

THE ADJUSTMENT COSTS OF TRADE LIBERALIZATION

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I. Introduction

Economic research has rather well documented the long-term benefits from improved resource allocation and efficiency that follow from trade reform. And, although causation remains an issue, research has shown strong and consistent correlation between trade reform and growth. Despite this evidence of improved incomes from trade reform, some policy makers are reluctant to implement trade reform due to fear of excessive adjustment costs. Policy makers fears may be based in part on political dynamics of reform (politicians in power fear they will incur the anger of the owners of displaced resources while the benefits may accrue in later years), but may also be based in part on the fact that there is much less written and known on the subject of the nature, magnitude, and duration of adjustment costs. In this paper we attempt to fill the void in the literature by surveying the evidence on the adjustment costs of trade liberalization, and placing those estimates of adjustment costs in perspective relative to the gains from trade liberalization.

The outline of the paper is as follows: in section II we define adjustment costs, distinguishing social and private costs of adjustment. We survey the estimates of adjustment costs, both social and private, as well as studies of the employment effects of trade liberalization in section III. Our detailed summary and policy conclusions are in section IV.

Briefly, our results are as follows: while we find that it is necessary to apply caveats to most of the more than 50 studies we survey, virtually all the studies find that adjustment costs are very small in relation to the benefits of trade liberalization. And those studies that focused on manufacturing employment in developing countries found that it had typically increased within one year after liberalization. Collectively, the weight of so many studies of various types, all pointing in more or less the same direction, makes it difficult to avoid the conclusion that

adjustment costs are relatively very small relative to the benefits of trade liberalization and after the economy has one year to adjust to the trade liberalization, we should expect to see an increase in manufacturing employment.

The explanation for the low adjustment costs in relation to the benefits is as follows: (1) most importantly, adjustment costs are typically short term and terminate when workers find a job, while the benefits of trade reform can be expected to grow with the economy; (2) estimates of the duration of unemployment for workers in most industries are not high, especially where workers were not earning substantial rents in the original job; (3) in many industries normal labor turnover exceeds dislocation from trade liberalization, so that downsizing where necessary could be accomplished without much forced unemployment; and (4) it has been observed that a significant portion of the resource reallocation after trade liberalization was accomplished through inter-industry shifts, which minimized the dislocation of factors of production. In addition, developing countries would be expected to have comparative advantage in labor intensive industries, so trade liberalization should favor labor. This may explain why manufacturing employment has typically increased after trade liberalization.

II. Defining Adjustment Costs

For purposes of this paper, we define adjustment costs as encompassing a wide variety of potentially disadvantageous short-run outcomes that might result from trade liberalization. These outcomes may include a reduction in employment and output, the loss of industry-specific and firm-specific human capital, and macroeconomic instability resulting from balance of payments difficulties or reductions in government revenue. In analyzing these costs, it is important to distinguish between social and private costs. While the social costs of adjustment

are relevant for considering the aggregate welfare effects of trade reform, it is the distribution of private costs within society that form the basis of political opposition to reform.

Even when the social benefits of trade liberalization outweigh the social costs, the existence of private costs can easily generate enough political opposition to block any reforms. The problem is especially evident when protection or liberalization in a particular industry is considered. Representatives of the industry in question will lobby for protection because the gains are concentrated in their industry. On the other hand, the consumers of the product who lose from protection are dispersed throughout the economy. The consumers would like to see lobbying against the protection but there is a free rider problem. Individual consumers do not lose enough from the protection to induce them to expend resources to lobby against the protection--rather they would like other consumers to lobby against the protection. A succession of particular industries lobbying for protection may then result in a protected overall trade regime. See Stigler (1971) for an elaboration.

Fernandez and Rodrik (1991) have extended this argument by noting even those who will gain from trade reform may be unwilling to support reform or even oppose it. The problem is that it is not possible to identify with certainty all of the potential beneficiaries of reform. Some workers and capital owners may gain from reform but lobby against reform because they mistakenly believe they will lose.

Knowledge of the distribution of the private costs and benefits associated with trade reform is relevant because such knowledge might guide the implementation of contemporaneous policies that might diffuse some of the political opposition that may arise. One such policy is a uniform tariff, long favored by the IMF and the World Bank as a means of diffusing political support for protection. Tarr (2002) has noted that a key advantage of a uniform tariff structure is

that it will minimize lobbying by special interests for protection because it diffuses the benefits of protection. If the only way protection can be increased is by increasing protection for all industries, lobbying for protection is likely to lead to net costs. The experience of Chile shows that industrialists may lobby for lower tariffs in these circumstances.

Knowledge of the distribution of private costs is also useful because of genuine concerns for an equitable distribution of income. On the other hand, the social costs and benefits are the relevant measures to use when contemplating the aggregate welfare effect of trade reform. Obviously, reforms should not be undertaken if the costs outweigh the benefits. The probability of being able to implement redistributive policies in a fashion that generates political support for reform and minimizes the adverse impact on the distribution of income grows as the ratio of social benefits to social costs increases.

Typically policy discussions focus on how to minimize the adjustment costs. But during a period of unemployment, temporarily unemployed workers acquire information about their best job prospects. As numerous “search” models have formalized, in any period each worker should continue to search for a job rather than take an existing offer if his or her expectation of an improved job offer results in sufficiently increased lifetime earnings to compensate for the lost income of being unemployed during that period.¹ Zero unemployment implies that vacancies are immediately filled and that workers spend no time searching. The lack of time spent searching will result in lost lifetime earnings and workers choosing jobs where the value of their marginal product is lower than in alternate positions. A situation of zero unemployment or zero adjustment

1. See Morgan and Manning (1985).

costs is not likely to be socially optimal. (See Matusz and Tarr (2000) for a formal model of adjustment.)²

Trade reform results in an increased demand for workers by firms in the export sector combined with a decrease in labor demand by workers in the import-competing sector. The size of adjustment costs is determined by the speed with which workers make the transition from one state to another (for example, from unemployment to employment in the import competing sector). In principle, transition rates are functions of a variety of variables such as the demographics of the population, the distribution of skills, the degree of governmental support for unemployed workers, laws restricting involuntary separations, the degree of unionization, the share of economic activity undertaken by state-owned enterprises, and so on.

