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US Trade Policy and the Adjustment Process

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Abstract

Michael Mussa (1974, 1978, 1982) was among the first theorists to analyze the economics of adjustment to changing conditions of international trade, and throughout his career he has also been an outspoken commentator on the political economy of trade policy. This paper focuses on the "adjustment environment" in the United States as set out by the active US trade remedy laws (antidumping, countervailing duties, and safeguards) and the Trade Adjustment Assistance program. We document US industries' use of these various laws and relate industry use of trade policies to import competition and revealed comparative advantage. We also examine potential effects of US trade policies on adjustment to shifting comparative advantage and give examples of industry outcomes.

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> Adjustment to changing conditions of international trade...generally involves decisions in which the costs of adjustment must be weighed against the expected future benefits....A principal objective of government policy should be to create an environment in which the decisions...lead to a socially appropriate outcome by removing the general distortions...that cause the privately perceived benefits or costs of adjustment to diverge from the true social benefits or costs (Mussa 1982, 117).
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> When the political power of special interests combines with the pernicious effects of the fixed-number-of-jobs fallacy, the result will almost inevitably be some divergence from the free-trade policies that would probably best serve the broad public interest....the practical question for economists working on trade policy is how to keep the damage to a minimum (Mussa 1993, 374).

1 Introduction

Globalization implies increased opportunities for economic gains at the national level but also increased disruption of affected industries and regions. In the United States, job losses and plant closings attributed to import competition or outsourcing have brought international trade to the forefront of national politics. With international market conditions changing rapidly and often unpredictably, the US policy debate now reflects heightened tension between conflicting goals: adjusting to new conditions in order to capture the full potential gains from these developments, versus insulating the economy from new conditions in order to slow or reverse their domestic sectoral and regional effects. While other nations must address the same internal conflicts, the huge size of the US market and the nation's central role in international trade negotiations give US policy choices disproportionate significance beyond its own borders. A US decision to postpone adjustment to changing international market conditions translates into

losses not only at home, but also in the many nations around the world that now look to expanded trade as a means to spur their own economic growth.[1]

In this paper we focus on the "adjustment environment" in the United States as set out by the active US trade remedy laws (antidumping, countervailing duties, and safeguards) and the Trade Adjustment Assistance program. How does the United States respond to opportunities associated with changing international market conditions? Specifically, do US policies facilitate movement of resources into their most productive use, or do they tend to delay restructuring of industries with declining comparative advantage? When policies delay restructuring in a trade-impacted industry, do they have the intended effect of protecting workers in the affected industry? Our surprising conclusion is that policies delaying industry adjustment may nonetheless increase, rather than alleviate, the pressure on individual plants and workers.

US trade laws are concerned mainly with situations in which a domestic industry is adversely affected by a fall in the price of competing imports. However, import prices may fall for several distinct reasons: (a) unfair foreign trade practices, (b) temporary and reversible changes in market conditions, (c) trade liberalization, and (d) shifting comparative advantage. The socially optimal adjustment path, appropriate policy response, and trade remedy most relevant in a particular case differ according to the reason for the fall in import price.

In the first case, a fall in import price reflects dumping by foreign firms or subsidization by foreign governments, which constitute "unfair" trade practices under US and WTO statutes. To the extent that such practices injure a competing US industry, trade law permits action to

[1] In the past two decades, most developing countries have abandoned import substitution in favor of growth strategies that rely on trade expansion. Although the weight of professional opinion endorses a causal link between openness and growth, empirical efforts to document the relationship have generated as much controversy as consensus. Building on earlier research but using an updated data set and other methodological improvements, Wacziarg and Welch (2003) estimate that, over the 1950-98 period, countries that liberalized trade experienced an average increase of 1.5 percentage points in their annual growth rate relative to the pre-liberalization period.

reverse the price decline and thus eliminate the need for adjustment.[2] In the second case, a fall in import price reflects a temporary and reversible change in the trade environment, such as exchange-rate appreciation or downturn in the business cycle. Firms will then make adjustment decisions based on their own best assessment of future international market conditions. However, because of incomplete information and other market imperfections, there may be a potential role for active trade policy to ensure socially optimal adjustment. US and WTO regulations on safeguard protection address this type of situation. In the third case, a fall in the domestic price of competing imports is the anticipated result of trade liberalization. Associated declines in industry employment, output, and profitability should likewise be anticipated. The US Trade Adjustment Assistance program is intended to facilitate the necessary adjustment by assisting affected workers and firms in industries that face increased competition due to US trade liberalization. Safeguard protection may also be relevant to the extent that injury to the domestic industry is more severe than was anticipated at the time of the decision to liberalize trade.

Finally, and of greatest interest for this paper, a fall in import price may reflect shifting comparative advantage. Such shifts are the norm rather than the exception in today's dynamic world economy, and adjustment to these shifts constitutes a potentially important source of gains both at home and abroad. Loss of US comparative advantage in a particular sector, say steel, means that the opportunity cost of producing steel at home has risen relative to its opportunity cost abroad. Thus, the United States will benefit from "producing" more steel indirectly through trade, i.e., by producing other goods for export in exchange for increased steel imports. Comparative advantage rests on a double comparison: of one domestic sector's opportunity cost, i.e., production costs relative to those of other domestic sectors, and then of this domestic

[2] This policy action may not represent the socially optimal response, especially in the case of dumping. See, for example, Irwin (2002, 125-8).

opportunity cost relative to opportunity cost in other countries. If the United States loses comparative advantage in steel, this does not imply that the American steel industry has declined in productivity, or even that its productivity has risen less rapidly than in the steel industry abroad, but only that the domestic industry has experienced a *relatively* lower productivity gain compared to other US sectors than steel in a partner country relative to other sectors in that country.

In contrast to the other three reasons for falling import prices, there is little explicit acknowledgement in US policy or policy debate of the possibility that an established industry no longer enjoys international comparative advantage and thus should, from the viewpoint of economic efficiency, be reduced in size or phased out. To the extent that a problem of declining comparative advantage is even recognized, the implicit policy goal is to restore comparative advantage, whether through infusions of capital, adoption of newer technology, or improved marketing, rather than to facilitate a shift of resources into other sectors. No US trade policy explicitly addresses the need to adjust out of certain industries. Moreover, active trade policy designed to deal with different situations is often used instead to address cases in which falling import price reflects shifting comparative advantage. These policy actions almost always work to slow the decline of a domestic industry that is losing or has lost its comparative advantage. In addition to depriving consumers of the lower prices and greater variety available through trade, such policies also inhibit the growth of other domestic industries that are gaining comparative advantage—the nation's current and potential export industries.[3]

[3] Although sufficient additional investment can restore an industry's comparative advantage, at least temporarily, inducing additional investment through trade policy can reduce national welfare. This approach redirects capital from the uses otherwise preferred by private investors, including owners of firms already in the industry. A case for any government policy that redirects investment toward sectors losing comparative advantage would thus have to rest on "distortions...that cause the privately perceived benefits or costs of adjustment to diverge from the true social benefits or costs" (Mussa 1982, 117).

