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Globalization and the U.S. Labor Market

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The focus of this paper concerns the role of increased global economic integration in affecting labor market outcomes (wages and unemployment) in the United States. Section I discusses at a general level the role of international trade in the U.S. economy; calculations of trade’s impact on labor directly involved in exporting or displaced by imports are presented. Next the economy-wide effects of globalization on labor markets are explored. Section II concentrates on the degree to which globalization can account for the slowdown in wage growth which has occurred since 1973 and section III looks at the role of trade in explaining the increase in wage inequality that has occurred since 1979 within the neoclassical framework while section IV considers more institutional arguments. How globalization and its labor market impacts are likely to evolve in the future are explored in section V and section VI discusses how labor policies may be impacted by globalization. Section VII provides a summary.

I. Globalization’s Direct Impacts on Labor

The global economy has become progressively more integrated since the Second World War. Over the 1959-94 period, global GNP grew about 3.9 percent a year while global trade grew at an average annual rate of 11 percent; as a result, almost all countries have much higher trade to GNP ratios. For the United States, the trade (exports + imports/2) to GNP ratio has increased from 4.0 percent in 1959 to 14.3 percent in 1997 (ERP-1999, B2). Although this increase in economic integration has been a persistent trend throughout this period, the upward trend has been increasing at an increasing rate. Thus this ratio was only 5.6 percent in 1971 and was only 10.5 percent as recently as 1992. As would be expected, the percent of the labor force involved in the production of exports should closely match the export to GNP ratio (unless exports use a lot of imported components). In 1992, the U.S. had an export/GNP of 10.2; using input-output analysis it is estimated that 10.9 percent of the total civilian labor force was involved in export production. Table 1 provides estimates of how these export-related jobs were distributed amongst the major economic sectors.

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1 The views expressed are those of the author and do not necessarily reflect the official positions of the U.S. Department of Labor.
Although exports are primarily goods instead of services, of the 10.4 million jobs supported by exports, 6.0 million are in the service sector due to their indirect involvement in goods production. However, the 3.7 million manufacturing jobs dependent on exports represented 20.1 percent of manufacturing jobs while 18.0 percent of agriculture workers were involved in production for export. Jobs supporting goods exports pay 6 percent more in manufacturing and 7 percent more in services while jobs supporting service exports generally pay 5 percent less than jobs in the service sector (Table 2).

### Table 1
**Trade-Related Full Time Equivalent (FTE) Jobs in the U.S.**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of Jobs Supported</th>
<th>Share of the Labor Force</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Goods Exports</td>
<td>Services Exports</td>
</tr>
<tr>
<td>Total Civilian</td>
<td>7.0 million</td>
<td>3.4 million</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>3.4 million</td>
<td>0.3 million</td>
</tr>
<tr>
<td>Services</td>
<td>2.9 million</td>
<td>3.1 million</td>
</tr>
<tr>
<td>Agriculture</td>
<td>0.5 million</td>
<td>0.1 million</td>
</tr>
<tr>
<td>All Other</td>
<td>0.3 million</td>
<td>0.1 million</td>
</tr>
</tbody>
</table>

Source: Department of Commerce (ESA); FTE=Full Time Equivalent (1992).

### Table 2
**Average Hourly Wages for All Non-Agriculture Workers and Goods and Services Export Related Workers**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Average Hourly Wage</th>
<th>Average Export Related Wage</th>
<th>Export Related Wages as a Percentage of Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Goods Exports</td>
<td>Services Exports</td>
</tr>
<tr>
<td>All Non-Agriculture</td>
<td>$10.37</td>
<td>$11.75</td>
<td>$9.80</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>$11.68</td>
<td>$12.42</td>
<td>$12.00</td>
</tr>
<tr>
<td>Services</td>
<td>$10.12</td>
<td>$10.90</td>
<td>$9.57</td>
</tr>
<tr>
<td>All Other</td>
<td>$10.97</td>
<td>$12.16</td>
<td>$11.95</td>
</tr>
</tbody>
</table>

Source: Department of Commerce (ESA, 1992 data).
It should be noted that the above data are often cited as evidence that increased openness increases high wage jobs, but the data do not necessarily imply that conclusion for two significant reasons. Firstly, increased openness will result in the loss of jobs in import competing sectors and not “average jobs”; the demonstration that import competing sectors pay wages equal or below average industry wages is usually not demonstrated. Calculations involving the characteristics of jobs lost through increased openness are much more difficult to make since it requires not just calculations using the existing production data but requires a procedure to determine a counter-factual production structure. As discussed in a latter section, debate about how to determine the counter-factual production structure if those imports had been made domestically has been a central point of contention in a number of other issues concerning trade’s impact on the economy. Given that there are a number of different procedures that could be used to make these calculations, it is not surprising that results vary. In fact there are several studies which show that average wages in import-competing sectors are close or equal to those in U.S. export industries (i.e., Dohner-1996 and Thurow-1991). Even if average wages are higher in the export sectors compared to the import sectors, there is no guarantee that at the margin the increased exports will produce jobs paying higher wages than what was being paid in the contracting import-competing sectors. The argument assumes that the transferred marginal workers in each sector will be paid the current average wage in each sector. In addition, this line of thought assumes that wages are determined by job characteristics and not by worker characteristics. There is, however, some support for this view based upon estimates of labor rents—wages beyond what can be explained by skill and education; these correlate negatively with import to shipments ratios and positively with export shares. Thus, although increasing employment in the export sectors will not change the nation’s endowment of labor skills, higher wages are possible if there are industry wage effects which are greater in the export sector than in the import-competing sector.

Although estimating a counter-factual is quite difficult, data are available for workers that have actually been displaced, as opposed to hypothetically displaced, by imports. However, only a portion of those actually displaced are eligible for adjustment assistance and included in these data. Displacements from trade account for less than 10 percent of total displacements in manufacturing. Workers displaced by trade are geographically concentrated relative to manufacturing employment. During the 1987-92 period, only 4.8 percent of those receiving trade adjustment assistance were in the Pacific region although that region accounted for 14.4 percent of manufacturing jobs; likewise the Mid-Atlantic region had 21.3 percent of the displacements but only 14.3 percent of the manufacturing workforce. Analysis of the Trade Adjustment Assistance program has found
that workers displaced by trade were on average re-employed at lower wages and continue to have lower wages for extended periods; thus although increased trade may raise overall wages it does not do that for those actually displaced. Thus the view that increased trade moves workers from making low wages in import-competing sectors to making higher wages in export sectors is not consistent with the actual changes observed in the labor-force displacement data.

The effect of trade on aggregate employment repeatedly arises in policy discussions. During the NAFTA debate the issue of trade’s role in creating aggregate employment took center stage. Given the public’s concern about unemployment, supporters as well as opponents attempted to frame the debate about the desirability of trade as an employment issue. Even generally reputable economists such as Hufbauer and Schott (IIE) provided estimates of NAFTA’s likely job creating ability. Generally, these discussions lacked any validity; many professional economists, many of whom supported the NAFTA for other reasons, allowed this disinformation about employment to pass unchallenged. Currently it is the trade deficit that is being alleged to have reduced employment. These “trade affects employment” studies are usually based on some Keynesian framework where changes in trade flows create no exchange rate changes nor do the resulting aggregate demand changes prompt any compensating changes in monetary policy. Thus they are similarly invalid. Although trade openness or deficits could potentially affect employment through several legitimate channels, these channels are only rarely incorporated into the analysis.

