

**International Trade in Steel Products: Evidence on  
“Dumping” Versus Competitive Behavior**

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# International Trade in Steel Products: Evidence on “Dumping” Versus Competitive Behavior

William E. James and Craig Parsons

*“Today, the steel industry of the United States is in a trade policy environment unlike any it has experienced in the past three decades. Restructured, modernized, and price and quality competitive, U.S. steel no longer seeks or enjoys industry-specific protection. Anti-Dumping (AD) and Countervailing Duty (CVD) laws have become, for the steel industry, the quid pro quo for free trade. They set the limits on permissible behavior in the marketplace . . .”*

*Douglas A. Brook, LTV Corporation, “Steel: Trade Policy in a Changed Environment,” in Alan V. Deardorff and Robert M. Stern, eds., Constituent Interest and U.S. Trade Policies, Ann Arbor: University of Michigan, 1998: 133.*

## *Abstract*

In the wake of the East Asian financial crisis of 1997-98, demand for steel fell sharply in East and Southeast Asia as economic activity declined. East Asian steel producers responded by increasing shipments to the U.S. where demand was strong with the robust economic growth. The U.S. steel industry, both owners and unions, reacted to the surge in imports with a flurry of antidumping petitions. The steel lobby also organized a political campaign demanding quantitative restrictions on steel imports into the U.S. The U.S. executive branch responded favorably to the antidumping petitions and quickly launched investigations leading to punitive antidumping duties on steel imports from many East Asian, developing and transitional economy steel producers. Steel imports quickly declined and the growth in import penetration in the U.S. market for steel was kept in check. Despite this, the new U.S. administration made good on campaign promises to steel states and initiated the use of safeguards under the GATT escape clause, thus escalating the trade conflict in steel. This chapter examines the economic issues of competitive firm behavior as an alternative explanation of “dumping” and considers the possibility of collusive behavior of steel firms under the antidumping actions. It considers the possible avenues East Asia may explore for resolving the trade dispute and the economic costs associated with U.S. steel protection.

## I. Introduction: Trade Policy Issues in the Iron and Steel Industry

The latest “steel crisis” in the United States culminated in the President’s recent decision to invoke the Escape Clause under Section 201<sup>1</sup> and to impose temporary (3-year) safeguards against imported steel products. The latest “crisis” dates from the surge in imports

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<sup>1</sup> Section 201 of the Trade Act of 1974 known as the “Escape Clause” is rarely used. See Cunningham (1998: 275).

in 1998 that led the industry and unions to mobilize their considerable political muscle in support of protective measures. As in every case since the early 1960s, East Asian producers have figured prominently in the trade conflict in steel. In almost all previous trade disputes over steel imports into the U.S. market, protection has been through selective application of antidumping or countervailing duty measures and “voluntary” restraint agreements.<sup>2</sup>

The imposition of safeguards in 2002 then may be viewed as somewhat of an escalation in the effort to protect the U.S. domestic steel industry.<sup>3</sup> The industry and unions may still be unsatisfied and have pressed unsuccessfully for quantitative import restrictions and for a renewed international negotiation with major steel producing countries around the globe.<sup>4</sup>

#### **A. Steel as a “Sensitive Industry” in the United States: Background**

The steel industry in the United States was developed initially in the late nineteenth century behind protective tariffs. In 1870, it is estimated that U.S. steel production amounted to 100,000 tons or only one-eighth of the combined production of the two largest producers, the United Kingdom and Germany. However, by the turn of the century, U.S. production amounted to 13.6 million tons, exceeding the combined production of the next two largest producers (Germany was number two with the United Kingdom in third position). It is estimated that U.S. steel output accounted for as much as 56 per cent of global steel output by World War I.<sup>5</sup>

The steel industry in the United States during those early years was, in the words of Baldwin, Chen and Nelson (1995: 158), “the archetype of *big business*.” The United States Steel Corporation was founded in 1901 and was the very first billion dollar enterprise in the United States. It controlled over one-half of all steel production capacity. Over the next several decades, the industry remained highly concentrated with technology characterized by large-scale integrated production units initially supplied with coal and iron ore from U.S. domestic sources, but soon reliant to greater or lesser extent (depending on plant location) on

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<sup>2</sup> For a useful summary of the history of steel trade disputes and remedies, see Hufbauer and Goodrich (2001).

<sup>3</sup> The safeguards, however, are not being applied to steel imports from NAFTA members Canada and Mexico and also exempt a large number of developing countries. No major suppliers from East Asia are exempted, although marginal suppliers like Indonesia and the Philippines are exempted.

<sup>4</sup> The Multilateral Steel Agreement (MSA) negotiations were launched in 1989 but ultimately collapsed with no agreement in 1997.

<sup>5</sup> The figures cited in this paragraph are from Ashworth (1987).

imported ore. Among the key inputs into steel production is bauxite upon which the industry is nearly completely import dependent (Frank, 1999).

The high concentration and pricing behavior of the industry made it a likely candidate for anti-trust action. Price fixing was a blatant feature of the industry in the early years of the twentieth century (Burnham, 1981). However, no anti-trust action was ever successfully mounted against the industry in the inter-war period.

Price leadership by U.S. Steel continued to characterize the industry in the post-war decades and led to several congressional investigations and ultimately, a show-down over pricing with President John F. Kennedy in 1962. The initial inefficacy of the steel industry in obtaining protection under the terms of the Anti-Dumping Act of 1921 in 1963 may, in part, have been due to the strained relationship between the industry and the administration at the time.<sup>6</sup>

The relationship between big steel, labor and the government underwent substantial change during these years.<sup>7</sup> Unionization of the work force in the large scale integrated mills was complete and wage levels were amongst the highest in any industry. Wage disputes with organized labor led to a prolonged strike in 1959 and this opened the way for foreign producers to gain market share. In order to avoid such episodes in future, the U.S. steel industry “institutionalized” an accord with organized labor. However, this accord came at the very time that foreign competitors with the latest steel technology and newest mills were expanding production and also at a time of structural change in the U.S. economy that would lead to slower growth in demand for steel, as the overall steel content of GDP began to fall. Even prior to the 1959 strike and the 1963 antidumping petition, European and Japanese producers were beginning to expand market share in the United States (Balwin, Chen and Nelson, 1995: 160).

This led the industry, both labor and capital, to begin to organize themselves politically in order to improve relationships with Congress and the executive branch in order to obtain protection from foreign competitors. Before examining the political economy of steel protection in recent decades in the United States, the development of the upstarts in East Asia is briefly considered.

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<sup>6</sup> Another reason may have been that with the Treasury Department in the lead on antidumping decisions, there was some reluctance to introduce definitive measures (Hufbauer, 1999).

<sup>7</sup> For discussion see Baldwin, Chen and Nelson (1995).

## **B. The Rise of the Steel Industry in Japan and East Asia**

Japan, at first glimpse, seems among the least likely of countries to have prospects for development of an internationally competitive iron and steel industry. With very limited coal deposits, no iron ore, no bauxite, high dependence on imported energy and little experience with industrial technology prior to the late nineteenth century following the Meiji Restoration, it would come as a surprise to an observer in 1950 that Japan would emerge as a leading producer on the technological frontier in steel production in two short decades. Similar observations could be made for Taiwan and, perhaps to a lesser extent, Korea.<sup>8</sup> Ashworth (1987:32) cites Japan as one of the rising steel producers with production capacity by 1970 exceeding 10 million tons. By 1975, steel production in Japan is reported to have reached 102 million tons, third in the world behind the Soviet Union and the United States. Production capacity in Japan caught up rapidly with that of the United States and soon surpassed that of all other countries.

Japan as a matter of national industrial policy had identified the iron and steel industry as a key strategic sector for development of the national economy. Japan was able to overcome its weaknesses in domestic raw materials through development of deepwater ports capable of servicing new large-scale bulk carriers of iron ore and coal from Australia and other suppliers. By building new, technologically up-to-date steel mills adjacent to these ports, Japan fulfilled two objectives: expanded output of steel as a critical domestic industrial input and efficient and inexpensive export capabilities in steel taking advantage of economies of scale and low transportation costs. Japan's steel producers were encouraged to expand capacity and modernize with the government providing infrastructure, power and low-cost capital for expansion. The industry was granted infant tariff protection initially, although tariffs were eventually reduced to low levels of less than five per cent. The Ministry of International Trade and Industry (MITI) forged the merger in the early 1970s of two large steel companies, Fuji and Yawata, creating Nippon Steel, then the largest producer in the world (Okimoto, 1989: 25).

Investment in new capacity during 1950-1975 must have been on a staggering scale in Japan, as by 1975 it had attained the capacity to produce up to 140 million tons per annum compared with domestic consumption of around 70 million tons. This meant Japan already

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<sup>8</sup> Wade (1990: 319) points out that Korea's state-run Pohang Iron and Steel Company (POSCO) was declared to be the most efficient steel producer in the world by the World Bank in 1987 and POSCO even provided technical assistance to steel producers in the United States.

had a very substantial export capability. By 1980, Japanese actual annual steel production (111 million tons) exceeded U.S. production (101 million tons) and would continue to exceed 100 million tons while U.S. production contracted to just 80 million tons over the next decade to 1990.<sup>9</sup>

Korea and Taiwan, like Japan, attached special economic significance to the development of the steel industry. In Taiwan, China Steel Corporation (CSC) was founded as a state enterprise in 1971 and began production in 1974.<sup>10</sup> Although it enjoyed a near monopoly in the domestic market, exports were essential for it to achieve economies of scale. CSC became an efficient and profitable producer, making Taiwan a major steel exporter.<sup>11</sup> In Korea private conglomerates or *chaebol* were encouraged to enter the industry and expand capacity in the heavy industrialization drive that began in 1973. Pohang Iron and Steel Company (POSCO) was established during this period as a state enterprise with access to credit on favorable terms. Again, these large scale integrated steel mills were built using the most up to date equipment and technology in contrast to the U.S. industry which had expanded capacity in the 1950s prior to the development of continuous casting and the basic oxygen furnace. These developments made it possible for the newcomers to displace U.S. exports in third markets but also to compete effectively in the U.S. market itself.

