trade, which should make the country better off or at least no worse off, instead leads to a decline in income because it pushes workers out of the high-wage manufacturing sector into the low-wage service sector. The interaction of trade with the pre-existing domestic distortion leads to losses.

Figure 1, then, offers what appears to be a rationale for the deindustrialization hypothesis. But it is one thing to show that something can happen in principle; it is something quite different to show that it is an important effect in practice. How large is the

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negative impact of trade implied in Figure 1?

### 3. The (un)importance of deindustrialization

To assess the welfare loss from deindustrialization, it is useful to define two functions which are implied by the utility function. First, let us define the indirect utility function,

$$U = N(y,p) \qquad\qquad \textbf{(1)}$$

where $y$ is income in terms of Services and $p$ is the relative price of Manufactures. Second, let us write an expression for expenditure on Manufactures (measured in terms of Services),

$$E_M = E(y,p) \qquad\qquad \textbf{(2)}$$

We may also note that income y arises entirely from wage earnings. Let L be total employment, $L_M$ and $L_S$ employment in the two sectors, and choose units so that one unit of labor produces one unit of Services. Then we have

$$\begin{aligned} y &= L_S + wL_M \\ &= L + (w-1)L_M \end{aligned} \qquad\qquad \textbf{(3)}$$

Finally, note that income earned in Manfactures is total expenditure on Manufactures, less spending on Manufactures imports:

$$wL_M = E(y,p) - E_{IM} \qquad\qquad \textbf{(4)}$$

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In the situation depicted in Figure 1, what happens when we move from A to C? Given the assumptions, there is no change in the relative price $p$; all that happens is that the budget line shifts in, a reduction in $y$. The driving force behind this change in $y$ is the diversion of some demand for Manufactures to imports, that is, a rise in $E_{IM}$. So all we need to do is analyze the effects of a rise in $E_{IM}$.

It is easiest (though not essential) to do this by considering a small change, so that we can use calculus. From (2), (3), and (4), we easily find that

$$\frac{dy}{dE_{IM}} = -\frac{w-1}{w - \mu(w-1)} \tag{5}$$

where $\mu$ is the marginal propensity to spend on manufactures. The welfare effect is then

$$\frac{dU}{dE_{IM}} = -\frac{\partial N}{\partial y}\left(\frac{w-1}{w - \mu(w-1)}\right) \tag{6}$$

And that's it: the term in brackets in equation (6) is the compensating variation for the welfare loss from one dollar of expenditure on imports (which in the context of this model should be interpreted as one dollar of Manufactures trade deficit).

To estimate the quantitative importance of the actual deindustrialization, then, we need only three numbers. First, we need a value for $w$. Proponents of the deindustrialization hypothesis, such

as Lester Thurow, often use the figure of 30% for the wage premium in manufacturing. This is actually the difference in weekly earnings between manufacturing and nonmanufacturing workers, and may well be an exaggeration of the true premium, as discussed in part 5; but let us accept it for now.

Second, we need the trade-induced fall in expenditure on manufactured goods, $E_{IM}$, which we will tentatively identify with the trade deficit in such goods. In the 1990s to date the US trade deficit in manufactured goods has averaged about 1.5 percent of GDP; let us use this as a baseline, with the understanding that it is very easy to scale the calculation up or down if you regard the structural deficit as smaller or larger.

Finally, we need the marginal propensity to spend on manufactured goods. Manufactures account for about 18 percent of US value-added; together with a trade deficit of 1.5 percent, this gives an average propensity to spend of about 0.2. Lacking any particular reason to suppose that the marginal is very different from the average, we may therefore assign a value of $\mu=0.2$.

Substituting $w=1.3$, $E_{IM}=1.5$, and $\mu=0.2$ into (6), we therefore arrive at an estimate of the real income loss due to the trade-induced loss of high-wage manufacturing jobs: 0.363 percent.

To put this estimate in context, consider what the proponents of the deindustrialization hypothesis believe that it explains. Depending on the particular measure used, ordinary workers in the

United States experienced something between stagnation and a 15 percent fall in their wages between 1973 and 1993, compared with a 60 percent rise over the previous 20 years. The deindustrialization hypothesis assigns primary responsibility for that deterioration in performance to the loss of high-wage jobs to imports. Instead, our estimate finds that the negative impact of trade is well under 1/2 of one percent -- not one but two orders of magnitude too small to bear the weight being placed on it.

4.    Critiques of the estimates

When back-of-the-envelope estimates similar in spirit to the one reported in the previous section were published in Krugman (1994) and Krugman and Lawrence (1994), they immediately drew critical reaction from proponents of the deindustrialization hypothesis. The tone of these reactions might perhaps best be described as ranging from rage to blind fury. What were the nature of these criticisms?