III. Employment and Output Loss: The Evidence

A. Trade Reform and Employment in Developing Countries

Unskilled labor is relatively abundant in developing countries. In the context of the Heckscher-Ohlin model, trade reform can be expected to increase the overall demand for such labor in the long run. This follows since such countries have a comparative advantage in goods that use unskilled labor intensively. Removing policies that favor import-competing sectors at the expense of (labor-intensive) export sectors ultimately results in an expansion of the latter and

2. Surprisingly, there is little agreement among economists regarding the determinants of the steady-state level of unemployment. Most models of international trade assume no unemployment in the steady state. Theoretical studies that explicitly allow for the existence of long-run unemployment have concluded that trade liberalization can either reduce (Matusz 1996) or increase (Matusz 1994) the steady-state level of unemployment. In any event, it is not the mere existence of unemployment that poses the adjustment cost; rather it is the change in unemployment that matters.

contraction of the former. Any increase in the demand for unskilled labor results in a combination of higher wages and employment for this segment of the population.^{3, 4}

There is little hard evidence relating trade reform to overall labor demand. However three recent studies suggest that trade reform has had the expected positive impact on employment in a variety of countries. First, a retrospective study of trade reform in 19 countries by Papageorgiou, Choksi, and Michaely (1990) concludes that trade liberalization did not generally result in decreased employment even in the short run. The evidence that they present is reproduced here as Table 1. They report employment data prior to liberalization, during liberalization and one year after liberalization. Compared with the pre-liberalization period, manufacturing employment was larger one year subsequent to the completion of liberalization in all but one of the twelve countries for which data was reported. In fact, manufacturing employment was higher in twelve of thirteen cases during the liberalization period compared with the levels registered prior to liberalization.

Two caveats to the Papageorgiou, Choksi, Michaely data is that they only provide information for manufacturing employment, and they do not measure underemployment. This may mask changes in employment (either positive or negative) that may have occurred

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3. Factor market distortions could conceivably invalidate the predictions of the Heckscher-Ohlin model of trade. For example, government subsidies to capital combined with legislation that artificially inflates the cost of hiring workers could reduce relative production costs for capital-intensive industries compared with labor-intensive industries. In turn, this shift in relative production costs could reverse the pattern of trade predicated on the basis of factor endowments and an expansion of the export sector could actually reduce employment. This possibility was recognized in Krueger (1983). However, her review of ten case studies (covering Argentina, Brazil, Chile, Indonesia, Ivory Coast, Pakistan, South Korea, Thailand, Tunisia, and Uruguay) indicates substantial scope for employment growth resulting from a switch toward export-oriented policies even when factor markets are characterized by substantial distortions.
 4. The empirical relevance of the Heckscher-Ohlin model of trade has been questioned for more than 40 years, ever since Leontief's celebrated finding that U.S. exports were labor-intensive relative to its imports. Recent research has shown, see, for example, Trefler (1995), that a narrowly defined version of the model is a poor reflection of reality. On the other hand, when the assumption of identical technologies across countries is dropped and a home bias in consumption is allowed, the model does remarkably well in predicting things such as relative wages and the allocation of resources across sectors. It is these latter more resilient implications that we focus on in this paper.

elsewhere in the economy or in underemployment.⁵ On the other hand, policy makers are often concerned about the possibility that liberalization may lead to “deindustrialization.” The employment trends reported in Table 1 do not lend support to this hypothesis. Moreover, we note that in the case of Chile, which is the one reported case where manufacturing employment fell, employment in agriculture increased.

In a separate study, Parker et al. (1995) examined employment growth in micro and small scale enterprises (MSE) subsequent to episodes of reform in Ghana, Malawi, Mali, Senegal, and Tanzania.⁶ Their findings, reported in Table 2, indicate that annual employment growth among existing MSEs was strong subsequent to reform implementation.⁷ Harrison and Revenga (1995) studied sixteen countries that underwent significant liberalization in the past decade and a half. They are able to track total employment growth for six of these countries. Their data is reproduced in Table 3. Employment continued to grow throughout the period prior to, during, and after reform in Costa Rica, Peru, and Uruguay. The same cannot be said for the transitional economies of Eastern Europe. As Harrison and Revenga note, however, Czechoslovakia, Poland, and Romania were undergoing significant reforms that went well beyond trade liberalization, and the problem for many of the transition economies was devise policies to halt the steep decline in output. In fact, the World Bank’s World Development Report (1996) showed that output losses have been the smallest for those countries where broad liberalization has been the greatest.

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 6. The authors of this study define micro enterprises as those comprised of 5 or fewer workers, whereas small scale enterprises consist of 6 to 49 workers.
 7. The reforms undertaken by these countries went beyond trade liberalization to include regulatory and financial reforms, as well as reforms in public enterprises and the tax structure. According to Parker, et al.,

Given the difficulty of controlling for all factors, the data in Tables 1 through 3 do not suggest what the level of employment (or rate growth of employment, as in the case of Table 2) would have been had there been no liberalization nor is it possible to infer from this data alone what the level of output would have been immediately following liberalization compared with the level of output obtained subsequent to all adjustments. That is, it is conceivable that employment would have grown at an even faster pace had trade not been liberalized. It is also conceivable that employment would have stagnated in the absence of reforms. It is impossible to say what might have been without properly controlling for other factors that may have impacted employment. Since there is no reason to believe that the data are biased, however, the data are consistent with the expectation that reform leads to greater employment in the long run.