Korea, for example, was in 1975 a marginal producer of just 2 million tons of crude steel per annum. However, by 1980 production had increased more than four-fold to 8.6 million tons and by 1990 had increased nearly three-fold again to 23 million tons, larger than France and the United Kingdom. At the same time Korean domestic consumption of steel was 3 million tons in 1975, 6 million tons in 1980 and 18 million tons in 1990 allowing it to shift from being a net importer to being a significant exporter.<sup>12</sup> POSCO became the flagship of the Korean steel industry. The Koreans soon emerged as the second largest exporter of steel after Japan. Faced with the rapidly growing, more efficient production in East Asia, the integrated sector of the U.S. steel industry was under pressure from rising import penetration.

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<sup>9</sup> Crude steel production figures are from World Resources Institute (1992: 321).

<sup>10</sup> Wade (1990: 99) states production came on line in 1974, Baldwin, Chen and Nelson (1995: 171) date the first production from 1975.

<sup>11</sup> Wade (1990: 100) supports the view that CSC had a virtual monopoly in the domestic market. Minimills producing specialty steel of high quality have had a presence in Taiwan, but were reliant on basic steel input from CSC. CSC was able to strictly control imports of steel and even the state-owned shipbuilding enterprise was unable to circumvent CSC in order to obtain cheaper imported steel (Wade 1990: 131).

<sup>12</sup> World Resources Institute (1992: 131).

The response was to seek trade remedies in order to fend off the foreign challenge in the U.S. domestic market.

### **C. Trade Protection and Structural Change in the U.S. Steel Industry<sup>13</sup>**

By the latter half of the 1960s, Japanese steel was making substantial inroads in the U.S. market and in 1968 such imports rose to a volume of 7.5 million tons, prompting the U.S. industry to demand passage of quantitative limits on steel imports. The Johnson Administration responded by negotiating “voluntary restraint agreements” (VRAs) that limited Japan to a volume of 5.8 million tons per year with 5 per cent annual expansion in the quota limit for a three-year period. The business cycle downturn that began in 1969 and continued into 1970 in the United States, however, substantially reduced demand and imports from Japan fell to less than 20 per cent of the quota.<sup>14</sup> The economic recovery in 1971 led to a renewed surge in steel imports and Japanese exporters not only filled their quota, but made use of the allowance in the VRA to carry forward the unused quota from the previous two years. This led the Nixon Administration to negotiate a three-year extension of the VRAs under tighter restrictions. However, when these lapsed in 1974, there was an even greater surge in imports and in 1975, a recession year, domestic production fell while imports rose by 60 per cent. This prompted the industry and unions to mount an all-out campaign for relief from import competition characterized by the filing of antidumping petitions and a campaign against “unfair” trade aimed at winning the support of Congress and the public at large.

The integrated steel producers in the United States were not only under pressure from imports but were also experiencing new domestic challengers for market share in the form of minimills that made use of electric furnaces and continuous casting. The latter technology cut costs by eliminating several steps in the production process. Furthermore, the minimill sector made use of non-union labor and expanded production in regions outside of those that were served by the integrated mills. Minimill production, in addition to low-cost imports from East Asia and Europe provided efficient alternatives to the production of the integrated but

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<sup>13</sup> Baldwin, Chen and Nelson (1995) provide an excellent discussion of the adjustment of the U.S. steel industry in response to changes in labor-management relations, technological change, and increasing import competition during recent decades. Hufbauer and Goodrich (2001) provide a succinct summary of the protective measures taken over the course of three decades leading up to the Section 201 safeguards of 2002 and also comment on recent trends in productivity and U.S. steel demand. Brook (1998) provides an interesting discussion of the political economy issues involved in U.S. steel trade disputes. These sources provide references to the broader literature on the U.S. steel industry.

<sup>14</sup> See Baldwin, Chen and Nelson (1995: 165).

antiquated large scale U.S. producers. Hence, structural change and improvements in productivity clearly had become essential for the survival of the large-scale integrated sector.

The trigger price mechanism (TPM) was the latest innovation in the effort to accommodate the steel lobby without alienating important U.S. allies such as Japan. In the latter 1970s, the steel industry filed antidumping petitions so numerous that they threatened to overwhelm the capacity of the Carter Administration's trade authorities. In addition, the steel industry was successful in establishing the Congressional Steel Caucus with over 150 members from the house and senate. Opposition to steel imports was also mobilized through "buy America" campaigns.<sup>15</sup> The efforts to restrict imports of Japanese steel against a backdrop of large Japanese current account surpluses and mounting U.S. current account deficits threatened to result in outright quantitative restrictions.

Import penetration, plant closures and layoffs led to increased protection in the form of "fast-track" antidumping measures through the trigger price mechanism and to successive rounds of export restraint agreements (Brock, 1998: 137). The idea of the trigger price mechanism was to establish a reference price based on the constructed value of the most efficient producers of the products in question. Any imports priced below the reference price were considered to be "dumped" and fast-track antidumping investigations would be immediately launched, with duties rapidly assigned equal to the calculated margin of dumping.

Japanese steel exporters were prepared to accommodate the United States and were even willing to consider "orderly marketing arrangements" for steel along the lines of the Multi-Fiber Arrangement (MFA) that governed market access in textiles and apparel. The TPM succeeded in reducing imports' share in U.S. apparent consumption, and in raising domestic steel prices, capacity utilization and profit. These gains, however, were short-lived. By 1980, a new round of industry antidumping petitions (this time directed against European producers) scuttled the first TPM and led the Carter Administration to hike the new TPM by 12 per cent and to alter the rules regarding the conversion factor in determining prices and dumping margins. Even this failed to satisfy the industry and a new round of antidumping petitions and countervailing duty cases resulted in 1982. The new Reagan Administration

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<sup>15</sup> Frank (1999: 221) points out that the "Buy American" campaign gained momentum after 1967, especially between 1978 and 1981, and that in 1990 35 states had Buy American laws. The steel industry was behind this effort. For example, in 1981 18 states passed such laws and 8 of these mandated only the purchase of U.S.-produced steel.



undertook negotiations that resulted in VRAs involving the Japanese and European producers that would regulate imports until 1992.

While these VRAs were formally enforced over Japanese and European producers, the United States brought “informal” pressure to join the VRAs on upstart producer/exporters from Taiwan—CSC, and Korea—POSCO, beginning in 1986. It appears that CSC complied as exports were reported to have doubled from 1985 to 1986 only to be cut back to 1985 levels in 1987 (Baldwin, Chen and Nelson, 1995: 171). These informal VRAs were augmented by antidumping and countervailing cases from time to time in both the 1980s and 1990s. During the two decades, dramatic improvements in productivity were realized in the U.S. steel industry that brought output per man-year worked more or less into line with that of Japan. Obsolete plants were closed and employment in the integrated steel mills was cut drastically.

Hufbauer and Wada (1999) provide some data on longer-term trends in the industry: employment which totaled 521,000 in 1974 fell to 163,000 in 1997 (just before the present steel crisis began) and fell further to 142,000 in 2001; the share of production provided by the dynamic minimill sector doubled between 1975 and 2000, reaching 45 per cent of total steel output in the United States.<sup>16</sup> Hufbauer and Goodrich (2001) report that output per man-year increased by 50 per cent in the decade of the 1990s from 400 tons to 600 tons. Lindsay, Griswold and Lukas (1999) report that total production of steel in the United States rose from a low of 61.6 million tons in 1982 (when the VRAs were introduced) to 89 million tons in 1993 and further to a peak value of 105.9 million tons in 1997 just before the recent crisis broke out.

Import penetration in the U.S. iron and steel market (ISIC 371) rose from 13.6 per cent in 1988 to 15.7 per cent in 1994 but fell back to 14.0 per cent in 1997 (James and Movshuk, 2001). A statistical test indicates there is no significant trend in world import penetration in the U.S. apparent consumption of iron and steel between 1988 and 1997, but there is a negative and significant trend in import penetration from Japan in apparent consumption of steel over the same time period.<sup>17</sup> Imports from Japan, Korea and Taiwan together were only 4.2 per cent of U.S. apparent consumption in 1988 and fell to just 2.2 per

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<sup>16</sup> Hufbauer and Wada (1999) report that a ton of hot-rolled steel can be produced at a cost of \$315 by a minimill compared with \$350 in an integrated mill. With the growth of the efficient minimill sector and productivity gains in the integrated mills the manhours required to produce a ton of steel declined from nine to four between 1980 and 1998 (Lindsay, Griswold and Lukas, 1999: 7).

<sup>17</sup> James and Movshuk (2001) provide the estimates of import penetration and tests for significance of trend.

cent in 1997, the year before the present “crisis” commenced. These shares must have increased in 1998 with a dramatic increase in U.S. import volume from Japan of over 4 million tons, from Korea of 1.8 million tons and from Taiwan of 300,000 tons in 1998 compared with 1997.<sup>18</sup> However, in 1999 import levels fell back nearly as dramatically as they had risen: by 3.5 million tons in the case of Japan and by 400,000 tons in the case of Korea. The volume of imports from Taiwan continued to rise but accounted for only 2.7 per cent of total imports.