Our analysis below focuses mainly on adjustment--or lack of adjustment--to a downward long-term trend in the price of competing imports due to shifting comparative advantage. Under US trade laws any fall in import price is treated primarily as a problem rather than an opportunity. Although trade laws offer a policy response to each of the other situations in which a domestic industry is harmed by a decline in import prices, no trade law is aimed directly at promoting the socially beneficial adjustment to shifting comparative advantage. Because US trade laws largely ignore the very real possibility that an industry's current difficulties are due to changing comparative advantage, their main objective is to maintain the status quo rather than promote adjustment to new market conditions.

The absence of a policy aimed squarely at promoting adjustment may reflect two important economic and political realities about the adjustment process. The first is that adjustment is costly. Achieving the new domestic resource allocation appropriate to changed conditions in international markets always entails economically significant and politically salient adjustment costs "up front." Because wages and other input prices are not fully flexible, adjustment costs often include losses from unemployment. Moreover, the process entails significant domestic redistribution. Gains achieved will be distributed unequally even if adjustment is not complicated by factor-price rigidities. Both during the adjustment process and after adjustment is complete, a drop in import prices always creates domestic "losers." It also creates potential domestic "gainers," which include consumers and productive resources in sectors that are enabled to expand. These losses and gains far exceed the net impact on national welfare and thus generate powerful political forces that affect the country's ability to achieve the potential benefits of adjustment.[4]

[4] Within a model of two sectors and two generic factors of production that move freely between them, Stolper and Samuelson (1941) demonstrate that the factor used intensively in the import-competing industry loses

Full adjustment requires reduced production and employment in the import-competing sector; achievement of maximum gains therefore requires absorption through expansion elsewhere in the economy of productive resources released by the import-competing industry. The losers from shifting comparative advantage are readily identified; losses are typically concentrated in a specific sector and often a specific region. Although the aggregate gains to be achieved through full adjustment are larger, the impact is widely dispersed, and gainers are less likely to be aware of the link to a change in international market conditions. In terms of wages and employment, gains will be spread across a number of industries, including all the industries that expand as the adjustment process unfolds. The domestic political process is thus tilted toward the interests of import-impacted domestic industries and especially their workers, and away from full adjustment.[5]

This rest of this paper examines the role of US and WTO trade rules in facilitating or retarding adjustment to a drop in import prices due to shifting comparative advantage.[6] Section 2 reviews the various trade laws that address problems associated with increased import competition. We look both at provisions explicitly aimed at influencing the adjustment process and those implicitly affecting adjustment. Section 3 examines the link between industry use of trade policies and levels or changes in import competition and revealed comparative advantage.

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unambiguously. The proposition is striking in that it does not rest on the usual concerns of industry specificity or temporary unemployment. But in the short run, some factors are immobile and/or sector-specific. In a model with two industries, two industry-specific factors, and a third factor that moves freely between sectors, Mussa (1974) shows that the factor specific to the import-competing industry loses unambiguously while the mobile third factor may lose or gain.

[5] If policy makers and voters subscribe to a "conservative welfare function" (Corden 1974), i.e., seek to prevent losses to any group, this will reinforce the tilt away from full adjustment. In theory, an active political role of downstream industries could counter the pressure for protection. However, decades of import relief for the US steel industry suggest that the cost to consuming industries is not large enough to counter domestic producers' direct interest. Exporting nations may also take an active role domestically or via formal complaints at the WTO.

[6] Most of the discussion applies also to adjustment required by trade liberalization.

Section 4 discusses potential changes at the industry level that may result from protection and evaluates the role played by US trade policy in three specific cases. Section 5 concludes with some observations on a policy aimed specifically at facilitating adjustment to shifting comparative advantage.

2 US and WTO Trade Laws and Adjustment

Of the various US trade laws, two—safeguards and trade adjustment assistance—seem explicitly intended to promote adjustment to increased competition from imports. However, administration of these laws often envisions an "adjustment" process as one that allows the domestic industry to reverse its decline. Several other trade laws also play an important role in encouraging or discouraging adjustment. We discuss each law in turn, considering first those provisions dealing explicitly with adjustment and then provisions or discretion in how provisions are administered that may implicitly encourage or discourage adjustment. Table 1 summarizes the major US trade remedy laws and programs.[7]

2.1 Safeguards

Safeguard legislation was originally intended as an "escape clause" that would allow temporary re-protection of an import-competing industry that suffers unforeseen damage due to trade liberalization. An escape clause in the modern sense was introduced in the US Reciprocal Trade Agreements Act of 1934 (Jackson 1997, 179). Recent US safeguards have been initiated

[7] While the laws discussed in this paper are concerned mainly with situations in which US firms or workers are injured by competing imports, Section 301 of the US Trade Act of 1974 addresses foreign practices that unfairly exclude US products from export markets. In principle, Section 301 could offer a way to promote US adjustment to shifting comparative advantage by ensuring that firms in emerging export sectors are able to find markets abroad. In reality, most of the industries represented in 301 cases seem improbable as reflections of emerging US comparative

under Section 201 of the Trade Act of 1974. Article XIX of the GATT and the WTO Agreement on Safeguards allow countries to impose new restrictions if a domestic industry is suffering serious injury substantially caused by rapidly increasing imports.[8] The explicit purpose is to allow the domestic industry time to restructure.

Under Section 201, the President, the Senate, or a domestic industry can request safeguard measures. The President is allowed (but not required) to impose safeguard measures if certain statutory requirements are met. First, the International Trade Commission (ITC) must determine whether the domestic industry is suffering serious injury caused by increased imports. If the ITC finding is affirmative, it then makes a recommendation to the President regarding appropriate measures. However, the President can accept, reject, or modify the ITC's recommendations. When the potential benefits of action on behalf of the industry appear to be outweighed by broader considerations of national policy, the President need not impose a trade restriction even if the ITC has found serious injury due to increased imports. Section 201 specifies the statute's objectives as "positive adjustment to import competition":

> §2251 (b) "Positive adjustment to import competition" is defined as occurring when
>
> (A) the domestic industry
>
> (i) is able to compete successfully with imports after actions […] terminate

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advantage. Both the perceived need for Section 301 and its potential scope have been reduced since the WTO was established in 1995.

[8] Although an escape clause essentially provides for backsliding (increased protection) under specific circumstances, some economists believe this helps to facilitate and maintain overall liberalization of trade. By providing insurance against unforeseen damage to their economy, safeguards may encourage trade negotiators to be bolder in their offers of concessions. Moreover, by offering a framework within which a country may yield to domestic political pressure to renege on certain negotiated liberalization commitments and yet preserve the integrity of the agreement, safeguards may improve the overall durability of a liberal trade regime. Hoekman and Kostecki (2001) call these the insurance and safety-valve functions of safeguards.

(ii) the domestic industry experiences an orderly transfer of resources to other productive pursuits; and

(B) dislocated workers in the industry experience an orderly transition to productive pursuits.

