

International Trade and Labor Markets

Theory, Evidence, and Policy Implications

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An Overview of the Issue

It is well documented that during the last two decades, the economic fortunes of less-skilled workers in the United States and Europe have declined substantially. The stylized facts for this group include an erosion of real wages in the United States and sharply higher unemployment rates throughout Europe. Concurrently, both the United States and Europe have witnessed an explosion of trade, particularly with less-developed countries. These changes have sparked significant policy debate among both policy practitioners and within the economics profession concerning the impact of trade on labor-market outcomes, with particular concern being focused on the impact that globalization has had on low-wage workers with few marketable skills.

The vigorous debate surrounding these issues has produced two very different views of the world. For the vast majority of practitioners, the focal point of the debate is the perceived impact of globalization on employment. Those with a predisposition to oppose trade liberalization tend to buttress their positions with arguments that lower production costs and fewer regulations in other countries allow foreign firms to out-compete domestic producers, resulting in less domestic output and fewer domestic jobs. On the other hand, those who wish to see even greater liberalization often argue that freer trade expands our export markets, resulting in a greater demand for our products, greater domestic production, and more jobs.

This focus on trade and jobs is understandable. The media regularly reports on plant closings and mass layoffs. It is often suggested that stiff foreign competition may be one of the causes of such events. Sometimes the facts actually support such attributions. However, the media is not in the habit of reporting a success story each time a worker, displaced by globalization, finds a new job. It is all too easy to fall into the trap of viewing the worldwide number of jobs as fixed. If import penetration costs American jobs, then expanding exports must yield dividends in the form of increased employment for Americans.

In short, the picture that emerges is one of a world in which workers, particularly those near the bottom of the income distribution, cycle

between periods of employment and unemployment. Changes in the degree to which the economy is open to trade are bound to affect the transition rates between these states. Proponents of greater liberalization argue that by expanding our export markets we make it easier for the unemployed to return to work quickly. Those in favor of limiting trade tend to focus on workers who lose their jobs as imports flow into our country, or who see their wages eroded as their employers have difficulty competing with foreign competitors using cheaper labor. Proponents of limiting trade point out that some of the workers who lose their jobs may need to retrain in order to find reemployment, and some may face long spells of unemployment. All of these factors can lead to financial hardship, emotional distress, and/or a number of other personal tragedies. There is also concern that the hardships created by unemployment may lead the poor and the jobless to turn to crime or other forms of social unrest to survive. It is only natural to ask whether or not the potential benefits from freer trade are really worth such possible costs.

In contrast to this viewpoint, which might be termed the layman's view, academic economists do not seem concerned at all about the jobs created or destroyed by changes in trade policy. The considered response of most economists is that those who wish to link globalization with employment to push for a particular type of trade policy are using arguments that are misguided and fundamentally incorrect. In fact, for reasons discussed below, the debate about trade policy among economists almost always ignores the impact of trade on employment. Instead, relying on formal models, academics argue that fully flexible wages and other factor prices allow the economy to maintain full employment of all resources, including labor. However, changes in the degree of openness or in the terms of trade impact the distribution of income by inducing changes in factor prices.

Virtually all of the academic research connecting international markets for goods with domestic markets for productive factors centers around one of two basic models of international trade. The first is the Heckscher–Ohlin model, which predicts that liberalization benefits an economy's abundant factor and harms its scarce factor. The alternative is the Ricardo–Viner model, which predicts that liberalization benefits factors that are tied to the economy's export sector, harms those factors that are tied to the economy's import-competing sector, and has an

ambiguous impact on factors that are mobile across sectors. Both of these models assume away any impact that trade could have on employment by assuming that all factors are fully employed at all times. In other words, the labor markets included in the models used by academic economists leave no room for many of the concerns outlined previously.