The United States reduced the volume of its steel imports from Russia by over 4 million tons in 1999 compared with 1998. The reason for the sharp decline in imports is not immediately decipherable as numerous antidumping petitions were filed in these two years, a steel quota bill was passed by the house but was narrowly defeated in the Senate and the administration negotiated a voluntary restraint agreement with Russia. Even though U.S. steel imports rebounded in 2000, they remained well below the volume reached in 1998 and in 2001 imports fell by over 5 million tons in the first half of the year compared with the same period in 2000.

Despite this, the pressure on the administration and Congress to increase protection mounted with mill closures, bankruptcy filings and layoffs of thousands of steel workers. Although the preferred solution of the integrated steel industry of introducing strict quotas on imports and negotiating a global agreement to end subsidies and reduce excess capacity has not been realized, it is significant that Section 201 of the Trade Act of 1974 has been used and that safeguards have been put in place for a three-year period from 2002 through 2004. The use of safeguards indicates an escalation of the efforts of the U.S. government to restrict steel imports compared with more selective protection through antidumping.

#### **D. Policy Issues to Consider in Recent Steel Trade Disputes**

Under the General Agreement on Tariffs and Trade (GATT), a Safeguard Provision (popularly known as the Escape Clause) was introduced in Article XIX based upon a similar clause found in the 1943 Reciprocal Trade Agreement that the United States negotiated with Mexico.<sup>19</sup> The insertion of an Escape Clause into the GATT was intended by the U.S.

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<sup>18</sup> These data are from the homepage of the USITC: <http://dataweb.usitc.gov/>.

<sup>19</sup> Trebilcock and Howse (1999: 227); they provide a detailed discussion of the controversies surrounding Article XIX.

executive branch to allay fears in Congress regarding the GATT trade liberalization.<sup>20</sup> Countries employing safeguards may select to use either tariffs (article 5) or quotas (article 9) and in the former case the tariffs shall apply to all sources of imports, while in the latter the quota allocation is determined by the share of each exporter in a previous representative period. All that is required of a contracting party to invoke safeguards was to show that imports were increasing either absolutely or relative to domestic demand or consumption and that this increase had been unexpected or unforeseen. The injury test was terribly vague and, in any case, no proof of causation running from increasing imports to injury or threat of injury was required.

Proponents of the safeguard escape clause have argued that it is useful as a safety valve and leads otherwise hesitant countries to offer lower and more tariff bindings than otherwise. Furthermore, the presumption that safeguards require the country invoking the escape clause to provide compensation to the exporting countries limits the spurious use of Article XIX.<sup>21</sup>

The compensation requirement and the issues surrounding the right to use safeguards selectively had led to some controversy within the GATT regime,<sup>22</sup> but these issues were largely settled with the Uruguay Round Safeguards Agreement. First, the compensation principle is retained. However, if the safeguards are withdrawn within a three-year period, the right of exporters to compensation is withheld. The Uruguay Round Safeguards Agreement (URSA) also compromised on the issue of selectivity, allowing some relaxation of the principle of non-discrimination so that developing countries are excluded from the safeguard as long as they are minor exporters (under 3 per cent of import share). The URSA also made “grey area measures” (voluntary restraint agreements) illegal and all such existing measures had to be ended before the end of 1999 (among contracting parties). The other improvements introduced by the URSA include putting strict time limits on safeguards (maximum of 4 years with possible extension in the case of serious injury for an additional 4 years), improvement

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<sup>20</sup> Article XIX is not the only escape clause in the GATT. Articles XII and XVIII (b) allow developing countries to restrict or control imports for reasons of balance-of-payments problems.

<sup>21</sup> Compensation, while limiting the inappropriate use of Article XIX, may also reduce the chance that it will be used at all. Hence, it is unsurprising that antidumping, countervailing duties and export restraint agreements have been more popular. The latter methods also provide for selectivity in application of the protective measure.

<sup>22</sup> When Japan acceded to the GATT in 1955, some contracting parties wished to invoke selective safeguards only against “injurious” exports from Japan rather than to put in place generally protective measures (Trebilcock and Howse, 1999: 234).

in the definition of injury (evidence of lost sales, employment, profit, plant closures, etc.), and improved requirements for notification and surveillance of the safeguard measures.

The decision of the U.S. administration to use the escape clause in 2002 to protect the domestic steel industry needs to be explained and analyzed in some detail. The use of selective measures under Title VII (antidumping–AD & countervailing duties–CVD) has not succeeded in preventing plant closures and layoffs. These types of measures harass exporters and were more successful when they led to export restraints (as discussed above). However, under the Uruguay Round Agreement grey area measures had to be phased out among contracting parties by year end 1999 and can only be used against non-member states.

Following the surge in steel imports in the United States that took place in the wake of the Asian financial meltdown of 1997, there was intensified pressure brought to bear by the steel industry lobby for greater protection than allowed under current U.S. trade laws. The industry wished to invoke strict quantitative restrictions in the form of import quotas (along lines of the MFA which had long protected the U.S. textile industry). The Visclosky bill which would have imposed quotas on steel imports passed the House of Representatives by 289-141 in March 1999 and was strongly opposed by Clinton Administration trade officials who argued it could lead to a trade war. Ironically, as this bill was moving ahead, steel imports had already begun to recede and steel prices to rise. As an alternative, Charlene Barshefsky called for a strengthening of current U.S. trade laws, particularly Section 201. In the end, the Senate defeated the quota bill but moved to strengthen U.S. trade laws.

The protective effect of antidumping was increased after the Clinton Administration signed into law the amendment that Senator Robert Byrd of West Virginia (a steel state) championed. This change in the law transfers antidumping duty receipts from the Treasury to the complainant industry (which could lead to transfers to industry of up to \$200 million per year). Hence, the industry not only derives rent from the tariff protection but also from the tariff collection. The change in U.S. antidumping law was immediately challenged in the WTO by the EU, Japan and Korea.

One of the key points in analysis of the new Bush Administration's choice to use Section 201 is the fact that West Virginia, Ohio and Pennsylvania swung away from the Democrats and Al Gore in 2000 after Clinton threatened to veto the Visclosky Steel Quota Bill late in 1999. During his campaign, candidate Bush had promised to protect steel producers and workers in these three states and in 2002 the congressional seats in these states

were up for grabs in the mid-term election. Safeguards had been discussed as an alternative to antidumping as a remedy for the problem in several influential circles. For example, the Federal Reserve Bank of New York published an article in its *Current Issues in Economics and Finance* in August 1998 that argued for safeguards over antidumping measures (Klitgaard and Schiele, 1998). Charlene Barshefsky is quoted in the financial press (*The Daily Yomiuri*, March 25, 1999: 16):

“The steel crisis has demonstrated that there is room for improvement in our trade laws, and particularly to Section 201, to ensure that they deliver strong, effective relief in an expeditious manner.”

In addition to the focus on Section 201, a major effort was made to achieve an export restraint agreement with Russia. A preliminary agreement to fix minimum prices and to cap exports was reached in early 1999 but was objected to by industry leaders and by key senators such as Jay Rockefeller of West Virginia. However, in July of 1999, a last minute deal was reached that limits Russia to exports of \$600 million of hot-rolled steel and the same amount for cold-rolled steel through 2003.

Meanwhile in the WTO, the United States suffered several setbacks in panel rulings pertaining to antidumping measures: in 2000 there was a WTO finding that the U.S. antidumping law of 1916 contained provisions for penalties (including fines and imprisonment of foreign producers found to be selling at prices below market value) that were illegal under the global trade rules. In 2001, a WTO panel ruled against U.S. antidumping duties on steel imports from Japan ruling that the U.S. Department of Commerce wrongly refused to consider information provided by Japanese steel producers. The Byrd amendment to U.S. antidumping law is also currently under challenge. Under these circumstances and faced with mounting layoffs and plant closures during a year of congressional elections, it can be understood why the administration decided to invoke Section 201 and impose more general rather than highly selective duties on steel imports.

We next consider the level of duties and the exclusions, including the exemption of steel products from NAFTA partners in evaluating the likely impact on East Asian producers and markets. The decision was to impose duties for a three-year period on ten types of steel products. In making this decision, the United States has to reduce the level of tariffs progressively each year. For the following items, tariffs of 30% in 2002, 24% in 2003 and 18% in 2004 will be imposed: certain flat products, including slabs and finished flat products

(plate, hot-rolled sheet, cold-rolled sheet and coated sheet)<sup>23</sup>; hot-rolled bar; cold-finished bar; and tin mill products. For the following items, tariffs of 15% in 2002, 12% in 2003 and 9% in 2004 will be imposed: rebar; certain welded tubular products; stainless steel bar; and stainless steel rod. Tariffs of 13% in 2002, 10% in 2003 and 7% in 2004 will be imposed on carbon and alloy fittings and flanges. Finally, tariffs of 8% in 2002, 7% in 2003 and 6% in 2004 will be imposed on stainless steel wire. These products account for roughly 80 per cent of U.S. steel production (Associated Press, October 24, 2001).

Most developing and transitional countries are on the exclusion list.<sup>24</sup> However, China, Korea, Taiwan, and Malaysia are included in the safeguard action as are all developed countries outside of NAFTA. NAFTA members are excluded, despite their relative importance in U.S. steel imports. For certain products, some developing and transitional countries are included: for slabs and flat products, Brazil; for carbon flanges, India, Thailand and Romania; for rebar, Moldova, Turkey and Venezuela; and for welded pipe, Thailand.

