The Impact of International Trade on Union Behavior and Wage Rates

Ekrem GÜL[*]

Abstract: This study criticizes, theoretically, the impact of international trade on union behavior and wage rates. It is our main finding that international trade of a certain country has an affect on the wage rates in two ways. While exports help to increase wages and employment, foreign imports may put downward pressure on earnings and employment in domestic import-competing industries. In terms of the union behavior, our findings resulted with mixed results, which mainly imply that when different countries, industries and contexts are discussed, different scenarios are prevalent, which is mentioned in the paper.

Keywords: International trade, union behavior, wage rates, income inequality.

Uluslararası Ticaretin Sendika Davranışları ve Ücret Düzeyleri Üzerindeki Etkisi

Özet: Bu çalışma uluslarası ticaretin sendika davranışları ve ücret düzeyleri üzerindeki etkisini teorik olarak incelemektedir. Bulgularımız, bir ülkedeki uluslararası ticaret faaliyetlerinin ücret düzeyleri üzerinde iki tür etkiye sahip olduğunu göstermektedir. İhracat, ücretlerin ve istihdamın artmasına yardımcı olurken, ithalat ise yurt içinde ithalatla rekabet eden endüstrilerde kazançlar ve istihdam üzerinde aşağıya doğru baskı yapabilir. Sendika davranışları sözkonusu olduğunda ise bulgularımız karışık sonuçlar ortaya koymaktadır. Şöyleki, çalışmamızın içeriğinde değindiğimiz üzere, farklı ülkeler, endüstriler ve iş ortamları geçerli olduğunda farklı gelişmeler söz konusu olmaktadır.

Anahtar Kelimeler: Uluslararası ticaret, sendika davranışları, ücret düzeyleri, gelir eşitsizliği.

Introduction

This study contains a literature review in terms of the the links between international trade and wage rates. The benefits of international trade have been recognized at least since Adam Smith emphasized them in The Wealth of Nations more than 200 years ago. Yet while trade is advantageous for the economy as a whole and exports help to support earnings and employment, foreign imports may put downward pressure on earnings and employment in domestic import-competing industries. In principle, increased product market competition should lead to lower wages, lower employment, or both. Whether the competition stems from imports or any other source, it puts downward pressure on the price of a product. From an employer's perspective, this effect diminishes the value of any worker's contribution to output, and consequently

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[*] Yrd.Doç.Dr. Dumlupınar Üniversitesi, Bilecik İİBF, İktisat Bölümü.

fewer workers will be hired at the prevailing wage rate. The decline in labor demand may in turn exert downward pressure on the wage rate. In this paper, I tried to shed some light on these issues.

Over the past two decades, there has been a continuous increase in the wage gap between skilled and unskilled workers in several developed and developing countries (OECD, 1997; Gottschalk and Smeeding, 1997; Wood, 1997). In many developed countries, but particularly in the case of the United States, there has been a heated debate about the underlying causes of such a trend. There have been two main lines of argumentation: first, higher volumes of trade with emerging or low-income countries may have led, through the mechanisms described by the Hecksher-Ohlin model and the Stolper-Samuelson theorem, to a reduction in the relative price of the less-abundant factor in rich countries(namely, unskilled labor).[1] The intuition is that by increasing trade with unskilled labor-abundant countries, the domestic relative price of products intensive on developed countries' abundant factor(skilled labor) will rise, and this in turn will be associated to an increase in the relative wages of the abundant factor.

The second line of argumentation suggests that there has been a worldwide skill-biased technological change that has increased the demand for skilled workers relative to that of unskilled workers (Bhagwati, 1995; Krugman and Lawrence, 1993). Some of the authors that favor this explanation for the US case, rule out the possibility that trade could have been the main explanatory factor of the increase in the wage inequality on the basis that US trade with developing countries is relatively small (Esquivel and Rodriguez-Lopez, 2003).