Trade could affect wage levels for the various labor groups (Stolper-Samuelson effects for openness, and shifts from traded goods (manufacturing) to nontraded goods (services) for deficits) and there could be employment changes if the supply functions for these factors are anything but vertical. Sometimes these supply effects are incorporated into computable general equilibrium models; however, most models do not break the labor force up into skill groups and thus cannot compare the supply gains in skilled labor to the losses in unskilled labor. The employment loss due to workers being displaced from trade and thereby losing their firm-specific human capital and thereby leaving the workforce have not been addressed. Finally, trade will impact the various sectors and various geographical regions differently than the other components of aggregate demand; and thus a given level of aggregate demand may produce different bottlenecks and therefore have different inflationary consequences depending on its components. A given level of aggregate demand can therefore imply a different monetary policy. Wyrrs and Larios (1996) are the only researchers that have discussed the possibility that increased openness may impact the natural rate of unemployment through this mechanism. Thus although it is possible that
trade could affect aggregate employment, most studies that address the issue do it improperly; therefore a best approximation, given available empirical research, is simply that trade openness and trade deficits generally do not affect the aggregate level of employment.

II. The Slowdown in Wage Growth

The concern about globalization’s general equilibrium effects on wages in the United States can be broken into two issues: the slow growth of average wages, and the increased level of inequality between skilled and unskilled labor. The failure of average wages to grow since 1973 is truly remarkable; as Slaughter (1998) has observed, in the 100 years before 1973 real average wages increased steadily at 1.9 percent a year, while since 1973 real wages have fallen at 0.4 percent a year. The 2.3 percentage difference in wage growth performance means that the average wage-earner is making only one-half the income that he would have made if historical wage trends could have been maintained. In 1997 real average hourly earnings were equal to those in 1965\(^2\). Recently there has been a slight increase in average hourly wages beginning in 1995 and median hourly wages beginning in 1996; however, it is not clear if this represents a reversal of a long-term trend or only cyclical gains near the end of a business cycle as wages also increased briefly in the late 1980s. That this wage decline has happened is all the more surprising given that the decades of the 1980s and 1990s are generally considered as periods of prosperity as each decade was characterized by extremely long business cycle expansions.

These wage declines occurred during a period of rapid globalization of trade and capital markets, and during a time when immigration reached historic highs so it is natural to ask if there is any connection. The standard explanation for this reduction in wage growth is the slow rate of productivity growth; and this appears to be significantly explained by the low savings rate. However, between 1973 and 1994, while average hourly wages fell by 15.0 percent, business sector (excludes housing) output per hour increased by 23.8 percent (Lawrence-1996-table 1-1). Thus almost one-third of output appears to be “missing”. Therefore the key questions are whether globalization is responsible for 1) the low savings and productivity growth, and 2) the discrepancy between wage growth and output growth.

It has been suggested by Belman and Lee (1996) that globalization could account for some of the productivity slowdown. The argument is usually related to the fact that labor productivity growth has historically (1973-89) been much higher in the manufacturing

\(^2\) Economic Report of the President, February 1999, Table B-47.
sector (2.8 percent) relative to the service sector (1.0 percent) and trade has somehow resulted in a shrinkage of the manufacturing sector. However, it is difficult to see how increased openness could shrink the manufacturing sector since exports and imports are composed of a similar percentage (around 80 percent) of manufactured products.

It has also been argued that trade deficits, as opposed to openness, can contribute to deindustrialization by shifting resources from the manufacturing to the service sectors. Although deficits might result in a smaller manufacturing sector, the magnitudes appear to be insufficient to create significant effects. A 2 percent differential in growth in 2 percent of the economy (the average size of the deficit) reduces growth by only .04 percentage points a year; over 15 years that’s less than one percentage point change in output. This is small or insignificant in terms of the large wage slowdown. However for those that raise this issue, they often to fail to be explicit about the alternative in that they assume economy-wide investment would not be altered if trade were forced to be balanced in some manner. The 2 percent of GDP trade deficits do correspond to 2 percent of GDP of capital inflows; these capital inflows have allowed net domestic investment to average about 7 percent of GDP instead of being constrained to the average 5 percent level of net national saving. This increase in investment would most reasonably result in productivity growth greater than that estimated to be lost by the shrinkage of manufacturing. An additional argument made by those concerned about trade deficits is that if sectors as opposed to labor skills (due to labor rents, etc.) explain the wage differences between manufacturing and services, then 2 percent of the workforce could be making 23 percent more (compares wages in manufacturing for exports to overall service workers in Table 2). However, this translates into only a one time 0.4 percent wage increase; thus the trade deficit’s effects on wage levels through this channel are also largely insignificant.

Can globalization account for the discrepancy between wages and output? Labor’s share of national income remained relatively constant between 1979 and 1991 so it does not appear that other factors, specifically capital, have taken a larger slice. Approximately 60 percent of this discrepancy can be accounted for by the shift away from paying direct wages towards benefits as U.S. real labor compensation increased between 1973 and 1994 by 8.6

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3 The deficit is still worthy of policy concern since this does represent almost $100 billion of lost output per year.

4 Assuming a capital/output ratio of 3, 1 percent labor force growth, and physical capital accumulation accounting for 1/5 of productivity growth of 1 percent a year, the capital inflows could account for a .1 percent increase in yearly productivity (compared to the .04 loss due to the trade deficit).
percent. The remaining difference between labor compensation and output appears to be due to the difference between the prices of goods workers produce and the price of goods they consume. Lawrence (1996) suggests there are three significant factors for this, 1) that productivity growth has been much higher for investment goods (which are not consumed), 2) the price of housing has increased more rapidly than the price of all other goods and services, and 3) import prices have increased relative to export prices (i.e., a deterioration in the terms of trade). Thus this discrepancy (between productivity and compensation) would not exist if workers consumed directly the goods that they produce, but does exist because workers consume a different bundle of goods than they produce. The U.S. terms of trade fell significantly in 1974 and 1980 after large oil price increases; oil prices have slowly tended down since 1980 and the terms of trade in 1994 were what they had been in 1977. The 12 percent fall in the TOT (1973 to 94) when multiplied by the 10 percent export/GNP ratio can only explain approximately one percentage point of the output-compensation differential. Thus the magnitude as well as the time profile of the TOT changes suggest that terms of trade changes are not a significant factor in the wage slowdown.  