Some of the critiques are not worth discussing at length. Thurow (1994) argued, in effect, that both $E_{IM}$ and $w$ were much larger than I (or he in his own earlier writings) had supposed. His large value of $E_{IM}$ seems, however, to have been based on a simple and puzzling misreading of US trade statistics, while his new, higher value of $w$ was based on the wage loss experienced by individual workers losing their jobs -- an obviously flawed procedure, because fired workers would suffer losses even in an undistorted economy.

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Prestowitz (1994) argued that there are multiplier effects to the loss of good manufacturing jobs; while there is indeed a small multiplier effect implied by (6) (the decline in income due to loss of manufacturing jobs leads to a decline in demand for manufactures, which further reduces income, and so on -- a sequence captured by the negative second term in the denominator), the mechanism he described seemed to involve nothing more than naive double-counting.

A more serious criticism, raised for example in a vitriolic letter circulated but never published by Charles McMillion, a senior editor at the Harvard Business Review, was that to the wages lost because workers are displaced from high-wage jobs we must add the depressing effect on the wages of the workers that remain. In effect, this is an argument that says that $w$ is not constant, and that it has been forced down by international competition.

It is easy to produce at least anecdotal evidence for a decline in $w$, perhaps tied to international trade; certainly during the 1980s many large firms sought "givebacks" from their workers, or began out-sourcing large parts of their business to non-union workers in smaller companies. It therefore seems extremely plausible to argue that the real costs of international trade have come from wage compression rather than the actual displacement of high-wage workers.

There is only one problem: while intuition may suggest that displacing high-wage workers and compressing their wages are similar

in their economic effects, once one realizes that we are talking about a second-best problem we see that the parallel, however seductive, is misleading. If trade leads to less high-wage employment, it is in effect playing into and aggravating the effects of a distortion. If, on the other hand, trade drives down manufacturing wages, it is in effect reducing the distortion, and raises real income for the nation as a whole (although not for the high-wage workers themselves).

This is easiest to see if we consider the effects of a reduction in $w$ in an autarkic economy -- the situation illustrated by point A in Figure 1. A reduction in $w$ in such an economy will lower the relative price of manufactures, and lead to a shift in the equilibrium southeast along the production possibility frontier; this unambiguously raises welfare. Indeed, if $w$ is reduced to 1, the full optimum A' is achieved.

A reduction in $w$ when the economy is already running a trade deficit in manufactures is slightly more complicated, but is in fact even more favorable to real income. First consider the effect on the economy's international trade. As long as the economy continues to produce both goods, relative prices will be tied down by $w$ and relative labor requirements; and given these relative prices, trade flows will be determined by the rest-of-world offer curve. It is apparent on reflection that reducing $w$ will mean that the trade vector QC is replaced by a new trade vector, Q'C', that is both flatter and shorter, as shown in Figure 2.

The economy's consumption pattern will also change: with a

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lower relative price of manufactures, it will consume more manufactures at any given level of utility. In Figure 2, the consumption expansion path OE that passes through the original consumption point C is replaced by another, flatter path, OE'. The new equilibrium may be found by sliding Q' along the production possibility frontier until C' lies on OE'.

It is immediately apparent that welfare is higher at the new equilibrium. The gain occurs for two reasons: not only is the wage distortion reduced, but there is also a terms of trade gain. Thus to the extent that import competition drives down manufacturing wages, the adverse impact of deindustrialization on welfare is actually diminished.

Admittedly, there will be distribution effects. In this model, a fall in $w$ raises the real wages of those workers who would not otherwise hold high-wage jobs, but obviously reduces the real wages of those workers who would have held such jobs in any case; in principle the winners could compensate the losers, but as usual it is unrealistic to suppose that this happens in real life. We might make the point, however, that in the model the change in income distribution is actually equalizing -- that is, it is the "labor aristocracy" that is hurt, while the less lucky workers gain.

Of course in the real economy there has been a substantial increase in inequality among workers, with in particular a rise in the premium associated with college education. (There has, on the other hand, been absolutely no change in the distribution of income between

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capital and labor). There is a serious debate about how much of this increase in the education premium is due to globalization. The important point for this paper, however, is that this distributional issue is very different from the deindustrialization hypothesis, which focusses on the loss of high-wage jobs, not the ever-lower pay of low-wage jobs.