Since both arguments are theoretically compelling, a definitive answer about the sources of wage inequality in developed countries was expected to come from empirical studies. However, empirical works based on the US experience provided mixed or weak evidence and therefore did not contribute to resolve the debate.[2] In light of these results, some authors suggested to look at the experience of developing countries (i.e. Hanson and Harrison, 1999). They reasoned that, if trade was behind the relative wage movements in developed countries, we should observe a movement in the opposite direction in the relative wages of developing countries. That is, if trade with developing countries was increasing the wage gap between skilled and unskilled workers in developed countries, we should observe a corresponding reduction in the

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[1] Wood (1995) and Leamer (1998), among others, have proposed this interpretation.

[2] See, for example, Lawrence and Slaughter (1993); Sachs and Shatz (1994); Leamer (1996).

wage gap in the former countries. However, if skill-biased technological change was the main force behind the relative wage movements in developed countries, a similar pattern should be present in developing countries too.

Based on this premise, a number of authors have since then analyzed the relationship between wage inequality and trade in developing countries.[3] The initial empirical evidence was apparently unequivocal: most developing countries that had gone through episodes of trade liberalization had also experienced a substantial increase in wage inequality (Robbins, 1996). This result led some authors to conclude that skill-biased technological change was pervasive around world and that it was the main source of wage inequality in both developed and developing countries (i.e. Berman et al., 1998). However, proponents of the trade hypothesis quickly noted that the fact that middle-income countries were experiencing an increase in wage inequality was not necessarily incompatible with their arguments. These authors emphasized that a country could be at the same time abundant in unskilled at a local level, but abundant in skilled labor at a global level (Leamer, 1996). Therefore, when poor and highly populated countries such as India and China opened their economies to the rest of the world, as they did it in the 1980s, the supply of unskilled labor increased at a worldwide level, and this could explain the pattern of wage inequality observed in middle-income countries (Wood, 1997).

This new interpretation complicated again the identification of the role that trade and technology were playing in explaining the increase in wage inequality, since both aspects would be acting in the same direction in both developed and developing countries. In that sense, the resolution to this debate critically depends on the identification of the contribution of both aspects to the observed pattern of wage inequality.

Theories of International Trade and Wages

The most commonly invoked theory to explain the link between trade and wages is the Heckscher-Ohlin model of international trade. This model explains the pattern of international trade by reference to the relative abundance of factors of production among trading partners. The model predicts that between two countries, A and B, which share the same technology, country A will export commodities that are produced with relatively more of the factor of production that is relatively abundant in country A and will import commodities produced with relatively more of the

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[3] See, for example, Hanson and Harrison (1999), Cragg and Epelbaum (1996), Revenga(1997), Feliciano (2001) and Robertson (2001) for the case of Mexico; Beyer et al.(1999) for Chile; Galiani and Sangumenti (2003) for Argentina; and Robbins (1996), Wood (1997) for several developing countries.

factor of production that is relatively abundant in country B. Two theorems derived from the Heckscher-Ohlin model, the factor price equalization theorem and the Stolper-Samuelson theorem, deal explicitly with the effect of trade on wages, land rents, and other factor prices.

The factor price equalization theorem proved by Paul Samuelson in a pair of celebrated articles, asserts that under the assumptions of the Heckscher-Ohlin model and a regime of unrestricted free trade, prices of the factors of production will be equalized among the trading partners (Samuelson 1948 and 1949). That is, if the assumptions of the model hold, free trade between the United States and Mexico will equalize U.S. and Mexican wages for equivalent labor and will equalize rents for a standardized unit of land, even if the factors of production cannot move across the countries (Burtless, 1995).

The Stolper-Samuelson theorem asserts that an increase in the domestic price of a commodity, brought about by a higher tariff or additional protection, will raise the real price of the factor of production that is used relatively intensively in producing that commodity. If watches are produced using labor intensively and land sparingly, whereas wheat is produced using land intensively and labor sparingly, then an increase in tariff protection for watches will boost the real wage received by laborers. By implication, a reduction in the protection of watches will lower the real wage. Accepting for a moment the assumptions of theorem, a reduction in protection of apparel and footwear, which use less-skilled labor relatively intensively will tend to reduce the real wage received by less-skilled workers.