The remarkable divergence between public and professional views of the impact of trade cannot be understated. For example, careful scrutiny of the debate preceding the vote on the North American Free Trade Agreement (NAFTA) in the U.S. House of Representatives and the U.S. Senate reveals that, of the 141 anti-NAFTA statements made, 112 were of the form “NAFTA will destroy jobs” while, of the 219 pro-NAFTA statements made, 199 were of the form “NAFTA will create jobs.”¹ In stark contrast, the *Handbook of International Economics*, which is devoted to describing what academic economists know about the impact of international trade and consists of nearly 4,000 pages, does not even include a listing for unemployment in the index.²

There are at least three reasons for this dichotomy. First, most academic economists view trade as a microeconomic issue that focuses on the distribution of resources within a given economic environment while viewing unemployment as a macroeconomic concern related to the overall level of economic activity and other measures of economic performance.³

Second, international economics has been, since inception, predominately a micro-based theoretical field relying on insights from mathematical models to draw conclusions about the impact of trade policies on real world economies. Since, until recently, economists have been unable to produce convincing microeconomic models of unemployment, trade economists have largely ignored the role of unemployment in the debate over trade policy. Almost all models of international trade, and certainly those that have served as the area’s workhorses, are full-employment models.

Finally, the mainstream view among economists is that trade has little, if any, impact on the overall level of unemployment.⁴ This is true in spite of the fact that there is very little evidence either way on this issue. Although there is a large amount of empirical work on the impact of trade on employment in a particular sector or in a particular

region of an economy, there is very little empirical work on the aggregate employment effects of trade policies.⁵ Thus, it could be argued that the absence of an empirically established link between trade and unemployment strongly suggests that it would be futile to create models of trade and unemployment.

In our opinion, the arguments put forth by both policy practitioners and academic economists are flawed. The public's views are based on arguments that are, at best, informal and do not rely on carefully developed analysis. On the other hand, the views held by most academics are based on well-developed but highly stylized models that ignore unemployment and the structure of factor markets completely.⁶

There are at least three good reasons to extend traditional analyses of trade policy to allow for a richer treatment of labor-market dynamics, including the possibility of both short-run and long-run unemployment. To begin with, there is the issue that the public seems most concerned about—does trade policy create or destroy jobs? It would be easier for academics to credibly dismiss such concerns if there was a significant body of empirical evidence showing that changes in trade policy do neither. Although we consider this to be an important issue, it is not one that we address in this monograph. The reason is that we consider this to be primarily an empirical question, and our expectation is that the conventional view is probably right—over the long run, trade probably has only a minor net impact on the number of available jobs. So, instead of tackling this issue, we focus our attention on the two remaining reasons for including unemployment in our trade models.

The second reason that we need to broaden our analysis to allow for unemployment is that even if the conventional view (that trade has no aggregate impact on unemployment) is correct, the link between trade and the distribution of income may be influenced significantly by the informal asymmetries and trading frictions that are inherent in a dynamic labor market. It is impossible to know how this link will be altered without formally modeling the flows of workers into and out of unemployment. Moreover, as labor economists have been emphasizing for some time now, the structure of the labor market varies a great deal across countries.⁷ Countries differ in the laws governing the hiring and firing of workers, union coverage rates, minimum wage laws, turnover rates, wage rigidity, and the generosity of the social insurance that they provide for the poor and the unemployed. Since trade is all about

exploiting cross-country differences, it is hard to believe that these differences have no implications for the issues of interest to economists studying international trade. Yet, for the most part, academics have ignored such differences by always working with perfectly competitive, frictionless labor markets.

Finally, there is the issue of optimal trade policy. Economists, even the most ardent supporters of free trade, readily admit that some people are harmed by trade liberalization. In fact, enormous efforts have been put forth to identify the groups that win and lose whenever trade policies are implemented. However, after identifying these groups, the usual approach is to simply figure out the net effect of the policy. If the losers lose more than the winners gain, then the policy is considered inefficient. If the winners gain more than the losers lose, it is usually considered a worthwhile policy. In this latter case, the next step is to note that it is possible to compensate the losers for their losses without exhausting the winners' gains so that implementation of the policy generates a potential Pareto improvement. What is usually ignored is the fact that such compensation rarely, if ever, takes place. Moreover, even if we were to try and compensate the losers, we really have no idea as to the best way to go about it. No one has asked the simple question—what is the best way to compensate those who lose when trade is liberalized? After all, how can we try and determine the best way to compensate workers who are pushed into unemployment by liberalization if we only work with models that assume away all unemployment? How can we compare training subsidies, wage subsidies, employment subsidies, and trade-adjustment assistance (which is essentially extended unemployment insurance) in models that ignore the training and job acquisition processes? The obvious answer is that we cannot.

