

# Low-wage manufacturing exports, job creation, and global income inequalities

James Heintz<sup>1</sup>

Political Economy Research Institute

[jheintz@econs.umass.edu](mailto:jheintz@econs.umass.edu)

## 1. Introduction

Does the trend towards increased manufacturing production in low-wage countries for export to high-income consumer markets improve or worsen global inequalities? The answer to this question is not straight-forward. The expansion of low-wage manufacturing jobs has frequently meant new opportunities for working people in developing countries. These jobs can potentially raise incomes, improve opportunities, and reduce poverty. However, to the extent that new employment opportunities require growth in demand from abroad, the ability of export-led employment creation to close the consumption gap between wage earners in low-income countries and consumers in high-income economies is questionable. In the following paper, I focus on how new jobs and wage changes impact the income of low-wage workers when growth in manufacturing output is conditional on demand in the markets of affluent nations.

Recently, export-oriented growth has emerged as a widespread development strategy for low- and middle-income economies. The successes of the newly industrialized economies – such as South Korea and Taiwan – during much of the 1980s and 1990s has inspired others to look towards exports as the key to industrial growth. To realize the potential of this type of export-led strategy, developing economies need access to the markets of relatively affluent nations. Indeed, gaining access to global markets has informed the trade strategies and negotiations of many developing countries in recent years. Tapping into the aggregate demand of the large consumer markets of the world can prove to be a fast track for growth in manufacturing. Output growth is not the only objective. The expansion of manufacturing exports in developing nations can increase job opportunities and raise standards of living relative to other economic activities.<sup>2</sup>

However, reliance on the consumer markets of high-income countries frequently involves new types of dependencies for low-wage manufacturing sectors. Large retail conglomerates, brand-name multinationals and intermediate buyers have more market power than small, competitive producers and subcontractors. Changes in consumer demand in high-income countries can have immediate consequences for the output and employment of low-wage producers. Because of these asymmetries, it is unclear how the benefits of the expansion of low-wage exports from developing countries will be distributed. This paper begins to address these concerns by looking at how the growth of

---

<sup>1</sup> I would like to thank Elissa Braunstein and Mark Brenner for comments on earlier drafts of this paper and Robert Pollin and Gerald Epstein for helpful discussions and guidance.

<sup>2</sup> Growth in exports also can provide a source of foreign exchange and relax balance of payments constraints. These macroeconomic effects are not a principal focus of this paper.

manufacturing exports from low-income countries affects global inequalities in the distribution of income and consumption.

The remainder of the paper is organized as follows. The second section provides a backdrop to the rest of the article by describing some of the trends and developments in the globalization of production and high-income consumption. Section 3 then develops a framework for thinking about the relationships between domestic production/global production and domestic consumer markets/global consumer markets. In particular, it explores how low-wage production in the global South and consumer-based economies in the global North are interdependent. The fourth section presents empirical estimates of the impact of changes in output and wages on employment and aggregate income in the manufacturing sectors of developing countries. These estimates are used to discuss the impact of export-led employment strategies on global inequalities in income and consumption. Finally, section 5 discusses the implications and limitations of the analysis. The paper concludes with a short discussion of future research directions.

## **2. Globalization, low wage production, and consumer economies**

The pattern of trade in manufactured goods has undergone a significant transformation in recent years. Manufactured goods account for an increasing share of the exports of developing countries. Figure 1 illustrates these changes from 1970 to 1998. In the 1970s, manufacturing accounted for less than 20 percent of all exports of developing countries. By 1998, this proportion had risen to over 71 percent. Care must be taken in generalizing this trend to all developing nations. Much of this change was driven by key economies in East Asia and, to a lesser extent, Latin America. Manufacturing remains underdeveloped in many of the poorest countries of the world. Nevertheless, the overall trend is notable – developing countries are producing an increasing amount of the world's manufactured exports.

Figure 1 about here

This growth in manufactured exports contributes to the intensification of trade competition. Not only are developing countries competing with the established manufacturing sectors of advanced industrial countries, they also are competing with each other. Improving a country's global competitive position has become a cornerstone of export-orient growth strategies in which expanding the export sector becomes a key engine of economic growth and development. Much of the emphasis on competitiveness has focused on production costs and, in particular, labor costs. Therefore, labor market policies – such as “labor market flexibility,” fewer government interventions in establishing basic standards, and an emphasis on low-wage job creation – are often directly linked to the export-oriented growth paradigm.

Guaranteeing access to the markets of affluent economies has become an obvious corollary to an export-led growth strategy. While trade between countries of the global South should not be ignored, the large consumer markets of North America, Western

Europe, and Japan represent a vast source of purchasing power for manufactured exports. There is evidence that import penetration of goods from developing countries has increased in recent years. For example, U.S. imports of goods from non-OPEC developing economies increased from 24.9 percent of total imports of goods in 1980 to 42.6 percent by 2000.<sup>3</sup> Improving access to affluent consumer markets has become a major concern in trade negotiations. Take the case of the Multi-Fiber Arrangement (MFA) which governs global trade restrictions on textiles and apparel.<sup>4</sup> Critics have argued that it systematically disadvantages developing countries by cutting off access of manufactured clothing and textile exports to the markets of industrialized countries (Krishna and Tan 1998, Trela and Whalley 1990).

Consumers in affluent nations benefit from low-wage imports when retail prices fall for the goods they purchase. To see this, consider the example of U.S. clothing imports and retail prices. Figure 2 illustrates trends in the relative price of clothing since 1958, measured as the consumer price index for clothing divided by the consumer price index for other goods, excluding the volatile components of food and energy prices.<sup>5</sup> Beginning in the early 1970s, the price of clothing for U.S. consumers relative to a broad index of prices for other goods began to fall and it continued to decline throughout the remainder of the 20<sup>th</sup> century. Figure 2 also shows the value of clothing imports as a fraction of domestic clothing production over the same period. The growth of clothing imports relative to domestic production began to accelerate in the early 1970s, at the same time as relative prices began to come down. These empirical trends support the argument that low-cost imports contributed to the reduction of retail clothing prices in the U.S.<sup>6</sup>

Figure 2 about here

Trade theory in the Heckscher-Ohlin/Stopler-Samuelson (H-O/S-S) tradition provides an explanation of these trends. Developing countries, with an abundance of inexpensive labor and a relative scarcity of fixed capital assets, will specialize in low-wage production while advanced industrialized countries will concentrate on industries using capital- and technology-intensive techniques. Under conditions of unrestricted trade, the relative prices of goods will adjust so that prices of low-wage imports from the developing world will fall in high-income, high-tech countries.