Wood (1995) devotes a lengthy chapter to explaining a variant of the Heckscher-Ohlin model that permits him to analyze rising exports of manufactures from developing countries. He rejects some of the assumptions of classical Heckscher-Ohlin model, leading him to reject one of its important implications, the factor price equalization theorem. In Wood's model, free trade between high-wage countries(the North) and low-wage countries(the South) leads to a tendency toward relative factor price convergence rather than to absolute factor price equalization. Wood distinguishes three factors of production, uneducated labor, labor which has received a basic education, and highly skilled labor. The South is richly endowed with uneducated labor, as well as a growing supply of workers who have a basic education. It is poorly endowed with highly skilled labor. The North is richly endowed with highly skilled labor, but it has a relatively smaller endowment of workers with basic education and almost no workers who are totally uneducated. Because the variation in factor endowments is large relative to the variation of factor intensities among goods, the North produces some goods which are not produced in the South, and vice versa, invalidating one of the assumptions of

the Hecksher-Ohlin model, which assumes that both North and South will produce all commodities. For that reason, as well as the existence of transport cost, the factor price equalization theorem fails.

Wood argues that both North and South have access to the same capital at the same rental price, because most kinds of capital are freely mobile across international frontiers. Also, North and South have access to the same technology, at least to the extent that technology can be embodied in traded capital and intermediate goods. If technology is proprietary, firms from the North simply builds plants in the South to take advantage of favorable factor prices in that region. The South's apparent backwardness in technology arises as a result of its workers' lack of skill. As these skills are improved through the expansion of basic education, developing countries can begin to produce manufactured goods whose production requires a relative abundance of workers with basic education. Newly industrializing countries then increase their production of such goods, reversing the flow of these commodities in North-South trade. Manufacturing in the North becomes even more specialized in the production of goods that are relatively intensive in the use of highly skilled labor.

Though both North and South benefit from this trade, workers with only a basic education in the North may suffer. The tendency toward relative price convergence will raise the relative wages of workers with a basic education in the South but reduce them in the North. By contrast, the relative wage of highly skilled workers will fall in the South but rise in the North. If union bargaining power or social institutions prevent the relative wages of less-skilled workers from adjusting in the North, unemployment will grow, especially among the less skilled. In essence, Wood attributes the decline in the relative wages of less-skilled Northern workers to two trade related phenomena: the elimination of manufacturing trade barriers and increasing relative abundance of workers who have a basic education in the South. His model rests firmly on insights derived from classical Heckscher-Ohlin theory.

Wood (1997) believes that less-skilled workers in the North have suffered sizable losses as a result of manufactured imports from the South. He argues that the overall gains from North-South trade, especially for poor workers in the South, more than offset the harm inflicted on less-skilled workers in wealthy countries. He describes three policy alternatives to raising trade barriers against manufactured imports from the South; (1) Investing in education and skill training to reduce the supply of less-skilled workers; (2) Establishing public works, projects, or targeted employment subsidy schemes to boost public and private demand for less-skilled workers; and (3) Redistributing income directly from highly paid(skilled) workers to the poorly

paid. Wood argues that a combination of the three policies is likely to yield better results than reliance on only a single one of them, and he notes that the combination of policies that is most effective in a labor market with rigid wages is likely to differ from the combination that would work best where wages are flexible.

Wage Responses to Import Competition and Protection

The main channels through which trade and protection affect wages are well known. Protection reduces imports, and reduced imports increase labor demand, which in turn increases wages. This mechanism raises wages in the industry relative to the economy-wide average wage. Protection also, however, affects the economy-wide level of wages. The most familiar general equilibrium trade model leads to an odd result. The Stolper-Samuelson theorem states that protection placed on labor-intensive industries tilts the product market mix in favor of increased overall labor demand. Although this influence raises the economy-wide average wage, the theorem states that there is no change in relative wages, since wages are assumed to be equalized across industries. Thus, the theorem does not address relative wage issues.

