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"Restructuring and Protectionism in the US Steel Industry: The Impact on Brazil".

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RESUMEN

El presente trabajo es un estudio sobre el impacto que la competencia externa tiene en la posición doméstica de los productores de acero norteamericanos, y sobre las reacciones de éstos ante tal competencia.

Brasil es uno de los países que ha ingresado más recientemente al mercado norteamericano. Este es importante para el desarrollo de la siderurgia brasilera, sin embargo, Brasil sigue controlando una fracción muy pequeña del mercado. Por lo tanto, aunque las disputas en torno a la cuestión proteccionista afectan fuertemente a las acerías brasileras, el país sudamericano tiene poco poder para convertirse en un protagonista importante del proceso de formulación de la política de comercio exterior norteamericana.

En todo caso, el trabajo busca describir los esfuerzos que ha hecho el Brasil para optimizar su posición a pesar de ser un productor marginal.

I. INTRODUCTION

Over the past years a number of US industries have been facing increasing eroded competitiveness relative to foreign producers. Many of these industries are termed basic, are large, and traditionally played an important role in the US's industrial growth. They include industries such as steel, automobiles, textiles, home appliances, electrical appliances, certain types of machinery, petrochemicals and many others. The change in their external position is particularly evident when compared to the position they held inmediately after the Second World War. But even if one discounts the "catching up process" first by the European industry and the by the Japanese, as these countries were able to reconstruct their war ridden economies, the position of many US industries has nonetheless continued to deteriorate.

New competitors have arisen, not only from developed countries, but also from newly industrializing countries. These countries enjoy strong cost advantages in certain factors, like lower labor costs, access sometimes to cheaper natural resources, and many times more favorable government treatment towards their industries.

From the perspective of American "declining" industries, this increased external competition threatens their survival

or at least what they consider should be their scale of operations. Lower priced imports have already shown enormous increases in volumes, and have been cornering these industries' shares within the US market. Competition in foreign markets has also driven down their participation in markets of other countries. The visible results have been lower US production in these sectors, decreased rate of capacity utilization, shutdowns of many plants and facilities, increased unemployment in affected industrial sectors and, in many cases, huge losses suffered by the "declining" firms.

During the last few years, this more structural phenomenon has been aggravated by macroeconomic developments, mainly the strong appreciation of the US currency. This has provoked an overall deterioration in the country's trade balance, further hurting the situation of "declining" industries, but also affecting the competitiveness of many other sectors. Alarmed by the magnitude of the country's commercial deficit, a strong coalition has been formed proposing all sorts of measures, mainly protectionist, that would alleviate the US industries' present position. In a sense this global situation has helped the more long term "declining" industries to gain support for measures that

would aid them.

The problem of the "declining" industries, however, must be distinguished from that of the overall trade balance deterioration due to an appreciated US dollar. For the latter the solution is mainly macroeconomic, and over the long run a country, in this case the US, cannot lose its comparative advantage in everything. However, in the case of the "declining" industries, the problem may have a more structural nature involving an effective reallocation of production towards more competitive areas for these specific industries, and a reallocation of resources within the US economy. In facing this situation, these industries have in principle three courses of action, though not all may be feasible. They could accept the reallocation process and a substantial down-scaling of their operations; they could seek protection from the government; or they could undertake a path of restructuring and rationalization that would decrease their costs and thus permit them to regain competitiveness. And of course they can choose some combination of these three.

From the perspective of the newly industrializing countries the problem is quite different. Most of them have based their growth strategies in developing export-oriented

industries, and till now have been quite succesful with this strategy. They have actively promoted investment in exporting industries, and through them have attained high levels of growth, increased wages and per capita income, and higher standards of living. South Korea, Taiwan, Hong-Kong and Singapore are examples in Southeast Asia; Brazil and Mexico in Latin America.

Their strategy, however, is in a high degree conditioned to their having access to world markets, and in particular, due to its size, to the US market. In Latin America, for example, over 30% of its exports went to the USA in 1984. However, in many cases their growing exporting industries are precisely competing with those that are declining in the USA. Therefore the threat of protectionism in favor of these industries in the US, threatens the possibility of future growth and development in these newly industrializing countries.

This paper deals with the problem of industry competition between the USA and newly industrializing countries, focusing on a specific industry, the steel industry, and a specific country, Brazil. The paper looks into the economic factors that favor a reallocation of production from the US to a country like Brazil. It analyzes the US steel industry's

strategy to try to stop or at least retard this sort of reallocation, both seeking protection and, in some degree, also restructuring its domestic production. It looks into the US domestic coalitions among interest groups, that have influenced the outcome of government policy towards the steel industry; and it considers the role of certain implicit agreements among the main world steel producers, namely the US, the EEC and Japan, and how these agreements affect the access to US markets of newcomer steel producers.

The paper also reviews how Brazil has tried to face its trade conflict in steel with the USA, and how its position as a marginal supplier and actor within this world industry affects its possibilities of action. Finally, it concludes on the extent to which further reallocation of steel production form the US towards less developed countries like Brazil, seem probable in the future.

II. HISTORICAL BACKGROUND: THE POST WW II EVOLUTION OF THE STEEL INDUSTRY

a) The competitive position of the US.

Inmediately after World War II the US steel industry had an undisputed predominance within the world steel market, as did most of American industries at that time. The war had devastated the industrial base of the more advanced industrialized countries that could have competed with the US

in the steel industry. This predominance was clearly kept throughout the next decade and till the late 1950's. In 1956, for example, US raw steel production was 37% of total world production, and the US was the biggest net exporter of steel in the world (1). During this period, the European countries and Japan were reconstructing their economies, and therefore whatever steel they produced was domestically consumed.

With little or no external competition, the US domestic steel industry was easily able to exploit its oligopolistic market power. The industry had a relatively small number of producers with a strong domestic orientation. Production was mainly for internal sales and the steel companies had little investment abroad. Not only was steel production concentrated, but labor in this industry was also concentrated and heavily unionized. This double oligopolistic structure of production and labor gave rise to a spiral of increases in wages and in steel price mark ups, which were possible due to the lack of foreign competition (2).

According to many analysts (3) of the US steel industry, the years 1958 and 1959 mark the end of this previous trend. In 1958 an important recession affected the US steel market.

The following year wage negotiations were due, and the industry, fearing slack domestic demand and signs of possible increases in imports, decided not to accept labor demands. Insted they took a strike that lasted over six months. This of course made steel supply in the US market very tight and invited an inpour of foreign steel. Coincidently, during the 50's foreign producers had been installing modernly equiped steel plants and were thus in conditions to penetrate the US market by the end of the decade.

The year 1959 was the first after the war in which the US was a net importer of steel. From then on however, its net imports were a permanent feature and constantly increasing in volume (4). The end of the strike did not mark a return to "normality" as the industry expected. Imports were mantained and grew the following years. Supposedly under the spectrum of the 1959 strike consumers increased their imports of steel in each year of wage negotiations, but did not decrease them the following years. Thus, the level of imports grew constantly thoughout the decade. Actually, competitive changes within the world industry were in high proportion the explaination of these import increases.

Europe and Japan had reconstructed their industrial base

after the war. Their steel plants, thus, were more modern and incorporated more efficient technology than US plants, which had been built before to the war. A major technological improvement had come about with the development of the basic oxygen furnace, a technology that was not commercially available in the pre-war period, when the US plants had been built. Japanese and European steel industries were able to incorporate this new technology and also to build larger scale plants that could benefit from all the economies of scale of the new technology. During the 1950's and until the mid 1960's, the US industry was heavily dependent on a less efficient technology, the open hearth furnace, and its plants were generally of smaller size (5).

With respect to Japan, the US had a big labor cost disadvantage, even discounting for the fact that in the early 60's the Japanese labor productivity in the steel industry was half of that of the US (6). As capital investment increased in Japan during the decade, its labor productivity grew, as did its wages. However, the increase in productivity was greater than that of wages, and Japan kept its labor cost advantage (7). Between 1958 and 1968, steel labor costs per unit of production fell 30% in Japan, while they stayed constant in the USA (8).