---

<sup>3</sup> Author's calculations from U.S. international transactions data, Bureau of Economic Analysis, U.S. Department of Commerce. Developing countries include the countries of Latin America, Caribbean, Asia, and Africa, excluding Japan, Australia, New Zealand, and South Africa. OPEC member states are also excluded.

<sup>4</sup> The MFA is scheduled to be completely eliminated by 2005.

<sup>5</sup> Using the CPI which included food and energy prices does not change the trend illustrated in Figure 2 in any meaningful way.

<sup>6</sup> The two time series illustrated in Figure 2 are clearly non-stationary. Cointegration analysis of the two series suggests a long-run equilibrium relationship exists between clothing imports relative to domestic production and the relative consumer price of clothing. These results are available from the author upon request.

However, the simple two-good, two-factor H-O/S-S framework falls short in explaining the dynamics of income inequality associated with increased global integration. Consider a situation in which the two factors analyzed are low-skill and high-skill labor, with developing countries having an abundance of low-skill workers. According to the theory, labor market inequalities within developing countries should fall as the wages of unskilled workers rise (Brown 2000). However, recent research has documented rising, not falling, wage inequalities in Latin America (Wood 1997, Robbins 1996) and Asia (Chotikapanich and Rao 1998).

Likewise, in a model in which labor and capital are the two factors under consideration, with developed economies being capital-abundant and developing economies being labor-abundant, inequalities in wage incomes between rich and poor nations should narrow as average wages and demand for labor rise in low-income countries and fall in high-income countries. This is Samuelson's well-known factor price equalization result (Samuelson 1948). However, recent empirical work has found an increase in global income inequality, not the reduction that might be expected if wage incomes were converging (Wade 2001, Milanovic 1999). It should be noted that in an extended H-O/S-S model (e.g. with more than two goods and two factors), the impact on relative prices and income distribution are indeterminate (see, for example, Cline 1997). Nevertheless, the theoretical framework does not give us a clear picture of the effect of trade on global income distribution that is consistent with empirical trends.

The H-O/S-S trade theory depends on changes in relative prices to generate its conclusions. Institutional details and aggregate demand play no role. However, the institutional structure of North-South commodity networks is an important factor to consider. For example, the market power of first-world retailers, the nature of supplier relationships, the dynamics of consumer preferences, and the array of sub-contracting relationships all shape the outcomes of international trade and the distribution of income along the chain from producer to consumer.

In a break with these trade theories, growing attention has been paid to these global institutional connections as a way of understanding patterns of international production, distribution, and consumption. A prime example is global commodity chain analysis which has been put forward by Gary Gereffi (1994) and others as a means of understanding the organization and relative influence of different players in global production systems. Global commodity chain analysis attempts to explain how the global organization of production changes and evolves. Instead of focusing only on the movement of relative prices, it also incorporates issues of market power, dependency, and the nature of retail and consumer markets.

In a similar spirit, the remainder of this paper will focus on the impact of low-wage export production on global inequalities within a context of dependency on the consumer markets of affluent economies. In particular, I consider the relationships between consumerism, low-wage production, and inequality in order to better evaluate the merits and pitfalls of the export-led growth paradigm.

### **3. Wages, manufacturing, and mass consumption: from Fordism to globalized consumerism**

The growth and consolidation of mass production in the industrialized states of the 20<sup>th</sup> century required the simultaneous development of markets for manufactured goods. Studies of the industrial development of the U.S. and other Western economies have demonstrated the role of both industrial wages and new forms of social insurance (e.g. wage replacements) in supporting the aggregate demand necessary for maintaining profitability and investment (see, for example, Aglietta 1979: 151-208, Boyer and Juillard 1985, Glyn *et al.* 1990).<sup>7</sup> The term *fordism*, after Henry Ford, is frequently used to describe the concurrent development of mass production and the domestic consumer market. Ford not only established new ways of organizing the production and labor processes (e.g. assembly lines), but also argued that workers should be paid wages high enough so that they could purchase the industrial products a country produced (Ford 1973: 116, 124-5).<sup>8</sup> In a classical fordist economic system, the organization of production and consumption are mutually reinforcing – mass production at decent wages supports a substantial consumer market which, in turn, sustains profits for further capital accumulation.

Such a regime requires a close connection between domestic industrial development and the consumer market. This raises important questions of how a consumer economy could maintain itself in the face of increasingly globalized production. The current pattern of globalized production exhibited by many manufacturing industries effectively severs the link between the expansion of a domestic market and the organization of industrial manufacturing. Wages paid to workers in the export sectors of developing countries do not support the purchasing power of consumers in more affluent nations.

There is a parallel de-linking of domestic markets and industrial production in the industrial development policies adopted by much of the developing world. This shift is perhaps best illustrated by the comparison of import-substitution industrialization strategies and export-oriented growth programs. Under import-substitution, many developing countries attempted to curtail their reliance on imported goods from the industrialized world by protecting and developing their domestic productive capacity. There was an explicit connection between domestic demand and domestic production. Under export-oriented growth strategies, however, this connection is broken. Industrial development is based on selling on external markets. The coordination between industrial development and the needs of the domestic market can be much more limited.

---

<sup>7</sup> Others have emphasized the role that marketing, product innovation, and access to credit had in establishing a pattern of mass consumption, particularly in America (Medeiros 2000). This approach differs from a more traditional Fordist analysis that stresses the role of wage income in sustaining domestic consumption.

<sup>8</sup> Ford himself raised wages overnight from an average of \$2.34 a day to \$5.00 a day in 1914. However, a single employer acting alone can not significantly influence aggregate demand. It has been suggested that motivations for implementing his famous raise include higher productivity due to efficiency wage effects or improvements in industrial relations (Raff 1988).

Table 1 (below) summarizes these developments – in industrialized countries the shift from a fordist model to one of globalized consumerism, in developing countries the shift from import-substitution strategies to export-oriented growth. The significant distinction for the purposes of this paper is the degree to which domestic markets and industrial development are interlinked. While the table presents these divisions as a sharp contrast, in reality the degree of interconnectedness would be better represented as a continuous scale. Some industries might retain strong ties to domestic markets, while others might adopt an exclusively external marketing strategy.