A second channel through which trade and protection affect wages is imperfectly competitive factor markets. For example, unions may extract part of the rents from protection in the form of more jobs rather than higher wages. In the McDonald and Solow(1981) model, an increase in protection need not always results in higher wages, because the risk-averse union may respond to the increased protection by pushing for a low wage-high employment contract. Grossman (1984) developed this model further by considering what happens when random layoff rules are replaced by seniority-based layoff rules. Such a system induces senior workers to push for higher wages and junior workers to push for the low wages that prevent layoffs ; the correlation of wages with imports and trade barriers then depends on the seniority structure of the unions. Thus, the links among wages, trade, and protection are potentially more complicated than is implied by the protection-reduced imports-higher labor demand-higher wages argument (Gaston and Trefler, 1994).

A third channel from trade and protection to wages appears in international trade models with imperfectly competitive product markets. With imperfect competition, trade and protection affect the strategic interaction between firms, thus affecting firm performance and wages. This channel is especially interesting, for it suggests why protection may have effects on wages independent of its effects on trade levels. Consider just two examples. First, domestic firms sometimes price just below the world price plus tariff so as

to exclude imports. In this case, a higher tariff helps domestic firms, since it raises the domestic price, but leaves imports unchanged, thus severing the direct link between tariffs and imports. Second, if protection promotes entry into an industry by enhancing the profitability of existing firms, and if new entrants face set-up costs, then protection promotes inefficient entry.

Most of the recent econometric studies regress average industry wages on imports and exports.[4] The evidence points to a negative relationship between imports and wages, and a positive relationship between exports and wages. These generalizations partly break down in the case of contractual union-negotiated wages. In the study of Gaston and Trefler (1994), there is a positive relationship between wage premiums and exports, and a negative relationship between wage premiums and imports.

In the case of U.S., a 10 percentage point increase in the import penetration ratio in a typical industry during the 1958-85 period was associated with a wage reduction of about 3.3 percent. A similar increase in the ratio of exports to output resulted in an increase in real wages of about 1.3 percent. As a particular example, the import penetration ratio in the women's clothing Industry rose from around 10 percent in the mid-1970s to approximately 25 percent in the mid-1980s, while real hourly wages fell by about 10 percent. The increase in imports was responsible for about half of real wage reductions observed in the industry (Brauer, 1991).

In principle, increased product market competition should lead to lower wages, lower employment, or both. Whether the competition stems from imports or any other source, it puts downward pressure on the price of a product. From an employer's perspective, this effect diminishes the value of any worker's contribution to output, and consequently fewer workers will be hired at the prevailing wage rate. The decline in labor demand may in turn exert downward pressure on the wage rate.

In an environment of unionized labor and less than perfectly competitive product markets, workers generally receive "rents", or above-market wages and benefits. Employers are usually able to pass these costs on to consumers through their pricing policies. Increased competition from imports, however, can make it difficult to continue passing wage costs through, because demand for a firm's product becomes more sensitive to price changes. Nevertheless, the price effect of increased competition on wages and employment will depend on the specific objectives of both unions and employers. For instance, some unions, when faced with declining demand, will fight to preserve their wage advantage at the expense of employment, while others will offer wage

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[4] For example, Leamer (1998); Gottschalk and Smeeding (1997); Hanson and Harrison (1999); Galiani and Sanguinetti (2003).

concessions in order to save their member's job (Brauer, 1991).

The short-term impact of import competition on wages may be weak or even perverse. Over time, however, noncompetitive systems for wage determinations should be eroded by competitive forces. If imports entail increased competition, they should become increasingly important determinants of wages. If imports become more important in wage determination, the degree of import penetration within an industry should become more closely associated with the wages paid by the industry (Brauer and Hickok, 1995).

International Trade and Union Behavior

Two important issues arise when assessing the effects of international trade on unions. The first deals with the unions' response to increased trade. In some industries, greater import penetration is associated with higher union wages, but in other industries, more imports seem to prompt union concessions. These two conflicting notions must be reconciled. The Second issue involves how unions' behaviors vary with industry comparative advantage and international competitiveness. For example, characteristics which determine whether a sector is competitive, such as unique know-how or natural resource availability, may influence union power independent of trade shares.