The impact of the U.S. safeguards on world trade and prices in steel will likely be to cause significantly larger flows of lower priced steel to be shipped to markets with low protection such as in Japan and East Asia. In the year 2000, ten countries shipped at least one million tons of steel to the United States. Two of those: Canada with 5.17 million tons and Mexico with 3.18 million tons are among the top three suppliers. Their exclusion will certainly cushion the impact of the safeguards on international trade in steel outside North America. All the other big suppliers with the exception of Brazil to the United States are, however, included in the Section 201 for all relevant products. They are: Korea—2.9 million tons (year 2000 shipments to the United States); Japan—2 million tons; Germany—1.9 million tons; China 1.7 million tons; Russia—1.5 million tons; Taiwan—1.3 million tons; and Ukraine—1.2 million tons. Other major Asian suppliers into the U.S. market are India—1 million tons; Thailand—0.5 million tons; and Indonesia 0.3 million tons. In these cases, except for the products mentioned above, the safeguards do not apply. However, in recent years there have been rather large increments in shipments into the U.S. market and these have led the United States to impose antidumping measures.<sup>25</sup> It will be difficult to foretell

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<sup>23</sup> Slabs are regulated by a tariff-quota, with tariffs on over-quota shipments. The quota limit is also increased each year from 5.4 million tons in 2002 to 5.9 million tons in 2003 and 6.4 million tons in 2004.

<sup>24</sup> The U.S. exclusion list is based upon a list of GSP—Generalized System of Preferences beneficiary countries.

<sup>25</sup> For example, in 2001 the U.S. Department of Commerce requested an antidumping duty of 47.86% on hot-rolled carbon steel produced by PT Krakatau Steel, an Indonesian state-owned enterprise and, on top of the

precisely how much steel will be diverted to East Asia by the U.S. safeguard and at what prices.

Much will depend on the response of the European Union to the safeguard. It is unlikely the European Union will stand by as the market of first resort for the increased volume of steel released from the U.S. market. The European Union itself collectively shipped nearly 14 million tons of steel to the United States with a value (using 2000 as a representative year) of over \$4.5 billion, much of which will be adversely affected by the safeguards. Furthermore, if the European Union raises tariffs on steel in its own market in order to prevent the excess from the U.S. 201 action flowing in, then East Asian steel markets will come under pressure.

Some simple arithmetic allows us to shed some light on the implications of the safeguards for East Asian steel markets and producers. Canada and Mexico account for over 8 million tons of shipments to the United States (using 2000 as a representative year). Their exclusion from the safeguard has the effect of preventing that much more steel from entering the international market, but also provides Canadian and Mexican producers an opportunity to expand their market share in the United States at the expense of large East Asian producers and those in the European Union. The other major suppliers that are not excluded, including the European Union, South Africa and Australia, account for around 20 million tons out of a world total of 36 million tons shipped to the U.S. market (again using 2000 as a representative year). In value terms the leading suppliers affected by the Section 201 case shipped \$9 billion worth of steel in 2000 compared with total U.S. steel imports of \$17 billion (Canada and Mexico accounted for \$4 billion). In volume terms over 55 per cent of shipments to the United States may be affected (in value terms about 53 per cent may be so affected).

The obvious point is that U.S. steel protectionism has global implications and East Asian steel producers will almost certainly face lower margins, greater import competition and related pressures to restructure or retrench, including closures of marginal producers and layoffs. Fortunately, the United States is relying on price-based protection rather than quantitative restrictions so that the global steel glut resulting from U.S. Section 201 will force out the marginal producers first.

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antidumping duty imposed a countervailing duty of 10.21%. The International Trade Commission (ITC) ruled in favor of the petitioners (finding the “dumped” steel to have caused injury) but reduced the antidumping duty.

The response to the U.S. safeguards of the European Union will be watched with great interest by East Asian steel producers and their employees. Our conjecture is that the European Union will raise its own barriers to avert an in-flow of steel imports, thereby shifting the burden of adjustment elsewhere. (See the next section for a discussion of the impact of U.S. antidumping measures on East Asian exporters in the wake of the 1997 Asian financial crisis.) East Asian governments will no doubt be confronted with some difficult decisions as a result. The strategic objective of the U.S. safeguards may be to force the major players in global steel production and trade to reconsider their position regarding a multilateral steel agreement. The prospects for such an agreement, however, are not very good and the outcome of the U.S. decision to protect its integrated steel sector could have unintended consequences for global trade.

East Asian policymakers have several choices to make in response to the Section 201 safeguards. First, they may choose not to respond immediately, but to wait and see what impact there is on their own producers and consumers. Consumer countries like Singapore and Hong Kong can enjoy discounted supplies of imported steel. Second, they may choose to retaliate against the U.S. action. This is the likely course for major producer-exporter countries. The method of retaliation will then have to be chosen. One possibility is to challenge the 201 Safeguards in the WTO (the European Union is likely to pursue this as part of its overall strategy). Another is to threaten to impose restrictions of equal value to the losses of exports in the U.S. steel market, though doing so is not an automatic option under the URSA (unless the United States extends the 201 safeguards beyond the presently contemplated three-year period). A third option is to raise protective barriers in the steel sector (depending on tariff bindings if MFN tariffs are to be raised) but also through antidumping or countervailing duty measures. A fourth option is to choose to cooperate and to work towards a renewed negotiation for a Multilateral Steel Agreement (MSA). There are a number of major issues that would need consideration in launching such a negotiation. For one, would it be undertaken under the WTO umbrella or outside of it? If inside the WTO, how would the interests of major non-member producers such as Russia and Ukraine be accommodated? If outside the WTO, would the agreement focus on reducing excess capacity or upon trade remedies along lines of the defunct multi-fibre agreement (MFA)?

These options are not exclusive and the choices made will depend crucially on each country's particular circumstances. The invocation of safeguards adds another layer of



protection to existing protection through MFN tariffs, antidumping measures and countervailing duties and export restraint agreements. It raises the bar further for emerging market steel producers such as Ukraine and Kazakhstan. The U.S. safeguard action is strictly time delimited but this is not true for antidumping measures, despite the “sunset review” required by the WTO after antidumping duties have been in place for five years.<sup>26</sup> In fact, as of July 2002, over 75 per cent of steel product antidumping measures placed under sunset review resulted in affirmative decisions to keep antidumping measures in place.<sup>27</sup>

Hence, even after the safeguards are lifted, antidumping measures dating from the outbreak of the latest crisis from 1998-2001 will be in place to protect U.S. integrated steel in many products for most sources of imports. How valid the findings of these antidumping rulings are in the case of Japan and other East Asian countries is the subject of the following sections of the chapter. Empirical analysis of trade, consumption and production as well as movements in relative prices is conducted with this question in mind.

## **II. Trade in Iron and Steel: Import Surges**

This section examines certain patterns of world steel trade, with a focus on U.S. imports and East Asian exports to the United States. We also examine the diversionary impact U.S. AD duties have had, especially those initiated in the wake of the 1997 Asian financial crisis.

Claims of dumping in the U.S. steel market by the steel industry against imports are far from new and are viewed by many largely as a purely protectionist move, as noted in the previous section. Furthermore, the evidence in favor of truly strategic dumping on the part of U.S. trading partners is often “economically unjustified” (Prusa, 1999), and more likely results from extreme exchange rate changes, and excessive capacity due to locally and regionally depressed demand conditions. However, one can still often find clear evidence of dramatic surges in certain steel products that ultimately elicit antidumping claims. Thus, to the casual observer the AD actions may seem valid. A look at Table 1 gives us some idea of this. The shaded rows depict rapid increases in exports to the United States, particularly on or around the time of the Asian financial crisis. In the case of Japan, Korea, and Taiwan exports

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<sup>26</sup> The Sunset Review process under U.S. law is rigged so that the presumption is that dumping will recur and, hence, it is likely most definitive measures will be kept in place indefinitely (Moore, 1999).

<sup>27</sup> Data are from the USITC homepage: (<http://usitc.gov>).

to the United States more than doubled, a year-on-year increase of over 100%. Russia and India have also doubled exports (though this trend seems to have begun prior to the crisis) and continued to see rapid growth until being slapped by U.S. antidumping suits coupled with the U.S. slowdown in 2001.

Other large exporters to the United States such as Canada, Brazil, Mexico, France, et al. seemed to have kept levels fairly flat. Interestingly, China also seems to have shown some restraint in exports to the United States during 1998, though imports from China nearly tripled between 1997 and 2000.

#### **A. Shifting Excess Capacity during the Asian Financial Crisis**

We can tell a more focused story of how the Asian financial crisis likely led Japan and others to “dump” steel on the U.S. market if we look at Table 2. As we can see, Japanese exports of hot and cold-rolled steel to the United States rose dramatically from 1997 to 1998. (We focus on hot and cold rolled steel here, as it is a large category, accounting for about 20% of U.S. iron and steel imports in 2000, and is the target of the most recent high profile antidumping suits levied against exporters to the United States.) Then, in 1999 and 2000, the per cent of Japanese exports of rolled steel to the United States dropped to virtually nil.

It should come as no surprise that the United States filed antidumping suits against Japan in October 1998 (for hot-rolled) and June 1999 (for cold-rolled). One can clearly see the effects in Table 2 where there is a sharp drop in imports from Japan at that time. The United States continues to levy AD duties of up to 30% against Japanese and other imports. (See section III for a more detailed discussion of recent AD actions.)

The data are also clearly consistent with the story presented earlier in the chapter that as demand in Asia collapsed Japanese (and other Asian) producers sought other markets for their surplus steel. America, with relatively strong growth, was one such market. (See Table 3 for GDP growth rates of the United States, Japan and Europe during the late 1990s.) Looking at the columns for the U.S. and the NIEs in Table 2, we see that in 1997 NIEs represented approximately 44% of Japanese exports of rolled (hot or cold) steel, while the U.S. share was not quite 11%. In 1998, the situation changed dramatically with the United States purchasing 36% of Japanese exports while the share of the NIEs fell to 22%.