Table 1

	<i>Advanced industrialized economies</i>	<i>Developing/newly industrializing economies</i>
<i>Strong links between domestic markets and production</i>	<u>Traditional Fordism</u> production wages support mass market	<u>Import-substitution</u> tied to domestic consumption
<i>Significant autonomy of domestic markets and production</i>	<u>Globalized consumerism</u> low-cost imports help support mass market	<u>Export-oriented growth</u> access to affluent consumer markets

The growing internationalization of production is only one aspect of the breakdown of the typical fordist connection between production, wages, and consumption in advanced economies. Beginning in the 1970s falling real wages in the U.S. and rising unemployment in Western Europe raised questions about the ability of wage income to support increasing levels of consumption. Despite these significant changes, the expansion of consumer spending remains an important contributor to the growth of advanced economies. How can a consumer economy be sustained in the context of falling real wages or growing unemployment? The case of the U.S. economy is particularly instructive in this regard. There are three important developments which helped maintain industries dependent on American consumerism, despite the decline in hourly real wages: (1) more hours of paid work, especially among women; (2) the continued expansion of consumer credit (including the rapid expansion of credit for purchase of non-durables); and (3) the growth in low-cost imports of particular goods which allowed prices to fall and demand to rise.

While average annual hours of paid work per employee were stable from the end of World War II through the 1960s in the U.S., they began to climb thereafter (Schor 1992). The trend towards longer hours continues today. For example, between 1989 and 1998 average annual hours worked increased by 4.3 percent for married couple families

with children (Mishel, Bernstein, and Schmitt 2001: 93-108).<sup>9</sup> Much of this growth can be accounted for by increases in the hours of paid work performed by women. Longer hours help maintain family incomes and consumer purchases despite lower hourly wages. During this same period, household debt, including debt used to purchase consumer goods, was on the rise. Between 1989 and 1998 average credit card debt increased by 54 percent. By 1998, stocks of debt had risen to such a level that average payments on total household debt reached 17.6 percent of family income (Kennickell *et al.* 2000, Kennickell and Starr-McCluer 1994). This additional consumer credit supports higher levels of effective demand for goods.

However, it is the impact of low-wage imports on the relative price of tradable goods and the expansion of consumer economies in advanced industrialized nations that is of particular relevance to the arguments presented here. In the previous section, empirical trends suggested that greater import penetration in the U.S. clothing market help explain a significant decline in the relative price of clothing. Taking this example one step further, we find that patterns of U.S. clothing consumption suggest that lower clothing prices have supported a significant increase in the real demand for apparel.

In 1995, U.S. consumers purchased an average of 28.7 new outerwear garments annually; in 1967, the number was just 14.1. Over the same time period, clothing's share of average consumer expenditures dropped from approximately 10 percent to 5.5 percent (Abernathy *et al.* 1999: 4-5). Growth in household incomes could account for this shift. However, According to the U.S. Census Bureau, median real household incomes in the U.S. rose by just 14 percent and mean real household incomes rose by 34 percent over the same time period (U.S. Census Bureau 2000: B-3). These changes in income are insufficient to simultaneously account for a doubling of per capita garment purchases and a halving of expenditure share. Therefore, falling relative prices must explain a large portion of the consumption boom.<sup>10</sup>

If we focus only on the production of goods, then it becomes hard to see how growth in consumption of imported goods would support the economies of importing countries. However, if we consider the growth of retail services as supporting an expansion of economic activity and as a source of new jobs, then the economic linkages become much clearer. Despite lower real wages or rising unemployment, higher levels of real consumption support the expansion of the retail sector in high-income countries. It is hard to deny that "Big Retail" plays an increasingly influential role in many advanced economies. For example, in 2002 Wal-Mart surpassed General Motors as the largest U.S. corporation in terms of sales volume.<sup>11</sup> More generally, according to the U.S. Bureau of

---

<sup>9</sup> Hours had already increased by 6.1 percent from 1979 to 1989 (Mishel, Bernstein, and Schmitt 2001: 93-108).

<sup>10</sup> Empirical studies of the income elasticity of real clothing expenditures have found that clothing demand is inelastic – e.g. one point estimate of the income elasticity is approximately 0.50 while the estimate of the long-run price elasticity is -1.0 (Mokhtari 1992). Therefore, given the changes in average income, per capita U.S. clothing purchases should have grown by approximately 7 to 17 percent. For real clothing purchases to have doubled, falling relative prices must have played an important role.

<sup>11</sup> See *New York Times*, April 1, 2002, p. 1. Prior to becoming the largest corporation on the basis of sales, Wal-Mart was already the largest single employer in the U.S.

Labor Statistics, manufacturing employment fell 9 percent from 1980 to 2000 while retail employment increased 55 percent.

For much of the 19<sup>th</sup> and 20<sup>th</sup> centuries, many developing countries produced raw materials as inputs into the growing manufacturing industries of more advanced economies. With the globalization of production, this historic pattern is beginning to change. Increasingly, many developing countries are producing manufactured inputs into the retail sectors of high-income economies. Despite this shift, the same fordist logic that was once applied to the manufacturing sector should equally apply to the growing service sector: retail workers should be paid decent wages in order to purchase the goods they sell. However, longer hours of work, the expansion of consumer credit, and lower relative prices for many consumer goods help relieve these pressures. Growth rates of real consumption can be maintained despite low wages in retail and other service sectors. In this respect, there is a link between low wages in the expanding service sectors and low wages in the manufacturing industries of developing countries.

These developments underscore the need for a richer institutional analysis than is typically offered by most trade theorists when analyzing the distributive implications of the expansion of trade in low-wage manufactured goods. For example, the role of the market power of large retailers in influencing prices, the competitive environment, and the production costs of producers in low-wage, developing economies is conveniently ignored in many trade theoretic arguments. The Heckscher-Ohlin/Stopler-Samuelson framework, discussed in the previous section, argues that trade in manufactured goods produced in developing countries will expand employment and raise wages. However, these conclusions become less certain when gigantic buyers can demand goods at lower costs from suppliers who require access to key markets in order to survive.

Global commodity chain analysis helps to provide some of the institutional details necessary for understanding the distributive impact of low-wage manufacturing which is dependent on the retail markets of advanced economies. Specifically, the analysis of buyer-driven commodity chains - in which relatively small subcontractors in developing countries face highly competitive conditions in dealing with large, oligopsonistic buyers tied to the behavior of high-income consumer markets - sheds some light on these increasingly complex interrelationships (Gereffi 1994). These insights are important to take into account when considering the distributive impact of low-wage manufacturing.

While the Heckscher-Ohlin/Stopler-Samuelson framework is incomplete, it raises an important question: what is the impact of the growth of export manufacturing in developing countries on the distribution of incomes and consumption between rich and poor nations? The answer to this question is not obvious. Access to much larger markets could mean that developing countries would be able to tap into a larger and more immediate source of aggregate demand than would be the case if they had to rely on the growth of their own domestic markets. Higher levels of employment in good jobs could narrow the gap between rich and poor. However, there is no guarantee that growing consumerism in wealthy nations will produce large numbers of good jobs in the developing world. This is a particularly important concern considering the new global

interrelationships that have emerged with the de-linking of domestic markets and production.