5.    Qualifications on the other side

While many people are shocked if not outraged at an estimate that suggests that deindustrialization has lowered U.S. real income by no more than a few tenths of one percent, as a practical matter it may be argued that even this estimate is too high.

First, the true manufacturing wage premium is probably less than 30 percent. The 30 percent number is based on weekly earnings; however, the high weekly earnings in manufacturing are primarily due to a longer work week than in services. If this difference reflects voluntary choice -- for example because the service sector contains more secondary earners -- then it is the hourly, rather than the weekly wage differential that should be used. It is also likely that tradeable services such as insurance pay higher wages than the nontradeable services that make up the bulk of the average. Overall, one can easily make a case that the true wage differential is half or less of the often-repeated 30 percent estimate.

Second, trade deficits in manufactured goods do not reduce

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value-added in manufactures one for one, because not every dollar of manufactures sales is a dollar of value added. In Krugman and Lawrence (1994) we estimate that the reduction in manufacturing value added due to trade is in fact only 60 percent of the trade deficit. Thus the value of $E_{IM}$ should be thought of as more like 0.9 than 1.5 percent of GDP.[2]

Third, to the extent that manufacturing trade deficits are matched not by exports of services but by capital inflows, they imply a future in which the United States will run manufactures trade surpluses -- that is, a future of "reindustrialization", in which trade will presumably lead to a larger number of manufacturing jobs than would exist in its absence.

These considerations suggest that part 3's estimate of the income lost by displacement from high-wage jobs is, if anything, much too high. A better number might be 0.1 percent or less.

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[2]There is a possible counter-argument, which cannot be dealt with formally in a two-sector model. Suppose that the United States exports goods with substantially higher value-added per worker than the goods it imports; this might be the case if the export goods are either physical- or (more likely) human-capital-intensive. Then even balanced trade might have a net negative impact on manufacturing employment. This seems to be what Sachs and Schatz (1994) had in mind in their insistence on carrying out an elaborate input-output analysis of the effects of trade on manufacturing employment. In the end, however, their results were very close to the back-of-the-envelope calculations in Krugman and Lawrence (1994).

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6.     Conclusions

Critics of the economics profession, such as Robert Kuttner (1991), often seem to believe that economists are so wedded to the assumption of perfect markets that they have never thought about the possible implications of market failure. They also seem to believe that if there is any plausible case for the existence of a market failure, economic analysis places no constraints on the range of possible conclusions. In particular, if there is a theory that suggests that international trade could produce losses instead of gains, then one is free to indulge one's gut feeling that in fact expanded trade is a terrible thing, with devastating effects on the economy.

The reality, however, is that economists have thought long and hard about the consequences and policy implications of market failure -- in the general theory of the second best, and especially in the theory of trade policy in the presence of domestic distortions. And that analysis does not say that anything goes: it places crucial limitations on the range of speculation, by forcing one to be specific about the mechanism through which distortions and trade interact. The existence of a theoretical possibility does not give the commentator a license to believe whatever he likes: effects that are possible in principle may also be, fairly certainly, unimportant in practice.

In this paper I have pointed out that a widely accepted view about the sources of American economic difficulties, the "deindustrialization hypothesis", is in fact a second-best, domestic

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distortions argument. Once one recognizes this, it is possible not only to think about the hypothesis clearly, but to quantify its importance. And it turns out that even on favorable assumptions the deindustrialization hypothesis cannot bear more than a tiny fraction of the explanatory weight its proponents place on it.

Aside from the practical importance of this issue, the analysis in this paper is a reminder of the enduring usefulness of great ideas in economics. When Jagdish Bhagwati developed his beautiful analysis of distortions and trade policy, the world was a very different place: poor countries were poor, rich countries were rich, and the idea that the United States would fear deindustrialization would have seemed strange indeed. Nonetheless, the insights and tools he introduced are more relevant now than ever before.