If we look at the data for 1999, when Asian countries began to bounce back, the NIEs’ share returns to its historic value, whereas for 1999 and 2000 the share of the U.S. is still

virtually zero. This is in direct response to the massive threats of AD measures against Japan (and other producers) by the United States during this time as well as the U.S. slowdown.

Interestingly, though the share of exports going to Europe did more than double in 1998, the total amount is negligible. Japan exports virtually no (about 2%) rolled steel to the European Union and over 85% to APEC countries. It does appear that the United States is the dumping ground for excess capacity rather than other strong economies in Europe. Hufbauer and Wada (1999) suggest that informal cartels in both in Europe and Japan prevent freer market access for U.S. and other foreign steel producers.

## **B. Prices**

As we can see from Figures 1 and 2, the dramatic change in Japanese export prices in hot and cold-rolled steel help explain part of the story of how Japanese exports to the United States rose sharply following the Asian financial crisis.<sup>28</sup> Japanese export prices have fallen both relative to Japan's own domestic wholesale prices and U.S. import prices from all countries. Prior to the Asian financial crisis, Japanese wholesale prices were, in fact, rising relative to export prices as well as U.S. import prices. Also note that the WPI for both products in Japan is very flat. The U.S. import price indices are also stable relative to the wide swings in the price of Japanese exports of steel.

These price swings (coupled with rapid increases in exports to the United States) are, of course, consistent with either "sporadic dumping" (Chacholiades, 1990) from overproduction in the wake of unanticipated demand shifts or dumping as a result of price discrimination in a monopolistically competitive market. (For a very simple model, see Krugman and Obstfeld, 2000; for a more sophisticated model see for Brander, 1981.)

Such a drop in the export prices from Japan to the United States is also wholly consistent with pricing-to-market behavior (see Marston, 1990). Note that in Figures 1 and 2 the U.S. import price (which uses a U.S. dollar base) does not fluctuate very much, while the yen-based export prices exhibit wide swings. If we look at Figure 3 which tracks the

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<sup>28</sup> These series are indices that have been scaled to 100 in 1995. From this we can observe changes in levels of each series, but actual prices (unit values) may be higher or lower and cannot be determined from these figures. Thus, for example, per unit prices for Japanese exports may have been higher or lower than U.S. import unit prices before and/or after the crisis. Because of varying (typically higher) quality of Japanese steel, simple unit price comparisons are not always as useful as relative price movements such as these.

movements in the yen-dollar exchange rate and the Japanese export pricing in, more broadly, iron and steel, we can see visually that some sort of pricing-to-market is evident. Note, in particular, the sharp appreciation of the yen (from approximately 143 yen to the dollar in July of 1998 to 115 in August 1999) in the 1998-99 period and the nearly simultaneous drop in (yen-based) export prices. That is to say, to maintain roughly the same price in dollars, it would have been necessary to drastically reduce the yen price of steel during that time even aside from any reasons of excess capacity.

### **C. Evidence of Pricing-to-Market**

In Figure 3, it seems evident that the yen-based export prices move somewhat in tandem with the yen-dollar exchange rate and would indicate pricing-to-market behavior. We test this econometrically by determining whether or not the two series have a common trend or, in other words, are cointegrated.<sup>29</sup> We conducted a test for cointegration between the log of Japanese exports prices of iron and steel and the log of the yen/dollar exchange rate for monthly data over the 1995-2002 period. We found a strong positive long run co-movement of the two series. (See Appendix for details.) That is to say, when the yen appreciates vis-à-vis the dollar, the yen-based export prices to the world (and presumably to the United States) fall. According to the pricing-to-market literature this is done (rationally and efficiently) to retain market share in the U.S. and elsewhere and not for predatory reasons per se.

That pricing-to-market (PTM) is likely for Japan and other East Asian steel producers should not be surprising. In the PTM literature, studies often find that Japanese firms engage in considerable pricing-to-market behavior, and more so than say, U.S. firms (Marston, 1990.) Moreover, when examining Japanese export pricing behavior to the United States, Asia, and the European Union, more pricing-to-market occurs in the U.S. market than any other market (Sasaki, 2002). Therefore, we should not be surprised that East Asian, and in particular Japanese steel producers, also price-to-market to a large degree. Therefore, this must, at least in part, explain the ease in which antidumping suits against East Asian exporters to the U.S. market can be constructed.

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<sup>29</sup> Loosely speaking, cointegration implies long-run co-movements of two or more series. Such analysis rules out possible spurious relationships which frequently occur with trending, or 'non-stationary data' such as time series. See Maddala and Kim (1998) for the theory of cointegration and a comprehensive survey of the literature over the past 20 years as well as current advances.

As described above, a very plausible story for the dramatic relative fall in Japanese export prices is, of course, pricing-to-market behavior. Additionally, the slight drop in the Japanese WPI is likely due to the drop in aggregate demand in Japan (-1.1% GDP growth in 1998; see Table 3) and in the region in 1998. Thus, given the short-term fall in demand and prices in Asia, as well as the sharp yen appreciation in the mid-1990s, it is only natural that Japanese firms, seeking to avoid layoffs, and high shutdown costs would be forced to seek other markets, and sell their wares (perhaps) at a discount to do so.

Therefore, one can see how it might be easy for a U.S. steel firm to find data to validate claims of dumping which is defined as either by selling below average cost, or from data such as these, pricing below one's one domestic market price. If we again look at Figures 1 and 2 we see that the drop in relative prices, which began shortly before the crisis but really picked up steam in mid-1998, is ultimately about 20% lower than the overall U.S. import price index and indeed Japan's own domestic prices. Thus 20-30% dumping margins currently in effect seem roughly consistent with these movements.

This is not to justify the AD actions, as it seems clear from the data that regional demand conditions and exchange rate movements were the likely culprits, rather than predatory dumping. Yet, it demonstrates the ease in which dumping can be validated under the rough and economically unsound dumping criteria that exist.

#### **D. The Overall Picture**

The above-mentioned data on import values and prices in the United States gives AD proponents ample anecdotal evidence to support their view. However, we hope the above data have also shown that the likely explanation for the dramatic increases in exports of steel from East Asia to the United States was the Asian financial crisis, which drove many South East and East Asian economies into negative growth, as well as associated exchange rate movements. Also, Japan's own sluggish growth over the past ten years has forced Korea, Japan and newer big players on the world market such as Russia and India to more aggressively target the U.S. market for their goods. Any claims that Japan, Korea, Russia *et al.* are strategically dumping is not a likely story given the large number of exporting nations in this post-cold war era.

Moreover, though there are certainly periodic surges in certain types of steel from year to year which elicit claims of dumping, the overall pattern of import behavior in the

United States is far less dramatic. If we look at Figure 4, we see that overall imports are rising as one would expect in a growing economy. However, it is not clear that foreign import penetration is on the rise. If we look at Table 4, we see the apparent consumption of imports did reach 17% in the 1998, but it has been almost as high before, reaching 16% in the mid-1980s. The rise in import penetration may to be a cyclical phenomenon that, unfortunately, elicits a cyclical increase in AD actions by the United States. As mentioned earlier in this paper and by James and Movshuk (2001), there is no statistical evidence prior to 1997 of an increase in apparent consumption of imported steel in the United States. It may be, in fact, that AD measures and previous VRAs have held in check the growth of import penetration in the U.S. steel market.

While imports may or may not be on the rise in relative terms, steel jobs in the United States have long been on the decline. However, rising productivity, high union wages, and enormous pension liabilities, the so-called 'legacy costs' in the industry, are at the root of declining jobs in the U.S. steel industry (see Hufbauer and Goodrich, 2001 and section one of this chapter) rather than "unfair" trade.

Despite productivity increases and technological advances in the U.S. steel industry, many newly industrialized countries have long had the same (or even superior) technology than the U.S. firms, and lower labor costs. So, perhaps the increases in import penetration will continue. One can reasonably expect that India (now the lowest cost producer for some products), among others, may capture ever larger market shares in the United States. If the current AD actions and counterclaims by Japan, the European Union, China and others in the steel industry are not effectively resolved in the WTO (or unless the President and Congress can find other compensatory schemes to eliminate legacy costs and excess capacity in U.S. steel) we can only expect more of the same rent-seeking activities, not only against East Asian producers, but Eastern Europe, Central Asia, and India as well.

### **III. Protective Responses: The Prevalence and Patterns of Antidumping Actions in Steel Trade**

While the recent spate of antidumping duties filed by the United States and other nations in the steel industry is rightly gaining a great deal of attention lately, the use of AD duties in the steel industry is not a new idea. The first use of an AD duty was, in fact, in the steel industry in 1906. Perhaps surprisingly, it was not initiated by the United States but instead by Canada, who accused the United States of unfairly dumping steel in the Canadian market. The United States has traditionally been the main user of AD actions over the last several decades, however, having enacted its first antidumping legislation in 1916 to protect primarily against European imports (Prusa, 1999).

Between 1980 and 1988 411 AD investigations and 332 CVD investigations had taken place in the United States alone. In the 1980s traditional users (Canada, New Zealand, Australia, the United States, and the EC) accounted for 95% of the suits. This is no longer the case and overall numbers have risen dramatically, particularly due to new users, such as Mexico, Argentina and Brazil. From 1987 to 1997 over 2000 cases have been filed worldwide. In 1997 the United States alone had 302 antidumping orders still in force and is nearly matched by the European Union (246) and India (248). And some, perhaps unexpected, new intensive AD users such as South Africa (156) have emerged (Prusa, 1999; WTO homepage at: [www.wto.org](http://www.wto.org)).