#### **4. Global demand, employment, and wages**

Can growth in real demand in the markets of high-income nations generate a large number of new employment opportunities in the developing world and will such job creation help reduce global inequalities? The answer to this question is important in understanding the roles that employment creation and expanding wage incomes could play as part of a broader development strategy. This section provides some preliminary answers based on empirical research into the relationships between employment, output, and wages in the manufacturing sectors of developing economies.

Some economists, such as Jeffrey Sachs and Paul Krugman, have argued that, even at poverty wages, sweatshops and low-wage workplaces are a move towards more egalitarian outcomes (Krugman 1998, Myerson 1997). Their logic is straight-forward: new manufacturing jobs offer a higher income for workers in developing countries than do alternative economic activities. Simply put, the benefits of job creation outweigh any concern over poverty wages. This emphasis on employment, and not just wages and working conditions, must be taken seriously. The International Labor Organization estimates that at the end of 2000, approximately 160 million people will be unemployed around the world (ILO 2001). Even China, a champion of low-wage production for the global market, is facing a burgeoning problem of unemployment (Xuejin 2000). However, the argument that the proliferation of extremely low-wage, export-oriented jobs is an egalitarian force in the global economy is not a foregone conclusion. As we will see, whether the consumption gap between rich and poor countries can be narrowed depends, in part, on the responsiveness of employment creation to growth in output and global demand.

In order to keep the arguments clear, I will limit this initial discussion to a simple context in which low-wage export manufacturers in the developing world produce goods exclusively for consumption in the relatively affluent markets of the global North. Therefore, the primary comparison will be between the incomes/consumption of manufacturing workers in the global South and consumers in the global North. The focus is on the relationship between the export-oriented manufacturing sectors of developing countries, taken together, and consumption abroad. In particular, expansion of output in the export sectors is assumed to be constrained by consumer demand in high-income markets. In this respect, the basic scenario resembles that of a buyer-driven commodity chain, in which consumer choices influence global production.

Adopting a few additional assumptions helps to illustrate the basic relationships of interest. First, I assume that that growth in demand for imported goods from low-wage countries is identical to the real growth of overall consumption in high-income economies. For example, if total consumer demand in the U.S. increased by 3 percent, then real demand for low-wage imports would also increase by 3 percent. This implies

that the share of consumer goods supplied by developing economies remains constant. I will relax this assumption later, but initially it helps to keep the argument simple.

Second, I will restrict my analysis to the impact of changes in consumer demand in high-income countries on the total wage income received by workers who participate in the labor market for export-sector manufacturing. This includes currently employed workers as well as unemployed individuals or, alternatively, people working in the informal sector who would accept a manufacturing job if one were to become available. In both cases, the increases in total wage income would be net of any reservation wage (or reservation income).

Given these simplifying assumptions, what would be the impact of an exogenous increase in consumer demand from high-income countries on the total wage income of export workers from the developing world? Total real wage income,  $I$ , would be given by

$$(1) \quad I = wN(w, Y)$$

in which  $w$  is the real manufacturing wage per employee, net of any opportunity costs,  $N$  is total employment in the sector, and  $Y$  represents total demand for exports. Suppose the labor market conditions described by many of the advocates for more sweatshops prevail: that is, the number of workers willing to accept a job greatly exceeds the number of available employment opportunities (there is substantial queuing for every new job). In a competitive market with a labor surplus, the growth in jobs would not bid up wages relative to the reservation wage. Therefore, we will assume, for the time being, that the real wage is fixed.

Expressed as percent changes, the impact of an increase in demand for exports on wage income simply reduces to a question of employment creation:

$$(2) \quad \ln I = \ln w + \ln N(w, Y)$$

and

$$(3) \quad dI/I = e dY/Y$$

in which  $e$  represents the elasticity of employment with respect to output.

In such a labor-surplus situation, the increase in wage income that results from a given change in external demand from high-wage countries depends on the responsiveness of employment to growing demand. If employment and output tend to increase at similar rates, then wage income will grow along with the expansion of consumption in high income countries. However, if employment growth lags behind the expansion of output, then the growth rate of wage income would be lower than the growth of consumption, and the gap between high-income consumers and low-wage export workers would have to widen in order to maintain an export-led strategy for job creation.

Determining the elasticity of employment is an empirical exercise. Using data from the United Nations Industrial Development Organization (UNIDO) and the World Bank (WB), I constructed two panels for the manufacturing sectors of a cross-section of developing countries for two ten-year periods, 1986-95 and 1987-96.<sup>12</sup> Because of incomplete data, the countries included in the panels differ somewhat. The time periods were chosen in order to maintain a large number of cross-sections. While the time period could be extended, such an expansion would reduce significantly the number of countries included in the study due to absence of complete data. Data on the growth rates of employment, real output, and real wages were assembled, using price deflators from the WB to adjust for price changes. In the few cases when there was missing data for a particular year within a particular country, annualized growth rates were calculated from the closest available end points.

Table 2  
*Estimates of employment elasticities with respect to output and real wages.*  
*Dependent variable: percent change in manufacturing employment.*  
*Panels of developing countries, 1986-95 and 1987-96. (t-statistics in parentheses)*

	<u>output</u> <sub>i,t</sub>	<u>wages</u> <sub>i,t</sub>	<u>trend</u> <sub>t</sub>	<u>R</u> <sup>2</sup>	<u>N</u>
<u>Panel 1986-95</u>					
(A) Fixed Effects	0.404 (9.78)		-0.002 (-1.54)	0.290	450
(B) Fixed Effects	0.409 (10.20)	-0.156 (-5.08)	-0.002 (-1.51)	0.331	450
(C) IV Fixed Effects	0.420 (9.31)	-0.171 (-3.38)	-0.002 (-1.51)	0.155	405
<u>Panel 1987-96</u>					
(D) Fixed Effects	0.441 (11.27)		-0.002 (-1.92)	0.419	380
(E) Fixed Effects	0.432 (11.26)	-0.123 (-4.08)	-0.002 (-1.89)	0.445	380
(F) IV Fixed Effects	0.455 (10.94)	-0.111 (-2.06)	-0.002 (-1.48)	0.242	342

Table 2 presents the results of fixed-effects estimation of employment elasticity for the two panels. The results of the simplest regressions, in which the percent change in real output, a linear time trend, and country-specific fixed effects are the only

<sup>12</sup> *Industrial Statistics Database 2001*, CD-ROM. Vienna: UNIDO and *World Development Indicators 2001*, CD-ROM. Washington, DC: World Bank.

independent variables, are presented in (A) and (D) for the periods 1986-95 and 1987-96, respectively. The estimates for the elasticity of employment in these two equations range from approximately 0.40 to 0.44. That is, a 1 percent increase in output would lead to around a 0.4 percent increase in employment. Looking at it another way, in order to increase employment by 10 percent, manufacturing output would have to expand by approximately 25 percent. This employment response to increases in output implies that, in a labor-surplus situation in which output is constrained by global demand in high-income nations, the growth rate of manufacturing wage income will fall below the growth rate of high-income consumption. A similar magnitude for the relationship between growth and employment has been suggested elsewhere (see Streeten 1994).

