

# **Job Creation, Job Destruction, and International Competition**

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2003

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# 1

## Introduction

Seattle had seemed like such a good choice. The organizers who selected it as the site of the November 1999 World Trade Organization (WTO) ministerial meeting cannot be faulted for thinking that the city would showcase the benefits of international trade. After all, one source of the city's prosperity was the Boeing corporation, which depends upon exports for a significant proportion of its total sales. Also, Seattle is an important center of the computer and internet industries, and advances in information technology contribute to eroding the difficulties in trading over great distances and across national borders. Furthermore, perched on the Pacific Rim, Seattle represented a reorientation in trade toward emerging markets.

But, the perceived consequences of trade with emerging markets fueled demonstrations that have now made Seattle more synonymous with antiglobalization street protests than with coffee or computers. Prominent among the issues raised by demonstrators were a number of concerns about the effects of trade on labor markets in industrial countries. Will cheap labor in Southeast Asia wholly displace highly paid workers in the Northwest United States? In the wake of greater liberalization, will multinationals close up shop in the industrial countries and set up factories in countries where they can employ children?

The answers provided by economists to these questions is generally "No." Evidence suggests that international differences in wages reflect differences in productivity between, say, American workers who have the benefits of training and infrastructure and Malaysian workers who do not enjoy these advantages.<sup>1</sup> Furthermore, there are many reasons to believe that international trade serves as an important source of economic advance both for American and Malaysian workers. International trade widens the set of goods available to consumers and, by fostering competition, offers consumers better opportunities. Competition promotes the reallocation of resources to their most productive uses. The efficiency gains obtained through this reallocation contribute to the overall economic welfare of a country.

These overall economic benefits are the source of the intellectual arguments for free trade, and the arguments bear up well in both theory and practice. Advocates of free trade are often dismayed that, even in the face of these arguments and this evidence, free trade remains a controversial issue. One important reason for this controversy is that the gains from trade are often accompanied by adjustment costs, including, importantly, worker dislocation. Historically, economists have tended to emphasize that the gains from trade are large and much larger than any adjustment costs, which in theory and practice have been argued to be transitory and small compared with total economic activity.

Until recently, the magnitude of worker dislocation typically has been gauged by the decline in the level of employment in manufacturing or in a particular industry affected by international factors. However, innovations in research on labor-market dynamics reveal that changes in manufacturing or industry total net employment are much smaller than the underlying increases and decreases in employment occurring simultaneously at individual establishments within industries. These establishment-level employment changes represent gross flows of employment, termed job creation and destruction. Prior research on these gross job flows indicates that labor reallocation is much more intensive and extensive than previously thought. Gross job flows occur at rates often an order of magnitude higher than net employment changes. Thus, relatively small changes in total employment do not reflect anywhere near the full extent of job creation and destruction that impacts individual workers and establishments.

Consequently, a more complete understanding of the overall impact of international factors on labor markets requires the analysis of gross job flows, which we undertake in this volume, as well as complementary analyses of the gross flows of workers among jobs and in and out of the labor force.<sup>2</sup> Moreover, a more complete understanding of labor-adjustment costs, and thus the net efficiency gains from trade, also requires the analysis of gross labor flows. This book delves more deeply into the issues of labor-market dynamics and the adjustment costs associated with international factors. We go beyond economy-wide and even sector-wide analyses of the effects of trade and, instead, focus on its disparate effects between and even within detailed industries.

After studying these issues at a more detailed level, we conclude that changes in international factors—exchange rates, trade agreements, and the like—have a much larger and more complex effect on labor markets than was previously understood. For *any* size of total employment change induced by changes in international factors, the changes in individual jobs at individual establishments are much greater. Many more jobs are destroyed, but many more jobs also are created, than is apparent from the change in total employment. In fact, even when changes in international factors seem to have no effect on total employment at all, these changes are linked to greater job creation and destruction.