Some advantages that the US industry had previously enjoyed decreased in importance. Big discoveries of iron ore deposits made access to cheap raw materials easy. Additionally, enormous decreases in ship transportation costs diminished the importance of dependence on imported minerals. Simultaneously, higher iron ore grades in the US were becoming increasingly depleted (9).

Even in the face of lower cost and increasing imports, the US steel industry continued to price its products in an oligopolistic fashion. It maintained its producer price list, with prices considerably higher than those of imports. Instead of adjusting to foreign competition, domestic production was increasingly being displaced. As can be seen in Table 1, the share of US production over total world production fell to 20% by 1970, and continued falling during that decade. In contrast Japanese production increased tenfold between 1956 and 1973, while EEC production more than doubled. Likewise, Japanese exports during this period increased almost twelve times, and in the EEC case they rose three and a half times. A major portion of these increased exports was destined to the US market (10).

Believing that the rise in imports could be attributed to the lingering memory in the mind of consumers of the 1959

strike, the industry and the United Steel Workers of America reached an agreement in 1973 called the Experimental Negotiating Agreement, which limited the union's right to strike in future wage negotiations. This commitment would diminish the fear of scarcity that supposedly pushed consumers to increase their supplies from foreign sources. In exchange for this agreement, the industry made large concessions to the workers, including a cost of living adjustment factor. During the high inflation years of the 70's, this factor had disastrous effects on the industry's competitiveness, as wages in steel rose way above the increases of other industrial workers, and more than those of workers in foreign steel plants (11).

TABLE 1
RAW STEEL PRODUCTION, IMPORTS AND EXPORTS FOR THE USA, JAPAN AND THE EEC; SELECTED YEARS
(millions of metric tons)

	USA			JAPAN			EEC		
	PROD	IMP	EXP	PROD	IMP *	EXP	PROD	IMP	EXP
1955	106	1.0	4.0	9.4	0.1	1.9	49	6.1	14
1960	90	3.1	2.7	22	1.2	2.3	73	14	23
1965	119	9.4	2.3	41	2.6	9.5	86	16	30
1970	119	12	6.4	98	3.0	18	137	31	40
1975	106	11	2.7	102	0.5	29	125	28	51
1980	101	14	3.7	111	1.1	29	128	36	50
1983	77	15	1.1	97	2.7	31	110	32	42

* Steel imports in Japan refer to pig iron mainly. Imports of steel products, which is what is measured for other countries and areas, are minimal in Japan.
SOURCES: American Iron and Steel Institute, Annual Statistical Report, Washington, D.C., selected years; OECD, The Iron and Steel Industry in 1980 and in 1983, Paris; UN Economic Commission for Europe, The European Steel Market, Geneva, selected years; United Nations, Yearbook of International Trade Statistics, New York, selected years; Crandall, R. (1981), pp. 24-26; Hogan, W.T. (1983), pp. 48,, 82, 115; Harris, A.W. (1983), pp. 14-15.

b) The US industry starts seeking protection (12)

The first move towards seeking protection by the steel industry was made in 1968. Imports had been very high the previous three years, and actually were running even higher that year. A bill was introduced in the US Senate to put a quota on imports. Supporting the bill was the industry, represented at the Congressional hearings held on the subject

by the chairman of the American and Iron Steel Institute, as well as by the United Steel Workers of America. Given the confrontational nature that had previously characterized the relations of the industry and its workers, this joint appearance was a surprising event. Opposing the bill, however, were the steel importers, and a number of industrialists and the bankers, whose companies had a big amount of international business.

In a sudden move, the Germans and the Japanese made a proposition to Congress leaders of voluntary restraining their steel exports to the USA. After prolonged negotiations, an agreement was finally reached for 1969 that was a compromise between the original European and Japanese propositions on quantities. A total level of imports of 12.7 million metric tons coming from these two areas was agreed upon, with increases in the quota limited to 5% a year. The quota would be divided in 41% for the Japanese and 41% for the Europeans. The remaining 18% would be left for imports from the rest of the world. However, two important steel suppliers in the US markets, Great Britain and Canada, did not participate in this negotiation, and therefore were not technically obliged to follow its conditions.

Steel imports in 1969 did fall to the agreed quota agreed

level, and in 1970 they were 8% below the maximum quota level. In part this was due to the agreement, but in a large degree it was due to the fact that world conditions for the steel market improved notoriously these years, and therefore demand in other areas soared.

When President Nixon imposed a 10% general import surcharge, the Europeans claimed that this violated the conditions on which the steel agreement had been based, and therefore proceeded to increase their exports to the USA. So did the Japanese. The export restraints were due for renegotiation in 1972, and a new agreement was hard to obtain. Though the Japanese came to an accord, the Europeans were divided in their positions. Finally they did reach an agreement, that lasted only a short period. In 1972, the Consumers Union of the United States filed a suit against the US government, a s well as some Japanese and European steel companies, claiming that the voluntary steel export restrictions constituted a violation of the Sherman Anti-Trust Act. This, along with the great boom in world markets in 1973, brought an end to the steel quota scheme.

The economic recession that followed in 1975 had a strong negative effect on the world steel market, as it did on most other markets. This time not only was the US steel industry

affected, but also the European and Japanese industries suffered harshly. Their domestic producers had come to rely heavily on exports and with the recession they saw their world markets shrink strongly.

But 1977, after two years of recession, the US steel industry was badly damaged. The economic recovery that year did not lead to better conditions for the industry, but to a surge in imports that limited its ability to increase prices and profits. Several steel plants closed, and industrial unemployment ran high. Under these conditions, protectionist pressures grew again. A Steel Caucus was formed in the US Congress, as well as a coalition of mayors representing steel cities that lobbied for protection. Protectionist bills were prepared, and pressure was put on the President to take some action. President Carter replied by inviting complaining parties to bring formal trade cases before the Treasury Department for "unfair" trade, within the framework of the Trade Act of 1974. A great number of anti-dumping complaints against European and Japanese producers were filed. This was at a moment when the US was engaged in the final stages of the Tokyo Round negotiations. The Japanese and Europeans pressed strongly to avoid US action against steel under "unfair trade" procedures. Fearing that this might interfere with the succesful resolution of the multilateral

negotiations that had taken place within the Tokyo Round, the US government decided to follow a different course of action on the issue of steel.

In the meantime, European and Japanese steelmakers agreed to restrict their exports to the US through a voluntary quota agreement, similar to the one in effect between 1969 and 1972. However, both the US Administration and the steel industry deemed the proposed quota scheme inacceptable (13). Instead, the White House asked the Undersecretary of the Treasury Department for Monetary Affairs, Anthony Solomon, to head a Presidential Task Force that would be in charge of devising a comprehensive plan for the steel industry. The plan proposed in the "Solomon Report" had among its main parts the proposition of the "trigger price mechanism" (TPM).

This scheme was designed to avoid dumping or "unfair trade" procedures in the sale of foreign steel in US markets. It was based on the costs of production of Japanese steel producers, considered at the time to be the world's most efficient steel industry. Through information given by the Ministry of International Trade and Industry of Japan (MITI), Japanese costs for steel products (mainly carbon steel products though some speciality steels were included in the plan) were determined. Any foreign steel product arriving at

the US market at a price below the estimated Japanese cost, also known as the trigger price, led to an inmediate investigation by the Treasury Department (later the Department of Commerce) to determine whether dumping procedures were being used. This was the case if either the sales were at prices below those charged in the country of origin, or if such sales were considered to be done at below cost levels considering margins for overhead and profits. If the decision of the Treasury Department was affirmative, the International Trade Commission (ITC) had to decide if such unfair trade practices were injuring the US steel industry. If this instance also provided an affirmative verdict, the case would return to the Treasury Department to determine the exact amount of the dumping practice and to levy a countervailing duty exactly offsetting the unfair advantage that the foreign steel import had. In all, the process could last around six months through the TPM, instead of sixteen months that an ordinary process could take. If the foreign producer increased his selling price to a fair level, the additional tariff was removed.