One limitation of these calculations is that they assume that the increase in demand for manufacturing exports will be of the same magnitude as the increase in real consumption. This need not be the case. When the same consumer goods are manufactured in both industrialized and developing countries, import penetration from developing economies could mean that demand for imports would increase at a faster rate than consumer demand overall. Taking the example of the U.S., regression results suggest that a 1 percent increase in consumption expenditures on goods yields, on average, a 2.15 percent increase in imported goods from developing countries.<sup>13</sup> Using this estimate as a guideline, a 1 percent increase in consumption could result in a 0.89 to 0.95 percent in employment, if developing countries continue to supply a growing share of imported manufacturing goods to meet consumer demand. Even in this more optimistic case, the growth rate of manufacturing wage income remains below the growth rate of high-income consumption.

Could higher wages, combined with more jobs, help boost the expansion of the wage income of manufacturing workers in developing countries? The answer is not obvious and depends on how responsive labor demand is to wage increases. Allowing wages to vary, we can see this relationship from Equation (2):

$$(4) \quad dI/I = (1 + \eta) dw/w + e dY/Y$$

in which  $\eta$  is the short-run elasticity of labor demand with respect to wages. From Equation (4) we can see that higher wages will actually reduce total wage income when the elasticity of labor demand falls below -1.

Table 2 presents estimates of the impact of exogenous changes in output and real wages on employment. In (B) and (E) the estimates of the short-run elasticity of labor demand fall between -0.16 and -0.12. Note that this is a short-run elasticity; it captures the responsiveness of employment to changes in real wages at a given level of output. The estimated coefficients are well above -1 and therefore imply that real wage gains will tend to increase total wage income, although there will be some loss of employment.

---

<sup>13</sup> The growth rate of domestic consumption expenditures on goods was regressed on the growth rate of imports of goods from non-OPEC developing countries. The data that was available covered the years 1980 to 2001 and came from the U.S. Bureau of Economic Analysis. The coefficient on the consumption expenditures variable was 2.15 (t-statistic 3.01, p-value = 0.0068,  $R^2 = 0.278$ , D-W = 1.72).

Moreover, if wages increase along with an expansion of demand, then total income will increase at a faster rate – through a combination of both new jobs and higher wages – than would be the case if income increased through job creation alone. Under these circumstances, wage income of export manufacturing workers would increase at a faster rate than the rate of increase of consumption in high-income economies.

Including wages on the right-hand side as an independent variable raises some concerns about endogeneity. Changes in real wages will affect the demand for labor. However, increases in employment could also improve the bargaining power of labor and push up real wages. In a labor surplus economy, particularly when the bargaining power across the commodity chain is highly skewed, this latter effect is likely to be small or insignificant. Nevertheless, the possibility of endogeneity should be addressed. Equations (C) and (F) replicate the fixed effects estimates of (B) and (E) using a two-stage instrumental variable (IV) estimation technique. The lagged percent change in real wages is used as the instrument. The lagged percent change in wages is correlated with current changes in wages, but it is not correlated with current changes in employment.

The IV estimates in (C) and (F) are of approximately the same magnitude as the coefficients in other estimated equations. Moreover, the estimates retain their statistical significance, with the exception of the linear time trend. In particular, the estimated elasticity of labor demand ranges from -0.11 to -0.17, closely corresponding to the -0.12 to -0.16 range of the non-IV estimates.

Throughout this discussion, increases in consumer demand have been assumed to be exogenous. However, could lower wages within a particular country actually help stimulate demand and, therefore, boost employment? Since the apparel industry is labor-intensive and prices are likely to be sensitive to increases in labor costs, it serves as a good example. Estimates of the impact of changes in production worker's wages in Mexico on the retail price of clothing in the U.S. show that large changes in production-level wages have a very small effect on retail prices (Pollin, Burns, and Heintz, forthcoming). These results indicate that consumers would have to be incredibly sensitive to small price changes or the wage reductions would have to be unrealistically large in order for a reduction in labor costs in the manufacturing sector of a particular country to have a significant impact on consumer demand.<sup>14</sup> Of course, the cost reductions that could be achieved by sourcing from a low-wage manufacturing sector instead of a high-wage sector are distinct from reductions of manufacturing wages within a particular country.

There are a number of caveats to keep in mind when considering these empirical estimates. First, the estimated relationships are based on data for the entire manufacturing sector of developing countries for which reasonably complete data is available. However,

---

<sup>14</sup> Reduced form regressions in which output is modeled as a function of real wages were estimated with changes in employment as the dependent variable and changes in real wages and fixed effects as the only independent variables. The coefficient on the wage variable did not differ significantly from the coefficients in Table 2, suggesting that changes in production level wages and output are largely exogenous in these estimations. These results are available from the author upon request.

the discussion of the results assumes that the estimates are reasonably reflective of relationships existing in the export-oriented segments of a country's manufacturing sector. If export-oriented firms are fundamentally different from other manufacturing firms, using total manufacturing as a proxy could be misleading. Along similar lines, estimates for each individual manufacturing sector (e.g. apparel, electronics, or metal products) could reveal important sectoral differences.

Second, the assumption that output is constrained by demand in high-income countries is made in order to simplify a comparison between the growth in the wage income of export manufacturing workers and the growth in high-income consumer spending. If incomes in low-wage manufacturing lag behind the growth in high-income consumption, inequalities, measured by income or consumption, between the production workers and the ultimate consumers will grow. However, the assumptions made are stylized and many other factors affect the extent of global inequalities. Therefore, the examples given here should be viewed as being illustrative of a basic argument, not as producing definitive predictions. Finally, the argument focuses largely on short-run consequences, not long-run dynamics. Investigating the dynamic nature of these relationships would be a useful extension of this preliminary work.