To summarize, it does not appear that globalization, either through increased openness or increased trade deficits, is a significant factor in the wage slowdown that has occurred since 1973. This conclusion is not particularly controversial within the international economics profession; however, in nonacademic circles these issues are still raised and therefore the message needs to be constantly repeated. There are two loose ends that may need to be addressed. Firstly, it is generally assumed that the increase in housing costs were exogenous and definitely not related to trade. However, one could easily model a situation where changes in the distribution of income resulting from trade, would shift income towards those with a higher propensity to spend on housing and thereby increase the price of housing. Thus what is assumed to be exogenous, could in fact be endogenous and the result of trade. Secondly, it is argued that productivity growth has been much higher in the investment sector relative to the consumption sector, and therefore wage increases, defined as consumption wages, should be less than output growth. However, given that the production of investment goods is simply an intermediate step towards the production of consumer goods, is it possible to have productivity growth in the investment sector over long periods of time that does not ultimately show up as higher consumption wages (in a closed economy model)?

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5 It is somewhat puzzling in that between 1970 and 1979, compensation and output per hour grew at the same rate despite a 26.5 percent decrease in the TOT, while from 1979 to 1994, the compensation-output differential grew by 14 percent with a 3 improvement in the TOT.
III. Trade and Increasing Inequality

The second major concern about globalization is that it has increased inequality. That inequality has increased quite measurably over the last two decades is well established by a number of studies. According to CBO projections using inflation adjusted family incomes, the bottom 60 of families lost income between 1977 and 1992, the next 20 percent stayed about constant, while the richest 5 percent experienced a gain of over 50 percent and the richest one percent experienced a gain of over 100 percent. Although these changes in family income demonstrate the extent of the increase in inequality, most of the focus in the trade literature has been on the wage earnings of workers. In 1979 male college graduates earned on average 30 percent more than those with only a high-school degree, in 1995 this differential had increased to almost 70 percent. When the increased inequality is combined with the slow wage growth, the result is real wage declines for the unskilled. Inflation adjusted hourly wages for male high-school graduates fell by almost 20 percent between 1979 and 1993 (Mishel and Bernstein, 1995).

What is most apparent from looking at these wage changes in the different segments of the labor market are that they are not related to supply (endowment) changes. In fact, the labor segments that grew the fastest are the same ones that experienced the largest wage growth (Katz and Murphy, 1992). Thus clearly there were changes in demand for the different segments that dominated these supply effects. The likely suspects for these demand shifts are globalization, technological change, and institutional changes. There are a number of difficult theoretical and empirical issues surrounding all three of these explanations; the possibility also exists that there are important interactions among them which make it even more difficult to isolate the influence of a given factor.

Between 1970 and 1990, the developing nations’ share of manufacturing imports of the United States and Europe has more than doubled (Davis-1998, p.484). Although there has been an increase in North-South trade, its volume still remains relatively small when compared to the overall economies of the North. For example, Krugman and Lawrence (NBER-1993) calculate that U.S. manufactured imports from low-wage countries were only 2.8 percent of U.S. GDP in 1990. Since the increase in imports from labor-abundant nations and the growing wage inequality occurred during the same period of time, and since the Stolper-Samuelson theorem -- a well-established axiom of international trade theory -- predicts that globalization would impact the labor market in a manner consistent with what has happened, globalization has become a prime suspect for these labor market changes. The logic of the Stolper-Samuelson mechanism is that the increased competitiveness of
developing countries in making labor-intensive articles results in a reduction in their price which increases imports of these items into the developed countries; as a result, there is a decline in developed country production of these items. The unskilled workers who are laid off are not completely absorbed by the expanding export sectors (because they use less unskilled labor in their production) and therefore have to compete with the unskilled workers in the rest of the economy; this lowers the wage of unskilled workers throughout the economy.

Given that the S-S mechanism is a corollary of the widely used Heckscher-Ohlin trade model which is the dominant theoretical trade model in use, it is the obvious place to start in attempting to connect trade with increased inequality. However, it is less than clear empirically as to what one needs to find in order to conclude that trade has been a factor in creating inequality. This is the case because empirical attempts to verify the implications of the H-O model have generally not been successful. Generally trade models suggest a level of economic integration that is not present; national labor markets appear to be more segmented than is assumed in most models. For example, the factor-price-equalization result of the standard H-O model suggests that wages are determined globally, and a nation’s endowments of labor factors only determines the industry mix of production and not their respective prices. It is well established, however, that wages vary significantly across countries depending on national endowments.

Thus the theoretical implications of these models do not generally hold and therefore one cannot derive the labor market implications of increased globalization from them since they obviously describe reality poorly. Hopefully, the models are at least able to provide insight into the direction to which trade flows are pulling labor markets. In addition, there are numerous other possible channels by which increased openness could negatively impact the wages of the unskilled outside the confines of the usual assumptions of the H-O model and these explanations need to be considered as well. Another limitation of the theoretical models is that the relationship between trade liberalization and capital flows has not received sufficient attention, and the proposed interrelationships between trade and capital flows in these models are often ad hoc or nonexistent.

If trade barriers are reduced (either tariff reductions or lower transportation costs) or if the ability or desire of the South to trade increased (i.e., an outward shift in the South’s trade offer curve), the H-O model predicts five changes observable in the North. These are 1) increased exports of skill-intensive goods from the North and increased imports of unskilled-intensive goods from the South, 2) increased production of skill-intensive goods
and reduced production of unskilled-intensive goods in the North, 3) the relative price of the skilled good to the unskilled good (c.i.f plus duties) increases\(^6\), 4) the relative wage of unskilled labor to skilled labor falls, and 5) the ratio of skilled labor to unskilled labor falls in both industries. Given these five predictions, attempts have been made to determine empirically if these predictions are consistent with how these variables actually changed over time.

In order to illustrate these five changes we use the basic H-O framework and use the standard textbook graphs, we assume two factors--skilled labor (S) and unskilled labor (U), two areas--the North which is relatively abundant in skilled labor and the South which is abundant in unskilled labor, and two goods--one skilled intensive (M for manufactures) and one unskilled intensive (T for textiles). This has become the standard framework used by many researchers discussing the trade and wages issue, see for example Krugman (1995), Lawrence and Slaughter (1993), and Wood (1994). The original equilibrium is described in Figures 1 (a or b), and 2. Figure 1 (a or b) provides the production point \(P_1\) tangent to the North’s production possibility curve with output \(M_1\) of the skilled good and \(T_1\) of the unskilled good. Consumption in the North occurs at \(C_1\). Figure 1a shows a terms of trade (TOT) improvement from an outward shift in the South’s offer curve, while figure 1b shows Northern liberalization. Figure 2 provides the production functions of the two goods (M and T) in the North with factor input combinations given by the points on each isoquant tangent to the isocost line whose slope is the (negative of the) ratio of wages of the unskilled (\(W_u\)) to wages of the skilled (\(W_s\)).

In Figure 1, expanded trade results in the production point shifting from \(P_1\) to \(P_2\) with the output of the skilled intensive good increasing from \(M_1\) to \(M_2\) while the production of the unskilled good falls from \(T_1\) to \(T_2\). As these production changes occur, more unskilled labor is laid off than is absorbed in the skilled good industry so the wages of the unskilled fall (as the wages of the skilled increase) by the amount necessary to get them fully absorbed by the two industries. This is shown in Figure 2 as a flattening of the isocost line and a movement from the factor input usages corresponding to point \(M_1\) to \(M_2\) for the skilled intensive good and from \(T_1\) to \(T_2\) for the unskilled intensive good.