Apart from this protectionist mechanism, the "Solomon Plan" included modernization and adjustment measures for the industry. Small ailing steel companies would be given loan guarantees through Economic Development Administration (EDA)

programs of the Department of Commerce. EDA funds would also be provided to communities affected by steel shutdowns, to be used for rent assistance, relocation and retraining of workers, and unemployment compensations. The report recommended an increase in the depreciation rates of steel companies, to decrease the tax burden. Finally, it called for a rationalization of the environmental regulations that affected the steel industry, and for a better coordination among the various regulatory agencies.

The TPM was put in force in May of 1978. Business for the steel industry did actually improve during 1978 and 1979, and steel imports fell in the second semester of 1978 and during the following year. However, the 1977-1979 period coincided with an important dollar depreciation, which probably would have brought relief to the US steel industry anyway.

The mechanism came under the criticism of the industry because under it, high cost foreign producers could "dump" their steel in US markets as long as they sold it at a price higher than the estimated Japanese costs. On the other hand, foreign producers pointed out that it constituted a harassment to low cost exporters, like Korea for example, that could effectively have lower production costs than Japan

but were burdened with the onus of proving that they were not engaging in dumping practices.

The US government viewed the TPM as a way of reducing the administrative burden brought about by the number and complexity of the antidumping and subsidy cases that were previously being filed by the industry. It assumed an implicit agreement with the steel industry, that the TPM was in lieu of case by case suits.

There was, however, a good amount of contentiousness between the government and the industry. Steel producers were dissatisfied since the TPM had only meant an average 1% increase in domestic steel prices while imported steel prices had increased much more. They considered that the fixed trigger prices were too low, and that imports were not being halted as desired. Specially, they argued that the higher cost European producers had scope to dump their steel in the US market. They also wished that the TPM be administered by the Department of Commerce, which they felt as more receptive to their positions than the Treasury Department.

On the basis of alleged dumping practices, US Steel Corporation filed suits against every major European producer in March of 1980. The Treasury Department first replied

that, due to the complexity of the cases, it would not be able to arrive at any conclusion till at least seven months. The Administration then decided that the TPM would be suspended since it was not serving the purpose of substituting for individually filed cases.

In October of that year, after a lot of pressure and threats of retaliation put on by the Europeans, an agreement between the government and the industry was reached. The US Steel Corporation agreed to drop its petitions. In exchange, the government reinstated the TPM, shifted its administration to the Department of Commerce and increased the trigger price by around 12%. Special provisions for quantitative restrictions in case of big increases in imports, accelerated depreciation on the industry's capital equipment, and relief on pollution control regulations were also included.

The Europeans put big pressure on President Carter, due to the very precarious position of their own steel industry, that made access to the US market essential. However, once the TPM was reimplanted, they quickly found that the fixed trigger price level was too high, even above the US domestic steel prices. Moreover, from 1980 on, the dollar started to appreciate significantly. The Europeans argued that due to the depreciation of their national currencies vis a vis the

dollar, their costs had fallen in dollar terms and they were able to reach the US markets at below trigger price levels. Many companies asked preclearance from US authorities to allow them to sell at prices below the trigger price. Others just shipped their steel at lower than authorized prices. The Department of Commerce denied the preclearances, despite which many more shipments at lower prices were made. This led to a number of actions brought about by the Department of Commerce. It also led to numerous petitions filed by US producers. The suits were not only against European producers, but also against South Africa, Brazil, South Korea and Romania. US producers specially complained that the Europeans were using dummy third parties owned or controlled by themselves, to enter steel into the US at TPM prices and then sell it at lower prices, or to profit from the differentials between their offshore prices and the TPM prices (14). In many cases unfair trade practices were established and countervailing duties imposed.

Negotiations with the Europeans in late 1981 and early 1982 had no positive outcome. On the other hand the US industry was set on obtaining quantitative restrictions, which they felt was the only sure way of limiting imports. Thus as a means of putting pressure on the government, they increased the number of antidumping and subsidization suits.

Once again, the Administration replied by suspending the TPM in 1982.

III. STRUCTURAL CONDITIONS OF THE STEEL INDUSTRY TODAY

Over the last decades the world steel industry has been dominated by three main actors: the US, Japan and Europe. As Japan and Europe reconstructed their economies after the war, they developed modern, competitive and export oriented steel industries. Much of their production was naturally destined to the large US market. It has been the production from these two areas that has posed the main competitive problems to the US steel industry. Therefore, the major trade conflicts, negotiations and protectionist pressures from the US, have been aimed at Europe and Japan.

However, over the last years newly industrializing countries have entered the world steel industry with increasing force. Countries such as Brazil, South Korea, India, Mexico, Taiwan, Argentina and Venezuela have augmented their steel production. Overall, steel production in Third World countries rose from 60.3 metric million tons in 1974 to 100.8 million tons in 1980, an increase of 67% over 6 years (15). Many of these countries have become net exporters to the world markets, with much of their exports destined to the

US market. As this development has taken place, the US protectionist sentiment within the steel industry has also turned against them. Even though they still represent a relatively small percentage of total US imports -21% in 1983 and 5.4% of total US consumption that year- these figures have been steadily rising. As near back as 1979, LDC steel exports to the USA accounted for no more than 11.7% of total American imports and supplied 1.7% of domestic consumption (16). Numerous cases have been filed against steel imports coming grom these countries on grounds of both dumping and subsidization practices. Many of them have been ruled favorably to the US industry. Finally in 1984, after an ITC investigation under Section 201 of the Trade Act of 1974 that found that the US steel industry was being seriously injured by imports, the US negotiated "voluntary export restrictions" with leading Third World suppliers of steel to its domestic market. The following section focuses on the structural and competitive conditions, as well as the trade position, of one Third World country, Brazil, vis a vis the US, in the context of more general trends within world steel industry today.

a) Production

Steel world production continues to be dominated by the three major steel producing areas: the US, Japan, and the

EEC, as can be seen in Table 2. In 1983, these three areas accounted for 43% of world steel production, centrally planned economies accounted for 39%, and LDCs had a share of around 10% of the total. Brazil's production in that year was 15 million metric tons. More interesting, however, is the fact that this country's steel production had been as low as 5 million metric tons in 1970 (17).

While LDC and Brazilian steel production have shown trends towards major increases, US, European and Japanese production, though still predominant, show the opposite signs. All of these reached their maximum levels in the early 1970's boom period, and have later declined. US and Japanese production peaked in 1973 and EEC production peaked in 1974. Thus the shares of US, European and Japanese world steel production have been falling, as can also be seen in Table 2.

TABLE 2
RAW STEEL PRODUCTION IN DEVELOPED AND DEVELOPING COUNTRIES
FOR SELECTED YEARS
(Millions of Metric Tons)

	1960	1970	1973	1974	1975	1980	1983
USA	90	119	137	132	106	101	77
JAPAN	22	98	119	117	102	111	97
EEC	73	137	150	156	125	128	110
LDC's	8.6	21	28	31	33	58	64
-Brazil	2.3	5.4	7.2	7.5	8.4	15	15
-S. Korea	-	0.5	1.2	1.9	2.0	8.5	12
CENTR.PLAN. ECONOMIES	105	175	206	215	222	256	261
WORLD	345	595	698	709	646	717	664
			% SHARES				
USA	26.1	20.0	19.6	18.6	16.4	14.1	11.6
JAPAN	6.4	16.5	17.0	16.5	15.8	15.5	14.6
EEC	21.2	23.0	21.5	22.0	19.3	17.9	16.6
LDC's	2.5	3.5	4.0	4.4	5.1	8.1	9.6
-Brazil	0.7	0.9	1.0	1.1	1.3	2.1	2.3
-S. Korea	-	-	0.1	0.2	0.3	1.2	1.8
CENTR.PLAN. ECONOMIES	30.4	29.4	29.5	30.3	34.4	35.7	39.3
WORLD	100	100	100	100	100	100	100

SOURCES: American Iron and Steel Institute, Annual Statistical Report, Washington, D.C., selected years.