B. Formal Studies of Adjustment Costs

A number of researchers have attempted to measure explicitly the adjustment costs that can be expected to result from trade liberalization. Virtually all of these studies pertain to developed countries, but they may provide some insight regarding the costs borne by developing countries as well. On the one hand, formal labor markets in developing countries may be less flexible than in industrial countries, suggesting adjustment costs would be higher. On the other hand, a higher percentage of employment in developing countries is in agriculture and in informal labor markets which are very flexible—implying lower adjustment costs. Thus, there is no clear bias in extrapolating developed country results to developing countries. Moreover, work by Hodinott (1996) on labor markets in Cote d’Ivoire finds the existence of an inverse relationship between wages and unemployment that is remarkably similar to relationships found by Blanchflower and Oswald (1995) for a large sample of developed countries. This similarity

the reforms were the most extensive and thorough in Ghana, followed closely by Mali. They ranked Malawi third in terms of the extensiveness of reforms, with Tanzania and Senegal having the least extensive reforms.

suggests that labor markets in at least one developing country behave in roughly the same way as labor markets in developed countries, and therefore studies of adjustment costs for developed countries may have relevance for developing country experience.

In the first study of its kind, Magee (1972) considered the costs and benefits that one could expect if the United States completely liberalized its trade with the rest of the world. In conducting his study, Magee explicitly accounted for the fact that the benefits of liberalization are permanent while the adjustment costs are temporary. In computing adjustment costs, Magee forecast the number of workers that would become unemployed due to the reductions in import barriers and then multiplied by their average wage. He adjusted for the expected duration of unemployment and assumed that all adjustments would be completed within five years. Using alternative discount rates, he was then able to estimate the present discounted value of adjustment costs and compare them with the standard efficiency gains due to liberalization. The benefit-cost ratios calculated from Magee's work are reported in Table 4.

Based on the figures reported in Table 4, after only one year U.S. trade reform would create 5.7 dollars worth of benefits measured in terms of efficiency gains for every dollar of adjustment costs. By the end of five years, trade reform would result in more than 8 dollars of benefit for every dollar of adjustment cost. Even when the future is heavily discounted, by the end of the fifteenth year the reforms generate more than 19 dollars of benefit for every dollar of adjustment cost. The final line of Table 4 reports benefit-cost ratios where benefits are summed up over the infinite future.

Magee's estimates are very rough and do not account for the costs of capital equipment that may be idled as a result of reduced import barriers. In an attempt to obtain more precise measures of adjustment costs that included the costs of idle capital, Baldwin et al. (1980)

estimated the potential impact on the U.S. economy of a 50 percent multilateral tariff reduction. While Magee aggregated all trade into a few small categories, Baldwin et al. studied 367 distinct sectors. Like Magee, Baldwin et al. estimated the changes in employment that would result from the tariff reduction and valued this change in employment at an appropriate wage.⁸ In addition, Baldwin et al. assumed that every one percent contraction in industry output is accompanied by a one percent contraction in capital utilization.⁹ They noted that if capital equipment in general has a useful life of ten years, then one percent of the capital stock wears out every 1.2 months. The authors of this study then went on to assume that any capital idled by trade reform would be the oldest capital equipment. Therefore, if one percent of the capital stock was idled by trade reform, the maximum income loss would be equivalent to what that capital could have produced in 1.2 months.

In total, the authors estimated that every dollar of adjustment costs brings with it approximately 2.4 dollars of benefits in the form of efficiency gains after just one year. Using a ten percent discount rate and assuming that all adjustments are completed within one year of policy implementation, they calculated that benefits outweigh costs by a ratio of more than twenty four to one. The authors concluded that even though their study was imperfect, the estimated benefits of liberalization are so much larger than the estimated adjustment costs that it would be implausible for any reasonable variations on their analysis to yield opposite results.¹⁰

8. While Magee used an average wage rate for all workers, Baldwin et al. assumed that the wage rate of a dislocated worker in a given industry was related to the demographic characteristics of the average worker in that industry. For example, if workers in one industry have more education on average than workers in another, then it would be logical to assume that the wage paid to the average worker in the former is higher than that in the latter.

9. To date, no other studies have attempted to quantify the costs of capital idled by trade reform.

10. Since Baldwin et. al. were concerned with evaluating the impact of the Tokyo Round, they assume a multilateral tariff reduction. This poses some difficulties, however, in applying their results to the effects of a unilateral tariff reduction, which is the more common question of interest to many policy makers. Another problem is that they assume that expansion of the export sectors leads to a reduction in the duration of

While Baldwin et al. found a very large ratio of benefits to costs, they also found that the costs are concentrated among a few industries. Specifically, industries with the largest declines in employment include Food Utensils and Pottery (20.6%), Rubber Footwear (13.1%), Artificial Flowers (11.3%), and Pottery Products (9.7%).¹¹ More generally, the authors calculated that a 50 percent multilateral tariff reduction would reduce employment by one percent or more in fewer than ten percent of the industries studied.¹²

A number of authors have attempted to quantify the potential economy-wide employment effects resulting from trade reform for countries other than the United States. One such study by Dixon et al. explored the consequences of a 25 percent reduction in Australia's level of protection. In particular, the authors of this study asked how trade reform could be expected to alter the occupational makeup of the economy. They explored several different scenarios and conclude that a 25 percent liberalization might force anywhere from two percent to as much as fourteen percent of the labor force to change occupations within two years after the implementation of the policy.¹³ By way of comparison, the authors of this study estimated that between 1961 and 1976, anywhere from 32 percent to 142 percent of the labor force changed occupations during a given two year period.

unemployment. While this may be true, it is also possible that such an assumption understates the true adjustment costs since export sectors may not expand as fast as import sectors contract.