The statute also requires that the representative of the industry filing the petition submit an adjustment plan describing

> "the specific purposes for which action is being sought, which may include facilitating the orderly transfer of resources to more productive pursuits, enhancing competitiveness, or other means of adjustment to new conditions of competition" [from §2252 (a)(2)(A)].

The representative of the industry can be a "trade association, firm, certified or recognized union, or group of workers." Choice of the representative may have important implications for the safeguard process because different groups may have complementary or conflicting adjustment incentives and preferences. For example, workers will not be expected to take advantage of retraining benefits under TAA if the industry receives import protection and layoffs are thus avoided. There may also be differences in the interests of firms within an industry, as with vertically integrated steel producers versus mini-mills.[9]

If the President chooses to act, the statute offers a broad range of policy alternatives [§2253 (a)(3)]:

- Import duty
- Tariff-rate quota

[9] Durling and Prusa (2003) argue that the primary effect of the safeguard tariffs imposed by the United States in 2002 was distributional; the tariffs provided relatively small gains to traditional integrated producers but more substantial benefits to the newer mini-mills. Below, we argue that "temporary" trade restrictions may encourage new investment in a declining industry even when full adjustment to changing market conditions must entail a drop in industry output and employment.

- Quantitative restriction
- "[O]ne or more appropriate adjustment measures, including the provision of trade adjustment assistance…"
- Voluntary export restraint (VER)[10]
- Auctioning import licences
- International negotiations
- Submit to Congress legislative proposals
- "[A]ny other action […] which the President considers appropriate and feasible…"
- Any combination of the above

Section 201 allows the initial policy to be imposed for no more than four years, with a possible extension for an additional four years. But WTO rules allow negatively affected exporting countries to seek compensation in the form of retaliation if a safeguard remains in effect for longer than three years. In practice, the period of safeguard application since 1995 has been limited to three years or less.[11]

Despite its explicit goal of promoting adjustment, Section 201 is used mainly to offer temporary relief for an import-impacted industry. However, the law's provisions do allow the President to implement measures that directly promote adjustment. These could include either measures to enhance the competitive position of the domestic industry or measures to facilitate "an orderly transfer of resources" to other industries.

[10] Use of VERs has been phased out under the terms of the Uruguay Round agreement.

[11] If the imposed safeguard is found to violate WTO rules, retaliation can be imposed at the conclusion of the trade dispute (typically 18 months). This has led to withdrawal of some applied safeguards even before the end of three years. For example, US safeguard tariffs on steel imports were imposed in March 2002 and withdrawn in December 2003 following a negative ruling from the WTO.

2.2 Special Safeguards

In addition to the normal safeguards provided under Section 201, the most highly protected sectors of the US economy also benefit from special safeguard arrangements included in specific bilateral and multilateral agreements. These safeguards are "special" in that they apply in situations where protection could not be obtained under Section 201, e.g., by specifying a lower injury threshold for safeguards and/or allowing US action on imports only from specific sources rather than total imports. Such arrangements include:

2.2.1 Special Agricultural Safeguards in the WTO

The Agriculture Agreement that began the process of bringing policies on agricultural trade under WTO discipline included special safeguards on agricultural products.[12] Under the agreement, thirty-nine WTO members reserved the right to use special safeguards on two to 539 products; for the US, the number of products potentially subject to these safeguards is 189. The special agricultural safeguards differ from normal safeguards in that higher safeguard duties can be triggered automatically if import volumes rise above a predetermined level or prices fall below a predetermined level. More notably, safeguards can be applied without evidence of serious injury to the domestic economy. However, in keeping with their objective of facilitating progress in the area of agricultural trade, the right to apply such safeguards will lapse in the absence of agreement to continue the negotiations.

Post-Uruguay-Round WTO negotiations on agriculture began in early 2000. Agriculture is a high-priority item on the Doha Round agenda, which is focused on the trade priorities of

[12] WTO web site http://www.wto.org/english/tratop_e/agric_e/negs_bkgrnd11_ssg_e.htm (accessed 17 May 2004).

developing countries.[13] The 2001 Doha Declaration includes a commitment to comprehensive negotiations aimed at "substantial improvements in market access; reductions of, with a view to phasing out, all forms of export subsidies; and substantial reductions in trade-distorting domestic support."[14]

2.2.2 Special Transitional Safeguards in the WTO Agreement on Textiles and Clothing

Negotiated in the Uruguay Round, the WTO Agreement on Textiles and Clothing[15] is intended to end the global system of quotas that has severely distorted international trade in these products for decades. The agreement calls for a phase-out of the Multifiber Arrangement, with all products scheduled to be brought into conformity with normal WTO rules on goods trade by 2005, i.e., all quantitative restrictions are due to be eliminated by the end of 2004. Article 6 of the agreement provides for special transitional safeguards that apply to products not yet integrated into the WTO system. Thus, if the MFA is indeed eliminated on schedule, problems that arise in 2005 and thereafter would fall under the usual WTO safeguard provisions.

Unlike normal safeguards, which must be applied on a most-favored-nation (MFN) basis, these transitional safeguard measures can be applied against individual exporting countries if it can be shown that "serious damage or actual threat thereof...is attributed...on the basis of a sharp and substantial increase in imports, actual or imminent" to trade with an individual member

[13] Cline (2004) estimates that global free trade would raise annual incomes of the developing countries by a total of $200 billion, with much of that benefit going to the world's poorest people. He singles out agriculture and textiles and apparel as the most important sectors in terms of potential gains to developing countries; about half of the total gains are projected to come from agricultural alone.

[14] Doha Ministerial Declaration, adopted 14 November 2001. WTO web site http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm (accessed 24 August 2004).

[15] WTO web site http://www.wto.org/english/docs_e/legal_e/16-tex.pdf (accessed 17 May 2004).

(Article 6.4). Transitional safeguards are limited to up three years or until the product is integrated into the WTO system.

2.2.3 Special Transitional Safeguard Mechanism for China's WTO Entry

The agreement setting terms for China's entry into the WTO included a special "Transitional Safeguard Mechanism" that allows the use of safeguards when imports from China cause or threaten injury to domestic producers of other members.[16] The transitional safeguards are authorized for the first twelve years of China's WTO membership. In contrast to the normal WTO requirement of actual or threatened "serious" injury to the domestic industry of the safeguard-imposing country, the transitional safeguards require only "material" injury, i.e., the lower injury threshold normally used in remedies for unfair trade. Also included in the agreement is a special safeguard relating specifically to China's participation in the Agreement on Textiles and Clothing.

A textile-specific safeguard mechanism, subject to an even lower threshold, will allow other members to apply safeguards to textile and apparel imports from China until the end of 2008. These safeguards can be applied if "a WTO Member believed that imports of Chinese origin of textiles and apparel products...were, due to market disruption, threatening to impede the orderly development of trade in these products" and consultation with China did not result in a satisfactory resolution. US textile imports from China surged after some quantitative restrictions were removed following China's WTO entry in 2001. On December 24, 2003, the US imposed safeguard quotas on imports of Chinese brassieres, robes, and knit fabric for a one-year period.[17]

[16] WTO web site http://www.wto.org/english/news_e/pres01_pr243_e.htm (accessed 17 May 2004).