Of course the changes suggested by the H-O model are \textit{ceteris paribus} changes and thus assume all the other factors in the model are held constant; what’s happened, however,

\(^6\) If the liberalization occurs primarily in the South then its offer curve shifts out and the \(P_s/P_u\) increases. If the liberalization occurs primarily in the North, then the North’s offer curve shifts out reducing the world \(P_s/P_u\) but the domestic (c.i.f. plus duties) price \(P_s/P_u\) increases.
is that all the other variables have been changing so as to make it difficult to isolate the changes due solely to trade. As previously mentioned, predictions 1 (increasing trade) and 4 (falling unskilled wages) are generally accepted as having occurred; the fact that changes in these variables seemed to occur at approximately the same point in time was the original basis for suggesting their connection through the trade channel (Batra-1993). Although there is no disagreement that North-South trade has increased, what is not clear is the relative significance of a number of factors in bringing about this increase. Was it due to the reduction in trade barriers or transportation costs, or changes in technology in either or both of the countries, or changes in the relative endowments of the input factors? Most of the discussion has concentrated on either, 1) the reduction in trade barriers since there have been several GATT global liberalizations, or 2) the abandonment by Southern countries of their import substitution policies; either case would result in not only increased Southern imports but Northern imports through exchange rate effects. Technological changes have lowered transport costs, especially communications costs (see Wood (1994, p. 171-174), and Krugman-1995). Southern economies have achieved a level of competitiveness in manufactures not previously attained due to their increased openness to foreign capital and technology and perhaps due to their passing some minimum threshold level of development.

Predictions 2 (increased domestic production of skilled goods) and 3 (falling prices of unskilled goods) have been subject to empirical controversy while prediction 5 (increased ratio of unskilled labor in every sector) appears to be clearly at variance with what has happened. Therefore we wish to evaluate the empirical literature surrounding predictions 2 and 3, and then attempt to reconcile prediction 5 with the empirical evidence.

Before proceeding to discuss the empirical literature, we must provide a definition of skilled and unskilled workers, and skilled-intensive and unskilled-intensive sectors. Given that the framework that has been used to discuss the issue is the Heckscher-Ohlin model, it would be desirable to define skilled and unskilled in a manner that is consistent with that model. Within that model, factor supplies are generally assumed to be exogenous and fixed although allowing factor supplies to vary depending on price has been incorporated into that framework. From a theoretical prospective, the use of education to define the labor types would appear to be most suitable definition. Empirical data on the labor market is available which divides labor into four groups: college degree, some college, high school degree, and high school dropout. Although returns to schooling may have a small marginal impact on the supply of the different groups, the size of each group is relatively fixed and exogenous to the production structure. However, a number of researchers have chosen to define skilled/unskilled using the production / nonproduction worker criterion. From a strictly
theoretical basis this appears to be a poor criterion in that there are wide and overlapping skill differences in these groups. The potential mobility of individuals between classifications would appear to be quite high; and a change in the production structure could alter the supply of nonproduction or production workers directly (as opposed to indirectly through a price effect) since the criterion concerns more a characteristic of the job than the worker. Nevertheless, Schmitt and Mishel (1996), who examined this issue, find that in their empirical tests the nonproduction/production variable tends to provide empirical results generally consistent with the schooling variable.

*Increased Domestic Production of Skilled Intensive Goods (Prediction 2)*

The S-S theorem predicts that increased trade with the South will cause the North to further specialize by increasing the production of the skilled-intensive good and reducing the production of the unskilled-intensive good. Of course, this is a *ceteris paribus* effect; any historical analysis of time trends must confront the counter-factual question of what would have happened otherwise since domestic demand (especially for the U.S.) is quite large relative to trade flows and thus changes in the composition of domestic demand could easily dominate any trade induced production changes. Krugman and Lawrence (NBER-1993) claim that the industrial output within the U.S. did not change in a manner consistent with the S-S explanation. However, Schmitt and Mishel (1996) find that the percentage change in employment between 1979 and 1989 increased more rapidly as the skilled ratio of the sector (in 1979) increases; this finding is consistent with the S-S explanation. According to an OECD classification of industry types, the percentage of U.S. production accounted for by labor-intensive industries fell from 24.0 percent in 1970 to 19.2 percent in 1991 (OECD-1994, p.147).

*Price Data as a Test of Stolper-Samuelson (Prediction 3)*

Lawrence and Slaughter (1993) were the first to empirically test whether changes in relative prices were consistent with the trade explanation as being the factor responsible for the decrease in the real wages of the unskilled in the industrial economies. According to the Stolper-Samuelson theorem, for trade to have lowered the wages of the unskilled, it must be the case that the relative price of goods intensively produced with unskilled labor must have fallen. More specifically, the S-S requires that the relative price of the import good must fall in order for an economy to further specialize in producing the export good. Using nonproduction/production workers as a proxy for unskilled/skilled, Lawrence and Slaughter (1993) find that the relative price of unskilled intensive goods did not fall between 1979 and 1989; in fact, according to them, these prices may have slightly increased during this period. Thus they conclude that trade has not been a factor in the relative wage decline of unskilled
labor and in fact, the effect of trade may have been the opposite, only to have been completely negated by other factors such as skilled-biased (skilled-labor using) technological change. Sachs and Shatz (1995), Schmitt and Mishel (1996), and Krueger (1997) have demonstrated how sensitive the results of Lawrence and Slaughter (1993) are to the data set used. Under what appear to be equally reasonable assumptions about which data to use, all of these authors obtain results significantly different from Lawrence and Slaughter; in these studies the observed price changes appear sufficient to explain a significant amount of the observed increase in wage inequality. Schmitt and Mishel (1996) estimate that relative price changes may account for 8-28 percent of the 1979-89 growth in the college versus high school wage premium and between 33-100 percent of the increase in the nonproduction versus production worker premium. Generally increasing the sample size to include more industries, using producer prices instead of import prices, and weighting the observations by employment all tend to shift the results against the conclusions of Lawrence and Slaughter (1993); however, there are theoretical questions about the suitability of these procedures. Krueger (1997) controls for intermediate inputs and factor shares and finds a positive relationship between skill intensity in production and the price of skill-intensive goods which can account for the entire shift in relative wages between 1989 and 1995.

In addition, several authors have raised the question as to whether the computer industry should be included in the analysis; the computer industry is clearly an outlier from all the other data points and is able to singlehandedly shift the results from rejection of a S-S effect (if included) to support for a S-S effect (if dropped) . The problem, however, is not solely just with the computer industry; as explained below, the price information covering the computer industry is simply the most obvious example of a more basic problem with the price indexes used. Lawrence and Slaughter (1993) use price indexes prepared by the U.S. Bureau of Labor Statistics;\(^7\) indexes of this sort are preferable to unit value indexes since they attempt to control for changes through time in composition of items within a commodity sector. These indexes, however, are quality adjusted, i.e., the price data is adjusted to reflect quality changes in the products that have occurred. For many issues especially welfare analysis, these quality adjustments are desirable, but for analysis of Stolper-Samuelson effects these quality adjusted data are entirely inappropriate. The overall effect of these quality adjustments is to lower the price in later time periods for items considered to have undergone quality improvements. The problem this poses for using these indexes as a test for Stolper-Samuelson effects is best explained by example.