11. These are generally very labor intensive industries where comparative advantage would presumably lie with the developing countries. Presumably, liberalization in labor abundant countries could lead to concentrated employment reductions in relatively capital intensive industries.
12. More recently, Cooper (in Hungary and Poland, 1994) observes that U.S. employment in the textile, apparel, and leather sectors declined by approximately 20 percent between 1980 and 1990. Similar declines occurred in France, Germany, Italy, the Netherlands, Spain, and the United Kingdom. Cooper conjectures that these shifts were due to increased competition from developing countries. Even if true, this decline in employment amounts to roughly two percent per year in these industries, a magnitude that is dwarfed by annual turnover due to retirements and other voluntary quits.
13. Their four scenarios are a 25 percent across the board cut in protection; a reduction in the highest tariff rates to 31.17 percent; exempting textiles, footwear, and motor vehicles while cutting all other rates of protection by 75.85 percent; and exempting these sectors while cutting the remaining highest tariffs to 3.17 percent.

Unlike Magee (1972) and Baldwin, et al. (1980), the authors of this study made no attempt to quantify the potential efficiency gains from liberalization, nor did they attempt to quantify the value of lost output experienced when workers who are forced to switch occupations find themselves temporarily unemployed. Rather they implied that the labor market disruption associated with trade reform is no larger in magnitude than the disruptions that occur with the natural ebb and flow of the economy.

De Melo and Roland-Holst (1994) carried out one of the only studies relating trade reform to potential employment changes in a developing country. This study of the Uruguayan economy differs from the studies of the U.S. and Australian economies discussed above because of the recognition that much of the protection afforded domestic industries in developing countries is in the form of administered protection. This form of protection generates strong incentives for rent-seeking activities leading to welfare costs of protection that are larger than the standard efficiency-losses. Based on their analysis, the authors concluded that elimination of tariffs and administered protection along with the elimination of all rent seeking activity would likely result in the need for approximately five percent of the labor force to relocate. Since the authors did not estimate the time that relocating workers would spend unemployed nor did they estimate the value of production that would be lost during this transition period, it is not possible to obtain a direct measure of adjustment costs to weigh against their measure of the benefits of reform.¹⁴ The difficulty of quantifying the costs of this labor shift is further compounded by the fact that the authors failed to compare this figure with the normal amount of job turnover.

All of the authors of the studies mentioned to this point attempted to quantify the adjustments resulting from economy-wide trade reform. By contrast, a few authors have focused

14. For the situation of complete trade reform, including elimination of rent-seeking activities, the authors estimate that the welfare gain for Uruguay would be equivalent to more than eight percent of GDP.

their attention on individual industries. For example, de Melo and Tarr (1990) investigated the efficiency gains and employment adjustments that would follow from a removal of quantitative restrictions on U.S. imports of textiles, steel, and automobiles.¹⁵ According to their analysis, these reforms would generate the need for fewer than one quarter of one percent of the labor force to relocate. To measure the costs borne by the relocating workers, the authors of this study used evidence from Jacobson (1978) to argue that these workers experience some loss of earnings for approximately six years after displacement. They used this information to calculate the ratio of the present discounted value of the benefits of liberalization to the costs of worker displacement. They estimated that gains to the U.S. economy from liberalization are approximately 28 dollars for every dollar of cost.¹⁶

In a series of nine partial equilibrium case studies, Morkre and Tarr (1980) and Tarr and Morkre (1984) examined many of the important cases of U.S. protection applied to specific industries. In general, these studies found that the benefits of trade liberalization vastly exceeded the adjustment costs. For example, Morkre and Tarr (1980) estimated the benefits and costs of removal of the sugar quotas, footwear quotas and tariffs on textile and apparel products by the U.S. They estimated that removal of sugar quotas by the U.S. would result in about 16 dollars of benefits for every dollar of unemployment costs. Liberalization of footwear quotas, and textiles and apparel tariffs would produce benefit-cost ratios of about 68 and 57, respectively. Tarr and

15. While the focus of this study is on the removal of trade barriers in these three industries, the authors do account for the complex linkages of these industries with the rest of the economy. For example, they allow for the fact that automobile production uses steel as an input and they allow for the fact that other sectors of the economy (such as agriculture, other manufacturing, and services) compete for labor with the industries under study.

16. It should be noted that the benefits are true social benefits resulting from efficiency gains and quota rent capture by the U.S. economy, whereas the costs as measured by de Melo and Tarr may be private, but not social costs. For example, a worker who experiences a reduction in his wage because his skills are no longer in demand bears a private cost. However, this is not a social loss if his wage is a true reflection of how society values his skills. Therefore, the ratio of seventeen to one may be an understatement of the ratio of social benefits to social costs. An additional reason for believing this figure to be understated stems from

Morkre (1984) estimated that, depending on elasticities, the removal of quotas in textiles and apparel would result in between 7 and 19 dollars of benefits for every dollar of unemployment costs.

Takacs and Winters (1991) carefully studied the British footwear industry with the intent of projecting the effects of eliminating quantitative restrictions on imports. They made use of the fact that there exists a natural turnover of employment within the industry. The authors assume that those workers who are displaced by trade liberalization become re-employed in the shoe industry when other workers voluntarily leave employment. For example, almost 17 percent of the employees at two large shoe manufacturers voluntarily left employment each year between 1984 and 1986. If workers displaced due to trade liberalization are the first claimants on new job openings, then the authors estimated that workers displaced due to trade liberalization would become re-employed within seven weeks.¹⁷ The authors went on to calculate the standard efficiency gain from liberalization for purposes of comparing this gain with the value of lost employment, where the value of lost employment was calculated at the workers' pre-unemployment wage.¹⁸ Doing so, they calculated a benefit-cost ratio of 153 after just one year.¹⁹ Even if the natural turnover rate is as low as eight percent, the adjustment period is only 14

the fact that the authors did not account for the growth of the benefits of liberalization over time, nor did they account for the fact that the benefits persist indefinitely.