Capacity, however, has not declined at the same rate as production. Government involvement in the EEC steel industry has tended to retard its adjustment, even though the "Davignon Plan", designed by the Community to rationalize this sector, was supposed to include a mix of protection and gradual capacity reduction. Capacity reductions in Japan have been marginal; and in the US, though they have been large, they have been much smaller than the fall in production. Therefore, rates of utilization of existing capacity in these countries, including also the US, have shown a marked downfall. In 1983, for example, rates of capacity utilization in steel production fluctuated between 9 and 81% depending on the type of product; with the bulk being between 40-60% capacity utilization. In an industry with high capital costs, as the steel industry, this has important consequences on production costs (18).

b) Costs of production

As mentioned earlier, Europe, and specially Japan, emerged from the post war reconstruction period with more modern and competitive steel industries than the US. For example, while all the Japanese production used the more efficient basic oxygen furnace, 72% of US steel output in 1965 was produced using the more inefficient pre-war

technology of the open hearth furnace (see Table 3).

TABLE 3
US RAW STEEL OUTPUT BY TYPE OF FURNACE
(%)

	BASIC OXYGEN FURNACE	OPEN HEARTH FURNACE	ELECTRICAL FURNACE
1965	17.5	72.0	10.5
1970	48.2	36.5	15.3
1975	61.6	19.0	19.4
1978	60.9	15.6	23.5

SOURCE: Crandall, R. (1981), p. 7.

Size and labor costs were other US competitive disadvantages. Modern technology required large plant sizes to extract maximum economies of scale from the blast furnace and hot strip mill stages. Most Japanese plants were constructed with the required size for these stages. In the US, however, very few plants had blast furnaces or hot strip mills of the minimum efficient scale. As more modern technology was incorporated in previously constructed US plants, the size constraint became a limiting factor to take full advantage of the economies of scale of the new processes. Japan at the time had very low wage rates that also made its steel production competitive even if its labor productivity was less than half of that in the US steel industry.

Finally, availability of abundant supplies of cheap raw material supplies in the world markets, drastic reductions in maritime transportation costs, and construction of major new mills in coastal locations in countries such as Japan, all eroded the US's previous advantages in steel production and specially its privileged position as supplier of its own domestic market.

In time, the US industry did undertake certain modernizations. As capital equipment and plants depreciated, they were substituted by operation that incorporated modern technology. By 1978 only 15.6% of US steel output was produced through open hearth furnaces. Sixty one percent of its steel production involved the use of basic oxygen furnaces and 23.5% was produced by the more modern electrical furnace technology (see Table 3). However the US has more recently been slow in adopting new technological innovations such as the continous casting process and the direct reduction method (19).

Additionally, investment in new greenfield (20) plants has been low. There has been difficulty in attracting equity and debt capital into the steel industry, due to its low and erratic earnings. Between 1976 and 1981, holders of common stocks of US integrated steel companies received

nominal cumulative annual returns that fluctuated in general between 1.16% and -0.15%, which discounting yearly inflation meant negative real returns. Only Sharon Steel stocks showed a very high return of 11.8% a year, though the company has later been threatened by bankruptcy (21). As major investments would have been unprofitable, most money went into smaller modernizations of existing plants, which has put a restriction on drastic changes.

Finally, the industry's competitive and financial troubles over the last years, and the insufficiency of the demand it has faced in comparison with its full production capacity, have led to succesive reductions in the operating rates of most plants. In 1983, these utilization rates were estimated to range from 9% to 80% depending on the type of steel product, with most rates nearer to the 50-60% range. In an industry with high fixed capital costs, as the steel industry, these rates are extremely low, and lead to a suboptimal use of existing facilities (22).

Overtime a second factor, labor wages, continued evolving. Japanese wages rose substantially and even surpassed the increases in productivity. However, increases in US wages were much higher, specially after the United Steel Workers negotiated the automatic cost of living

adjustment in the 1970's. Steel labor productivity increases in Japan were also much higher than in the USA. For example between 1970 and 1980 Japanese labor productivity in the steel industry grew 85% compared with a 27% increase in the USA. Thus though Japanese unit labor costs increased significantly -over 100% between 1964 and 1980- US increases were even higher (over 200% for the same time period). In Europe steel unit labor cost increases were higher in France and in the United Kingdom than in the USA during this same period, but in the West German industry they were substantially lower (23).

The US steel industry has continued to benefit from access to cheap and abundant coal supply; and over the 70's it enjoyed the advantage of controlled prices for oil inputs. However, this advantage has now turned around. Lower energy prices in the 70's compared to other countries, did not encourage the US steel industry to develop energy saving technologies at the same pace as its competitors; and now with decontrolled energy prices its costs for this item exceed those of its competitor. Additionally, its iron ore supplies have become increasingly depleted and more costly than in other areas (24).

Increases in environmental, health and safety

regulations, specially over the 70's; greater legal constraints relative to mergers and joint ventures that conflict with antitrust law; apparently poorer professional management; and periods of appreciation of the US dollar have additionally all combined to keep US costs above those of Japan and Europe. After 1960 steel prices for US integrated steel suppliers were in general higher than those of Japanese and European suppliers, as can be seen in Table 4.

The cost differential was much smaller and sometimes nill in the case of US non-integrated suppliers, mainly mini-mills. These producers use electric furnaces fed in practically 100% with scrap, and generally have incorporated the more efficient continuous casting process. Their smaller size also enables them to enjoy less unionized labor conditions. On top of this, electric furnaces avoid the moreo polluting production stages, which in turn means less costs in environmental regulations. Finally, installation and financial costs of these smaller units are substantially lower, which in a period of high interest rates constitutes an important cost advantage. However the range of products they can produce is generally more limited, and therefore they compete with the bigger integrated producers only in a limited range of products. In particular they are not important suppliers of the sheet or large structural markets

(25).

However, over the last decade the new competitive drive within the world steel market is not coming from the European or even from the more efficient Japanese producers. New industrializing countries, among them Brazil, are producing and exporting steel at lower costs and prices than any of the traditional suppliers. Their steel industries benefit from some or all of the following factors: access to cheap raw materials and low energy costs; diffusion of the most modern production technology that over time has become increasingly standardized, and low cost access to it; substantially lower wages and labor costs; much less environmental, health or safety regulations; coastal locations for many of their steel plants and very low maritime transportation costs; due to their competitiveness, the ability to operate at maximum capacity; and, in many cases, different forms of government support. In some of these countries a partially offsetting factor may be higher capital costs compared with the US, Japan or Europe (26). These factors will be further detailed in relation to Brazil.

TABLE 4
AVERAGE US PRODUCER PRICES AND IMPORT PRICES FOR CARBON STEEL PRODUCTS; SELECTED YEARS
(Dollars per short ton)

	BARS	COLD ROLLED SHEETS	HOT ROLLED SHEETS	PLATES	STRUCT.
US PRODUCER PRICES					
1960	144.76	139.71	122.77	133.49	127.8
1965	152.73	141.66	120.86	134.71	130.8
1970	166.39	160.64	128.65	162.12	153.2
1976	310.74	228.13	236.89	302.66	284.4
IMPORT PRICES*					
1960	133.53	215.75	157.41	142.23	143.7
1965	119.85	137.79	109.75	126.31	118.6
1970	146.75	156.09	129.50	150.82	145.3
1976	266.86	268.28	224.00	242.82	241.3

* Includes importation charges.
SOURCE: Crandall, R. (1981), pp. 159, 165.

In the case of Brazil, average costs of production per unit of steel output are estimated to be lower not only than in the US, but also than those of the EEC and even of Japan (27). Brazil invested large amounts of capital in its steel industry over the 70's, an average of $2 billion a year between 1975 and 1980 (28). In general the newly constructed facilities are highly modern and incorporate the new and more efficient technologies. In 1982, 66% of

Brazil's raw steel output came from basic oxygen furnaces, 26% from electrical furnaces and around 35% used continous casting. New plants, like the fully integrated Tuberao plant, have been located on the seacoast at a deep water port. This locational factor constitutes an additional cost advantage, as transportation costs are substantially reduced (29).