In summary, these estimates suggest that employment is not highly responsive to increases in manufacturing output. While employment will certainly expand as demand for low-wage manufactured goods increases, the ability of job creation tied to consumer markets in highly industrialized countries to address the income gap between rich and poor nations is limited. However, if paired with increases in real wages, the growth of wage income can match or exceed the growth in consumer demand abroad. This helps insure that workers sustain or increase their share of the benefits of such global dependencies.

## 5. Discussion

The empirical arguments presented in this paper suggest that the income/consumption gap between developing economies and the high-income countries of Europe and North America can be narrowed when wages rise with the expansion of employment opportunities in export sectors. Other empirical observations support this argument. For example, between 1980 and 1995 the apparel industry in the newly industrializing economies of East Asia experienced the fastest rate of employment growth and the largest increases in real wages compared to any other region (ILO 2000). These same countries have shown a marked improvement in development indicators, such as poverty rates, health outcomes, and living standards, relative to high-income economies. When wages do not rise with the expansion of low-end manufacturing employment, jobs alone may have a subdued impact on the well-being of workers. For example, a survey of labor market outcomes among women working in maquiladoras in Tijuana found that the addition of these new jobs did not lead to an improvement in the wage incomes of these workers relative to what they could have earned in informal work arrangements, although

the volatility of income flows was reduced (Fussell 2000). Their earnings were lower than those of other low-skill women workers in local labor markets.

The analysis presented here, however, says very little about inequalities and capital mobility between low-wage manufacturing sectors in developing countries. That is, the increase in demand for manufacturing output could be distributed unequally between different countries depending on sourcing decisions of retailers and brand-name corporations. Furthermore, while the empirical estimates show that increases in real wages in a particular country have only a small negative impact on employment, a more pronounced trend in global manufacturing has been the shift in production from high- to low-wage regions in recent years. These changes in the geography of global manufacturing might not be a response to a particular with-in country increase in real wages. Instead, they could reflect location and sourcing decisions as new low-wage countries are “opened up” to manufacturing exports. In this respect, variables other than changes in real wages, such as political stability, infrastructure development, trade policy, and transportation costs, could prove more crucial.

Moreover, the distribution of wages and employment among developing countries could follow different paths with important consequences for income distribution among wage earners in the developing world. For example, if a “high road” pattern emerged in which average wages increased with employment, these developments might be restricted to more productive manufacturing sectors, with good infrastructure and social stability. Economies which already enjoy a higher level of development might be the primary beneficiaries. The result would be a continued marginalization of the most underdeveloped countries. While total wage income in the developing world might increase, access to employment would be unequally distributed. On the other hand, a “race to the bottom” scenario is also a possibility. If the expansion of employment were to disproportionately occur in economies with extremely low wages, average wages in the developing world would be pulled down and the growth of real wage income would be moderated. The result could be a more equal distribution of a smaller pool of income among developing nations.

What role can labor markets and new sources of wage income play in reducing the economic distance between high-income and developing economies? If the mechanism for expanding employment is an export-oriented strategy in which access to affluent consumer markets plays a pivotal role, then depending on job creation alone is unlikely to succeed. What is needed is not only more jobs, but better jobs as well.

However, it is unclear that an expansion of labor demand will automatically lead to improvements in wages and conditions of employment. There are three reasons this may be the case. First, the ability of workers to demand better conditions as employment opportunities grow could be limited due to sizeable labor surpluses and limitations on bargaining power. Second, as mentioned above, flexible sourcing decisions and capital mobility could make the long-run demand for manufacturing workers increasingly elastic, reducing the total benefits labor receives when wages increase (Rodrik 1997). Third, the industrial organization of global commodity chains often means that small

producers and subcontractors face intensely competitive pressures. Their bargaining power relative to their buyers – large multinationals and retailers – constrains their ability to absorb cost increases. In such circumstances, international efforts to develop and enforce global labor standards would be necessary to insure that employment conditions improve.

The limitations of export-oriented employment strategies to improve relative living standards raise a more profound question – are there alternative approaches to employment-led development that would be appropriate as part of a more comprehensive set of economic policies? The disjuncture between domestic markets and domestic production in the current pattern of globalization makes the logic of an export-oriented strategy seem compelling. However, a different possibility would be to pursue policies that reconnect production with domestic needs and demands. Such a program would differ from strict stabilization packages aimed at achieving external balances. For example, the strategy would need to regulate financial flows and capital mobility in order to create space for more autonomous state interventions in industrial policy and development. Furthermore, instead of arbitrary fiscal deficit targets, it could emphasize public investments in infrastructure. The policies would not have to be insular or protectionist. Instead, the emphasis would be on pursuing interventionist strategies to regulate global markets and meet domestic objectives.

Along these same lines, an emphasis on the expansion of South-South trade, pursued with domestic development strategies, could help close the gap between rich and poor nations by limiting the dependence of manufacturing exports from low-income countries on the expansion of affluent consumer markets. Instead, the expansion of consumption in developing nations would support the expansion of South-South trade. An unequal distribution of opportunities among developing economies and a race to the bottom are still possible. However, an emphasis on developing domestic markets along with export capacity would limit the possibility of these outcomes.

There is a larger question that this type of analysis raises: why should we care about global inequalities? More employment opportunities could help raise families above an absolute threshold of poverty, even if incomes and consumption in the high-income countries of the world are increasing at a faster rate. One primary goal of human development might be to meet basic needs and expand capabilities, along the lines suggested by Amartya Sen (1999). Closing the consumption gap between rich and poor nations is neither a necessary nor sufficient condition for improving absolute living standards among poor, working families.

However, there are several reasons to be concerned about global inequalities as well as absolute levels of deprivation. First, as the economies of the world become more closely intertwined with the strategic actions of one country affecting the welfare of another, the potential for benefits arising from cooperation among nations increases. In such circumstances, there is no guarantee that individual nations, acting alone, will choose a cooperative solution and realize the gains from coordinated action. Insofar as inequalities across countries make cooperation less likely, global well-being will suffer.

Second, to the extent that growth in the developing world depends on increased consumption in affluent economies, the long-run environmental sustainability of such a growth relationship is called into question. Consumption in high-income economies demands large quantities of non-renewable resources and places pressures on the assimilative capacity of the environment. If higher levels of consumption in high-income economies are required to improve living standards in the developing world, the entire system is likely to prove to be unsustainable.

Finally, theories of distributive justice also apply to global inequalities. Consider the Rawlsian concept of distributive justice, based on the assumption of a “veil of ignorance” concerning one’s place in society. Rawls argues that under such conditions the only inequalities that would be freely chosen are those that would improve the position of the worst off (Rawls 1971). Therefore, a just distribution of income is one that maximizes the well-being of the poorest segments of the global economy. Applying this criterion to the current global situation immediately raises serious doubts as to whether raising relative living standards in high-income households will maximize the living standards of the world’s poorest. Alternative economic strategies, with greater autonomy for low-income nations, could achieve similar results without requiring a privileged position for affluent consumers.