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\(^7\) The BLS producer price index is also used by the Bureau of Economic Analysis.
Initially, the industrialized country imports apparel (low-skilled intensive) at $2 a unit and exports computers (high-skill intensive) at $2 a unit; at the end of the time period, apparel cost $1 and computers cost $2. Let’s assume that production and trade patterns change in a manner consistent with these price changes and we have concluded that S-S effects have created increased wage inequality. However, it is then noticed that the computers have undergone a quality upgrade so that a computer at the end of the period has twice the computer power as those at the beginning; a computer in the end period really represents two computer units of processing power. Those formulating the quality adjusted price index then adjust the computer price to $1 since it only takes one-half a computer to have the same processing power as in the initial period. Thus apparel costs $1 and a unit of computer processing costs $1, so relative prices have not changed from the initial situation and therefore there are no price changes consistent with S-S effects. Thus it is concluded that the S-S explanation for the increased inequality can no longer hold since relative prices have not changed. This is, of course, the basis of the findings of Lawrence and Slaughter (1993).

However, in terms of analyzing the potential for S-S effects, this quality adjustment does not seem appropriate. The fact that the workers in the computer plant walk in one day and simply shift from producing Pentium Is to Pentium IIs should in no way alter the conclusion that S-S effects increased inequality. Thus the price data that have been used are inappropriate and the problem becomes most obvious with the computer industry since it has been subject to the most adjustment for quality changes.

Unfortunately, BLS does not provide a quality unadjusted price index; this would allow one to conduct a proper test of the S-S theorem and would provide insight into why S-S effects appear to be so minimal (or even nonexistent in Lawrence and Slaughter). It does not appear unreasonable to suggest that the majority of significant quality adjustments in prices have been made in items with a high ratio of skilled workers (or nonproduction workers). Thus it is probably the case that the quality adjustments have systematically biased the data in a way which eliminates any S-S price effect. Given the problems with the price data, there is a clear justification for not including the computer industry in this analysis since the quality adjustments have inappropriately altered their prices. Without the computer industry and using a slightly enlarged sample of producer prices which are weighted by employment, price trends consistent with the S-S theorem are obtained. Furthermore, if non-adjusted prices for all industries were available the results would probably be even more supportive of the S-S explanation.

The price analysis of Lawrence and Slaughter (1993) is based implicitly on a strictly H-O world in which foreign and domestic products are homogeneous and therefore sell at
the same price. However, for those involved in CGE modeling of trade flows, it has become obvious that this homogeneous assumption is not a realistic assumption upon which to model trade flows; for this reason most CGE models assume differentiated products and/or the Armington assumption (products differentiated by country). For these reasons, Freenstra and Hanson (1996) object to the Lawrence and Slaughter (1993) approach and argue that the relevant price ratio is the domestic to foreign price. Within their differentiated goods model, S-S effects are produced by a fall in the ratio of foreign prices relative to domestic prices. Freenstra and Hanson (1996) find that this is indeed the case and thus conclude that the observed price changes are consistent with an S-S explanation. Wood (1994) has argued along similar grounds; he argues that foreign and domestic products within a sector are different, and thus price changes between sectors fails to capture what is going on.

Leamer (1996) finds that the relative price of unskilled to skilled goods fell in the 1970s although the ratio was stable in the 1980s. This finding is considered by some such as Lawrence (1996) as irrelevant since wage inequality occurred primarily in the 1980s. However, there are enough rigidities in labor markets that it could take a significant amount of time for these price changes to produce wage changes. Thus it would seem that relevant price changes that should be considered have been ignored by Lawrence and Slaughter (1993). Francois, Navia, and Nelson (1998) find evidence of cointegration in relative price indexes and relative wage indexes for the 1967-87 period and conclude that the relative price variable can explain between 40 and 60 percent of the variance of the relative wage variable.

Another important factor in considering the price data is the so-called magnification effect. Simulations show that it only takes small changes in price ratios to produce rather large changes in relative wages. Francois and Nelson (1998) show that the introduction of intermediate goods into the standard trade model leads to a further magnification. They show through simulation that a one percent change in relative prices could produce as much as a 9.8 percentage change in relative wages! Shiells and Thierfelder (1997) also show that the relative price--relative wage linkage is further eroded by assuming certain labor market imperfections. Given the fact that the observed wage changes could have been produced by relatively small price changes and given the large number of theoretical and empirical problems surrounding the price data, it must be concluded that little can be concluded from the existing price data analysis; the weight of the evidence suggests that prediction 2 does hold to some degree -- the only question is whether the price changes can explain most of the wage change or something less, perhaps only a quarter of the wage change.
Increased Ratio of Unskilled Labor in Every Sector (Prediction 5)

The S-S explanation requires that as production of the unskilled-intensive good (T) decreases, this releases a higher ratio of unskilled to skilled (U/S) than is presently used in the expanding sectors; for these workers to be fully absorbed into the remaining sectors the U/S ratio must increase. The times series data clearly show, however, that in almost all industries the U/S ratio has decreased. First some theoretical issues surrounding this point are made and these some empirical problems are discussed.

The S-S explanation is a *ceteris paribus* explanation that requires all exogenous factors (such as the quantity of each factor) to remain fixed while the observation about observed changes in factor usage represents what actually happened over a decade. Clearly the observation that the skilled to unskilled worker ratio has increased in most industries and the fact that production in the skilled-intensive industries has expanded reflects the increase in the overall endowment of skilled workers. Is it possible that the relative increase in the endowment of skilled workers has simply outweighed the trade effect of making production more unskilled intensive? Although that may be the case, there is still a problem in that the change in production usage ratios are inconsistent with the relative wage changes. In addition, if there were increases in the endowment of skilled workers, the H-O model would require that the relative production of the skilled good increase not that the skilled to unskilled ratio of workers increase in every industry. Thus the endowment and trade effects are unable to account for how the skilled to unskilled ratio could have increased while the relative wage of the unskilled fell. There appears to be no way to resolve this inconsistency by relying only on changes in the supply and demand for factors and endowments; this outcome is clearly inconsistent with any stable production function assuming factors are paid their marginal products.

The most popular assumption to get out of this quandary is that there has been biased technological change especially in the production of the skilled good. Figure 3 demonstrates a scenario consistent with the empirical observations. Biased technological change for the skilled good shifts the M-isoquant upward and inward (from M to M’). Assuming (as supporters of this explanation do) that relative prices haven’t changed, the new equilibrium production points must be on a similar isocost curve. (In figure 3 the T-isoquant has been left fixed but it could have been shifted also to the left so that at the new price ratio the skilled/unskilled ratio would have increased as well.) With this technological change, the skilled to unskilled ratio used in production can increase while at the same time the wage of the skilled to unskilled can increase (flatter isocost line).
Even the bias technological change explanation has a trade component and it is not clear how to “assign” responsibility under this scenario. Skilled using biased technological change, at given world prices, results in the skilled-abundant country further specializing in the skilled-intensive good with increased imports of the unskilled goods. Although the initial “disturbance” is the technological change, it is the increased trade that allows further specialization. The question therefore arises as how to assign responsibility for the overall change in factor prices. Thus the biased technological argument has a globalization component that is not always fully acknowledged.