There has been an increase in AD measures use by countries in the East Asian region as well. Japan has shown considerable restraint, initiating only two AD actions in the 1995-2001 period, however. (Contrast with the U.S. figure of 255 over the same period.) Yet, for other major economies in the region use seems to be on the rise. The number of AD initiations from 1995-2001 for some select countries are as follows: South Korea: 47; Taiwan: 6; Indonesia: 41; Malaysia: 17; Thailand: 5; and India: 247. Singapore and Hong Kong apparently have not filed any actions. China has recently (May, 2002) written and notified the WTO of its own domestic antidumping legislation (see [www.wto.org](http://www.wto.org)). It will be interesting to see whether China will mimic that of most other WTO members by initiating frequent AD actions, or if it will instead demonstrate Japanese-style restraint.

In the 1990s, 2200 cases were filed worldwide, a decade-on-decade increase of 37.5%. Perhaps this is not surprising given that successive GATT rounds have eliminated or severely

restricted virtually all other trade tools (discretionary tariffs, import quotas, export restraint agreements, etc.) at least for most manufactured products in industrialized countries. Thus, for many countries, particularly the United States, the AD duty is one of the only tools left.

#### **A. Steel and Antidumping Actions**

Iron and steel has been the major AD filing category in the United States and in the world (see Miranda, Torres, and Ruiz, 1998). Of the United States' 249 antidumping orders currently in effect, over 120 of them are in the iron and steel category. Therefore, the future of domestic antidumping legislation and WTO rulings will continue to have a large impact on world trade in steel.

To be sure, though the media gives the steel rows quite a bit of press, the actual effect of total AD actions overall on trade is fairly small. While AD suits have grown considerably in the last two decades, they still cover only 2% of total U.S. merchandise imports. Still, the trade diversion effects for any one product of such actions can be very large (and thus the associated efficiency loss is large as well).

Prusa (1999) has examined the effects of U.S. AD action on U.S. imports. He found the average "dumping margin" to be approximately 40% over the 1980-1994 period. The median duty was 16%. Twenty percent of the cases had duties exceeding 50% and ten percent exceeded 100% in duties. Additionally, Prusa finds that in cases where a case is "settled" or an actual duty is assigned imports fall by 50-70% over the first three years. Even in cases where the case is rejected, imports fall by 15-20%.

Casual inspection of import growth rates of major exporters of steel to the United States seems to be consistent with Prusa's overall findings. For example, if one refers to Tables 5 and 6 which focus on hot and cold-rolled steel respectively, it appears that the mere initiation of an AD suit (for example, against Japan and Korea) in the late 1990s had dramatically reduced exports for that country to the United States. Actual imposition of a duty reduced exports even further. That is to say, AD actions are very effective in reducing or in some cases outright eliminating imports from a particular country.

If we look at other countries' import patterns, the same general pattern emerges. That is, following a dramatic rise in the imports of steel from a particular country, AD actions are initiated which typically cause a drop in imports. This initiation is almost always followed by



assessment of a duty<sup>30</sup> which brings about even larger declines in exports to the U.S. market. (Rarely are “price undertakings” conducted in the wake of an AD initiation for steel products. However, there may be a tendency for exporters to the United States to ‘voluntarily’ reduce exports in the face of an initiation thereby implicitly raising the price to avoid further action and thus achieving the same effect. This idea is intimately linked to the idea of the TPM.)

Also recall that AD duties are country (and firm) specific. Therefore AD actions not only result in significant protection, but severe trade diversion as well. This trade diversion was clearly present during the Asian financial crisis and was demonstrated in Table 2 of the previous section.

If we look again at Tables 5 and 6, we notice that after a year or two of initiations against (perhaps) the most egregious ‘offenders,’ more than half of the largest exporters are targeted for AD actions in the steel industry. Having other ‘easy’ targets often only delays the inevitable for the other major exporters.

It does appear that being a traditional user or member of NAFTA may help enable some countries to stave off AD suits in some cases. However, there appears to be little advantage in being from an East Asian economy. AD actions against Japan and Korea (and China and Taiwan to some extent) seem to be quite persistent while for many “Western” (France, the United Kingdom, New Zealand, etc.) countries the AD actions are not uniform. This seeming bias could be for one of (at least) three reasons:

- East Asian producers are often the lowest cost producers and thus often appear as the largest offenders and are easy perennial targets.
- The Finger conjecture (Finger, 1993) may hold, in that traditional users are better able to fend off or pre-empt AD actions by the United States.
- Broader political or economic goals may be involved (NAFTA, for example).

With respect to the last reason, the “NAFTA effect” does appear to be real. That is to say, because the United States, Canada and Mexico are neighbors and have an existing framework to deal with trade issues between the three countries, AD actions between them may be less likely.

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<sup>30</sup> These duties are relatively large. For the United States, steel AD duties averaged 26% in 2002 by the author’s calculation, with some duties exceeding 200%.)

## **B. Summary of Findings**

The findings on antidumping actions by the United States in the steel industry are not surprising. We find that:

- Antidumping duties are typically targeted at countries which experience dramatic export growth to the United States in a short time, often on the order of 50-100% increases in one year.
- The initiation of antidumping actions severely curbs imports to the United States from the targeted country.
- The actual imposition of duties following an AD action results in even larger decreases in imports, often much lower than pre-AD levels.
- There does appear to be some bias against Japanese and Korean exporters to the United States. However, these two countries are often the lowest cost providers and often have large sharp increases in exports to the United States, so AD actions, while not warranted on economic grounds, are easily proven given the weak legal standards that exist.
- There may be some evidence to suggest that traditional users are less often the target of AD actions, at least for the steel industry.
- There also seems to be some anecdotal evidence that members of NAFTA are less likely to initiate AD actions against each other in steel, despite the large trade volume occurring in this product between these three countries.
- AD actions are on the rise in steel (and other products), both by the United States and by new users (see [www.wto.org](http://www.wto.org) for country and product specific examples) and because of their strong diversionary (and potentially collusion facilitating) effects are a danger to world trade and the health of the world economy.

It will be interesting to see how the newest antidumping actions in hot and cold-rolled steel initiated in October of 2001 will develop. The counter sanctions threatened against the United States by Japan and the European Union (and now along with China among other co-complainants) in the spring of 2002 have not yet caused the United States to back down. Also, China, a large steel producer and exporter has now entered the WTO. An important question is whether China will increasingly become merely a target of AD actions in world steel trade,

or instead, become an active user of AD measures. If the Finger (1993) conjecture has any weight, this strategy may allow China to become a more respected member of the world steel “club” which, at least according to some observers, seems bent on collusion.

#### **IV. Conclusion**

The ease under U.S. trade law of complainants establishing that “dumping” has occurred and the chilling effect this has on trade even without the finding of injury has been documented (Prusa, 1999). The injury test required in establishing that “dumped” imports are the cause is hardly rigorous. Finally, dubious accounting practices, including exclusion of imports above cost and inconsistent treatment of depreciation in constructed cost, allow the complainants to attain artificially high margins of dumping used in setting antidumping duties. Once antidumping duties are in place, it is very difficult to remove them and the Sunset Review reform introduced in Uruguay Round Agreement, while a positive step, is toothless in U.S. antidumping law. The Byrd Amendment adds insult to injury by awarding the duties paid to the complainant rather than the U.S. Treasury Department. While the focus has been on U.S. antidumping law, much of the above applies to the European Union as well. Hence, reform of antidumping in the new Doha Round is likely to attract support from export-oriented economies in East Asia.

It is now well established in the literature that so-called “dumping” is almost always consistent with competitive firm behavior and is rarely, if ever, of the “predation” variety. The reasons for this are straightforward. Any firm in an established industry that attempts to take a monopoly position in a foreign market through dumping would not only have to drive out all domestic producers, but would also require protection against new sources of imports and would have to be able to block new entrants in the domestic market. The monopoly could not be sustained without the collaboration of the foreign government, hardly a likely outcome under any foreseeable political economy model. The antidumping regime itself is anticompetitive as it provides competing foreign and domestic firms with opportunities to collude and fix prices. The outcome of antidumping definitive measures is to reduce the volume of trade and raise prices thus harming consumers in the domestic market.

The erosion of the asymmetry in use of antidumping between the traditional users (European Union, Canada, Australia, New Zealand and the United States) and other

contracting parties should serve as a caution. New users among the developing and transitional economies are currently filing the bulk of new antidumping measures. Hence, the traditional users may soon find themselves in a less favorable environment in facing retaliatory investigations. An example of this took place recently when Taiwan's authorities began an investigation of U.S. semiconductor firms after they had filed antidumping petitions against Taiwanese semiconductor producers. Ultimately, the findings were that the petitions were without merit and were withdrawn. However, one can easily imagine a prisoner's dilemma where governments impose mutual antidumping duties.

Antidumping investigations and measures succeed in harassing trade, yet they have failed to reverse long-term trends in employment and production in the U.S. steel industry. (They may have succeeded in arresting the rise of East Asian steel import penetration in the U.S. steel market, however.) The use of safeguards in the case of U.S. steel is an escalation of the trade conflict in steel and puts the global trading system at some risk. One possible interpretation of the safeguard action is as a strategic move to force other major producing countries back to bargaining table over the MSA. However, the move will prove costly to major U.S. trading partners in East Asia and may give them pause as to whether their best policy option would lie in cooperation with the United States in a negotiation that may ultimately impose long-term restrictions on exports as occurred previously in textiles and apparel under the MFA. And what exactly are the costs of such an escalation?