[17] "The U.S.–China JCCT: Outcomes on Major U.S. Trade Concerns, *Commerce News*, 21 April 2004 http://hongkong.usconsulate.gov/uscn/trade/general/doc/2004/042101.htm (accessed 24 August 2004).

2.2.4 Special Safeguards in Other US Bilateral and Regional Trade Agreements

Most bilateral and regional agreements contain provisions for special safeguards. For example, in addition to a generous phase-in period of up to 15 years, the North American Free Trade Agreement (NAFTA) allows members to apply special agricultural safeguard protection on import-sensitive crops. The US-Jordan Free Trade Agreement includes special safeguards that allow scheduled duty reductions to be suspended or even reversed if imports from the other party "constitute a substantial cause of serious injury, or threat thereof" to the competing domestic industry.

2.3 Trade Adjustment Assistance

Several distinct justifications for trade adjustment assistance (TAA) all proceed from the unequal distribution of gains from trade liberalization. Opening to trade generates benefits for the average American that are large in the aggregate but small for most individuals. At the same time, liberalization inflicts significant costs on those whose livelihoods are directed affected by competition from imports. Providing TAA can then be explained in terms of equity, as a means to compensate losers; in terms of efficiency, as a means to reduce adjustment costs by addressing market failures; or in terms of political efficacy, as a means to reduce opposition to trade liberalization (Magee 2001).[18]

[18] Using data on 31,076 petitions for assistance filed between 1975 and 1992, Magee (2001) tests for consistency of these motives with Department of Labor certifications. He finds that lower industry wages and higher industry unemployment are associated with a higher fraction of petitions certified. Both results are consistent with the equity motive, while the second is also consistent also with the efficiency motive since re-employment prospects are worse for displaced workers in an industry with high unemployment. However, evidence that TAA facilitates trade liberalization is inconclusive. In fact, Magee's data show that higher tariff protection of an industry is "strongly associated with an increased probability that workers will be certified" for TAA, suggesting that both types of industry assistance have the same underlying political determinants.

The US TAA program was introduced in 1962 legislation authorizing US participation in the Kennedy Round of multilateral trade negotiations, as a way to obtain needed support from organized labor. The initial program offered benefits for both workers and firms: extended unemployment compensation, retraining, and other benefits for trade-impacted workers; technical assistance, loans, and loan guarantees for trade-impacted firms. However, eligibility requirements were enforced so stringently that not a single worker petition was approved until November 1969. Even when some petitions eventually gained approval, the benefits were so meager and the bureaucratic obstacles to obtaining them so formidable that organized labor soon came to denigrate the program as "burial insurance."

The Trade Act of 1974 revamped the program to ease access to TAA benefits. As in 1962, TAA served as a political quid pro quo needed to gain support from organized labor for legislation authorizing US participation in multilateral trade negotiations (the Tokyo Round). However, the program remained ineffective as a tool for facilitating adjustment despite its soaring budgetary cost.[19] By offering extended unemployment benefits, TAA allowed import-impacted workers to remain out of work longer than workers displaced for other reasons. Workers in industries characterized by a high wage premium (steel, autos) rationally chose to wait to be recalled from layoff rather than seeking work in another industry where wages were almost sure to be lower.[20] The NAFTA Implementation Act of 1993 added NAFTA-Transitional Adjustment Assistance to the TAA program. This special program was aimed at US workers

[19] Annual expenditures reached $1.6 billion by 1980. Political support for the program then waned as it became apparent that a disproportionate share of the funds was going to workers in high-wage industries. Moreover, there was little evidence that the program actually promoted adjustment. The Reagan administration cut funding and benefits in 1981 (Pearson 2004, 88).

[20] Worker displaced from their jobs even temporarily are eligible to receive benefits, and many such workers do return to the same employer. TAA has therefore been criticized for providing a subsidy to employers with cyclical

adversely affected by imports from Mexico or Canada or by a shift by US firms to production in these countries.

Further changes to the TAA program were included in the Trade Act of 2002, which granted "trade promotion authority" to the President and expanded preferential trade arrangements for Andean, Caribbean and Central American, and African countries. The 2002 law integrates NAFTA-TAA into the main TAA program, expands eligibility to additional groups of workers, increases benefits available, and adds a health-insurance tax credit. The program, administered by the US Department of Labor in cooperation with One-Stop Career Centers in every state, was broadened to cover "trade-affected" workers, defined as those who have lost their jobs due to increased imports or shifts in production out of the United States.[21]

Also included for the first time are "adversely affected secondary workers." These are workers at firms affected indirectly by the reduced output or exit of directly trade-impacted firms. The covered workers include those at "upstream" firms supplying components or parts to directly affected firms as well as "downstream" firms that perform "additional, value-added production processes... including final assembly or finishing." However, despite the change in language, the 2002 law still does not extend benefits to one important group of trade-affected workers: those laid off from jobs in export industries experiencing increased competition in foreign markets. Moreover, the program does not cover service workers and thus provides no adjustment assistance to workers affected by the recent trend toward outsourcing in the service sector.

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demand. However, the likelihood that laid-off workers will be certified for TAA benefits may make employers less reluctant to reduce their workforce, thus perhaps promoting adjustment to changing market conditions.

[21] The 2002 law imposes restrictions on eligibility for TAA if a plant moves to a country with which the United States does not have a free trade agreement (Rosen 2004).

The 2002 law also extended coverage to some trade-impacted farmers and fishermen. TAA for farmers and fishermen differs from TAA for manufacturing workers in that assistance is tied to a drop in market price rather than job loss. The program augments the earnings of farmers and fishermen who remain in the trade-impacted sector, i.e., only to those who do not adjust to changing conditions in international markets. TAA payments are based on total production and are equal to one-half the difference between the current market price of the trade-affected good and its average price over a base period. TAA for farmers and fishermen thus has a strong anti-adjustment element.

Apart from TAA for farmers and fishermen, most of the 2002 provisions expand eligibility and ease access to benefits for unemployed workers. However, introduction of Alternative Trade Adjustment Assistance (ATAA) for older workers departs significantly from earlier TAA programs for unemployed workers by tying cash benefits to a speedy return to work. ATAA is aimed at otherwise eligible workers at least 50 years old for whom retraining may not be a suitable choice. For eligible workers who find new employment within 26 weeks of layoff, ATAA covers up to 50 per cent of the full-time salary gap between the old and new job for a two-year period.[22] Although it represents a significant step in the direction of promoting adjustment, ATAA is unlikely to solve the problem raised by displacements from high-wage sectors such as steel and autos. Total payments are limited to $10,000 over two years, and workers earning more than $50,000 in the new job are not covered.

[22] According to Kletzer (2001), two-thirds of workers displaced from import-competing industries who found new employment earned less on the new job; a quarter of those re-employed earned at least 30 per cent less. Kletzer and Litan (2001) propose wage insurance covering all displaced workers, not just those in trade-impacted industries. The narrower coverage in the 2002 law reflects a balance between budgetary and political considerations.