## **6. Conclusions and future research directions**

This paper explored the question of whether the expansion of manufacturing exports from developing economies for the consumer markets of affluent countries improves or worsens inequalities between low-wage workers and high-income consumers. This issue has become increasingly important as the connection between domestic markets and domestic production has been weakened due to the changes associated with more globalized manufacturing. Since sustaining wage income in a particular country is not necessary to maintain demand if there is sufficient access to global markets, the employment gains associated with an expansion of manufacturing production are particularly important for expanding wage incomes in developing countries.

Empirical estimates reveal that the employment is inelastic to changes in output. A 10 percent increase in manufacturing output is associated with only about a 4 percent increase in employment. While employment generally responds positively to output (i.e. jobless growth is an exception, rather than the rule), the manufacturing sectors of the countries investigated here could be said to exhibit “job-poor growth”. In a situation in which output growth is constrained by demand in the markets of affluent countries, employment creation alone will not be sufficient to close the income/consumption gap between high-income consumers and low-income production workers. Since the short-run manufacturing labor demand with respect to real wages is relatively inelastic, improving real wages when employment expands will raise the growth rate of wage income among manufacturing workers in developing economies.

While this paper has explored a few of the distributive issues associated with low-wage manufacturing in developing countries, many questions remain. There is a need to disaggregate the empirical work presented here and to look more closely at sectoral and regional differences. Likewise, a clearer separation of the export sector from the manufacturing sector more generally would help determine whether significant differences exist. In this same spirit, more country-specific studies would complement more general research in shedding light on distributive issues, including employment, wage, and income relationships, in export-oriented industries.

More work is needed to understand the nature and extent of the relationships that emerge in buyer-driven commodity chains and in globalized production systems that depend on high-income consumer markets. For example, is consumer spending in the U.S. a significant constraint on producers? Or is demand sufficiently global so that no single set of countries can influence the market? How do institutional details like supplier chains, differentials in market power, and sourcing relationships shape these relationships? Along these same lines, a greater understanding of how aggregate demand impacts trade and the distribution of income at a global level would be needed. Finally, research into how changes in manufacturing exports affect inequalities among developing countries (as opposed to a comparison of the global North to the global South) is critical in shedding light on the distributive consequences of export-led growth strategies.

## Sources

- Fredrick Abernathy, John Dunlop, Janice Hammond, and David Weil. (1999). *A Stitch in Time: Lean retailing and the transformation of manufacturing*. Oxford, UK: Oxford University Press.
- Michel Aglietta. (1979). *A Theory of Capitalist Regulation*. London: NLB.
- Drusilla Brown. (2000). "International trade and core labour standards: a survey of the recent literature." *Labour Market and Social Policy*. Occasional Paper No. 43. Paris: OECD.
- Duangkamon Chotikapanich and D. S. Prasada Rao, "Inequality in Asia 1975-1990: a decomposition analysis," *Asia Pacific Journal of Economics and Business*. 2(1998): 63-78.
- William Cline. (1997). *Trade and Income Distribution*. Washington, D.C.: Institute for International Economics.
- Henry Ford. (1973). *My Life and Work*. New York: Arno Press.
- Elisabeth Fussell. (2000). "Making labor flexible: the recomposition of Tijuana's maquiladora female labor force." *Feminist Economics*. 6(3): 59-80.
- Gary Gereffi. (1994). "The Organization of buyer-driven global commodity chains: how U.S. retailers shape overseas production networks." In G. Gereffi and M. Korzeniewicz, eds. *Commodity Chains and Global Capitalism*. Westport, CT and London: Greenwood Press. pp. 95-122.
- Andrew Glyn, Alan Hughes, Alain Lipietz, and Ajit Singh. (1990). "The rise and fall of the Golden Age." In S. Marglin and J. Schor, eds. *The Golden Age of Capitalism: Reinterpreting the Postwar Period*. Oxford, UK: Clarendon Press.
- ILO. (2001). *World Employment Report 2001*. Geneva: International Labor Organization. pp. 15-23.
- ILO. (2000). *Labour Practices in the Footwear, Leather, Textile, and Clothing Industries*. Geneva: International Labor Organization. p. 18-9, 45-6.
- Arthur Kennickell, Martha Starr-McCluer, and Brian Surette. (2000). "Recent changes in U.S. family finances: results from the 1998 Survey of Consumer Finances." *Federal Reserve Bulletin*, 86(January): 1-29.
- Arthur Kennickell and Martha Starr-McCluer. (1994). "Changes in family finances from 1989 to 1992: evidence from the Survey of Consumer Finances." *Federal Reserve Bulletin*, 80(October): 861-82.

- Kala Marathe Krishna and Ling Hui Tan. (1998). *Rags and Riches. Implementing apparel quotas under the multi-fibre arrangement*. Ann Arbor, MI: University of Michigan Press.
- Paul Krugman. (1998). *The Accidental Theorist*. New York: Norton.
- Carlos Medeiros. (2000). "High wage economy, Sloanism, and Fordism: the American experience during the Golden Age." *Contributions to Political Economy* 19: 33-52.
- Branko Milanovic. (1999). "True world income distribution, 1988 and 1993: first calculation based on household surveys alone." Mimeo. Development Research Group, World Bank, Wasington, D.C.
- Manouchehr Mokhtari. (1992). "An alternative model of U.S. clothing expenditures: application of cointegration techniques." *Journal of Consumer Affairs*. 26(2). 305-19.
- Lawrence Mishel, Jared Bernstein, and John Schmitt. (2001). *The State of Working America 2000-2001*. Ithaca, NY: Cornell University Press.
- Allen Myerson. (1997). "In principle, a case for more 'sweatshops'". *New York Times*, June 22, p. E5.
- Robert Pollin, Justine Burns, and James Heintz (forthcoming). "Global apparel production and sweatshop labor: can raising retail prices finance living wages?" *Cambridge Journal of Economics*.
- Daniel K. G. Raff (1988). "Wage determination theory and the five-dollar day at Ford." *Journal of Economic History*. 48(2): 387-399.
- John Rawls. (1971). *A Theory of Justice*. Cambridge, MA: Belknap.
- Dani Rodrik. (1997). *Has Globalization Gone Too Far?* Washington, D.C.: Institute for International Economics.
- Paul Samuelson. (1948). "International trade and the equalization of factor prices." *Economic Journal* 58(230): 163-84.
- Juliet Schor. (1992). *The Overworked American. The unexpected decline of leisure*. New York: Basic Books.
- Amartya Sen. (1999). *Development as Freedom*. New York: Anchor Books.
- Paul Streeten. (1994). *Strategies for Human Development. Global poverty and unemployment*. Copenhagen: Handelshøjskolens Forlag.