Standard trade theory tells us that imposing a tariff results in a net loss for that country so long as any terms of trade gains are negligible. While the United States certainly is a large country and terms of trade gains are present, the likely outcome is still a net loss. The terms of trade gain will only outweigh the deadweight loss when the tariff is small (Krugman and Obstfeld, 2000). The current AD duties are not small, however, averaging 26 percent.

While no calculations were done for the current antidumping actions, the consumer cost per job saved in the steel industry of the failed import quota scheme, the Steel Revitalization Act, would have been very high, about \$800,000 per job saved according to Hufbauer and Goodrich (2001). And in this calculation this implicit rise in import prices was only approximately 10% (a rise of \$26 per ton). No doubt with AD duties averaging 26%, the deadweight loss as well as the net loss to the U.S. economy is much greater. Additionally, Francois and Baughman (2001) found that the costs of the Steel Revitalization Act would cost two jobs lost in other steel-using industries (such as autos and heavy machinery) for

every job saved in the steel industry. Similar negative downstream effects on steel-using industries are no doubt occurring under the current AD environment.

Finally, the costs to the exporters to the United States such as Japan, Korea, Russia, Brazil, and many others must be considered. The exporters, who may not capture much of the rents from the AD schemes, are also suffering from their diminished sales. In short, the losses to the world are likely to be even greater than the estimates referred to above.

While the current AD actions target a very small portion of overall international trade, the impact on the steel industry is quite significant, as over half the AD measures are in steel products. This tit-for-tat AD escalation, especially in steel imports, may move the industry closer to a more collusive quota scheme. While the current AD duties, and a possible move in the direction of an MSA may benefit some of the steel firms (and to some extent labor in the steel industry), the cost to the overall performance of economies in East Asia, North America, Europe and the world would be much greater. Thus, meaningful reform of AD laws within the framework of the WTO is paramount and solutions to the steel industry's peculiar problems such as excess capacity and 'legacy costs' must be found quickly.

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## Appendix: Cointegration as Evidence of Pricing-to-Market

Results of Johansen Test for Cointegration of Japanese Export Prices and the Yen/Dollar rate

Rank Tests	Eigenvalue	Trace Statistic	Max-Eigen Statistic
# of hypothesized cointegrating vectors			
None*	0.16	18.5*	15.04*
At most one	0.04	3.49	3.49
* denotes rejection of the null of no cointegrating vector at a 5% level using Johansen asymptotic critical values.			
Normalized Cointegrating Vector (under assumption of a rank=1)			
Log ER	Log XR		
1.000	-2.64		

Notes: adjusted sample includes 84 monthly, seasonally adjusted observations from 1995:7 until 2002:6. All variables are in logs. A linear deterministic trend was included. Five lags were chosen based on AIC and SC criteria. Log ER is the log of a yen-based index of Japanese export prices of steel. Log XR is the log of the yen-dollar exchange rate, thus an increase implies a depreciation of the yen.

As one can see from the results above, there appears to be an inverse relationship (when the cointegrating vector is interpreted correctly) between the yen and export prices of steel. That is to say, when the yen appreciates, the yen-based export prices fall. Therefore, this provides some tentative evidence for pricing-to-market.

However, some major caveats must be applied. First, the sample, though not quite 100 observations is still quite short in terms of years, and likely suffers from small-sample bias. Second, correlation of these two variables is not sufficient to prove pricing-to-market, and is only suggestive. Other important factors in this simple estimation are not present. In particular, this estimation neglects the fact that as the yen appreciates, part of the fall in Japanese export prices will be due to the fact that imported raw materials will become cheaper. Thus, some of these cost-savings will be passed through to the export market. While this neglected aspect is still consistent in explaining some of the fall in export prices during a yen appreciation, it is not, strictly speaking, capturing pricing-to-market behavior.



Table 1: U.S. Imports of Steel Products in Short Tons

Country	1996	1997	1998	1999	2000	2001
Canada	4,626,656	4,633,383	4,831,995	4,940,501	5,169,564	2,836,306
Brazil	2,756,588	2,806,811	2,705,122	3,651,937	3,404,666	1,895,669
Mexico	2,836,702	3,154,460	3,111,734	3,545,349	3,175,835	1,800,936
Korea	1,461,038	1,692,703	3,516,698	3,112,957	2,905,665	1,669,884
Japan	1,855,853	2,371,724	6,457,694	2,936,958	1,978,267	1,056,679
Germany	2,494,880	2,246,889	1,614,225	1,598,418	1,883,111	841,665
China	558,923	570,233	724,133	914,862	1,690,399	686,530
Russia	1,662,535	3,308,099	5,237,131	1,215,864	1,524,272	619,333
Taiwan	121,338	199,747	499,782	937,276	1,288,485	820,555
Ukraine	781,961	439,672	718,966	593,594	1,184,289	674,727
India	86,504	213,003	316,027	559,155	999,144	644,236
France	1,241,005	1,017,166	1,030,007	1,146,353	941,621	416,014

Note: one short ton equals 0.90718 metric tons.

Source: U.S. International Trade Commission website.

Table 2: The shares of Japanese exports of HS 7208 ("Hot-rolled Steel") by trading partner (per cent)

Year	US	NIES	Korea	ASEAN	Taiwan	China	EU
1991	4.9	41.9	28.1	32.2	7.8	10.4	0.1
1992	5.2	33.3	20.7	31.7	6.3	9.5	0.1
1993	1.2	23.6	9.6	19.3	9.1	46.7	0.1
1994	7.4	36.1	25.3	28.1	5.3	22.0	0.0
1995	3.8	40.6	26.6	32.7	8.8	17.3	0.0
1996	5.2	47.2	31.7	30.5	11.4	8.5	0.5
1997	10.7	43.8	29.4	28.8	11.3	5.5	0.2
1998	36.1	22.1	13.0	17.8	7.1	4.5	0.5
1999	1.0	46.3	33.9	31.5	10.6	4.4	0.2
2000	0.3	50.9	39.8	28.4	9.2	5.7	0.0

Source: Japan Tariff Association.

Notes: HS 7208 is "Flat-rolled products of iron or non-alloy steel, of a width of 600 mm or more, hot-rolled, not clad, plated or coated."

The NIES are South Korea, Taiwan, Hong Kong and Singapore.

HS 7208 represented approximately 20 percent of Japanese total exports in Steel (HS 72 Iron and Steel) in 2000.

Table 3: Real GDP growth rate (in real local currency)

Year	1996	1997	1998	1999	2000	2001
U.S.	3.6	4.4	4.3	4.1	4.1	1.2
Japan	3.5	1.8	-1.1	0.7	2.4	-0.6
EU-11	1.4	2.3	2.9	2.6	3.4	n/a

Source: Bureau of Economic Analysis (U.S.); Economic and Social Research Institute (Japan); Eurostat (EU).

Table 4: U.S. Iron and Steel: Output, Exports, Imports and Apparent Consumption (in current million U.S.\$)

Year	Total U.S. Output	Imports from World	World Imports from U.S.	Import Shares
1981	87,500	12,541.89	3,179.00	0.13
1982	57,000	9,128.30	2,457.27	0.14
1983	56,600	7,932.54	1,657.60	0.13
1984	65,800	11,975.58	1,513.63	0.16
1985	60,900	11,174.95	1,380.17	0.16
1986	56,940	9,694.19	1,239.17	0.15
1987	63,500	10,374.25	1,428.77	0.14
1988	77,200	11,938.62	2,299.80	0.14
1989	78,110	11,710.13	4,249.43	0.14
1990	75,740	11,245.67	3,925.47	0.14
1991	68,860	10,345.26	5,052.19	0.14
1992	71,296	10,463.96	4,427.78	0.14
1993	75,617	11,514.82	4,114.46	0.14
1994	84,710	15,470.06	4,490.89	0.16
1995	91,515	15,341.45	6,611.96	0.15
1996	96,720	16,499.13	6,168.97	0.15
1997	103,285	17,394.85	7,140.79	0.15
1998	104,015	20,227.79	6,977.51	0.17

Notes: Trade data from StatsCanada; Output Data from Steel Yearbook. Import Shares are of apparent consumption and are calculated as follows: “Imports from world” are divided by (“U.S. output” plus “imports from world” minus “world imports from U.S.” )

Table 5: U.S. imports of Carbon-flat: Hot-rolled sheet and strip (short tons) and AD action

Country	1996	1997	1998	1999	2000	2001
Argentina	2,964	433	367	116,950	118,920	*
Australia	5,906	6,079	76,936	266,567	242,028	no action
Belgium	139,358	40,060	73,066	70,977	53,646	no action
Brazil	244,257	428,836	450,515*	49,809**	163,461*	*
Canada	742,053	573,574	554,435	610,362	459,954	***
China	16,870	6,017	99,941	458,911	485,949	***
Finland	29,201	5,533	45,572	32,907	10,654	no action
France	378,934	317,000	384,478	474,765	365,320	no action
Germany	430,168	271,057	253,642	178,505	130,321	no action
Hungary	16,437	12,222	28,013	31,300	23,133	no action
India	5,287	19,001	101,196	478,439	825,954	***
Indonesia	0	0	31,212	292,605	258,557	***
Italy	211,965	175,334	140,193	57,291	39,054	no action
Japan	244,734	546,033	2,678,815*	80,553***	49,032***	***
Korea	825,713	835,190	769,064	818,013	817,675	no action
Mexico	232,004	269,782	234,887	297,824	335,401	no action
Netherlands	374,538	374,309	451,050	507,474	560,231	**
New Zealand	72,911	58,507	50,596	88,048	64,316	no action
Romania	11,458	71,904	127,253	384,458	410,796	***
Russia	811,061	1,983,197	3,825,073*	15,698**	183,440	no action
Slovakia	22,454	34,925	90,606	75,494	143,663	no action
South Africa	32,131	33,614	80,423	173,066	167,846	**
Sweden	64,018	46,144	28,728	28,723	30,985	no action
Taiwan	1,427	35,811	224,058	470,817	725,108	***
Thailand	0	0	18,050	38,637	233,762	***
Turkey	12,814	39,782	4,612	24,798	49,661	no action
Ukraine	2,490	87,917	127,189	72,907	213,764	***
United Kingdom	111,406	41,042	196,097	36,533	475	no action
Venezuela	99,242	92,907	106,585	131,982	46,126	no action

Source: U.S. ITC; Dates of AD actions are taken from WTO reports.