The original TAA program also provided trade-impacted firms with loans, loan guarantees, and technical assistance. Direct financial assistance was eliminated in 1986, partly due to budget cutbacks and high default rates (Pearson 2004). However, TAA for manufacturing firms continues in a modest program of technical assistance (maximum benefit per project is $75,000) administered by the Department of Commerce via a network of regionally dispersed not-for-profit TAA centers. The program pays for half the cost of consultants or industry-specific experts used in projects to improve a firm's competitiveness. In contrast to TAA for workers, eligibility for firm TAA is only loosely tied to trade impact; a firm may be eligible if it experienced sales and employment declines "at least partially due to imports" over the last two years.[23] Each of the three project success stories featured on the Trade Adjustment Assistance for Firms web site involves a small business that increased sales and profits by moving into a new niche within the same industry.

2.4 Antidumping and Countervailing Duties

Safeguards and TAA assist firms and workers adversely affected by imports or, in the case of TAA, the relocation abroad of US plants, regardless of whether the trade impact is associated with "unfair" behavior of foreign competitors. The provisions discussed above mostly tend to offset rather than reinforce the market pressure for resources to leave a sector that experiences declining comparative advantage. However, the statutory limit on the duration of a safeguard and TAA's provisions on retraining, relocation, job search, and wage insurance can be seen as implicit or explicit efforts to promote eventual adjustment.

[23] Trade Adjustment for Firms web site http://www.taacenters.org/index.html (accessed 18 May 2004).

In contrast, antidumping and countervailing duty laws begin from the premise that the pressure to adjust is itself unfair, i.e., that competing goods are being sold in the US market at "less than fair value." Hence, the intent of these laws is to eliminate the need for US firms to adjust. In practice, the frequent use of antidumping by the steel industry in particular suggests that these laws strengthen the ability of industries to postpone adjustment indefinitely. The link of antidumping activity to exchange-rate appreciation and cyclical downswings (Knetter and Prusa 2003, Irwin 2004) may imply their use also as a means to counter reversible declines in profitability. This would have the effect of retaining resources in sectors where the average return would otherwise be inadequate to compensate for the volatility of profits.

In a competitive industry with high fixed costs and substantial volatility in demand, one would expect to see all firms selling at marginal cost and making losses (selling price below full average cost) during business downturns but earning above-average profits during upturns; average profitability over time should be sufficient to compensate for year-to-year volatility. However, this behavior pattern on the part of foreign firms exporting to the United States would trigger dumping complaints. One effect of antidumping is thus to shift more of the adjustment burden in cyclical industries to foreign suppliers.

Notwithstanding the intended role of antidumping as a means of preventing damage to the US economy due to unfair practices of foreign firms, most international economists view the law as offering domestic firms an easy alternative to adjustment. The ease of obtaining protection through this route is attributable in part to a shift in 1980 of the responsibility for determining whether imports were sold at "less than fair value" from the free-trade-oriented Treasury Department to the Department of Commerce. Irwin (2004) shows that Commerce was far more likely to find evidence of dumping, a necessary condition for antidumping action to

protect the domestic industry. A second reason for the relative ease of obtaining sector-specific protection through this route is that Commerce can choose among four calculation methods, including a "facts available" method based on the petitioners' data that accounts for affirmative decisions with an average dumping margin of nearly 96 per cent (Irwin 2002, 115). Moreover, antidumping enforcement appears to target exporting nations that have recently gained competitiveness in the relevant industry, and especially smaller countries lacking the capacity to retaliate in kind (Blonigen and Bown 2003).

Since the intent of antidumping and countervailing duties is to neutralize the impact on domestic firms of "unfair" import pricing, it is not surprising that the US Tariff Act of 1930 makes no explicit mention of adjustment in the import-competing sector. However, the provisions regarding "sunset reviews" implicitly address industry adjustment. Five years after an AD/CVD has been imposed, the Department of Commerce and the International Trade Commission must "conduct a review to determine […] whether revocation of the countervailing or antidumping duty order or termination of the [suspension agreement]… would be likely to lead to continuation or recurrence of dumping or a countervailable subsidy (as the case may be) and of material injury." Thus, if the affected industry does make a successful "adjustment" by becoming competitive and so eliminates risk of future material injury from foreign competition, the industry will lose its protection through the removal of duties. This provision appears to further weaken the already weak incentives for speedy adjustment by offering continued protection only for industries that are still endangered by imports.[24]

[24] This argument applies best in an industry with relatively few firms and restricted entry, so that domestic competition is weak. In section 4 we argue that protection is likely to promote competition among existing firms in an industry with vigorous domestic competition and may also encourage new entry.

2.5 WTO Rules on Subsidies

The WTO limits members' use of subsidies as well as the actions members may take in response to subsidies used by other member countries. Subsidies specifically designed to distort international trade are prohibited.[25] Other subsidies are permitted unless a complaining country can show that it is adversely affected. Subsidies designed to ease adjustment by facilitating movement of productive factors out of a US industry that has lost comparative advantage would thus be permitted as long as they did not (a) hurt a domestic industry in an importing country, (b) hurt exporters in another country trying to compete in the US market, or (c) hurt rival exporters from another country in competition in a third market.

Given the possible grounds for a complaint, subsidies designed to restore the comparative advantage of a declining US industry would run a greater chance of being challenged by another WTO member than subsidies designed to encourage exit. If the WTO Dispute Settlement Body agrees that the US subsidies have adverse effects on another member, the US would have to withdraw its subsidies or otherwise eliminate the adverse effects. In the case of subsidies that hurt domestic producers in country that imports the US-subsidized good, that country could impose a countervailing duty.

3 Import Penetration, Comparative Advantage, and Industry Use of Trade Policies

In Section 2 we have reviewed the main US trade policies that may influence the adjustment of US industries to changing conditions in international markets. As already noted, there is no trade policy specifically intended to promote adjustment, and our review makes it

[25] WTO web site http://www.wto.org/english/docs_e/legal_e/ursum_e.htm (accessed 18 May 2004). The Agreement on Agriculture contains separate and more lenient rules on subsidies to agricultural exports. A "peace clause" permitting continued export subsidies for agricultural products was originally due to expire at the end of 2003.

clear that other policies tend to be adjustment-neutral or even to retard rather than promote adjustment. As a rough measure of the relative importance of these laws in shaping the US adjustment environment, Table 1 shows the frequency with which selected trade laws and programs have been used in recent years. In most cases, the "petitions" number indicates the number of industry-wide requests for US government intervention during the period indicated. However, TAA for displaced workers shows the number of petitions from individual workers, and TAA for firms shows the number of individual firms certified to receive benefits.

From the standpoint of the adjustment environment created by US trade remedies, it is relevant to know whether the workers, firms, and industries that request assistance under the various programs are the ones facing the greatest pressure to adjust to changing conditions in the international market. Are "frequent users" of trade remedies encountering greater pressure from increased imports relative to other US industries? Is their revealed comparative advantage declining relative to other US industries? To address these questions, we refer to Table 2.