Apart from modern plant facilities, Brazil benefits from several other cost advantages. Brazil has very abundant and high grade iron ore deposits and reserves. Actually, it is one of the world's main iron ore suppliers. This means ready availability, minor transportation costs and low price of one of the main inputs for steel production. It does, however, have to import most of the coke coal it requires for its steel; but international markets for coke coal are very competitive and, when plants are located in deep sea coastal areas, importing this input constitutes no disadvantage. On the other hand, input rates of iron ore and coking coal are mainly determined by the technology used and, inasmuch as Brazil counts with modern and efficient plants, it makes an economic use of these resources (30).

Energy costs per unit of steel production in Brazil are somewhat lower than in the US, also due mainly to more

modern and efficient steel facilities. Additionally, the fact that Brazilian steel production generally runs high relative to the country's plant capacity, enables it to benefit from the economies of scale associated with steel production (31).

Another important cost advantage refers to labor costs. Brazil's labor wages in the steel industry are around 15% of those earned by steel workers in the USA. When compensation for higher labor productivity in the US is taken into account, unit labor costs in Brazil are estimated to be around 25% of the American costs (32).

One factor in which Brazil shows no advantage compared with US costs, and in some cases shows a disadvantage, is in investment and capital costs. Brazilian investment costs for constructing new plants are estimated to be in a range from a level similar or a little below US costs to 50-60% above the US level. The reason for this seems to be lack of necessary infraestructure that has to be constructed along with the steel plant. This, of course could be included as a social benefit for the country, though it has been argued that this way of providing such needs may not be the most cost efficient. Other offered explanations relate to insufficiency in size of some of the plants. This, however,

would be more relevant to other countries, since in the Brazilian case new constructed integrated plants are in general very large scale facilities (33).

Financial costs in Brazilian steel plants are also estimated to be more than double of those of American plants. Other US facilities have in general relatively low financial costs, since their major investments were done long ago, and original loans have mostly been paid off. In contrast, newly constructed Brazilian plants are paying large amounts of money in interest and principal payments. This factor will have no effect on production decisions of already existing plants, since investment costs can be considered to be sunk costs. It does, however, have an influence when deciding to undertake a new investment. And it is because of this partially offsetting capital cost factor, that some older and higher operating-cost US plants, can be expected to go on supplying the market for some time (34).

Finally, as a capital scarce country, Brazil does not have adequate and competitive domestic capital markets to undertake steel investments at a low enough interest rate. In turning to international capital markets, it may, in many cases, have to pay a premium over the lending rate available to companies from developed countries. More so, in periods

when national external debt has come to be considered excesive, it may altogether face closed external capital markets.

Though the capital cost for the country may be higher, government involvement in the Brazilian steel industry has apparently relieved it, at least in part, of bearing its full burden. According to investigations conducted by the US Department of Commerce through the International Trade Administration (ITA) in 1983-1984, Brazilian steel companies were found to be benefitting from government subsidies through access to lower cost capital funds. The total amount of estimated subsidies ranged from 17% to 62% depending on the type of product. This and allegedly other forms of government support, as well as lower environmental, health and safety regulations compared with the US, constitute the final bonus for Brazilian steel production's competititve edge relative to the USA (35).

Though Brazil's steel production is estimated to be more cost efficient than most developed countries, including Japan, there are other developing countries, mainly South Korea, that present even lower production costs. South Korea's labor costs, capital charges, construction costs, and coaking coal and iron ore input costs, are below those of

both the US and Brazil. Only its energy costs are higher than Brazil, though lower than in the USA. As a result the former is estimated to have around 14% lower overall production costs than Brazil (36).

Table 5 will illustrate cost differences between several countries or regions.

TABLE 5
COSTS FOR STEEL PRODUCTION: 1980-1982 PERIOD
(costs per ton of finished steel* in US$)

	LABOR	COAKING COAL & IRON ORE	ENERGY	TOTAL	DIFFERENCE FROM US COST
US	207	103	72	382	zero
EEC	125	100	62	287	95
Japan	70	90	64	224	158
Brazil	52	95	65	212	170
S. Korea	26	90	66	182	200

* Reflecting a normal product mix.
SOURCE: Mueller, Hans (1982), p. 47.

c) Ownership patterns in the steel industry

US steel production is all privately owned. It is, however, highly concentrated. The four largest integrated producers account for nearly 55% of US steel capacity, and the eight largest companies account for over 75% of the total. United Stattes Steel Corporation is by far the largest US steel company, followed by Bethlehem Steel, and

then National Steel Corporation and LTV. In total, over 85% of US steel capacity belongs to large integrated companies; the rest is produced by small non-integrated firms, mainly mini-mills (37).

Another important characteristic of the US steel industry is that it has practically no ties with investment abroad. From its early starts it has had an eminently domestic orientation, producing mainly for the internal market and with little interest in foreign investment opportunities. The industry was probably influenced in having this orientation by the abundant availability of input resources in earlier decades; its naturally competitive conditions within the home market during that period; and greater trade and transportation costs than today, that constituted a barrier against imports.

The steel industry in other countries has evolved with a considerable degree of government intervention. In many countries its development has been seen as a must for industrialization and growth. In Japan, though privately owned, it grew and developed with a substantial amount of government coaxing. In the 1930's, the main steel operation, the state-owned Yawata plant, combined with six private steel companies to form the Japanese Iron and Steel Company

Limited, a semi-government, semi-private entity. This company pushed for steel production expansion in the 30's and in the after-war period. When it became too big it was split into two privately owned firms: Yawata Steel and Fuji Steel. As in the US, the Japanese steel industry is highly concentrated and most production comes from very large integrated companies (38).

In Europe, the steel industry used to be essentially in private hands. However, the financial troubles of the industry have led to government takeovers or nationalizations in several countries. The major part of the steel capacity in the United Kingdom, France, Italy, Belgium and Ireland is today in government hands. On the other side, steel property is mainly private in Germany and is mixed in countries like the Netherlands and Denmark (39).

In contrast with the US steel industry, both European and Japanese companies have developed steel interests in other countries. In part this has evolved from the effort to acquire secure supplies of iron ore. But also Japanese and European firms have lately been selling technology or investing abroad directly, mainly in Third World countries such as South Korea (Japan), Brazil (Belgium, Germany, Italy and Japan), and China (Japan and Germany). The Japanese

industry, for example, sees itself concentrating more in the production of speciality steel and selling steel technology, while Third World countries take over the production of more standardized steel products (40).

In most Third World countries government involvement in the steel industry is high. This is certainly the case in Brazil (41). The industry in this country is dominated by three major state-owned integrated plants, that accounted for 58% of the country's steel production in 1980. They are Usinas Siderurgicas de Minas Gerais (Usiminas), Companhia Siderurgica Paulista (Cosipa) and Companhia Siderurgica Nacional (CSN). The government also owns some smaller units, summing up a total of around 65% of Brazilian steel capacity in federal hands. All state-owned steel companies are under the management of Sidebras, a government holding corporation.

The remaining 35% of Brazil'z steel capacity is in private hands. Two of the largest private companies are Belgo-Mineira, in which the Belgian steel company ARBED is involved, and Mannesmann, owned by the German Mannesmann.

Recently coming on stream are two new large integrated plants. The first is Tuberao, owned 51% by Sidebras, 24.5% by Kawasaki of Japan and 24.5% by Italsider of Italy. The

second plant is Acominas, with an 80% of public ownership and a 20% of foreign investment.

The amount of government involvement in many Third World and developed countries' steel industries has been a matter of bitter acrimony for the US steel industry. The latter has accused European countries of avoiding a competitive scaling down of their steel capacity, through government support of unprofitable companies. This has been considered as a negative factor in the already depressed world steel market conditions, and as forcing an excessive amount of the required adjustment on private companies, like the American ones. The US steel industry has also argued, with a reasonable amount of success at least before its own government, that foreign government involvement in steel companies has led to export subsidization, dumping and in general unfair trade practices, that have flooded the US market with steel imports and exerted an unfair competition on US companies. On these grounds, the US steel industry has in fact filed a number of petititons before the US Department of Commerce and the US International Trade Commission, and has actually obtained positive results in many cases.

d) Trade flows in steel

The bulk of steel trade takes place between developed counries. There is high a mount of intra-industry trade between these countries. Also intra-European trade is sizable.