Irene Trela and John Whalley. (1990). "Global effects of developed country trade restrictions on textiles and apparel." *Economic Journal*. 100(403): 1190-1205.

UNDP. (1996). "Translating growth into employment opportunities." *Human Development Report*. New York and Oxford: Oxford University Press. pp. 86-105.

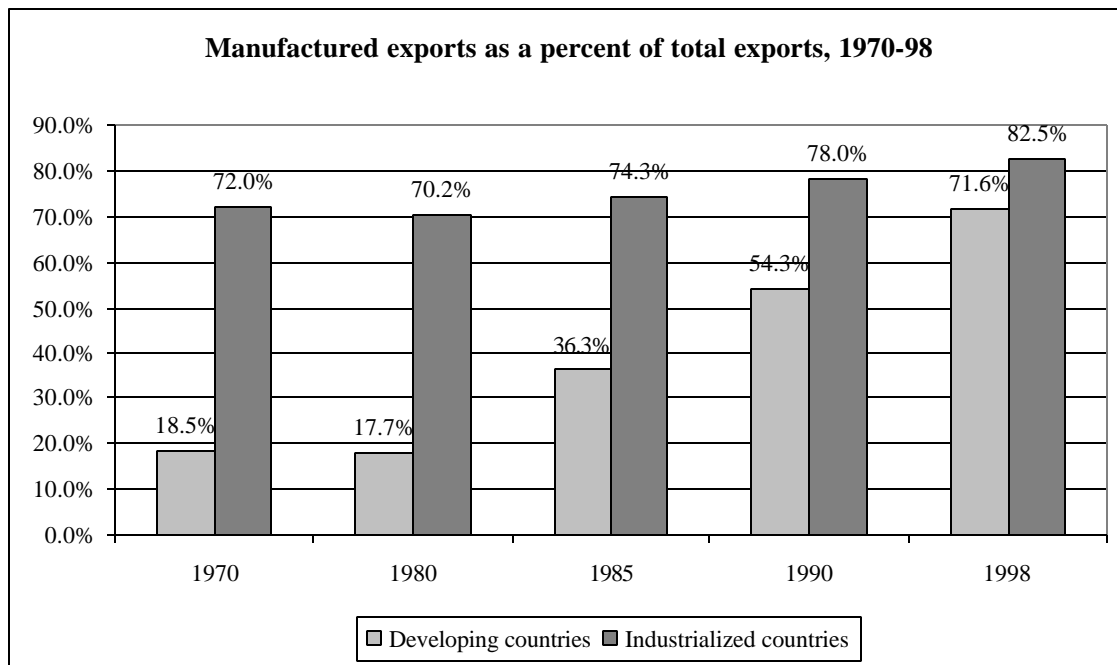
U.S. Census Bureau. (2000). *Money Income in the United States 1999*. Current Population Report P60-209. Washington, D.C.

Robert H. Wade. (2001). "Is globalization making world income distribution more equal?" London School of Economics Development Studies Institute. Working Paper No. 01-01.

Adrian Wood. (1997). "Wage inequality in developing countries: the Latin American challenge to East Asian conventional wisdom." *World Bank Economic Review*. 11(January): 33-57.

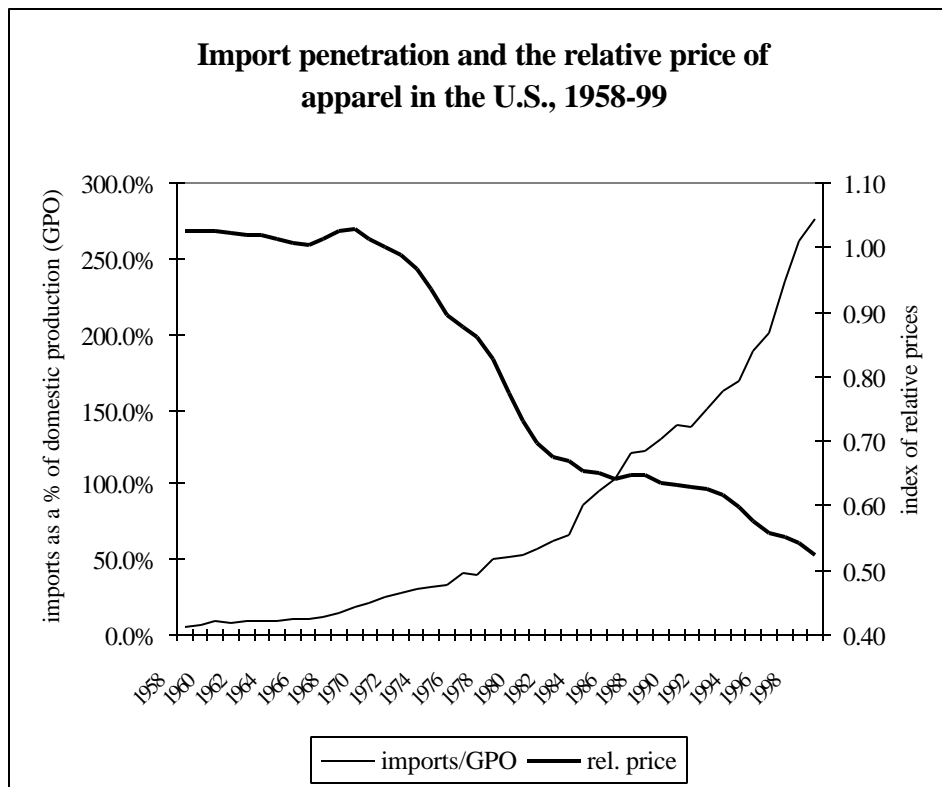
Zuo Xuejin. (2000). "China's rural and urban employment in the reform era: recent trends and policy issues." In Peng Xizhe with Guo Zhigang, eds. *The Changing Population of China*. Oxford: Blackwell.

Figure 1



Source: United Nations. *World Economic and Social Survey 2000*. Table A15. pp. 263-4.  
ILO. *World Employment Report 1995*. Table 6. p. 33.

Figure 2



Source: For the relative price of apparel: U.S. Bureau of Labor Statistics. For imports of apparel: U.S. Census Bureau, *U.S. International Trade in Goods and Services*, various years. For domestic production of apparel: Bureau of Economic Analysis, U.S. Department of Commerce. Note: data includes both wearing apparel and footwear.