The turnover of jobs via greater creation and destruction entails numerous costs and benefits not previously considered in estimates of the overall impact of international trade. Workers whose jobs are destroyed are not necessarily the ones who obtain the new jobs that are created, at least not right away, so unemployment usually rises. Prior calculations of internationally generated labor-adjustment costs have considered these unemployment costs, but they have overlooked others. Every job created and every job destroyed entails a cost to a firm, to a worker, or both. Sometimes the job and worker dislocation have very large, permanent effects on one or both parties. At the same time, the creation of new jobs, and the benefits of international trade, surely bring meaningful economic welfare gains in the long run. In fact, a better understanding of the effects of job turnover may very well increase estimates of gains from trade. Although we raise important new ideas and evidence for consideration, neither our analysis nor the economics profession more generally can yet provide a complete quantification and evaluation of these costs and benefits.

Our central empirical finding provides support for arguments on both sides of the Great Trade Debate. On one hand, openness to international trade and changes in international factors do expose some jobs and workers to a significantly greater risk and cost of dislocation than is often acknowledged by economic researchers and trade policy analysts. To some extent, this validates the concerns so forcefully voiced on the streets of Seattle by trade opponents. On the other hand, the adjustment of labor markets to changes in international factors involves the creation of new jobs and opportunities that improve the overall performance and efficiency of the economy.

Our analysis and results also raise a vital policy-related question: what, if anything, can and should be done about this impact of changes in international factors on labor markets? Opinion polls find relatively weak support for free trade among the public if it is not accompanied by policies to aid workers who are displaced by foreign competition.<sup>3</sup> Economists and trade advocates, on the other hand, tend to favor limited intervention. Regardless of whether one believes trade-related policies are needed, our work indicates that the design of such policies is even more difficult than previously thought. Widespread heterogeneity in how firms and plants are affected by trade, even within narrowly defined industries, renders simplistic policies intended to attenuate the impact of globalization ineffective or possibly even counterproductive.

From the outset, we want to be clear that we do not oppose free trade or flexible exchange rates. However, we do see a need for deeper understanding and concern about the actual economic costs of adjustment to changes in international factors born by workers and firms. All parties—whether for or against free trade—would do well to consider the effects of international factors on gross flows of jobs and workers in their ideas, views, and debates. To fully realize the economic benefits of free trade, it is necessary to face and address the political and economic realities stemming from the true magnitude of adjustment costs associated with trade-induced reallocation. This book is part of a first step being taken toward building a base of knowledge that should improve our understanding of, and policies toward, the effects of international competition on labor markets. Many more steps still need to be taken.

## **JOB REALLOCATION AND INTERNATIONAL TRADE**

The goal of this book is to document and study the diversity of effects of international factors on employment across and within manufacturing industries in the United States. In particular, we are interested in the way fluctuations in exchange rates, changes in overseas economic activity, and the altering of trade restrictions contribute to the simultaneous creation of jobs among some firms and the destruction of jobs among other firms. This internationally generated churning in

labor markets is a source of the allocative costs associated with international trade.

Our efforts extend the work of Davis, Haltiwanger, and Schuh (1996), who demonstrated that job reallocation is an intense, pervasive, and regular feature of U.S. labor markets. They found that, on average, almost one in five jobs in manufacturing is either created or destroyed each year. Reallocation is a necessary part of a dynamic economy. Through reallocation, workers move to more productive and more remunerative positions as new opportunities become available and as new jobs are created. Labor-market reallocation has a costly side as well, however. In the wake of job loss, workers could experience protracted periods of unemployment during their search for employment. Successful reemployment may require retraining, which itself demands time and resources, or moving to another part of the country. Workers may also find that they cannot match, in their new jobs, the wages they earned in their old positions.<sup>4</sup>

Of course, many factors contribute to the reshuffling of employment across firms. Some of these factors are specific to a relatively small set of firms or a particular narrowly defined industry; for example, there has been widespread job destruction among firms in the office product industry that specialized in typewriters and failed to make the transition to word-processing products. The effects of changes in other factors are felt more widely; for example, virtually all firms must pay higher borrowing costs when the Federal Reserve raises interest rates. Reallocation costs due to economy-wide factors are higher than more narrowly focused ones for the obvious reason that these costs are broadly felt. More subtly, the costs of reallocation may increase more than proportionally with reallocation simultaneously generated across industries by an economy-wide disturbance since, for example, it is more difficult to find a new job when many other people are also seeking work.