In writing this monograph our intention is to show that there is much to be gained by extending the traditional analysis of international trade to allow for labor markets characterized by workers whose labor-market experiences are punctuated by spells of involuntary unemployment. We hope to demonstrate that such extensions can be made without sacrificing tractability and that they can provide valuable new insights that hold up to empirical scrutiny. And, perhaps most important, we will argue that such models offer the appropriate venue in which to

carry out policy analysis aimed at determining the best way to compensate those who suffer when trade patterns change.

Our goal then is to develop simple yet compelling models that allow for documented differences in labor markets across countries in order to investigate the impact of trade and trade policies on the underclass of society. The models that we develop are based on the many micro-based models of unemployment that have emerged over the past 30 years (e.g., search theory and efficiency wages) and will allow us to account for differing degrees of labor-market flexibility. The models will allow us to consider the impact of trade on the poor both through its impact on job opportunities *and* its impact on the distribution of income when unemployment is present.

Developing general-equilibrium models with imperfect labor markets is just a first step in the process of understanding how trade affects the poor and unemployed. The next step entails an investigation of the impact of a variety of policies that are aimed at offsetting some of the costs of worker displacement caused by trade shocks. While empirical evidence suggests that the losses suffered by dislocated workers may be quite high, international trade economists have, for the most part, ignored such costs in discussing trade policy.⁸ In this monograph, we use our models to study the relative merits of policies such as trade-adjustment assistance, wage subsidies for dislocated workers, job training subsidies, and other policies aimed at helping workers displaced by changes in the pattern of trade.

The monograph is divided into four additional chapters. In Chapter 2, we review the various literatures that have attempted to link international trade to the distribution of income as well as to the level and composition of employment. We purposefully cast a broad net to include everything from the pseudo-scientific arguments expounded by writers like Ross Perot and Pat Choate (1993) to the empirical and theoretical work undertaken by international trade specialists such as Robert Lawrence and Matthew Slaughter (1993) and Paul Krugman (2000), as well as labor economists such John Bound and George Johnson (1992), Lawrence Katz and Kevin Murphy (1992), and Eli Berman, John Bound, and Zvi Griliches (1994).

We have several goals in Chapter 2. We begin by reviewing the theories put forth by some populist writers. These theories include claims that trade between developed and less-developed countries is

harmful for labor employed in the developed economy and calls for “managed trade” to help domestic producers in certain sectors out-compete their foreign rivals. International trade specialists, and we include ourselves in this group, argue that such views are based on incomplete reasoning and have faulty theoretical underpinnings. One of the objectives in this chapter is to point out exactly where the problems with these theories lie.

The remainder of Chapter 2 is spent reviewing the mainstream theoretical and empirical literature on trade, wages, and employment. As we review the theoretical work, we discuss the limitations of using full-employment models to study the link between trade and the distribution of income. As we review the empirical work, we highlight the different approaches taken by trade and labor economists and summarize the recent debate between the two groups with regard to methodology. In summary, our intent in Chapter 2 is to show that mainstream economists leave a void when they simply ignore the possible connection between trade and the structure of the labor market, and that this void is filled by populist arguments that have little analytic support. This presentation sets the table for Chapter 3, in which we show that the populist concerns can be incorporated into fully general-equilibrium models that are subject to the same standards of rigor and empirical scrutiny as, say, the Heckscher–Ohlin model of trade. Moreover, we show how results from traditional full-employment models of international trade must be modified when unemployment is present. We are particularly interested in how the structure of the labor market influences the pattern of trade and how it alters the link between trade and the distribution of income. The development of these models also lays the foundation for the policy analysis that is carried out in Chapter 5.