Table 2 provides a simple comparison of import-penetration ratios and revealed compared advantage (RCA) of petitioners versus non-petitioners for three of these programs.[26] Consider first the data on the mean and median industry-level import-penetration ratios for petitioning and non-petitioning industries. For each of the three programs in the table (safeguards, TAA, antidumping), we would expect petitioning industries to be associated with higher levels of import penetration than non-petitioners, as well as larger increases in import penetration over the five-year period prior to the petition being filed. With the exception of the change in import penetration ratios for antidumping, that is exactly the qualitative pattern that we

[26] Import penetration ratio is defined as (imports) / (imports + shipments - exports), where all data is at the 4-digit SIC level. For the RCA measure, we follow an approach used by Richardson and Zhang (1999) and define it as [(US exports of industry i)/(US total exports)] / [(World exports of industry i)/(World total exports)], where industry i's data is defined at the 4-digit SITC level.

observe in the first two columns. The second two columns of Table 2 provide data on the industry-level RCA variables. For each of the three programs in the table, we would expect petitioning industries to be associated with lower levels of RCA than non-petitioners, as well as larger decreases over the five-year period prior to the petition being filed. Again, the qualitative pattern of the results, i.e., the means and median of the data for petitioning versus non-petitioning industries, is consistent with that hypothesis.

We conclude from this rough empirical exercise that the industries which face, or should face, adjustment to changing global market conditions are more likely than other industries to seek help under the trade remedies discussed above. Thus, the adjustment environment created by these laws may play a significant role in determining the speed of adjustment and also the cost of adjustment.

4 Trade Remedies and Adjustment

In the this section we consider within-industry developments in three cases of adjustment shaped by US protection: the US auto industry under the voluntary export restraints that limited US imports from Japan, the steel industry under a succession of protective devices, and the textile and apparel industries under the Multifiber Arrangement. All have benefited from import relief under one or more of the laws discussed above. A common feature in the three cases is that protection created a profitable opportunity for new entry into the domestic industry. Although industry decline was slowed, new entry increased pressure on workers and firms already in the industry.

With the exception of TAA, the policies discussed in sections 2 and 3 are intended to offer some degree of protection of the domestic industry from competing imports. Even when

acknowledging costs associated with protection, i.e., higher prices to consumers and downstream industries, proponents of trade remedies justify their use in terms of anticipated favorable effects on domestic output, employment, earnings, and income distribution. There is often the hope that increased profitability may encourage firms in a protected industry to make investments required to adopt new technologies. Yet the actual effects on firms and workers in protected industries are complex, and policies are often ineffective in attaining their stated goals.

Baldwin (1982, 1985) catalogs a number of now-familiar reasons why protection of an industry may cause a smaller reduction in imports and a smaller associated increase in domestic output and employment than anticipated. Country-specific trade remedies such as antidumping measures and countervailing duties encourage diversion of trade to as-yet unrestricted alternative import sources, a response documented for products ranging from textiles and apparel to automobiles.[27] Trade may also be diverted to related products or product forms not covered by the restriction. Consumers faced with higher prices may shift their demand to now-cheaper substitutes. Downstream users can sometimes shift production off-shore to avoid higher domestic prices, as in the case of laptop producers affected by US antidumping duties on flat-panel displays (Irwin 2002, 80). US industrial users of highly protected sugar shifted to alternative sweeteners; under NAFTA some candy manufacturers shifted production to Canada and Mexico. When protected by a quantitative restriction on imports, a domestic supplier with market power may find it profitable to produce less rather than more output and thus may reduce rather than increase employment. When faced with quantitative trade restrictions or specific tariffs in the US market, foreign suppliers often find it profitable to upgrade the quality of their exports, a response documented for Korean footwear as well as Japanese autos.

[27] Dinopoulos and Kreinin (1988) estimate that unrestricted European producers were major beneficiaries of the auto VER; the limit on Japanese sales in the US allowed European exporters to raise their prices by one third.

Even more important in the longer term are induced changes in the structure of the domestic industry. By limiting imports, trade restrictions raise the output price and thus rate of return in the protected industry. With fixed domestic capacity, this would translate into higher output and higher employment for existing firms, slowing down their exit from the industry. But protection may also make new entry (or expansion by existing firms) attractive. One such response is foreign direct investment (FDI) by companies that had previously served the market through exports. Whatever its source, expanded capacity increases competitive pressure within the domestic industry.

4.1 Autos

The VER limiting Japanese auto exports to the United States played a key role in accelerating FDI by Japanese firms during the 1980s. Contradicting the widespread belief that Japanese success relied on country-specific conditions not likely to be replicated in US factories, Japanese "transplants" claimed an increasing share of the domestic market; other foreign companies later followed suit. Struggling to compete, US producers gradually introduced some of the same managerial and technological approaches believed to account for Japanese success. The United Auto Workers were forced to accept contract terms that allowed the traditional "Big Three" American auto producers to compete more effectively with the non-union Japanese-owned assembly plants.

While foreign-controlled US plants likely augmented total domestic auto production and employment compared to a situation in which the same autos were supplied through imports, protection-jumping FDI also brought about significant changes within the industry that are not apparent from aggregate performance measures. The most fundamental change is a continuing

decline in the market share of the Big Three and their unions—protection has helped the domestic industry much more than it has helped the United Auto Workers and the firms that asked for protection.[28] In its last fiscal year, Toyota's earnings were more than the Big Three US companies combined (New York Times, 20 May 2004). The newer plants are mostly far from Detroit, and their workers are not unionized. All US producers now import a larger share of intermediate inputs used in assembling autos. And, as in US manufacturing overall, output per worker has been rising, i.e., industry employment has been falling relative to output.[29]

4.2 Steel

For decades American steel producers have been protected from competing imports by an arsenal of special trade restrictions including voluntary restraint agreements, the trigger-price mechanism, and the recent safeguard tariffs. Iron and steel products accounted for 41 percent of all US anti-dumping duties in effect as of June 2000 (Irwin 2002, 117). As in autos, protection stimulated US direct investment by foreign companies with superior technologies. Much of this investment took the form of mergers and acquisitions involving domestic integrated mills. But in steel, additional new competition in the domestic market came from the growth of non-union mini-mills. With the combined benefits of lower labor costs, lower capital requirements, and higher productivity, mini-mills had captured about 40 percent of US domestic production by

[28] Ironically, the United Auto Workers, then headed by Doug Fraser, favored an auto VER precisely because of the belief that it would stimulate Japanese FDI. However, Fraser also believed that the Japanese advantage could not be duplicated under US production conditions.

[29] Krueger (2004) comments that US protection in autos "simply postponed the restructuring of the industry....This resulted in thousands of jobs lost—the jobs the protection had been intended to save." In fact, protection may actually speed the loss of existing jobs by increasing the profitability of new entry. To the extent that protection induces investment in new capacity or equipment, the net change in employment at the industry level understates the degree of labor-market dislocation and associated adverse effects on communities. In the auto industry, new capacity and new jobs in Japanese transplants were located far from the homes of the workers displaced from Big Three plants.