17. This figure contrasts with the work of Bale (1976), who interviewed American workers who were displaced by trade liberalization between 1969 and 1970. Based on his interviews, Bale calculated the average duration of unemployment of 31 weeks for this group of trade-impacted workers.
18. As the Takacs and Winters suggest, this wage may overstate or understate the true social cost of unemployment. For example, the true value of a worker's skills should be measured by the wage that he could earn in his next best alternative employment. The social cost of unemployment is then overestimated to the extent that this next best alternative is lower than his wage prior to becoming unemployed. On the other hand, their measure may understate the social cost of unemployment since aggregate turnover rates may mask important differences among groups of workers. For example, men tend to perform very specific tasks in the shoe industry, while women tend to perform others. Suppose that the turnover rate for women is much higher than for men. In reality, any men displaced due to liberalization could be expected to be unemployed for a much longer duration than women.

weeks and abolition of quantitative restrictions can still be expected to generate more than eighty dollars of benefit for every dollar of cost after just one year.²⁰

Using data on industry-specific durations of unemployment reported by Bale (1973), Mutti (1978) compared the benefits of trade liberalization for five U.S. industries with the adjustment costs. In order of increasing benefit-cost ratios (which are indicated in parentheses), the industries studied are Iron and Steel (1.3), Machine Tools (2.8), Industrial Chemicals (5.2), Motor Vehicles (5.2), and Electrical Machinery (24.4). In calculating these figures, Mutti used a discount rate of ten percent and accounted for the persistence and growth of benefits over time.²¹ By comparison with the studies mentioned earlier, these benefit-cost ratios are quite small. This can be attributed to the rather lengthy durations of unemployment that Mutti assumed in his analysis.

In summary, a variety of industry and country studies have been undertaken to try to quantify the magnitude of the adjustments that could be expected to accompany trade reform. In virtually every instance the estimated degree of adjustment is relatively small compared with the natural dynamics of the labor force. In studies where such comparisons are possible, it seems to be the case that each dollar of adjustment cost is associated with several dollars worth of efficiency gains. It is worth bearing in mind that adjustment costs are the largest in the period immediately after the implementation of reforms, disappearing after a period of one to five years. By contrast, the efficiency gains of liberalization grow over time and continue indefinitely.

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19. Once again the authors remind us that the benefits of liberalization persist indefinitely, while the adjustment costs terminate once all adjustments have been made. Assuming a discount rate of 7% for consistency with Magee (1972) and de Melo and Tarr (1990), the benefit-cost ratio would rise to 2,193!
 20. One weakness of this study is that it ignores new entrants into the labor market. That is, in a steady state, new entrants replace the workers exiting the industry. These new entrants must then have longer spells of unemployment if trade-displaced workers now replace the exiting workers.
 21. The numbers reported here compare the standard efficiency gains with the direct costs of labor adjustment. That is, they ignore the possibility that a decline in the motor vehicle sector might initiate a further decline in the iron and steel sector.

C. Labor Market Dynamics in Developing Countries

The costs of adjusting to trade reform are clearly minimized when labor and capital markets are highly flexible so that the transition probabilities out of unemployment are relatively high. Most of the studies described thus far have explicitly accounted for the speed of adjustment by incorporating data on unemployment duration or rates of job turnover. Unfortunately, these measures are not typically available for most developing countries. The evidence that is available seems to indicate a wide variety of country-specific rates. For example, Haltiwanger and Singh (1996) reported on the labor market experiences of 60,000 civil service workers who were retrenched by the Government of Ghana between 1987 and 1992. A survey of these workers revealed that 10 percent had quit the labor force with 97 percent of the remaining workers finding new employment within two years.²² At the other end of the spectrum, the average duration of unemployment was 50 months for the 1.7 million workers (nearly 9 percent of the labor force) dismissed from Hungarian state enterprises between 1990 and 1992.²³

In the absence of readily available data on labor markets, it may be possible to obtain some sense of the speed with which adjustment can take place in developing countries by again looking at the dynamic role played by micro and small-scale enterprises. According to Liedholm and Meade (1995), MSEs account for a significant portion of employment in developing countries. While the majority of such enterprises consist of a single employee or are family owned and operated, MSEs hire a significant number of paid employees. Some characteristics of these enterprises are reproduced in Table 5.

22. Of those finding employment, 20 percent obtained jobs in the formal sector, with the remainder becoming self-employed or taking jobs in the informal sector.

According to Liedholm and Meade, MSEs are highly dynamic. In particular, they report that the annual rate at which new MSEs were created in the sample of countries that they examined was generally in excess of twenty percent. This is a substantially higher start-up rate than found in industrialized countries.²⁴ Their data is reproduced in Table 6. The very high start-up rates suggest that entrepreneurs in these countries are quick to respond to new opportunities, making speedy adjustment to trade reform quite likely. Looked at another way, the magnitude of dislocation caused by liberalization is unlikely to be significantly larger than dislocations associated with the everyday workings of the economy.

D. Private Adjustment Costs

As mentioned earlier, research seems to suggest that significant trade liberalization is likely to result in a relatively small dislocation of workers and a correspondingly small cost for society. The private cost borne by a dislocated worker, however, may be a significant fraction of his lifetime earnings. Available research tends to show that the private losses borne by individual workers depend heavily on worker characteristics. On the one hand there are workers who have substantial specific human capital accumulated in the industry or firm, or workers who are earning substantial wage premia (possibly due to union power or high government wage scales or efficiency wages). These workers tend to lose a lot as a result of displacement. On the other hand, workers with little specific human capital or who are not earning wage premia lose little or nothing from displacement, depending on the industry.