Besides biased technological change, there are two trade-related possibilities that would be consistent with these observations and they need to be investigated. Firstly, in the previous analysis the results were dependent on the assumption that factors are paid their marginal products; this required the production function and the wage ratio to be tangent. If unskilled labor had been able to obtain wages above their marginal products through unionization and minimum wages, then the loss of this market power combined with the ongoing process of skill upgrading could produce the observed changes in employment and wages. Starting at points $M_1$ and $T_1$ in Figure 4, the wage line is steeper than the isoquants due to the labor market distortions; the increased relative supply of skilled labor and the reduction in the distortion results in production at points $M_2$ and $T_2$ with a flatter relative wage line. Critical to this scenario is the assumption that firms used a labor mix initially whereby unskilled labor was able to maintain their level of employment above what the firm would have chosen to employ. This is consistent with the proposition that unions are able to force the firm off of its labor demand curve by having dual wage and employment objectives. The relevance of trade enters this scenario as it is alleged to be the underlying cause of the unions’ loss of market power due to increased competition in the product markets or due to the threat of moving production abroad.

A second alternative to the skilled-biased technological change argument that would be consistent with the observed data is the outsourcing argument. The argument is that multinationals are moving their labor-intensive operations overseas to low-wage destinations either directly or indirectly. Both Slaughter and Lawrence provide evidence that direct outsourcing (to subsidiaries) has been limited; their empirical analysis does not attempt to measure the degree of indirect outsourcing. In many ways this argument is not significantly different from the more general argument that production of low-skilled items is reduced by imports of these items from low-wage countries. However, from an empirical point of view the outsourcing argument has a significant difference from the more general trade argument in that it can possibly explain how the usage of skilled labor could increase
while its wage was increasing. If the labor-intensive parts of production of goods have been broken off and shipped abroad, the observed production functions will look as if they have experienced biased technological change (i.e. have become more skill intensive). In figure 5 the original isoquant for which there is data is labeled as $I_1$; this isoquant however represents the aggregation of several processes which have unobserved isoquants $I_2$ and $I_3$. The firm outsources to foreign sources the production process described by the $I_3$ isoquant. When a new isoquant is estimated for the industry it appears as $I_2$; thus what appears in the production data as biased technical change is really outsourcing. (Assuming some neutral technological change in combination with the outsourcing, the isoquants shift as in figure 3 from M to M$\prime$.)

Thus we have provided two trade explanations that can account for the observed changes in estimated production functions and for how skill intensity in production can increase at the same time that skilled wages are increasing. To summarize, there is a globalization argument that is consistent with all five of the discussed empirical observations.

**Factor Content Analysis**

An alternative to the above procedure of trying to determine the importance of trade in influencing wages is to attempt to determine the factor content embodied in exports and imports and from these determine the effects on the relative supplies of labor types. In one of the first papers to address the trade and inequality issue, Katz and Summers (1989) used a factor content analysis of imports and exports to calculate trade’s net effect on the supply of factors. Then using price elasticities the effect of the supply changes on the wage levels were estimated. They concluded that trade could account for 10-20 percent of the increase in inequality. This procedure has been criticized by several economists such as Leamer (1996), but Krugman demonstrates that the factor content approach is generally consistent with general equilibrium analysis when the trade share is sufficiently small. Although the general methodological questions surrounding the factor content approach appear to have been resolved, there are numerous questions concerning which data and parameters to use.

The most significant assumption that has to be made when performing factor content estimates concerns how to estimate the factor inputs that would be required to produce imports if they were actually produced domestically. These numbers have to be estimated since these items are not currently being produced domestically. The procedure that has traditionally been used was to assume that imports would be produced using the same factor usage as similar domestically produced import-competing items. A major qualification of
this approach is that it implicitly assumes that consumption patterns would be the same in the counter-factual situation where the imports are produced domestically. However, it is most certainly the case that the price of these items is lower and their consumption higher when imported than when domestically produced. For this reason the factor content approach would overestimate the increased demand for unskilled labor in the counter-factual situation. Using this procedure, estimates of the net factor content of trade (and thus inequality effects) are small since so much of trade is intra-industry trade and the factor intensity differences of the remaining trade do not differ appreciably.

Wood (1994), however, has argued that imports from the South are basically different goods from those currently being produced in the North; more specifically, they are much more labor-intensive items than “similar” items still being produced in the North. Thus the conventional method of calculating factor content using domestic input coefficients understates the effect of trade on domestic factor markets. Wood attempts to determine the factor inputs actually used in the South to produce these imports and then extrapolates that to the way they would be produced in the North. Using this procedure Wood estimates that the negative impact of trade on unskilled labor in the North is ten times as large as that estimated using the conventional approach. He further argues that even this understates trade’s impact on the unskilled since his analysis does not consider agricultural, mining or services trade. If these imports were actually domestically produced and did require the amount of unskilled labor estimated by Wood, it is clear that they would be considerably more expensive than they are and thus consumption of these items would be much lower. To summarize the conventional approach to estimating the factor content of trade underestimates the net factor effects of trade and thus trade’s wage depressing effects on unskilled labor; however, there remain a large number of unresolved issues in how to make these estimates more accurate.

IV. Globalization and Inequality: Further Considerations

There are a number of different channels by which globalization could affect labor market outcomes that have generally been ignored in both the theoretical literature because of difficulties in modeling or in empirical analyses because of inadequate data.

**Blue-Collar Deskilling**

Most research attempting to ascertain the effect of trade on wage inequality has attempted to analyze the issue within a neoclassical model with fixed supplies of the factors of production. One of the more prevalent pieces of evidence concerning imports’ effects on the workforce has been the significant wage declines that displaced workers have to accept in order to find re-employment. That displaced workers would have to accept wages
significantly lower than their previous wages is basically inconsistent with the Heckscher-Ohlin model where they should be able to find employment at a similar wage (to other similarly skilled workers whose wages have not significantly changed) since they are still considered to be the same type of factor as before. Clearly these workers have firm-specific human capital which is destroyed once they are displaced. Although there are several ways to model this situation the easiest is simply to assume that the skilled displaced workers (or a certain percentage of them) become unskilled workers. It should be readily apparent that making this assumption significantly alters the implications of trade on inequality. Thus the “newly unemployed” increase in unskilled labor created by trade is composed of not only the net difference in the factors embodied in the trade flows but also includes sizable increases in the overall number of unskilled. However, it might be possible for trade to increase the number of skilled by opening up possibilities for skilled employment for the currently college educated in unskilled jobs. The following scenario may be possible: skilled manufacturing workers are displaced by increased imports, they are unable to find equivalent employment and so end up as unskilled restaurant workers. At the same time the export industries experiencing growth are able to hire recent college graduates currently working restaurant jobs while waiting for a “real job”. Due to the types of human capital desired by the export sectors, the factory workers are unable to move into these positions. Thus in this example, increased trade (both imports and exports) turns currently skilled college graduates working in unskilled jobs into skilled workers employed in skilled jobs while simultaneously shifting skilled manufacturing workers into unskilled jobs. The net effect would vary depending on circumstances.