1994, up from less than 10 percent in the 1960s (Tornell 1997). As in autos, protection could maintain the industry's output level but could not preserve jobs, especially jobs in the integrated mills. Overall, the number of American steel jobs plummeted. Although unions managed to keep wages in the integrated mills rising faster than manufacturing wages overall, non-union mini-mill workers captured an ever-increasing share of the jobs in the industry.

4.3 Textiles and Apparel

Even when FDI is not an important factor, trade remedies may induce substantial changes within the domestic industry. The extent of induced change within a declining but protected sector is well illustrated by the case of textiles and apparel. Textile imports from Japan had already begun to threaten the US industry before World War II. A 1956 VER on Japanese exports of cotton textiles to the US paved the way for entry by other exporter and fibers. Efforts to control trade diversion eventually produced the Multifiber Arrangement, "the single most important barrier to developing country exports of manufactures" (Pearson 2004, 61), which is scheduled for termination by 2005. Yet despite escalating protection at rising cost to domestic consumers,[30] imports continued their inexorable rise. Between 1972 and 1997, the real value of textile imports nearly tripled, while apparel imports soared by a factor of ten (Levinsohn and Petropoulos 2001, Table 1).

Not surprisingly, the number of US plants and industry employment fell over the same period. But even within the context of overall decline, new plants opened at nearly the same rate that established plants closed. From 1987 to 1992, the average gross rate of exit of plants in

[30] Hufbauer and Elliott (1994) estimate the 1990 cost to consumers at $24 billion, or around $1 million per "job saved" in the industries. Yet even this figure may be too low, as the calculation is based on net industry employment. Given the huge rates of gross job loss reported by Levinsohn and Petropoulos (2001), the cost per worker not displaced from current employment would be far higher.

textiles was 31 per cent, while the average gross rate of plant entry was 28 per cent; the corresponding numbers over the same period for apparel were 46 per cent and 49 per cent (Levinsohn and Petropoulos 2001, Table 3). These large gross rates reflect relocation within the United States, as textile producers all but abandoned high-cost locations in New England in favor of southern and border states. Apparel manufacturing likewise shifted from its traditional eastern base in New England and New York to the south, Texas, and California, as immigrants from Europe, once the mainstay of the labor force in the apparel industry, were replaced by immigrants from Asia and Latin America.

Levinsohn and Petropoulos conclude that "in a probabilistic sense, inefficient firms die," i.e., after controlling for size of plant, wages paid, capital stock per worker, and measures of outsourcing, firms with lower productivity are more likely to exit. "Those who worry that the crazy-quilt of protection afforded by the MFA allows inefficient plants to prosper while protecting them from the realities of the world marketplace should find some solace in this result." Yet substantial continuing investment and new hires in these secularly shrinking industries raises other concerns. The "creative destruction" in the protected domestic textile and apparel industries illustrates the pernicious effect of protection for highly competitive industries that are losing comparative advantage. As expected, protection raises prices and profitability in the domestic industries. Higher profitability can promote new investment, thus retarding the pace of adjustment at the industry level. However, the induced increase in competition within the domestic market can actually accelerate the forced exit of current plants and workers—the latter due both to plant closings and to adoption of new capital-intensive and skill-intensive technologies that raise output per worker. Thus, protection intended to offset the adjustment pressure on domestic firms and workers may have exactly the opposite effect.

5 Conclusions

Our purpose in this paper is to highlight the role of US trade policies in facilitating or retarding adjustment to changing conditions in international markets. Given that the main rationale for most trade policy is to afford protection of particular industrial sectors under specific circumstances, it is perhaps not surprising to find that these statutes contain few provisions that are even neutral (i.e., market-friendly) with respect to adjustment, let alone ones likely to facilitate or encourage adjustment. Likewise, given that action under trade laws is usually contingent on evidence of injury that can be linked to imports, it is not surprising to find that the US industries most likely to seek help under these laws are the industries faced with the greatest challenge from international competition, i.e., the ones most in need of adjustment. There is scant evidence that these policies help to facilitate adjustment by correcting market distortions, while in many instances they are the cause of additional market distortions.

Together, these findings underscore a critical gap in US trade laws and procedures. The trade statutes contain no acknowledgement that the most common reason for injury due to import competition is shifting comparative advantage, and no US trade policy is specifically aimed at promoting adjustment to such shifts. Indeed, the federal agencies charged with the responsibility of providing relief to industries facing injury from foreign competition seem to lack any significant accompanying role in promoting adjustment out of these industries.

Moreover, industry-specific protection is likely to induce changes at the firm level that prolong the adjustment process and increase total adjustment costs. By "temporarily" raising the rate of return on invested capital, protection can draw new capital and workers into a secularly shrinking industry. This induced entry adds to the pressure on existing plants and workers while at the same time creating a new set of future "losers" to oppose future

liberalization. Through familiar general-equilibrium linkages, the same process discourages growth of the nation's comparative-advantage sectors. Moreover, by limiting access to the huge American market, US protection inhibits the growth of corresponding industries abroad. Failure to adjust to shifting comparative advantage is thus costly not only to the United States, but also to its current and future trading partners and especially to the developing countries.

The missing US trade policy instrument is one that does nothing but encourage speedy exit from industries that have lost their comparative advantage. Free trade would have exactly this effect, but political considerations make some divergence from "the free-trade policies that would probably best serve the broad public interest" almost inevitable (Mussa 1993, 374). How then to design a politically acceptable policy instrument that will "keep the damage to a minimum" by promoting adjustment to changing conditions rather than discouraging it? And how, in the absence of unfettered trade, to identify appropriate targets for adjustment? This may be a difficult issue to settle generically, but the policy could begin by identifying industries that owe their survival to perennial import relief. Such industries have become increasingly evident, thanks to successive rounds of multilateral liberalization and rapid improvements in communications and transportation.

Finally, although this paper has focused on US trade policy, the problem of sluggish adjustment is hardly unique to the United States; the industrial countries as a group have been slow to adjust to shifting comparative advantage. The Uruguay Round laid ground for future progress on collective adjustment by bringing apparel and textiles and agriculture, all areas of strong comparative advantage for developing countries, into the WTO. Likewise, the Doha Round has centered on the needs of developing countries for increased market access. Yet so far

the WTO has offered little in the way of guidance regarding the necessary companion agenda of adjustment out of the same industries in the industrial countries.