23. This figure, measured as of November 1992, was derived by extrapolating from the rate at which unemployed workers were finding jobs. The projected duration of unemployment was only 7 months when measured in February 1991.

24. Liedholm and Meade suggest that the typical start-up rate for MSEs in industrialized countries is approximately ten percent. They also report that the failure rate for MSEs is also very high. In particular, the rate of closures in the Dominican Republic (the only country for which accurate data exists) was in excess of twenty percent during the early 1990s.

For example, Jacobson, et al. (1993a, 1993b) studied a sample of American workers who were displaced from their jobs between 1980 and 1986.²⁵ They found that even as long as five years after the dislocation, *workers who had long job tenure* with their previous employers were earning on average twenty five percent less than they earned in 1979.²⁶ In a similar study, Rama and MacIsaac (1996) found that after 15 months, employees displaced from their jobs at the Ecuadorian Central Bank (BCE) in 1994 were on average earning only 55 percent of their pre-displacement income. Rama and MacIsaac argued that the earnings loss is unlikely to shrink to the 25 percent figure reported by Jacobsen et al. because there was no indication in the data of any recovery of income even after 15 months despite a low overall unemployment rate. In addition, they assert that pay at the BCE was out of line with salaries in the private sector, making it difficult for displaced employees to find similar salaries in the private sector. In a separate study, Tansel (1996) found that Turkish workers laid off from privatized cement firms experienced earnings losses of 61 percent. Earnings losses for workers laid off from the state-owned petrochemicals firm amounted to 57 percent.

By contrast, Jacobsen (1978) found that two years after displacement workers in low wage industries actually earned more income than their non-displaced counterparts in the original industry. Moreover, he found that six years after displacement, earnings losses had vanished for all industries, not just for low wage industries. The difference in the results between the Jacobsen studies is explained by the fact that the 1993 studies restrict the sample to workers with long job tenure and who are therefore likely to have accumulated specific human capital or earn wage premia. His 1978, study, however, is a broad sample of short, medium and long tenure

25. They define a displaced worker as one “whose job loss results from the plant closings and mass layoffs associated with economic restructuring” (Jacobson, et al. 1993b).

26. These wage differences refer to the actual wage at a point in time compared with the wage the worker would have been expected to have earned had he or she not been displaced.

workers who have on average much less specific human capital. Similarly, Orazem, Vodopivec, and Wu (1995) found that more than two thirds of displaced Slovenian workers who found new jobs actually earned wages higher than their predisplacement wages.²⁷ Mills and Sahn (1995) found that of the public-sector workers retrenched in Guinea who were able to find new jobs, more than half had increased earnings. However, the average duration of unemployment for this group was approximately two and one half years,²⁸ and thirty percent of public-sector workers who were retrenched between 1985 and 1988 were still unemployed as of 1992.

It is important to recognize that the private costs borne by dislocated workers and entrepreneurs need not coincide, even in the aggregate, with the social costs identified earlier in this paper. For example, some workers may enjoy a high wage due to distortions in the labor market. These distortions may include the presence of excessive union power or the existence of inflexible government wage scales. In such instances, there is a substantial private cost but no social cost (except perhaps that associated with a transitional period of unemployment) as competitive pressures from trade reform force a reduction in the size of distorted sectors. Similarly, liberalization of the trading regime might induce changes in the values that an economy places on various forms of human capital. Workers who have accumulated significant amounts of firm-specific or sector-specific human capital may suffer a substantial (private) loss as the demand for their skills declines.²⁹ In any event, this is no more a social cost than is the change in *any* price that is induced by changing market conditions.

27. Only one third of displaced workers found re-employment during the period.

28. The average duration of unemployment can be calculated from the data that Mills and Sahn (1995) present in their Table 9.

29. For example, during macroeconomic crises, real wages in Argentina, Bolivia, Chile, and Mexico fell by 33 percent or more before recovering (World Development Report, 1995). It is unclear how much if any of these wage reductions were due to trade reform.

E. Retraining Programs to Reduce Adjustment Costs

Programs designed to retrain workers to make them more employable generate additional social costs to the extent that they require the use of resources that could have been used in other productive activities. However, such programs may reduce the social (and private) costs associated with adjustment if they have the desired effect of shortening spells of unemployment. A recent study of retraining programs in Hungary found that workers who participated had a slightly higher chance of becoming re-employed compared with those who did not participate.³⁰ Furthermore, the wages of participants upon re-employment were slightly higher compared with those of non-participants who became re-employed. Perhaps the biggest difference between participants and non-participants was that the former obtained jobs that had longer durations than the latter, indicating the potential for the retraining program to have a significantly positive effect on lifetime income of participants. However, it is not clear that the benefits of the program were sufficient to justify the costs.

Another program that provides government sponsored training can be found in Mexico. The PROBECAT program provides short-term skills training to unemployed workers. An evaluation of this program found that it was effective in reducing the duration of unemployment for participants who had prior work experience and it helped raise the earnings of adult males who participated. The program, however, had no effect on the fate of trainees with no prior work experience or women who were reentering the work force.³¹

The United States has been providing trade adjustment assistance (TAA) to workers displaced by international trade since 1962. The US program provides both monetary compensation (called Trade Readjustment Allowances, TRA) and retraining. In the early years of

30. See O'Leary (1997).

31. See World Development Report (1995), Box 17.1.

the program, it was found that income support was typically provided to workers who were not permanently separated from their employers, i.e., the program was not well targeted (Corson and Nicholson, 1981). However, changes in the design and monitoring of the program in 1982 and 1988 have resulted in targeting the payments to the intended recipients. U.S. recipients of TAA now are typically permanently separated from their employer and also experience greater difficulty in gaining reemployment than do typical recipients of unemployment compensation (Decker and Corson, 1995). Following the changes of 1988, participation in an approved retraining program is a requirement to receive monetary compensation (TRA), unless a waiver is obtained. Evaluation of the experience of trade displaced workers reveals that participation in retraining programs did not have a positive impact on the earnings of trainees, at least in the first three years after the initial claim for unemployment compensation (Decker and Corson, 1995).