Thus it may be the case that trade volume changes are able to both destroy and create skilled labor; thus empirical trade analysis, including CGEs, which assumes endowments as fixed may be missing an important aspect of trade’s implications for labor markets. The more general point being that these models and empirical tests are simplifications of reality and one must be somewhat skeptical about any conclusions that come out of them.

*Reduced Bargaining Power of Labor*

Most of the analysis of trade’s impact on labor markets is based on standard neoclassical assumptions about factors being paid their marginal products. Although in the long run there are obviously forces that tend to align one’s compensation to one’s contribution to output, the complexities of modern economies would suggest that there are significant imperfections in the labor market. It has long been recognized in the “labor rents” literature that a significant component of wages is unexplained by worker characteristics. International economists understand that through time there are forces which tend to align
prices in different countries with different currencies; this is referred to as purchasing power parity (PPP). However, economists also accept that these are forces that work slowly and imprecisely and that prices can be significantly misaligned for really long periods. Wages and marginal productivity may represent a similar relationship. Models in which wages are forced to equal marginal products in short-run equilibrium may be no more appropriate than exchange rate models that force PPP to hold continuously. The implication of this is that there is a significant range in the wage that factors can be paid for significant periods of time; and it is quite possible that globalization has reduced the bargaining power of labor and forced wages to the lower limit of this range. There is widespread anecdotal evidence of firms threatening to move abroad during labor disputes or union organization drives. Studies by Richardson and Khripounova (1997) and Slaughter (1997) have attempted to investigate this possibility and both find some evidence to support it although neither of these researchers conclude that this factor has been a primary factor in producing inequality. Slaughter (1997) finds that the own-price elasticity of the demand for production labor has become more elastic through time; the reasons for this remain unexplained as the trade variables are only marginally significant in his regressions. Richardson and Khripounova (1997) conclude that unskilled labor has not suffered a loss of market power because it was already (by 1984) extremely weak, but that skilled labor has increased its market power due to trade. Borjas and Ramey (1995) also consider the possibility that trade has reduced labor’s market power and they conclude that trade has been a rather significant factor.

The belief that wages are not set competitively is the basis of the “labor rents” view that wages in some sectors differ substantially even after controlling for worker characteristics. The existence of these labor rents have then been used as a justification for strategic trade policy. An implication of this framework as discussed in section I is that a country can improve its wage structure (i.e., increase average wages) by altering the makeup of its import and export baskets and by becoming more open (increasing imports and exports).

*Induced Institutional Change*

Several authors have suggested that changes in labor market institutions have been important factors in bringing about the increase in the wage premiums for skilled workers. For example, DiNardo, Fortin and Lemieux (1996) conclude that the de-unionization of the workforce and the falling real value of the minimum wage are important factors in explaining increased inequality. Freeman (1996) concludes that one-fifth of the increase in inequality is due to declining union power. Even with the recent minimum wage increases from $4.25 in Sept. 1996 to $5.15 in Sept. 1997, the real value of the minimum wage is 20
percent below its level in 1979 (OECD-1998, p.40) and has also fallen relative to average wages. In political discussions about raising the minimum wage, both U.S. Congressman Newt Gingrich and political commentator Pat Buchanan have argued against increases because of concerns about the effects of such increases on the trade competitiveness of the United States (Krueger-1996, p.8). To pursue these factors further would move beyond the scope of this paper, however what needs to be considered and is usually not, is the possibility that globalization is responsible for these institutional changes and that these variables capture in empirical analysis effects that are really due to globalization.

**Immigration**

The preceding analysis has focused on how increased trade and (to a lesser degree) increased capital mobility has impacted U.S. labor markets. The issue of immigration and its impact has not been seriously addressed here but is mentioned for completeness since it is often included by some as an aspect of globalization. The size and characteristics of immigration suggest that it could be quite important in influencing wage trends; several analyses have concluded that immigration has had a more significant effect on labor markets than changing trade and investment patterns. The foreign-born represent almost 10 percent of the U.S. population. More significantly, especially in regards to the inequality debate, is the fact that immigration has significantly increased the relative number of unskilled workers in the United States. In 1996, 36 percent of immigrants had less than a high school degree while only 10 percent of the native born population lacked a high school degree (Schmitt-1999).

**V. Labor Markets and Future Increased Globalization**

An important issue is the degree to which past trends in globalization and wages will continue. The trade-to-GNP ratios for most countries have increased steadily over the last several decades and there is no evidence in the time trends that they will not continue to do so in the future. Is the United States destined to a bleak future of growing wage inequality and ever-falling wages for its unskilled? Current research suggests that national borders remain major obstacles to trade. Even models that include trade retarding variables such as language differences and distance, find that current levels of international trade are only about one-tenth of what one would expect in a world without national borders. This research therefore suggests that trade volumes can still expand significantly relative to income growth, thus globalization has only just begun. Likewise, the saving and investment analysis begun by Feldstein and Horioka (1980) and followed by others has found domestic capital markets to be surprisingly segmented with domestic investment highly correlated with domestic savings; thus there is much room for the further integration of capital markets.
Thus from this perspective, it would appear that globalization’s impact on developed country labor markets has a long way to go.

Baldwin and Cain (1992), however, believe that protectionism and transport costs are already so low that the potential for greater openness is limited. Baldwin and Cain also argue that education trends in the developing nations are increasing their relative supplies of skilled labor and reducing the differential in skills endowments between them and the developed nations. Thus, it is argued, that both of these factors reduce the potential for trade to further increase inequality in the developed nations. It should be noted that although trade barriers are generally low in the developed economies, they remain significant in many of the large developing nations (i.e., China and India) and liberalization of those markets can affect the level of imports by developed nations as much as their own liberalizations; thus Northern markets may currently be more insulated from Southern markets than would be apparent from looking at Northern trade barriers.

Within the Heckscher-Ohlin framework it is possible for increased trade to no longer impact domestic labor markets once specialization occurs. Lawrence (1996) has argued that the U.S. is getting close to this level of specialization with only small segments of the remaining labor-intensive industries subject to competition from labor-abundant countries. Thus he concludes that globalization’s impact on the wages of the unskilled in the U.S. is close to running its course.

Most of the models of the developing nations’ impact on the labor markets of the developed economies have used two-country general equilibrium models (North and South); the institutional differences between the flexible-wage United States and the fixed-minimum-wage of Europe were modeled as separate cases. These models tended to show that increased trade with developing nations lowered wages (although only moderately) in the United States and increased unemployment in Europe. Davis (1998) has now demonstrated that treating these two as separate cases produces misleading results. It is now apparent that these three markets have inter-relationships and that only a three-country general equilibrium model is able to incorporate these interactions. Davis finds using a three country model, that Europe’s minimum-fixed-wage has had the effect of propping up America’s wages. If this is indeed the case, it would suggest that there is a significant amount of built-up downward wage pressure from Southern imports that will be turned loose on U.S. wages once wages fall in Europe. Given the huge economic and social costs of Europe’s unemployment, it is only reasonable to anticipate that Europe’s fixed-minimum-wages will fall through institutional reform making labor markets more
flexible or become less binding as productivity increases through time. Either development suggests falling relative wages for America’s unskilled.