Job reallocation reflects the response of the labor market to a wide range of factors, including changes in the domestic macroeconomic environment, technological change, and changes in the international competitiveness of domestic firms. In this book we are concerned with job reallocation due to international factors. There are two main sets of variables that affect the international competitiveness of firms in the United States: the exchange rate of the dollar and the trade policies in

place between the United States and its trading partners. In some ways, the formal analysis of the manner in which these two sets of factors affect job reallocation are quite similar, but there are also important differences between the two. For example, a change in both a tariff and the exchange rate alter the relative price of domestic and foreign goods, but these changes may be viewed as having different degrees of permanence. Therefore, we may expect that a firm's responsiveness to a change in relative prices due to exchange rate movements will differ from the responsiveness in relative prices due to a change in a tariff.

There are purely economic, as well as political, reasons for focusing on the manner in which international competition affects job reallocation. From an economic perspective, international variables in general, and the exchange rate in particular, tend to vary more than many purely domestic macroeconomic variables. In addition, international trade is a natural source of pure allocative forces, as distinct from aggregate forces, influencing labor markets. Not all firms and industries engage in international trade, so changes in real exchange rates or in trade policies directly affect only a subset of the economy. This clear differential across firms and industries contrasts with other aggregate variables, which influence all firms and industries but to varying degrees, producing transitory reallocation that is hard to distinguish from permanent reallocation due to relative price changes (e.g., a change in exchange rates).<sup>5</sup> For these reasons, international variables are good candidates for being important sources of reallocation.

From a political perspective, it is important to note that, rightly or wrongly, trade is viewed as an important source of job churning in the United States. For this reason, there is a tendency to associate concerns about job security with the expansion of trade. This perception threatens free trade because industry groups often advocate protectionism as a recourse to job loss. For example, in the spring of 2002, the Bush administration imposed tariffs on imported steel in response to industry claims of dumping by foreign steel producers. These tariffs harm U.S. consumers directly by raising the price of a good used as an input to production of a range of other goods. The steel tariffs also threaten to lead to a trade war. If this does occur, the most vulnerable would likely be developing countries that seek access to world markets as a way to escape the trap of poverty.

## REALLOCATION ACROSS AND WITHIN INDUSTRIES

Job reallocation is a manifestation of changing fortunes across firms as some firms create new jobs while others eliminate positions. Reallocation occurs both across and within industries. Reallocation across industries arises when firms within one broad industrial category respond in a similar fashion to a change in the economic environment while firms within another industrial category respond in the opposite manner. For example, reallocation across industries would occur if all firms in the petroleum and coal products industry added jobs in response to a rise in the price of oil while all firms in the transportation industry cut jobs in response to the same event. Reallocation within industries occurs when some firms within an industry cut jobs while other firms in that industry added jobs. For example, reallocation within an industry would occur if some firms in the industry were affected by a price change or trade restriction and other firms in the same industry were not.

In this book we will show that reallocation in response to changes in the international environment occurs both across and within industries. At the broadest level, total employment in manufacturing responds in a significant way to changes in the exchange rate. This response represents across-industry job reallocation as a stronger real exchange rate contributes to a decrease in manufacturing employment. But this overall movement in manufacturing employment masks a wide variety of responses across manufacturing industries that generates within-industry reallocation. Indeed, a central theme of this book is that the effects of international competition vary across industries and even among firms within seemingly narrow industrial categories. This diversity leads to simultaneous job creation and job destruction within industrial categories. In light of this, we show that it is difficult to offer simple conclusions like, “Trade is good for the machinery industry but hurts the apparel industry.” Instead, we offer evidence of a more nuanced picture in which the effects of international trade vary widely. This has some important policy implications. For example, policy responses that attempt to ameliorate the costs of reallocation may be better targeted toward particular workers than toward broad classes

of industries, as would occur with tariff protection, since, within industries, the experience of firms may differ widely.

We are able to provide this more nuanced picture of the effects of international factors on reallocation partly through the use of data on gross job flows. Gross job flows in a particular industry consist of the total number of employment positions gained (job creation) and the total number of employment positions lost (job destruction) by all establishments within that industry. A common measure of labor-market churning, called job reallocation, is the sum of job creation and job destruction.