Thus, the results of retraining programs appear to be mixed. When retraining is required, as in the U.S., it may be ineffective. More generally, the effectiveness of retraining programs tends to increase if they are demand driven, so, for example, subsidized apprenticeships in the private sector may work better than government provided training programs.³² An alternate approach to requiring retraining is to require the participation in a job search program. This appears to increase the likelihood of employment and reduce unemployment benefits among recipients (Johnson and Klepinger, 1991; Decker and Corson, 1995).

F. Macroeconomic Stability See Matusz and Tarr (2000) for a discussion of the impact of trade liberalization on macro stability and government revenues.

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32. O'Leary (1995) discusses the measurement of the effectiveness of labor market programs in Hungary and Poland.

IV. Summary and Conclusion

In this paper we have summarized the empirical research on the adjustment costs of trade liberalization. We began with three studies that empirically examined employment effects from thirty separate economy-wide episodes of trade liberalization in developing countries. In these studies it is difficult to disentangle the effects of trade liberalization from other events occurring simultaneously, but generally, manufacturing employment increased subsequent to the trade liberalization. Transition economies are a special case where manufacturing employment declined after liberalization, but employment decline was faster in transition economies that did not liberalize. We next surveyed studies that quantify the costs of adjustment from trade liberalization. These include economy-wide studies of Australia and Uruguay and two of the U.S., as well as studies by several authors of trade liberalization in 22 industries in the U.S. and the U.K. In general, these studies find that the benefits of trade liberalization are vastly greater than the costs--typically for each dollar of adjustment costs there are typically more than 20 dollars of benefits from trade liberalization.

We next report on two studies of small and medium size enterprises in eight African economies. It is found that small and medium size enterprises in these countries are highly dynamic (even when compared to industrialized countries), making speedy adjustment to trade reform more likely. Then we next examine studies of the private costs of adjustment in eight countries. These costs can be quite substantial in cases where the workers were earning substantial rents in their original job, but tend to be small otherwise.

We find that it is necessary to apply caveats to most of the studies we survey regarding conclusions with respect to adjustment costs; thus, it is necessary to be cautious regarding conclusions based on any few of them. Most notably, while there are numerous studies on the effects of trade liberalization on aggregate employment in developing countries, virtually all studies that quantified adjustment costs have been done in industrialized countries. Collectively, however, the weight of so many studies of various types, all pointing in more or less the same direction, makes it difficult to avoid the conclusion that adjustment costs are very small in relation to the benefits of trade liberalization.

Why then do these studies find that adjustment costs are so small and that there is little decline (usually an increase) in manufacturing employment in developing countries one year after trade liberalization? Regarding manufacturing employment, these results are explained by a number of considerations: (1) developing countries would be expected to have comparative advantage in labor intensive industries, so trade liberalization should favor labor; (2) it has been observed that a great deal of inter-industry shifts occurred after trade liberalization, which minimized the dislocation of factors of production; and (3) in many industries normal labor turnover exceeds dislocation from trade liberalization, so that downsizing where necessary could be accomplished without much forced unemployment.

The explanation for the low adjustment costs in relation to the benefits is as follows: (1) most importantly, adjustment costs are typically short term and terminate when workers find a job, while the benefits of trade reform can be expected to grow with the economy; (2) estimates of the duration of unemployment for most industries are not

high, especially where workers were not earning substantial rents in the original job; and (3) as noted above, normal labor turnover often exceeds job displacement from trade liberalization.

Given these results we devote some attention in this paper to an assessment of the private costs of trade liberalization. Knowledge of the distribution of the private costs and benefits associated with trade reform is useful because of concerns for an equitable distribution of income, and because such knowledge might guide the implementation of contemporaneous policies that might diffuse some of the political opposition that may arise.

One policy we recommended is a uniform tariff; a uniform tariff will minimize lobbying by special interests for protection because it diffuses the benefits of protection. If the only way protection can be increased is by increasing protection for all industries, lobbying for protection then yields only dispersed benefits as well as costs to the lobbyists.

Finally we briefly discuss policies to minimize adjustment costs where it appears that adjustment costs might be excessive, and suggest areas where additional research in this area would be useful. We note that zero adjustment costs are socially suboptimal in a dynamic economy, since it would imply insufficient search time by temporarily unemployed workers. Moreover, given sound complementary policies, adjustment costs associated with trade liberalization are unlikely to provide an adequate reason for delays in opening up to the outside world. Nonetheless, it is likely that policymakers can reduce such costs. Perhaps the most important complementary policies are ensuring macroeconomic stability and the credibility of policies so as to foster a quick, sustained

private investment response in newly competitive sectors of the economy. Structural policy reforms to improve labor market flexibility and reform of the state enterprise sector may provide important complementary support. Of course, each of these policies is likely to be of great economic value on its own. The mutually supportive relations between trade, macroeconomic, labor market and other policies may then serve to increase the credibility and payoffs to each.