The main steel consumer market in the world is the USA. This country was a net exporter till the late 1950's. From then on it has been an increasing net importer. Both the EEC and Japan are net exporters of steel and their main target has been the US market. The EEC has protected its markets from imports, mainly those coming from Japan. In this pursuit it negotiated "voluntary export restrictions" not only with Japan, but with a number of other countries, under the Davignon Plan (42). The Japanese have traditionally imorted no steel until recently, when South Korean steel has started to penetrate its market (43).

Table 6 shows the relative importance of US steel imports coming from different regions or countries. Imports increased their participation as a source of supply to the US market in 5 percentage points between 1979 and 1983. The source of this increase has come mainly from developing countries, since the shares of Japan and the EEC in total US consumption have not varied much. Consistently, LDC's share

in total US imports has grown, while that of Japan and the EEC have fallen. It is interesting to note that between 1979 and 1983, Brazil tripled the volume of its steel exports to the USA (44).

TABLE 6
US IMPORTS BY AREA OF ORIGIN
(%)

	% IN US IMPORTS	% IN US CONSUMPTION	% IN US IMPORTS	% IN US CONSUMPTION
JAPAN	36.2	5.6	24.8	5.2
EEC	30.9	4.8	24.1	5.0
CANADA	13.4	2.1	13.9	3.0
LDC's	10.7	1.7	25.9	5.4
- Brazil	2.5	0.4	7.3	1.5
- S.Korea	5.6	0.9	10.1	2.2
OTHERS	8.8	1.3	11.3	2.4
TOTAL	100	15.6	100	20.9

SOURCE: US International Trade Commission (1984,a).

It is important to emphasize that the amount of US steel imports has been rising steadily over the last years. In 1979 imports supplied only 15.6% of the US steel market, while in 1983 this figure had increased to almost 21%. The biggest increases have come from developing countries, which in 1979 accounted for no more than 1.7% of total US consumption. Japanese and European participation in this market rose between 1980 and 1982, but in 1983 were near their 1979 level. Canadian steel supplies to the US have

also shown some increase in their share of the total market, but less accentuated than the LDCs (45).

e) The importance of the steel industry within the US and Brazil

The US steel industry has been a very important economic sector in this country, and considered one of the cornerstones of the traditional "smokestack industries" on which American industrialization and growth evolved. It employs around 200,000 workers represented by one of the strongest unions in the country, the United Steel Workers of America. It is scattered through in a number of States, in the Northeast, Southeast and Great Lakes area, many of which are very influential in electoral terms. These characteristics have given the US steel industry a good amount of political leverage for obtaining government protection from the late 1960's onwards.

The Brazilian steel industry is of much more recent date, and has been part of the government's development strategy from the mid sixties onwards. Its expansion and high investment in this sector occurred mainly during the 70's. Brazil has not only expanded its steel industry to supply its home market, but has transformed this sector into one of its key exporting targets. Traditionally a primary product

producer and exporter, Brazil has been set on a strategy of industrialization and growth, that included not only increased manufacturing production, but also increased manufacturing exports. Looking at the country's general economics and export performance over the last years, it would seem to have been relatively successful in its objectives. However, the continued success of its strategy is to a high degree linked to open access to export markets, of which the US constitutes Brazil's main foreign market.

IV. THE US STEEL INDUSTRY BATTLES FOR PROTECTION: CONSEQUENCES FOR BRAZIL

As was stated in the introduction, one of the paths that the US steel industry has followed in its atempt to retain its market position, has been to seek government protection. In effect, the industry has a long history of using this recourse with relative success. Its position within the US economy, its size and dispersion throughout a number of States, many of them politically influential, the strength of its unionized labor force, and the prevalent idea that steel production is not only instrumental to a country's industrial power but, very importantly, that it is a strategic industry for defense purposes, have all been major factors in explaining the industry's recurrent ability to obtain

government protection. Two other important factors have been the lack of international interests of the US steel industry, which has given it a cohesive stand against imports, and the fact that consumers of steel products have generally been less organized and tenacious in opposing such protectionism.

It is interesting to contrast this experience with that of other industries, like copper, that have not had the same success. The copper industry has also recurrently sought government protection since 1977, but has not obtained any relief. Unlike the steel industry, the US copper industry had extensive international interests till the early 70's, so protection was not a desired industry target till later on. The copper industry is relatively small within the global size of the American economy; it is concentrated in a few States, mainly in the Southwest, that have less political clout; its labor force is much smaller than that of the steel industry; there is a much lower strategic significance associated with the industry (though copper industry defenders have sometimes used this argument to support their positions); and, specially lately, the US copper consuming industry has presented a stronger and more organized opposition to the possibility of protecting copper. In the long run, higher copper prices because of protection, would have lowered copper demand as other products substituted the

use of copper. This would have meant a further adverse effect on the industry.

However, the protection given to the steel industry specially since the late 70's, seems to have been half-hearted on the part of the government. The Carter Administration devised the TPM system seemingly due to the intense pressure of the industry. But it was also seeking to avoid the administrative complications derived from the petititons for anti-dumping tariffs and countervailing duties against subsidies, and the strong resistence that the Japanese and European felt for these procedures. There was the intention to calm the industry's discontent, but at the same time avoid more severe protectionist measures. The industry, on the other hand felt that the relief obtained through TPM was insufficient. This explains the degree of contentiousness that the mechanism provoked between the industry and the government. The relief offered by the Reagan Administration, as will be analyzed presently, has also been a way of calming the industry, while avoiding excessively protectionist measures.

By 1981-1982, the steel industry was desillusioned of the effectiveness of the TPM and was strongly set on obtaining quota restrictions for steel imports. They felt that this

was the only effective measure to curb such imports. Their main targets were Japanese and EEC imports. With the Japanese there already existed an "informal" agreement since 1978, though officials of neither country admitted its existence. This agreement meant a voluntary export restriction (VER) which limited Japanese exports to the US to 6 million tons a year. This kept Japanese imports through all the TPM period very stable, and avoided trade conflicts in steel between the two countries (46). The US industry pushed hard to obtain a similar agreement with the EEC. However, the diversity of opinions and interests within the Community made this more difficult. After a long and acrimonious battle, an agreement was finally reached in late 1982, where the EEC accepted to "voluntarily restrict its exports" to the USA (47).

Even before this agreement, the US industry was becoming increasingly worried about expanding steel imports from other countries, many of them newly industrializing countries. As was mentioned before, while the share of developed countries' steel exports to the USA remained constant or even fell during the early 80's. Third World countries significantly increased their shares in this market. Petitions for unfair trade practice investigations either dumping or subsidization had been filed against imports from countries

such as South Africa, Brazil, South Korea, Taiwan and Mexico. Imports from Canada and non-EEC European countries such as Spain, Romania, Sweden and Austria had also been questioned (48).

Having obtained a solution to the trade conflict with the EEC, the industry turned its energy to limiting expanding imports from other suppliers. A bombardment of suits against many LDC steel exporters was carried out, with accusations of both subsidizing their steel production or dumping it in the US market (49). At the same time, pressure was put on them to also undertake voluntary steel export restrictions to the US market.

Two interesting factors have affected these smaller suppliers in their negotiating power vis a vis the US steel industry and government. In the first place, there has been a tendency on the part of the US to favor its traditional steel suppliers, mainly Japan, the EEC and Canada, when imposing overall quota restrictions. For example, in Reagan's proposition to limit steel imports to 18.5% of domestic consumption and negotiate export restrictions with principal suppliers of the US market, the Japanese and EEC quotas would be maintained at the level of their previous agreements, with 5-6% of the market share for each. Canada's

previous market share, around 2-3%, would also be kept. The remaining 4-5% should be divided among all the other suppliers, principally South Korea, Brazil Mexico and South Africa (50).

The second factor is that having reached an agreement with the two biggest suppliers, and the ones that might have more negotiating and political power with the US, the smaller suppliers were left in a very weak negotiating position. They were not principal actors or suppliers within this industry, nor did they have any effective instrument for retaliating or putting pressure. Thus, to a big extent they had to accept whatever policy was decided by the US government in this matter.