The data presented in this book offer a picture in which simultaneous job creation and job destruction, even in narrowly defined industries, characterizes labor markets for manufacturing industries. Thus, it is important to consider gross job flows and reallocation data rather than just net changes in employment (which represent the difference between job creation and job destruction) for particular industries to gauge more accurately the size of labor-market adjustment. For example, consider a particular net change in employment of, say, a decrease in 100,000 jobs. This can reflect a reallocation of 100,000 jobs if this net change arises solely through job destruction. Alternatively, it can reflect a reallocation of two million positions if 950,000 jobs are created while 1,050,000 jobs are destroyed. Given a cost to reallocation, we would expect the welfare consequences of these two scenarios to differ.

Simultaneous job creation and job destruction within a narrowly defined industry reflects heterogeneity among firms in that industry. One possible source of heterogeneity is structural differences among firms that cause them to react differently to a common change in the economic environment. For example, the overall effect of an exchange rate appreciation on the fortunes of a firm depends upon the international exposure of that firm, which depends on the extent to which that firm exports its products, the extent to which it uses imported goods to manufacture its own products, and the extent to which its products compete with imports. Firms within a narrowly defined industry may exhibit a wide range of international exposure along these three dimensions, making them respond differently to a given change in the exchange rate. This can give rise to simultaneous job creation and job destruction. In addition, simultaneous creation and destruction may

reflect spillover effects whereby one firm's increased demand for labor affects the ability of another firm to hire workers at the going wage.

In this book we document the differences across narrowly defined industries in the extent of exposure to international competition. We show that there has been a general increase in exposure to international competition among manufacturing industries since the 1960s. There has also been an increasing divergence in the range of exposure to international competition over this period. We also show that the responsiveness of a particular industry to movements in the exchange rate is linked to the level of its international exposure. Thus, we are able to provide a more complete understanding of the manner in which international factors affect the labor market.

## **OVERVIEW AND SUMMARY OF RESULTS**

The foregoing introduction has raised some of the main themes of our book: the costs and benefits of labor-market reallocation, the contribution of changes in the international environment to reallocation both across and within manufacturing industries in the United States, differences in international exposure even among firms classified in the same narrow industrial category, and the divergence in responses to international factors across manufacturing industries. Each of these themes is taken up and more fully developed in this book. Here we outline our presentation.

Chapter 2 offers some initial evidence on the varying importance of international factors across U.S. manufacturing. The statistics presented in this chapter support the commonly held view that, at least for manufacturing, the last few decades have been marked by increasing openness with respect to international competition. But, more to the point for our study, we also show that there has been a steady increase in the divergence of exposure to international competition over this period. Very little of the variance in international exposure across narrowly defined industries is explained by membership in broader industrial categories. This diversity in openness is one source of the divergent responses to international factors across manufacturing. Another source of the divergent response to international factors is that

bilateral trade patterns vary across industries, which gives rise to differences in the relevant exchange rates across industries. The industry-specific exchange rates presented in Chapter 2 are used later in the book in our empirical analysis.

The heterogeneity of responses to international factors gives rise to differences in labor-market dynamics, not only across industries, but within narrowly defined industries as well. As mentioned above, the labor market in U.S. manufacturing industries is characterized by significant churning. This churning can be understood using the concepts of job creation and job destruction, which are introduced in Chapter 3. This chapter also presents some initial statistics on job reallocation in U.S. manufacturing industries, including the responsiveness of overall manufacturing job creation and job destruction to business cycle factors and to international factors. We also show that membership in a particular broad industry group explains little of the behavior of job creation and job destruction for firms in the most narrowly defined industrial categories.

Our use of gross job creation and destruction data represents the way in which the analysis in this book advances our understanding of the impact of international competition on U.S. labor markets. There is, however, an existing literature on the effects of international factors on employment that uses data on changes in net employment. We survey this literature in Chapter 4, putting our contributions in the proper context and linking our work to other research on gross job and worker flows. In addition, we highlight the implications of gross flows for the costs of labor adjustment to international (and other) factors. In particular, we raise the question of whether adjustment costs associated with gross flows might be considerably larger than those associated with net employment growth. If so, the net welfare gains from trade might be considerably smaller than previously thought.

Chapter 5 presents an economic model that shows the relationships between openness, exchange rates, tariffs, and job creation and destruction. This model shows how a change in the value of the exchange rate can give rise to simultaneous job creation and job destruction within one industry. The source of this job churning is differences in openness across firms combined with interactions among firms in an industry. This model provides a framework for our empiri-

cal analysis of the effects of the real exchange rate on job creation and job destruction.