Since there are many different ways to model unemployment, we look for results that are robust to the way in which unemployment is introduced. We show in Chapter 3 that, regardless of whether unemployment is driven by trade frictions (as in search-based models), monitoring or motivational concerns (as in efficiency wage models), or sticky wages (as in minimum wage models), labor-market turnover rates play a key role in determining the pattern of trade and the way in which trade affects the distribution of income. We briefly summarize our findings here to provide a sense of the kind of results that can be found in the chapter.

Consider first the pattern of trade. In traditional full-employment models of international trade, the primary determinants of comparative advantage are production technologies and factor endowments. It is argued that if a country has a relative abundance of a certain factor, then that country will export goods that are produced using a production process that uses that factor relatively intensively. So, for example, if we assume that the United States is relatively abundant in skilled labor, the United States would export goods using a production process intensive in the use of skilled labor. The reason is that skilled labor would be relatively cheap in the United States, which would allow U.S. firms to produce goods that require a great deal of skilled labor as an input relatively cheaply. It is important to note that the structure of the labor market plays no role in this analysis. The only cost of production in this setting is the cost of the inputs used to produce the product.

Several additional costs of production emerge when unemployment is present. There are costs associated with recruiting, hiring, training, and maintaining a workforce. There may also be significant adjustment costs that must be incurred if the firm wishes to reduce the size of its labor force. These turnover costs influence equilibrium prices and should therefore affect the pattern of trade. Moreover, as we explain in Chapter 3, a casual review of the labor economics literature suggests that these turnover costs are large enough and varied enough to have a nontrivial impact on equilibrium outcomes.

It is well-known that there are significant differences in turnover rates and turnover costs across countries. The average duration of a job is much higher in Europe and Japan than it is in the United States, and workers find reemployment much more rapidly in the United States than they do in Europe (Freeman 1994). In addition, firms in Western Europe face significant government-imposed costs when they attempt to reduce the size of their labor force while far lower costs are imposed on U.S. firms. Labor economists conclude the U.S. labor markets are much more flexible than the European counterparts. They have recognized for quite some time now that this difference in flexibility has important implications for a variety of issues including job training and macroeconomic performance.⁹

In Chapter 3, we show that there are important implications for the pattern of trade as well. For example, we show that if jobs are more durable or easier to find in a particular industry in the United States

than they are in the same industry in other countries, then, all else equal, the United States is more likely to export that good. The basic reason is that U.S. firms will face lower costs of attracting and retaining their workers than their foreign rivals. This leads to a lower autarkic price in the United States, making this an industry in which the United States has a comparative advantage. On the other hand, if there is an industry in which jobs are less durable or harder to find in the United States than they are in the comparable industry in other countries, then U.S. firms will have to pay a relatively high compensating differential in order to attract workers to that sector. This will result in a higher autarkic price for that good in the United States, which implies that the United States is likely to import that good.

Now turn to the issue of trade and the distribution of income. As noted earlier, traditional trade theory offers two competing hypotheses. The Stolper–Samuelson Theorem predicts that trade liberalization will benefit an economy’s relatively abundant factor and harm an economy’s relatively scarce factor.¹⁰ In this case, the industry in which these factors are employed does not matter at all. If labor in one sector of the economy gains from trade, so does labor in all other sectors. In stark contrast, the Ricardo–Viner model predicts that trade liberalization will benefit factors that are tied to the economy’s export sector and harm those factors that are tied to the economy’s import sector. The main difference between these two models lies in the assumptions that they make about factor mobility. The Stolper–Samuelson Theorem holds in the Heckscher–Ohlin model of trade, in which all factors are perfectly mobile across all sectors at all times. In the Ricardo–Viner model, some factors are tied to certain sectors because they face significant transactions costs if they switch sectors (largely because the acquisition of sector-specific skills effectively binds workers to sectors). Note that neither theory makes any prediction about the impact of trade on the unemployed. After all, there is no unemployment in either model.