The following sections review the main actions brought up against Brazilian steel imports, Brazil's reactions towards these restrictions, and the evolution of the petititon for relief presented by the industry before the ITC in 1984 under Section 201 of the Trade Act of 1974.

a) Trade actions against Brazilian steel imports

From the early 1980's to mid 1984, imports of diverse Brazilian steel products have been subject to numerous (at least 17) suits for both subsidization and dumping practices.

In at least seven of these cases there was an affirmative determination on the part of the competent federal agencies (ITA and ITC). By mid-1984 effective antidumping or countervailing duties were in practice in three cases; in the others the action was suspended after reaching an agreement with the Brazilians. Actions against Brazilian imports were both independent, or as part of broader petitions against products from various countries (51).

In more general terms, these years saw a great many similar actions taken against a number of countries, many of them LDC's. Among the affected Latin American countries, were Mexico, Brazil, Argentina and Venezuela. Once countries agreed to negotiate export curtailments, either under orderly market agreements or voluntary export restrictions, such actions were ceased. Mexico and South Africa negotiated such agreements with the Americans in early 1984, and pending actions against them were thus suspended (52).

Between late 1983 and early 1984, three major suits were brought against Brazilian steel imports (53). One was initiated with the petition of the US Steel Corporation on behalf of the steel industry, claiming that Brazil was dumping hot rolled and cold-rolled carbon steel sheets in the

US market, selling them at prices far below their market value. Another anti-dumping investigation was initiated with a petition of Bethlehem Steel Corporation, and affected Brazilian imports of hot-rolled carbon steel plates and hot-rolled carbon steel sheets. Around 20% of Brazil's exports to the US were affected by these petitions. In both cases the Department of Commerce ruled that considerable margins of dumping in fact existed for the different products investigated, and the ITC determined that significant harm was being caused to the domestic industry because of these practices.

The third investigation was begun due to a petition filed by the US Steel Corporation, claiming the Brazilian government was subsidizing exports of steel products. In this case around 75% of Brazil's steel exports to the US were affected. Again the Department of Commerce found that a significant margin of subsidization existed. Since Brasil is a signatory of the Subsidies Code negotiated in the Tokyo Round of the GATT, before levying countervailing duties, material injury to the US industry due to these subsidies had to be proven. The ITC determined after investigation, that such injury existed.

Anticipating the outcome of these investigations, Brazil

had taken several actions, though none of them had proven very effective (54). In early 1984, it sent a team of negotiators to Washington D.C., to try to work out an orderly market agreement, under which Brazil would be assured a specific share of the US market. The American negotiating team was led by Undersecretary Lionel H. Olmer. However the two countries were unable to reach an agreement, because the gap between the industry's demands and Brazil's willing level of restraint was too big.

Brazil also imposed a 27.42% countervailing export tax on its steel exports to the US, hoping that the US would then drop its unfair trade charges. This export tax covered hot and cold-rolled sheets and plate coil. However, Undersecretary Olmer contended that Brazil did not always collect its export taxes on time. The Brazilian action was thus deemed insufficient to stop the unfair trade suits.

Brazil protested the findings of the Department of Commerce in these investigations. It claimed the magnitudes were overstated, specially considering the devaluation of the Brazilian Cruzeiro. The Brazilian Minister of Commerce and Industry, Joao Camilo Pena, said that if the US restricted Brazilian imports of steel, the country would not be able to service the debt it held with its American creditors.

Though some anti-dumping and countervailing duties were in fact enacted, this case by case restriction procedure was finally overidden by the outcome of the more general petition for relief that the industry had presented before the ITC under Section 201 of the Trade Act of 1974.

b) The petition for relief before the ITC

On January 24, 1984 the United Steel Workers of America and Bethlehem Steel Corporation filed a petition for relief before the ITC under Section 201 of the Trade Act of 1974. They claimed that imports of foreign steel had caused serious injury to the US steel industry. In their presentation they argued that all producers manufacturing basic carbon steel products constituted a single domestic industry (55).

Backing the petition were a wide range of interested parties. Declaring before the ITC in representation of the industry were Bethlehem Steel Corporation, Gilmore Steel Corporation, Inland Steel Company, Lukens Steel Company, Weirton Steel, the Committee of Domestic Steel Wire Rope and Specialty Cable Manufacturers, the West Coast Fabricators and Steel Industry Association, Nelson Wire Company and the American Institute of Steel Construction. The steel workers were represented through presentations of the United Steel

Workers of America. Also declaring before the ITC in favor of the steel petition were senators and congressman belonging to the Steel Caucus: Senator John Heinz (Pensylvannia), Representative John Murtha (Pensylvannia), and Representative Ralph Regula (Ohio). Representing affected communities was the Mayor of Pittsburgh, Richard Caliguri, who presented testimony supporting the industry's petition for relief (56<0.

The petition before the ITC threatened the position of all major steel exporters to the US market. It was also contrary to the interests of US steel importers and consumers. Representatives from the steel industries of the EEC, Japan, Canada, Brazil, Argentina, Venezuela, Australia, South Korea, Taiwan, Spain, Sweden, and South Africa testified against restrictions for steel imports. The EEC itself, also presented testimony against the US steel industry's petition. US steel importers, like the American Institute for Imported Steel, Inc. and the West Coast Metals Importers Association opposed the petition. Finally, American steel consuming industries, like Caterpillar Tractor Company, General Electric Company and Hoover Universal Inc. presented testimony before the ITC in opposition to the relief petition (57).

From this it is possible to have an idea of the association of interest groups that were formed to back up or oppose the petition. Some remarks are necessary. In the first place there was no representative of the US automobile industry, that as important steel consumers could have been expected to oppose the petition. At the time, however, the automobile industry had an ambivalent stand on this matter. Though increased steel prices were not in their convenience, at the time they too had been seeking protection against imports, which made them more sympathetic to a trade restriction approach. Nor did the farm sector (that later, when President Reagan had to take a final decision on this case, manifested its opposition) or the financial sector (whose interests where contrary to the restriction), present any formal testimony before the ITC during the first phase of the process.

There is a final point worth commenting that influenced the degree of pressure exerted both in this stage of the process, as well as in the more political stage when Reagan had to decide on a definite course of action in the matter. Inasmuch as the main foreign suppliers to the US markets, the EEC and Japan, had already negotiated steel quotas with the US, and these were hoped to be respected in the final decision, the degree of political pressure that they put

during the whole process was considerably reduced.

In a petition for relief under Section 201, the first phase of the process is the ITC's determination if the petitioning industry is suffering serious injury of which imports are the substantial cause. Serious injury can be determined either if such injury has actually occured, or if there is threat that it will occur. Indicators used for determining the existence of injury are, among others, a significant idling of productive facilities, the inability to operate at a profit, and a large increase in unemployment. Threat of injury considers mainly falls in sales, increases in inventories, and reductions in production, market shares, wages, profits and employment. "Substantial cause" is defined as being no smaller than any other individual cause that may be negatively affecting the industry (58). If the determination is affirmative, the ITC must propose a relief measure like quotas or tariffs. There are however several steps that have to be decided.

First is the definition of industry. As was noted previously, the steel petition for relief had presented all steel producers as only one industry. The definition of industry in these cases is always a somewhat subjective issue. An industry may be defined as a group of firms

producing the same product. However, products can always be clasified according to more ample or more narrow categories, thus altering the scope of an industry. In this case the ITC decided that there were actually nine industries involved in the petition (59).

In resolving the question of relief, the ITC Commissioners should only address the problem in he context of the interests and scope of the steel industry. Considerations of global economic welfare should not be made. These aspects however would later on be considered in the President's resolution. The ITC Commissioners found that all nine defined steel industries were suffering serious injury, considering significant idling capacity in the industry, inability to operate at a reasonable level of profits, and unemployment. However, they were divided on the matter of whether imports constituted the major cause of such injury. In the case of railway type products and bars, they unanimously determined that this was not so. The majority also voted that in tubes and pipes, imports were not a substantial cause of the injury. For all the other products, a majority of the Commissioners voted an affirmative determination. However, in each of these cases there were two votes of dissent. Commissioner Paula Stern voted that no import relief be granted, based on her belief that the best

course of action for the industry was to rely on market forces for its adjustment. Commissioner Susan Liebeler also argued strongly in favor of market forces and free trade. Both of them determined for each product, that imports were not a substantial cause of the injury the industry was suffering (60).