Although it is difficult to assess the overall collective effects of all these likely future developments, it would appear that globalization has quite a way to go and its labor market impacts are likely to continue to increase.

VI. The Labor Policy Implications of Globalization

What are the policy implications of globalization? How is the desirability of further trade liberalization influenced by what is now known about the effects of globalization; how are U.S. domestic labor policies influenced by globalization?

The general consensus is that globalization can account for a quarter or more of the increase in inequality in wages; since average wages have grown very little, it would appear that the more unskilled have therefore suffered an absolute wage decline due to increased trade with labor abundant countries. As an upper limit, it may be the case that up to one-half of the U.S. work force has actually experienced an absolute wage decline due to increased trade. Although trade creates adjustment costs, can destroy some human capital, and can increase structural unemployment, it is nevertheless most reasonable to conclude that trade increases national income and potential national welfare. Thus globalization has increased national income although a large number of unskilled workers may have experienced an absolute wage decline. Given that there have been no lump-sum redistributions to those harmed by trade, the normative issue has to be raised as to whether trade actually increases national welfare. Although the making of interpersonal utility comparisons and the acceptance of a diminishing marginal utility of income are controversial issues which move economic analysis from positive analysis to normative judgments, economic policy requires that normative judgments be made. Although protectionism has become a dirty word and even protectionists pretend not be protectionist, it must be recognized that given the political realities concerning redistribution, protectionism may maximize actual national welfare.

Figure 6 illustrates the situation using the standard utility frontier (UF) and a social welfare function (SWF) with the utility levels of the unskilled ($U_U$) and skilled ($U_S$) on the axes. Initially the economy is at point 2; there is no reason to assume income is distributed so as maximize social welfare at point 1. Increased openness allows the utility frontier to shift out from UF$_1$ to UF$_2$ (this being the general principle about trade increasing potential welfare), and assuming market efficiency, the utility point moves out to the new frontier
although Stolper-Samuelson effects assure it moves downward to the right. It remains an unresolved empirical and normative issue whether or not actual social welfare increases or decreases (as it does as drawn at point 3). There really are no convincing studies that confront this distributional issue directly. The current stalemate on further trade liberalization in the U.S. Congress is the result of the fact that large numbers of people believe that trade liberalization does not benefit them; those beliefs are not without justification. What would be useful would be a study that attempted to estimate what type of tax and/or wage subsidies would be required to ensure that actual national welfare (as opposed to potential welfare) would be increased by trade. Alternatively, what is needed is a CGE model that could provide information on how trade altered income by income level, and thus allow a calculation of what the needed elasticity of utility with respect to income is that would be consistent with a welfare gain. The fact that the gainers are having a hard time bribing the losers does suggest that the gains are perhaps smaller than traditionally believed and the number of losers and the extent of their losses are greater than traditionally believed.

Current economic policies suggest that the public of the developed nations have some preference for reducing the inequality that is generated by market outcomes. Although a number of policies have been used to improve the incomes of the less skilled including direct transfers, improved access to education and training has been an important part of most governments programs. A secondary effect of these programs has been their ability to improve the incomes of not only those receiving the training but those who remain unskilled by making them more scarce. Although there may always be a portion of the labor force that remains unskilled, there was always the hope that they could be made relatively scarce so that they could obtain wages that would allow them to lead decent lives in an economically just society. Although there are other reasons (market failures) to provide government funding for these training programs, this externality effect on the remaining unskilled provided an extra justification for public funding since the social returns were higher than the private returns. Globalization reduces that externality since it results in changes in relative wages (between the skilled and unskilled) being less responsive to changes in the relative supply of endowments. Thus globalization increases the need for training but at the same time reduces the logic of public financing. Perhaps for this reason, public funding for U.S. job training programs has decreased remarkably in recent years; expenditures for active labor programs (training, subsidized employment) has fallen from 0.21 to 0.17 percent of GDP between 1993 and 1997 (OECD-1998, p.218).

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8 Obviously the already skilled may be harmed by the new skilled, so a value judgment is being made about their losses compared to the gains of the unskilled.
The above example is just one of several globalization dilemmas. More generally, Rodrik (1997) has argued that a welfare state is necessary to carry out the redistributions required by increased openness. There is a positive cross-sectional correlation between the extent of a nation’s social insurance policies and that nation’s openness to international trade. Rodrick has argued that this is not a spurious correlation but a policy response to the economic uncertainties which come from openness. He further argues that although this burden was shared by both capital and labor during most of the post-WWII period, the increasing international mobility of capital is now shifting most of the costs on to labor. The fact that globalization is increasing the need for social insurance but at the same time is transferring the costs to workers explains the public’s growing apprehension about globalization.

There are a number of books which have been written by non-economists for the popular press that generally conclude that globalization is having a negative impact on the United States. These include Longworth’s Global Squeeze, Greider’s One World Ready or Not, and Soros’s The Crisis of Global Capitalism; these books generally do not address the issue of globalization in a serious manner. However, there are some valid concerns about globalization, especially its role in increasing inequality, that need to be, but have not been, taken seriously.

VII. Summary

Globalization could impact labor market outcomes through a number of channels including altering the relative demands for capital, skilled labor and unskilled labor through the factor content of trade, altering the level of investment and thus labor productivity through capital flows, altering the distribution of economic rents between wages and capital income with threats to reallocate abroad, altering the distribution of taxation between labor and capital income, altering the ability of governments to implement macroeconomic stabilization policies to achieve full employment, altering the desirability for public financed education and training programs, altering the ability to set minimum wages laws, altering the ability of governments to set social conditions involving work, and altering the labor endowment mix and thus wages directly through immigration. All of these issues have been raised in the debate about the desirability of globalization and there remain many unresolved issues.

Despite all the possibilities, there does not appear to be a reasonable mechanism that can connect globalization to the slow growth in wages since 1973. The significance of trade in producing the increase in inequality in wages that has been most pronounced since 1979 is
more controversial. Although there are a number of papers that attempt to demonstrate that increased trade cannot account for these trends in inequality, they are based on questionable assumptions and use questionable data. There remains a possibility that trade is responsible for the increased inequality that has occurred. The alternative explanation that is usually provided is that the increased inequality is the result of some combination of biased and sector-specific technological change. That conclusion is arrived at more by default than by direct evidence. Since there is little doubt that there has been increased North-South production specialization and trade, the ceteris paribus effects of trade on inequality have grown even if the observed time trends are largely explained by technological changes. There are a number of reasons to believe that globalization’s impact on labor markets will continue to increase, and the wages of the unskilled will continue to be subject to downward pressure. The strong public opposition that has developed to further trade liberalization reflects these concerns. Globalization also appears to reduce the ability and desirability of implementing policies to address these concerns. Given the negative distributional consequences of globalization and the increased constraints globalization puts on addressing these developments, it may be the case that globalization is actually lowering social welfare.

References


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Figure 1a
Figure 1b
Figure 2
Figure 3
Figure 4
Figure 5
Figure 6