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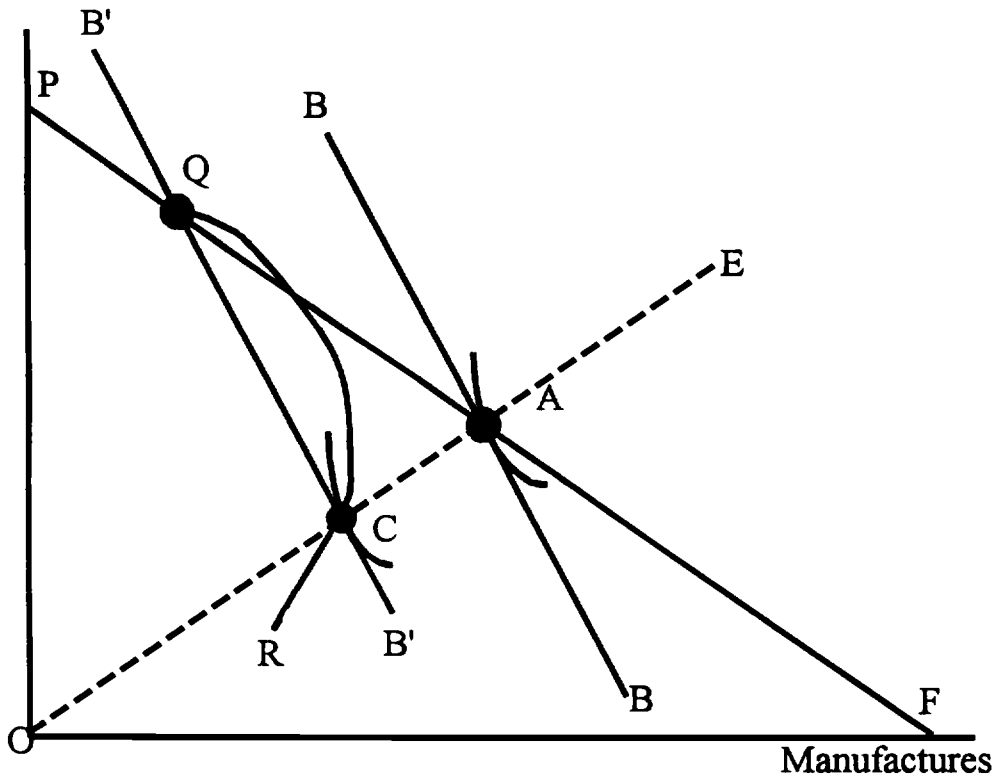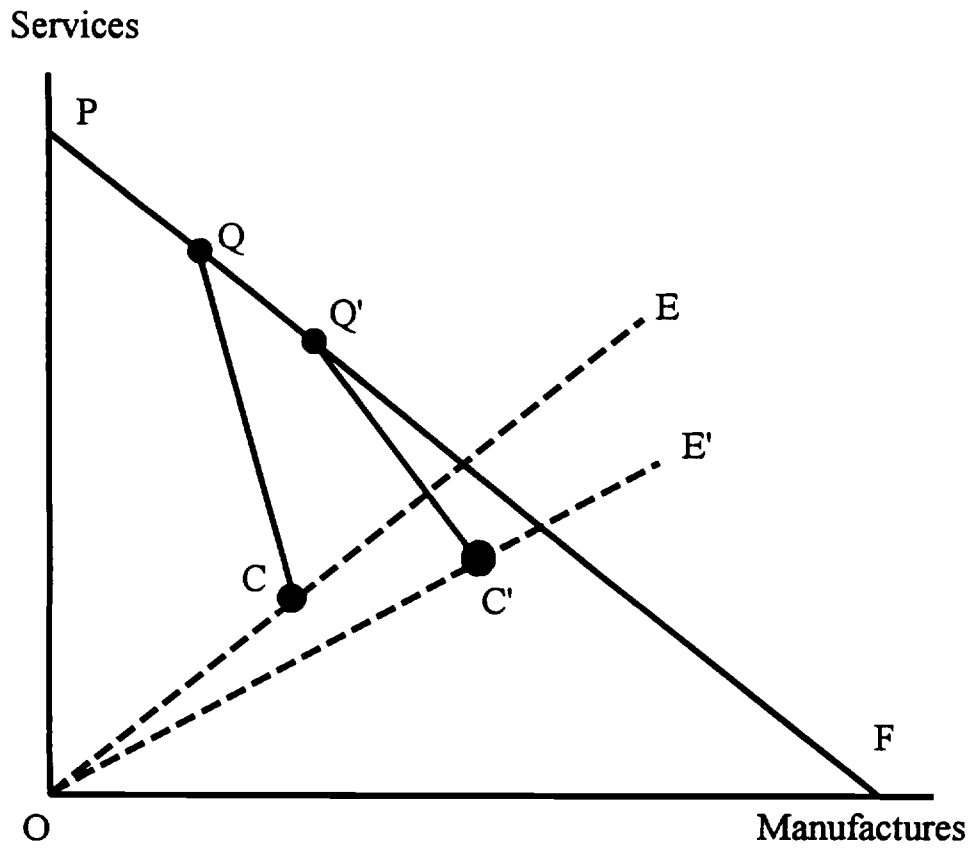
Services

B'

P

Q

B

E

A

C

R    B'

B    F

O

Manufactures

**Figure 1**

Figure 2