In Chapter 3, we explain why the presence of equilibrium unemployment substantially changes the link between trade and the distribution of income. In addition, since our models allow for unemployment, they provide us with the ideal setting in which to investigate the impact of trade on the welfare of the unemployed. We present two sets of results. First, we explain why the Stolper–Samuelson Theorem can be

used to determine how changes in trade patterns affect the welfare of the unemployed. Intuitively, since unemployed labor has no tie to any particular sector, they play the role of the mobile factors. It is unemployed labor and idle capital that can react instantaneously to changes in world prices in order to clear markets. This is especially true for low-skilled workers since they have no sector-specific skills. The implication of this result is that unemployed labor gains (loses) from trade liberalization if that particular type of labor is relatively abundant (scarce) in the country in question.

We then go on to explain why the welfare of employed workers is driven by a weighted average of Stolper–Samuelson and Ricardo–Viner effects, with the weights assigned to each effect tied to the industry turnover rates. Briefly, Stolper–Samuelson effects dominate in markets in which turnover rates are high, while the Ricardo–Viner effects dominate in markets in which turnover rates are low. Intuitively, when time and effort are required to find employment, an existing job creates a sectoral attachment since employed agents are reluctant to quit their jobs in order to seek employment elsewhere. This makes employed factors analogous to factors with sector-specific skills in the Ricardo–Viner model. The Ricardo–Viner effects will dominate if the attachment to a sector is strong—meaning that jobs are hard to find and long lasting. The implication is that, in industries with high turnover, employed workers gain (lose) from trade liberalization if their type of labor is relatively abundant (scarce) in their country. However, in industries with low turnover, the welfare of employed workers is tied to the overall fortunes of the sector in which they are employed. Thus, in low-turnover industries, labor gains (loses) from liberalization if it is employed in an export (import) industry. We conclude that adding unemployment to the traditional model leads to a new theory about trade and factor rewards that is a hybrid of the two standard theories, and it is the structure of the labor market that is critical in determining which of the standard forces dominates.

In Chapter 4, we test the theories developed in Chapter 3. We begin by combining the National Bureau of Economic Research (NBER) data on trade flows in the United States with the Davis, Haltiwanger, and Schuh (1996) data on job creation and job destruction in U.S. manufacturing industries to see if our theory concerning trade patterns and labor-market structure holds up to empirical scrutiny. The

empirical results are surprisingly strong—high job destruction rates are associated with import industries, just as our theory predicts. Moreover, turnover rates by themselves explain as much variation in trade flows as all of the remaining control variables combined!

In the second half of the chapter we look to see if the predictions of our models regarding the link between trade and the distribution of income are supported by the data. To do so, we expand our data set to include data on political action committee (PAC) contributions given to supporters and detractors of NAFTA and the General Agreement on Tariffs and Trade (GATT). Our theory predicts that labor and capital would have polar opposite views on trade policy when both are employed in high-turnover industries, but their views would be aligned with each other when both are employed in low-turnover industries. By looking at who the PAC represents (both in terms of industry and factor), we can test this hypothesis. The data that we examine provide strong empirical evidence that the lobbying activity that took place with respect to NAFTA and GATT was indeed consistent with our theory.¹¹

We conclude Chapter 4 by pointing out that in both cases we find significant empirical evidence in favor of our theories. Our conclusion is that we can improve on our understanding of how international trade affects economies by taking the structure of the labor market into account.