Selected Countries only. Generally only countries with a three year (1998-00) average of 20,000 tons or more were included.

\* initiated AD action

\*\* provisional measures taken (often a duty).

\*\*\* definitive action (typically a high duty) taken or still in effect.

Any action taking in December is counted in the following year.

Table 6: U.S. imports of Carbon-flat: Cold-rolled sheet and strip (short tons) and AD action

Country	1996	1997	1998	1999	2000	2001
Argentina	43,908	89,013	93,745	131,769**	92,268***	***
Thailand	2	0	74,045	73,475**	9,740***	*
India	2	75	7	150	18,957	*
Taiwan	3,693	6,048	45,554	94143*	22637***	*
Austria	144	7,637	4,228	1,801	7,094	no action
Australia	1,580	10,605	754	564	63,871	*
Ukraine	0	16,179	8,430	0	13,087	no action
United Kingdom	29,401	18,685	11,977	11,198	8,276	no action
Indonesia	18,159	20,401	95,350	19,891*	4,187***	no action
Spain	24,590	24,962	40,881	21,521	15,852	*
Finland	71,979	29,551	15,556	31,284	12,222	no action
Sweden	32,001	35,334	25,253	41,558	26,286	*
Venezuela	14,116	41,575	82,150	58,495**	9,566***	*
Italy	61,403	65,375	31,397	40,004	20,680	no action
New Zealand	22,399	66,088	29,840	27,422	29,409	*
South Africa	84,265	116,433	163,298	85,336**	26,417***	*
Brazil	219,607	123,605	217,640*	312,061***	55,683***	*
Slovakia	57,753	129,547	66,325	45296*	346***	no action
China	34,535	133,836	133,070	55655*	46062***	*
Germany	112,280	141,743	151,069	134,890	159,835	*
Mexico	120,917	160,133	123,511	148,086	206,291	no action
France	179,069	162,186	101,854	162,761	161,186	*
Turkey	56,972	197,402	159,957	85,996*	37,989***	*
Canada	231,488	229,095	222,968	215,888	219,104	no action
Belgium	276,387	271,179	212,894	302,822	255,329	*
Japan	369,265	459,516	634,490	418,541***	250,690***	*
Russia	243,412	631,402	718,596	419,131**	262,737***	*
Korea	282**	1,915**	272,925***	126,629**	247,965***	*
Netherlands	225594*	237573**	209765***	194566***	186128***	*

Source: U.S. ITC; dates of AD actions are taken from WTO reports.

Selected Countries only. Generally only countries with a three year (1998-00) average of 20,000 tons or more were included.

\* initiated AD action.

\*\* provisional measures taken (often a duty).

\*\*\* definitive action (typically a high duty) taken or still in effect.

Any action taking in December is counted in the following year.

Fig 1: Price Indices for Hot-rolled Steel (Jan-1995=100)

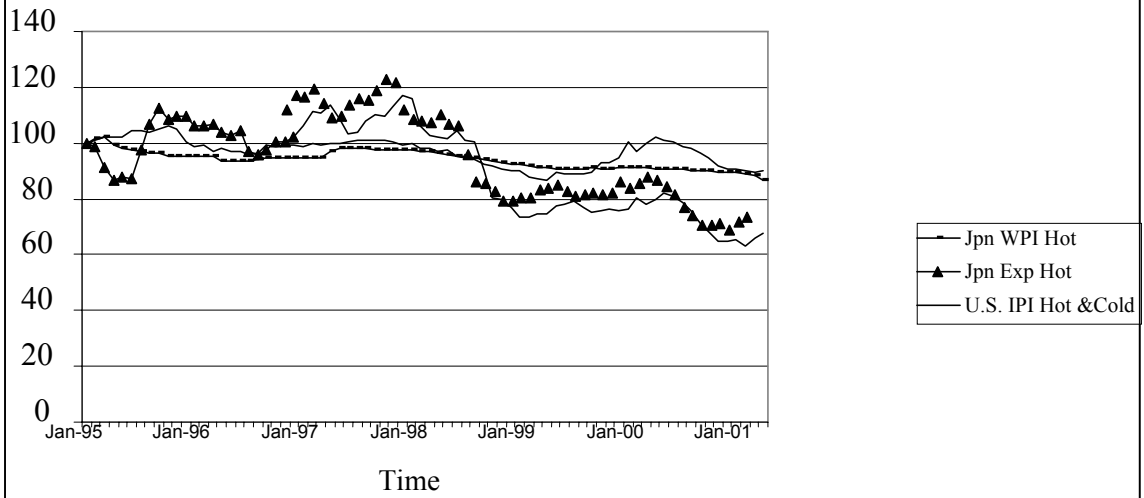


Fig 2: Price Indices for Cold-Rolled Steel

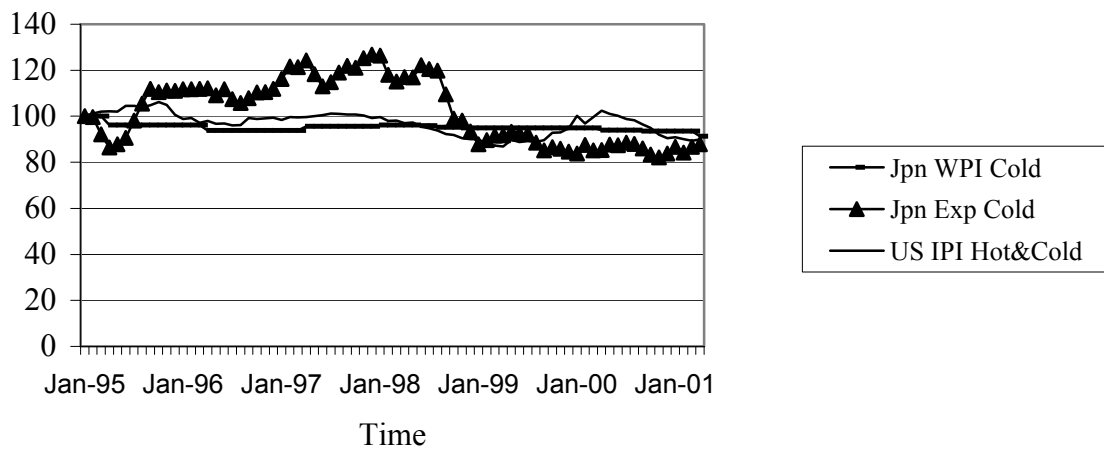


Fig 3: Japanese Export Prices and Yen/Dollar Rate

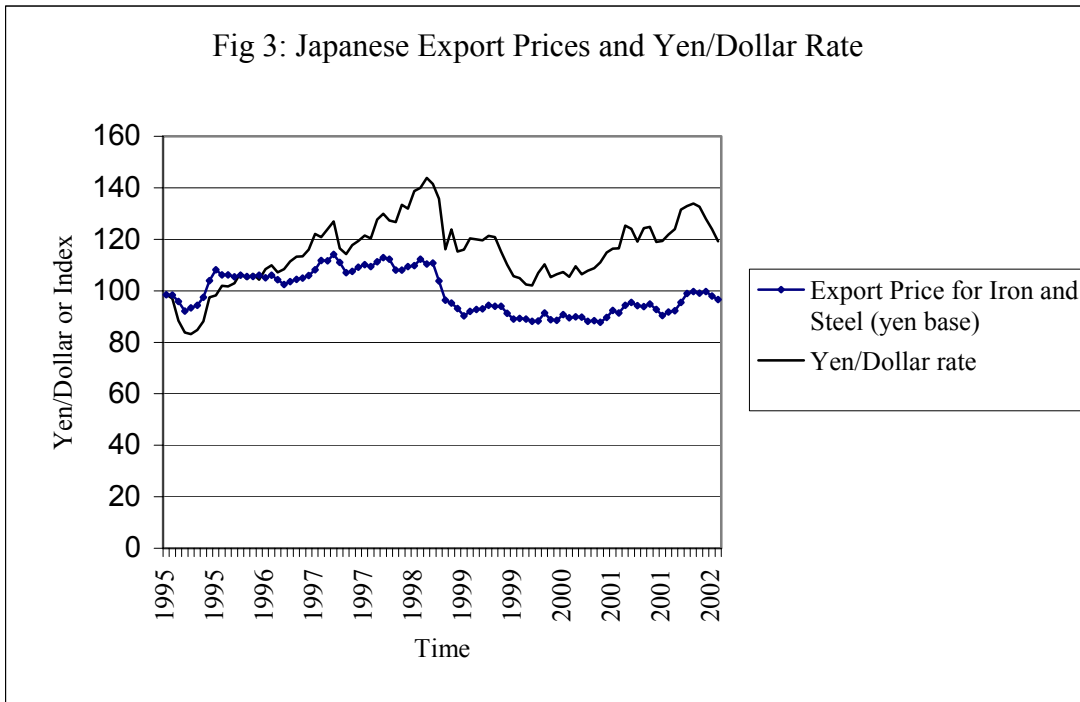


Fig 4: Real US Import of Iron and Steel (1995 mill \$)