In Chapter 6 we examine the extent to which movements in the real exchange rate contributed to job destruction and job creation over the entire period since the end of the Bretton Woods fixed-exchange-rate era in 1973 until the mid 1990s. In this chapter, we explore the possibility that the impact of a given change in the exchange rate on job flows depends upon whether that change is viewed as permanent or temporary. We find that this distinction is quite important. Changes in the trend component of real exchange rates have a significant allocative effect on labor markets, moving job creation and destruction in the same direction, but essentially no effect on net employment growth. If our estimated trends represent the permanent components of industry exchange rates, this result suggests that permanent exchange rate changes influence job reallocation only. In contrast, changes in the cyclical component of the exchange rate have a significant effect on net employment growth, but only through job destruction and not on job creation (hence no effect on reallocation other than the reduction in net employment). If our estimated cyclical components represent the transitory components of industry exchange rates, this result suggests that transitory exchange rate changes merely lower employment without providing an offsetting benefit through new jobs. Furthermore, the magnitude of these effects is scaled by the openness of industries. The exchange rate effects are larger in industries that are more open to international trade. In sum, our quantitative estimates indicate that movements in real exchange rates are an important determinant of labor market fluctuations.

In Chapter 7 we offer a more detailed view of the heterogeneous effects of international competition by studying the North American Free Trade Agreement (NAFTA). We focus on the response of three industries—the textile and apparel industry, the chemical and allied products industry, and the automobile industry—to the changes in trade restrictions enacted in NAFTA. In the early 1990s, NAFTA was a source of intense political debate. Some of the issues raised in that debate are sure to resurface with the reemergence of protectionist pressures at the beginning of this decade. And beyond its topical interest, the discussion in Chapter 7 complements the statistical analysis in Chapter 6 by providing case studies of the effects of a changing envi-

ronment of international competition on labor markets in manufacturing industries. In particular, the case studies in Chapter 7 demonstrate that changes in trade restrictions or agreements, like real exchange rates, can generate significant reallocation of trade and possibly employment within seemingly narrow industries, and that these effects may not appear at the industry level. This result underscores the potential effects of pervasive heterogeneity in trade activity and trading partners, and hence the diverse responses to international competition that must be taken into account when examining the effects on labor markets.

These diverse responses to international competition mean that international competition both offers new opportunities and presents challenges associated with dislocations and downsizing. Free trade offers important sources of growth. The reallocation that is often required for this growth to be realized, however, can come at a significant cost to individuals whose jobs are lost. We need to be concerned about these costs both for reasons of equity and because political support for free trade is predicated on the provision of an adequate safety net. In Chapter 8 we discuss policies that have been used to mitigate the adjustment costs of trade, as well as newly proposed policies. In that chapter, we discuss the implications for these policies of the results presented in this book. For example, economists typically argue that tariffs subsidize inefficient industries and represent an expensive way to preserve jobs. Our demonstration of the diversity of responses to international competition even within narrowly defined industries suggests that the costs of tariffs are even higher than typically thought because this blunt instrument also subsidizes firms that would survive without assistance. A more efficient program would target displaced workers, but the Trade Adjustment Assistance program currently in place is seen as ineffectual. We discuss some newly proposed policies and mention how our analysis contributes to our understanding of their likely impact.

The policy discussion in Chapter 8 points towards an agenda for research on the important issue of the adjustment costs of trade. In the ninth and final chapter of this book, we offer some concrete proposals for the establishment of new data sets. These data would enable researchers to address some of the issues that cannot be fully analyzed now, even with the data employed in this book.

## Notes

1. See, for example, Golub (1999).
2. A good example of an analysis of international trade and gross worker flows is Kletzer (2001), a complementary volume to this book.
3. The Program on International Policy Attitudes found that only 18 percent of the respondents to a survey in October 1999 favored free trade if it was not accompanied by programs to help workers who lose their jobs due to international competition. See <[www.americans-world.org/digest/global\\_issues/intertrade/summary.cfm](http://www.americans-world.org/digest/global_issues/intertrade/summary.cfm)>.
4. This issue is addressed by Jacobson, LaLonde, and Sullivan (1993a,b)
5. The fact that not all firms and industries that engage in trade do so to the same degree generates identification problems that are similar to the differential responses to aggregate factors.