We close the monograph with Chapter 5, in which we carry out our policy analysis. Our goal is to investigate the optimal manner in which to compensate those who are harmed by trade liberalization. We begin by developing a search model that is very much in the spirit of those introduced in Chapter 3. The main distinction is that in Chapter 5 we make the model more complex. We assume that workers differ in ability and that jobs differ in the skills required for employment. Workers first choose the type of training to acquire and then search for employment. In our model, there are two types of jobs. High-tech jobs require costly, time-consuming training but, once acquired, jobs in this sector last a long time (i.e., there is low turnover) and pay relatively high wages. The training cost for jobs in the low-tech sector is low both in terms of time and resource costs. These jobs do not last very long (i.e., there is high turnover) and offer low pay. In equilibrium, workers separate so that high-ability workers are employed in the

high-tech sector while low-ability workers are drawn to the low-tech sector.

To carry out our policy analysis, we assume that the low-tech sector is initially protected by a tariff. This means that some workers who should be employed in the high-tech sector (in terms of economic efficiency) are drawn to the low-tech sector instead. We then assume that the tariff is removed in order to improve efficiency. As a result, those workers who were inefficiently employed in the low-tech sector move to the high-tech sector and search for new jobs. The process is gradual, however, since these workers must acquire high-tech skills and then search for high-tech jobs, and both processes take time and use up resources.

Removing the tariff clearly benefits all workers who are initially employed in the high-tech sector since they now face lower consumer prices for the good produced in the low-tech sector. However, there are two classes of workers that are harmed. Those workers who choose to remain in the low-tech sector (because, given their ability levels, the cost of training for a high-tech job is too high) see their real wages fall. We refer to such workers as the “stayers.” These are the workers who earn the lowest wages and have the least skills—they are the “poor” in our model. The other group that is harmed consists of those workers who choose to switch sectors. These workers, whom we refer to as the “movers,” see their real wages rise, but the wages do not increase enough to compensate for the training and search costs that the workers incur while making the transition to the high-tech sector.¹²

Our task is to find the most efficient way to compensate the stayers and the movers for the losses they incur when trade is liberalized. We assume that any compensation program is financed through taxation of earned income. It follows that any compensation scheme will create a distortion. The optimal policy is the one that fully compensates the workers while creating the smallest distortion.

We show that there are two rules that need to be applied in order to find the optimal policy. First, the policy must be targeted to a specific group. Paying wage subsidies to all high-tech workers in order to compensate the movers is costly since it needlessly provides an additional benefit to those workers who were employed in the high-tech sector before liberalization.

Our second rule is somewhat more complex. Define the “marginal worker” to be the worker who is just indifferent between high-tech and low-tech jobs (so that all workers with lower ability work in the low-tech sector while all those with higher ability work in the high-tech sector). Next, define the “average worker” in a sector to be the worker with the average ability level in that sector. We show that the amount that the average worker benefits from a particular policy is a measure of how costly that policy will be in terms of resources—if the average worker’s real income is very sensitive to the policy parameter, then only a modest program will be needed to fully compensate the group in question. We also show that the amount that the marginal worker benefits from that same policy is a measure of how distortionary that policy will be. If the marginal worker’s real income is very sensitive to the policy parameter, then even a program of modest size will result in a great deal of inefficient reallocation of labor. It follows that the ideal policy is one that is highly valued by the average worker but not by the marginal worker. Such a policy will allow the government to compensate the harmed group cheaply without triggering a great deal of inefficient labor reallocation. Applying this rule, we find that the best way to compensate the movers is with a targeted wage subsidy, while the optimal way to compensate the stayers is with a temporary employment subsidy. Surprisingly, these policy recommendations hold regardless of the structure of the labor market.

For any new area of economic research to be influential, it must satisfy three criteria. First, the theory must provide new insights that improve our understanding of how markets work. Second, the new propositions that are generated must be consistent with the data and explain the data at least as well as (if not better than) competing theories. Third, the theory should have policy relevance. This means that the models must be simple and tractable enough to provide insight into issues of real world importance such as policy analysis and design.