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Tables

| Table 1: Employment in Manufacturing during Episodes of Liberalization (Thousands of Persons) | | | |
|--|----------------------------|-----------------------------------|---------------------------|
| Episode | Year Before Liberalization | Average for Liberalization period | Year After Liberalization |
| Argentina 1 (1967-70) | 1,836 | 1,847 | 1,914 |
| Argentina 2 (1976-80) | 1,863 | 2,099 | 2,132 |
| Brazil (1965-73) | 1,780 | 2,182 | 3,397 |
| Chile 2 (1974-81) | 515 | 487 | 351 |
| Korea 2 (1978-79) | 2,000 | 2,196 | 2,099 |
| Peru (1979-80) | 675 | 717 | 736 |
| Philippines 1 (1960-65) | 1,456 | 1,647 | 1,825 |
| Philippines 2 (1970-74) | 2,056 | 2,313 | 2,596 |
| Singapore (1968-73) | 61 | 139 | 210 |
| Sri Lanka 1 (1968-1970) | 74 | 108 | 97 |
| Sri Lanka 2 (1977-79) | 112 | 134 | 155 |
| Turkey 1 (1970-73) | 485 | 551 | 651 |
| Turkey 2 (1980-84) | 799 | 829 | not available |

Note: Periods of liberalization are in parentheses.

Source: Table 10 in Papageorgiou, Choksi, Michaely (1990)

| Table 2: Annual Labor Growth Among Existing Firms Under Liberalization (percent per annum) | | | | | | |
|--|---------------|-------|--------|------|---------|----------|
| Number of Employees | All countries | Ghana | Malawi | Mali | Senegal | Tanzania |
| 1-5 | +18 | +10 | +19 | +24 | +7 | +20 |
| 6-20 | +11 | +6 | -3 | +20 | +12 | +10 |
| 21-49 | +3 | +3 | +2 | +2 | 0 | +3 |
| 50+ | +1 | -9 | n.a. | +10 | 0 | +17 |
| All firms | +5 | -1 | +5 | +13 | +2 | +9 |

Note: Size categories are based on total employment of the firm at the time of reforms.

Source: Table 6.2 in Parker, et al. (1995).

| Table 3: Total Employment (Thousands) | | | | | | |
|--|------------|----------------|--------|---------|---------|---------|
| Year | Costa Rica | Czechoslovakia | Peru | Poland | Romania | Uruguay |
| 1982 | 759.9 | 8184 | n.a. | 18208.5 | 10428.1 | n.a. |
| 1983 | 767.6 | 8200 | n.a. | 18374.7 | 10457.8 | n.a. |
| 1984 | 839.7 | 8251 | n.a. | 18383.5 | 10499.9 | 932.6 |
| 1985 | 826.7 | 8317 | n.a. | 18531.4 | 10586.1 | n.a. |
| 1986 | 854.2 | 8379 | 1988.3 | 18594.5 | 10669.5 | 1021.2 |
| 1987 | 923.3 | 8409 | 2061.1 | 18596.2 | 10718.6 | 1090.7 |
| 1988 | 951.2 | 8449 | n.a. | 18474.1 | 10805.4 | 1103.1 |
| 1989 | 986.8 | 8431 | 2169.5 | 18438.0 | 10945.7 | 1134.4 |
| 1990 | 1017.2 | 8249 | n.a. | 17552.1 | 10839.5 | 1136.2 |
| 1991 | 1006.6 | 7710 | 2337.0 | n.a. | n.a. | n.a. |

n.a. Not Available

Source: Harrison and Revenga (1995) data underlying their Figure 1.

| Table 4: Estimated Benefit/Cost Ratios Associated with U.S. Import Liberalization | | | |
|--|------|------|------|
| Discount Rate | | | |
| Number of Years After Liberalization | 4% | 7% | 10% |
| 1 | 5.7 | 5.7 | 5.7 |
| 2 | 6.3 | 6.3 | 6.3 |
| 3 | 7.0 | 7.0 | 7.0 |
| 4 | 7.7 | 7.6 | 7.6 |
| 5 | 8.3 | 8.2 | 8.2 |
| 15 | 25.0 | 21.8 | 19.5 |
| Total | 60.2 | 36.1 | 26.5 |

Source: Calculated from Magee (1972) Tables 7 and 8.

| Table 5: Characteristics of Micro and Small Scale Enterprises | | | | | | | |
|--|----------|-------|---------|--------|-----------|----------|--------------------|
| | Botswana | Kenya | Lesotho | Malawi | Swaziland | Zimbabwe | Dominican Republic |
| MSE employment as percent of Pop. aged 15-64 | 17 | 18 | 17 | 23 | 26 | 27 | 19 |
| Percent of MSEs that are one-person enterprises | 65 | 47 | 79 | 61 | 69 | 69 | 22 |
| Percent of all MSEs with 10-50 workers | 3 | 2 | 1 | 1 | 2 | 2 | 18 |
| Percent of hired workers* in MSE labor force | 39 | 24 | 10 | 18 | 15 | 16 | 36 |

Source: Liedholm and Meade (1995), Table 2.1

* Percentage of hired workers refers to percentage of salaried, out of family workers.

| Table 6: Annual MSE New Starts Rate * | | | | | |
|--|------|-------------------------------------|------|------|-----------------|
| Country | Year | Enterprise Size (number of workers) | | | |
| | | 1 | 2-9 | 10+ | Overall Average |
| Botswana | 1991 | 32.9 | 11.5 | 4.2 | 25.2 |
| Kenya | 1992 | 33.7 | 10.3 | 1.6 | 21.2 |
| Malawi | 1991 | 26.9 | 14.1 | 13.1 | 21.7 |
| Swaziland | 1990 | 26.3 | 10.8 | 2.4 | 21.7 |
| Zimbabwe | 1990 | 22.8 | 10.6 | 18.7 | 19.3 |
| Dominican Republic | 1993 | n.a. | n.a. | n.a. | 20.6 |

Source: Liedholm and Meade (1995), Table 3.1.

* Numbers in the table reflect that percentage of all enterprises in that category that were created in the specified year.