Table 1. US Trade Remedy Laws and Programs Affecting Adjustment: Frequency of Use

	Years of Program Availability	Number of Petitions Initiated
General Trade Remedy Laws and Programs		
Safeguards (Section 201)	1975-	73
Trade Adjustment Assistance (Department of Labor)	1972-	31076 [a]
Antidumping (currently Section 731)	1921-	2170
Countervailing Duties (currently Section 701)	1897-	932
Sector or Country-Specific Trade Remedies		
China Safeguard (Section 421)	2002-	4
China Textile Safeguard (Department of Commerce, OTEXA)	2003-	3
Textile and Clothing Transitional Safeguard (Department of Commerce, OTEXA)	1995-	24 [b]
Agriculture Special Safeguard (US Notifications to the Committee on Agriculture under Article 5 of the WTO's Agreement on Agriculture)	1995-	Hundreds of 10-digit HTS products
Trade Adjustment Assistance for Farmers and Fishermen (Department of Agriculture)	2003-	25
Trade Adjustment Assistance for Firms (Department of Commerce, Economic Development Administration)	1975-	5435 [c]
Services Safeguard (GATS)	Proposed	NA

[a] Data from 1972-1994 from Magee (2001).

[b] Petitions filed against WTO members only, as reported to the WTO Textiles Monitoring Body for the 1995-2001 period.

[c] Firms certified; data for all firms petitioning were not available. Also missing 1979 data (Source: EDA records).

Table 2. Shifting Comparative Advantage and Industry Use of US Trade Remedy Laws and Programs

	Industry Import Penetration Ratio in year *t*	Change in Industry Import Penetration Ratio between *t-5* and *t*	Industry Revealed Comparative Advantage (RCA) Measure in *t*	Change in Industry RCA Measure between *t-5* and *t*
Safeguards (1975-1994)				
Industries petitioning under Section 201 in year *t*	0.189 [0.156]	0.367 [0.329]	1.110 [0.679]	-0.220 [-0.164]
Industries <u>not</u> petitioning under Section 201 in *t-5* through *t*	0.124 [0.072]	0.288 [0.288]	1.596 [0.897]	-0.016 [-0.031]
Trade Adjustment Assistance (1972-1994)				
Industries petitioning under TAA in year *t*	0.158 [0.112]	0.325 [0.313]	1.524 [0.909]	-0.086 [-0.094]
Industries <u>not</u> petitioning under TAA in *t-5* through *t*	0.067 [0.031]	0.264 [0.272]	1.591 [0.836]	0.053 [0.067]
Antidumping (1980-1994)				
Industries petitioning under AD laws in year *t*	0.179 [0.147]	0.280 [0.243]	1.307 [0.848]	-0.083 [-0.102]
Industries <u>not</u> petitioning under AD laws in *t-5* through *t*	0.135 [0.080]	0.306 [0.300]	1.509 [0.824]	-0.050 [-0.083]

Notes:

(1) Table entries are sample means; sample medians are shown in [brackets]. Time *t* indicates year.

(2) Import penetration ratio is defined as (imports)/(imports+shipments-exports), where all data are at the 4-digit SIC level.

(3) RCA is defined as [(US exports of industry *i*)/(US total exports)] / [(World exports of industry *i*)/(World total exports)], where industry *i*'s data is defined at the 4-digit SITC level.

References

Blonigen, Bruce, and Chad P. Bown (2003). "Antidumping and Retaliation Threats," *Journal of International Economics* 60(2): 249-273.

Cline, William R. (2004). *Trade Policy and Global Poverty* (Washington: Institute for International Economics).

Corden, W. Max (1974). *Trade Policy and Economic Welfare* (Oxford: Oxford University Press).

Dinopoulos, Elias, and Mordechai E. Kreinin (1988). "Effects on the U.S.-Japan Auto VER on European Prices and on U.S. Welfare," *Review of Economics and Statistics* 70(3): 484-91.

Durling, James P., and Thomas J. Prusa. (2003). "Using safeguard protection to raise domestic rivals' costs," *Japan and the World Economy*, 15(1): 47-68.

Grier, Jean Heilman (2001). "Section 301 of the 1974 Trade Act." US Department of Commerce. http://www.osec.doc.gov/ogc/occic/301.html (accessed 17 May 2004).

Hoekman, Bernard M. and Michael M. Kostecki (2001). *The Political Economy of the World Trading System: The WTO and Beyond.* (2nd edition) New York: Oxford University Press.

Hufbauer, Gary Clyde, and Kimberly Ann Elliott (1994). *Measuring the Costs of Protection in the United States* (Washington, D.C.: Institute for International Economics).

Irwin, Douglas A. (2002). *Free Trade under Fire* (Princeton: Princeton University Press).

Irwin, Douglas A. (2004). "Explaining the Rise in U.S. Antidumping Activity," Dartmouth College, March 5.

Jackson, John H. (1997). *The World Trading System: Law and Policy of International Economic Relations*, 2nd edition (Cambridge, MA: MIT Press).

Kletzer, Lori G. (2001). *Job Loss from Imports: Measuring the Costs* (Washington, D.C.: Institute for International Economics).

Knetter, Michael M., and Thomas J. Prusa (2003). "Macroeconomic Factors and Antidumping Filings: Evidence from Four Countries," *Journal of International Economics* 61: 1-18.

Krueger, Anne O. (2004). "Willful Ignorance: The Struggle to Convince the Free Trade Skeptics." Address to the Graduate Institute of International Studies, 18 May 2003. http://www.imf.org/external/np/speeches/2004/051804a.htm (accessed 19 August 2004).

Levinsohn, Jim, and Wendy Petropoulos (2001). "Creative Destruction or Just Plain Destruction? The U.S. Textile and Apparel Industries Since 1972." NBER Working Paper 8348.

Magee, Christopher (2001). "Administered protection for workers: an analysis of the trade adjustment assistance program," *Journal of International Economics* 53: 105-125.

Mussa, Michael (1974). "Tariffs and the distribution of income: The importance of factor specificity, substitutability, and intensity in the short and long run," *Journal of Political Economy* 82 (6): 1191-1203.

Mussa, Michael (1978). "Dynamic adjustment in the Heckscher-Ohlin-Samuelson model," *Journal of Political Economy* 86 (5): 775-91.

Mussa, Michael (1982). "Government Policy and the Adjustment Process," in Jagdish N. Bhagwati (ed.), *Import Competition and Response* (Chicago, University of Chicago Press), 73-120.

Mussa, Michael (1993). "Making the Practical Case for Freer Trade," *American Economic Review Papers and Proceedings* 83: 372-376.

Pearson, Charles S. (2004). *United States Trade Policy: A Work in Progress* (John Wiley and Sons).

Rosen, Howard (2004). "Trade Adjustment Assistance and Offshore Sourcing," http://www.newamerica.net/index.cfm?pg=article&pubID=1486 (accessed 9 April 2004).

Richardson, J. David, and Chi Zhang (1999). "Revealing Comparative Advantage: Chaotic or Coherent Patterns Across Time and Sector and US Trading Partner?" NBER Working Paper 7212.

Stolper, Wolfgang F., and Paul A. Samuelson (1941). "Protection and Real Wages," *Review of Economic Studies* 9 (1), November, 58-73.

Tornell, Aaron (1997). "Rational Atrophy: The US Steel Industry. NBER Working Paper 6084.

Wacziarg, Romain, and Karen Horn Welch (2003). "Trade Liberalization and Growth: New Evidence." NBER Working Paper 10152.