We believe that the results reported in Chapters 3–5 demonstrate that a new theory of international trade that emphasizes the role played by the labor market has the potential to satisfy these criteria. Chapter 3 provides new insights into the link between labor-market turnover and the pattern of trade. It also shows how these turnover rates alter the link between trade and the distribution of income. The results reported in Chapter 4 demonstrate that the insights gained from these

models appear to be consistent with data on trade patterns, turnover rates, and political lobbying activity aimed at influencing trade policy. Finally, in Chapter 5, we show that it is possible to build simple models of trade that allow for equilibrium unemployment and training and use them to carry out careful policy analysis. Such models provide new insights into policy design by allowing us to compare policies that are aimed at aiding those who are harmed by changes in trade policy.

Notes

1. Baldwin and Magee (2000).
2. The *Handbook of International Economics* consists of three volumes. Unemployment does not appear in the index to volumes 1 or 3. It does appear in the index to volume 2, but only indirectly (the reader is referred to a small number of entries under the heading of “employment”).
3. See, for example, Paul Krugman’s and Michael Mussa’s articles in the *American Economic Review*, in which they argue that “it should be possible to emphasize to students that the level of employment is a macroeconomic issue . . . depending in the long run on the natural rate of unemployment, with microeconomic policies like tariffs having little net effect,” (Krugman 1993) and that “economists . . . understand that the effect of protectionist policies is not on the overall employment of domestic resources, but rather on the allocation of resources across productive activities” (Mussa 1993).
4. Of course, this is probably the primary reason that most economists view trade as a macro issue.
5. These papers focus on how changes in trade patterns affect the distribution of employment across sectors and regions—they do not investigate the overall impact on total employment or the unemployment rate. See Baldwin (1994) for a survey of this work.
6. There are some exceptions. In the 1970s there were several attempts to extend traditional trade theory to examine the consequences of allowing for a variety of factor market distortions (see, for example, Magee 1976). These early attempts did not appear to be very fruitful for a variety of reasons, perhaps the most important of which is that most micro-based models of unemployment were not yet fully developed. More recently, things have begun to change and a number of authors have begun to focus attention on the labor market and its impact on trade-related issues. For example, Krugman (1994) and Davis (1998) argue that the recent change in the distribution of income in the United States and the recent increase in unemployment in Europe may be linked to trade shocks and the structure of the labor markets in the two regions. Krugman’s arguments are very informal, while Davis’s argument relies on a model in which all European unemployment is due to a minimum wage. Other recent attempts to use the new micro-based models of unemployment to address a number of important trade-related

issues include Davidson, Martin, and Matusz (1987, 1988, 1991, 1999), Hosios (1990), and Sener (2001) using search theory; Copeland (1989), Brecher (1992), Matusz (1994, 1996, 1998), and Hoon (1991, 1999, 2000, 2001a,b) using efficiency wages; Matusz (1985, 1986) and Fernandez (1992) using implicit contracts; and Brecher (1974a,b, 1980, 1992, 1993) and Davis (1998) using minimum wages.

7. See, for example, Freeman (1994), Layard, Nickell, and Jackman (1991), or Nickell (1997).
8. See Jacobson, LaLonde, and Sullivan (1993a,b).
9. See, for example, Freeman (1994) and Layard, Nickell, and Jackman (1991).
10. The original statement of this result is by Wolfgang Stolper and Paul Samuelson (1941).
11. Our approach to this analysis is inspired by the earlier work of Steven Magee (1980), who made one of the few attempts to distinguish between the Stolper–Samuelson and Ricardo–Viner predictions about trade and factor returns. Magee noted that the distributional consequences of trade liberalization create powerful incentives for political lobbies to try to influence the determination of trade policies. Since the Stolper–Samuelson Theorem and the Ricardo–Viner model predict different distributional consequences, careful observation of actual lobbying activity should provide some clues regarding the true link between trade and factor returns. Therefore, Magee examined the Congressional testimony by union and industry representatives leading up to the adoption of the 1973 Trade Reform Act. Based on his reading, the testimony was largely supportive of the Ricardo–Viner predictions in that the representatives of labor and capital within a given industry tended to support the same side in debates over trade policy.
12. Some movers may gain from liberalization while others lose. However, we show in Chapter 5 that the utility of the movers as a group falls.