Akerlof (1985) examines the influence of international competition on union behavior through an end game which incorporates the idea that slow demand growth reduces the opportunity for an industry to invest in new plant and equipment. Unions extract higher wage settlements because a slowly growing firm has a more difficult time substituting capital for labor. Conversely, robust product demand growth encourages the industry to expand its capacity. The union fears that if its wages are too "high", the firm will adopt a capital-intensive technology which results in lower employment of union members. Since greater imports (exports) are negatively (positively) related to product demand growth, ceteris paribus, Akerlof suggests a positive (negative) relationship between union wages and imports (exports).

In highly unionized industries, the derived demand for union labor should be less elastic because there is a smaller nonunion sector to take advantage of the greater union sector costs. Thus, we expect end game behavior to be prevalent in the highly unionized industries. For example, end game behavior implies that a surge in imports results in higher union wages. If the nonunion sector is small, there is less constraint on union wages. For different reasons, Staiger (1988) proposes the same relationship between international trade and wages as the end game does. Staiger assumes the union-nonunion wage gap is determined at the marginal firm. In Staiger's model, the marginal firm is the unionized firm with

the most labor-intensive technology in the union sector. Staiger predicts that greater imports increase the wage gap because imports force unions out of labor-intensive firms where the unions are not as strongly entrenched. The result is that, in the new marginal firm, the union is more entrenched. Therefore, unions extract higher wages in the industry and the union-nonunion wage gap increases. If union wages increase in response to an increase in imports, the unionized sector will employ fewer workers which creates a spillover effect that depresses the nonunion sector. The size of the spillover effect on nonunion wages is directly proportional to union density. Analogously, the union-nonunion wage gap decreases after an increase in exports, with a greater decline occurring at high union densities (Partridge, 1993).

Grossman (1984) sets up a median voter union member model which has two offsetting impacts on union wages from increases in import competition. First, increased import competition reduces the probability of employment which negatively affects wages. Second, increased import competition reduces union employment and forces the least senior employees to be laid off, resulting in a new median union member with more seniority than before. Grossman assumes that senior employees are less concerned about layoffs and desire higher wages and, therefore, suggests that these two offsetting impacts cause union wages to change very little in response to greater import competition (Borjas, 1995).

International trade also influences product demand elasticity and industry profitability. Cournot and Dixit-Stiglitz models can be used to show that greater imports (exports) increase (reduce) the product demand elasticity and reduce (increase) profits. In the monopoly union model, a large price elasticity implies an inferior union wage-employment trade-off. Similarly, an efficient contract approach implies that union wages are positively related to profits (Freeman and Katz,1991).

Product market effects from greater imports and exports offset the effects of both end game behavior and Staiger's analysis. For instance, the product market analysis suggests that greater imports (exports) reduce (increase) union wages. Conversely, Staiger's analysis and the end game imply that greater imports (exports) increase (reduce) union wages, and this relationship is expected to be stronger at higher union densities. Together, these two arguments suggest that imports reduce wages at low union densities. They also imply an offsetting positive relationship between wages and import shares at high union densities. The opposite should hold for exports. In a wage regression, this suggests a negative coefficient on an import variable and an offsetting positive coefficient on an import share-union density interaction variable. There also should be a positive coefficient on an export share variable and an offsetting negative coefficient on an export share-union density interaction

variable (Partridge, 1993).

A final issue is how the nonunion sector responds to changes in trade compared to the union sector. Trade could potentially influence nonunion wages through rent sharing and union threat effects. Because the nonunion labor market in more competitive, it is unlikely that product market impacts, such as imports or profits, significantly influence nonunion wages. Therefore, union members' wage will be more affected by international trade than the wages of their nonunion counterparts (Freeman and Katz,1991).

Conclusions

In this study, we tried shed some light on the impact of international trade (mainly imports), union behavior and wage rates. As it can be observed from the literature review that there are many aspects of this relationship. Therefore, we can not postulate that imports decrease and exports increase the wage rates under all circumstances. That is, theory does not provide us with a full fledged complete model that can help us understand all the issues. Hence, there is a need for more empirical studies on the issue by taking different countries, industries and contexts into account.

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