The ITC recommended the imposition of import quotas for sheets and strips, plates, structural shapes and units, and wire and wire products, which are the products that constitute over 60% of all carbon steel imports. For ingots, blooms, billets, slabs and sheet bars, tariffs were recommended. The proposed relief period would be 5 years, with a higher level of protection the first three years, and a lower one the following two (61).

Again, it is interesting to note that the Commissioners defined a "representative period" of imports, which were the years 1979-1981. This would acquire relevance when distributing the quotas among the different countries. During those years the market share of the EEC and Japan had been much higher than they were in later years, when LDC imports had increased strongly. This defined "representative period" would permit giving the EEC and Japan higher quotas (62).

Commissioner Liebeler stated that in case import relief was granted, it should be subject to a 20% compensation cut to steelworkers. Commissioners Rohr and Lodwick, while recommending relief, also manifested their concerns on the need of domestic adjustment of the industry (63).

After the ITC recommendation to the President, the process passed on to a much more political phase. 1984 was an election year and Walter Mondale had the support of the steel workers. For Reagan winning the support of steel producing States, like Pennsylvannia, Ohio, Illinois, Indiana, and New York was an important issue. However, there were also important domestic opponents to this protection; and the lobbying forces in favor and against it were largely matched.

The steel industry was not only using the ITC as a channel for protection. The Fair Trade in Steel Act of 1984 had been presented in Congress, as S.2380 in the Senate and H.R.5081 in the House of Representatives, and was backed by both the industry as well as the steel workers. Basically, it called for imposing an import quota on steel that would limit them to no more than 15% of domestic consumption. (In 1984 steel imports were running at around 25% of domestic

consumption). It also defined a representative trade period, from 1979 to 1981, thus favoring market shares of the EEC and Japan when assigning quotas to each country. This was further stressed by the fact that existing quotas negotiated with countries (or areas), like the EEC, should be considered; and that steel exporters using unfair trade policies, mainly LDC's, should be penalized. Finally, the bill included a provision that increased profits of the steel industry due to import restrictions should be reinvested in the steel industry. This provision was strongly supported, by the steel workers (64).

Though this bill represented mainly a Democratic initiative, within the Congress the issue of steel protection was not a matter of party affiliation, but of State constituency. There were representatives from steel States, both Democrats or Republicans, favoring it, and others, like those from farm States, opposing it.

The coalition against steel protection that voiced their position most loudly during this period, was constituted by steel importers, like the American Institute for Imported Steel; the farm States' leaders and organizations, that feared that restrictions on steel imports could bring retaliation against their agricultural exports and that did

not wish to see an increase in price of their steel machinery; steel consuming industries like Caterpillar Tractor Company, that threatened to move its facilities out of the US if steel prices were increased; retailers and shipworkers (65).

The opposing block coordinated its campaign through "Consumers for Free Trade", a free trade organization based in Washington, D.C. Active and speaking participants at public presentations were the American Association of Exporters and Importers, the American Soybean Association, Caterpillar Tractor Company, the Construction Industry Manufacturers Association, the National Association of Stevedores, the National Grange, and the Retail Industries Trade Action Coalition (66). Notably absent from this lobbying were, as mentioned before, automobile industry representatives and representatives from the financial sector. Apparently, US banks at the time were too concerned with pending legislation on regulations to their own business, as to involve themseleves with the steel issue, though it was in their interest to avoid trade restrictions that might hamper the ability of other countries to repay their debts with these banks (67). When questioned, however, on this and other cases (like the restriction on copper imports), they did manifest their opposition to trade

restricting measures.

Though the main forces deciding the steel issue were undoubtedly domestic, there was some lobbying on the part of steel exporters to the US. As was pointed out before, the EEC and Japan were absent at least from more visible pressures. Both the ITC recommendation, the spirit of the "Fair Trade in Steel Act", and the sentiment in the final proposition of the US Administration, favored their interests. However, the Canadian Minister Francis Fox warned William Brock, the US Trade Representative, that Canada would retaliate against the US if trade barriers were put on steel imports (68). On the other hand, South Korea campaigned in Washington D.C. against steel quotas (69).

Mondale, in his campaign, used the steel issue to his benefit. To strengthen his support within a sector whose workers already favored him, he proposed a plan to limit steel imports to 17% of domestic consumption, and at the same time that the industry should use its increased profits in a program to update its facilities and retrain its workers (70).

In this context of conflicting interests and pressures, and of coming elections, Reagan had to make a decision. His

Cabinet was strongly divided on the best course of action (71). Favoring some measure of relief were James Baker (senior political advisor and White House Chief of Staff), Secretary of Commerce Malcolm Baldrige, Director of the Office of Management and Budget David Stockman, and US Trade Representative William Brock. They argued that some protection measure was necessary due to the proximity of the presidential elections and the political-electoral consequences that the decision might have. Arguing against any protectionist measure were Secretary of State George Shultz, representing the traditional position of the State Department that favors the US's international relations over domestic protectionist pressures; Secretary of Defense Casper Weinberger; Secretary of the Treasury Donald Regan, favoring the US's international financial interests in his position; and William Niskanen, a member of the Council of Economic Advisors.

Reagan rejected the ITC majority recommendations saying that it would damage the steel consuming industries imperiling the jobs of many more workers that labor in these industries than the 200,000 steel workers. It would also mean too great a cost on consumers, taxpayers and the global economy, and that it would invite other countries to retaliate against US exports. Finally, it might affect the

ability, for example, of Latin American steel exporting countries like Brazil or Mexico to service their debts with US banks (72).

On September 18, 1984 Reagan presented a plan that was more flexible and that was a compromise between different interests. It apparently left most interested parties happy. He decided to continue negotiating voluntary export restrictions with main foreign steel suppliers of the US market, that is those with market shares over 0.3%. These voluntary restrictions should limit imports to no more than 18.5% of the US market. He added however that if negotiations were not successful within 90 days, unilateral restrictions would be imposed on imports from those countries with whom no agreement had been reached. The plan proposed basically to maintain the shares of the EEC, Japan, Canada and other countries that already had satisfactory voluntary export restrictions, like Mexico and South Africa. It also proposed an active stand on combating unfair trade practices (73).

The reaction to the proposition was mostly favorable. The steel industry had been fearful of a less protectionist proposition, and therefore declared that it supported the plan if the 18.5% limit was strictly held. Foreign steel

exporters had been fearful of more restrictive measures, so they also welcomed the plan. Brazil's Foreign Minister, Ramiro Saraiva Guerreiro, made declarations inmediately after the announcement, welcoming Reagan's decision and adding that his government favored voluntary export restraints. He said that his country was already applying unilateral export restraints, and that it would now be willing to negotiate more formal arrangements with the USA. The EEC, Japan, Canada, Mexico and South Africa were undoubtedly happy since their market shares were left untouched. In the same announcement on the steel question, Reagan announced a $630 million farm loan guarantee program to ease credit problems of the farmers. With this he avoided any discontent on the part of the farmers for his decision. Steel importers also applauded the President's decision for not having been more restrictive (74).

The only party that was left manifestly unhappy were the steel workers, that felt betrayed by the industry for its quick support of the Reagan plan. They stuck to their desire of a 15% limit on steel imports within domestic consumption (75). There were other criticisms to the plan but of a more intellectual nature. The fact that the government had not used this opportunity to extract guarantees from the industry that it would use the granted protection to restructure,

modernize and become more competitive, was pointed out. Brock dismissed this alternative as involving too much government interventionism. Economists, like Robert Crandall of Brookings Institution, and industry analysts, said that the beneficial effects of the restriction on the steel industry would be short lived, and that the industry had never used these restrictions to improve its competitiveness or to modernize its equipment, since import restrictions substantially led to a decrease of the pressure on the industry. The New York Times also pointed out that the plan would mean billions of dollars in costs to consumers and decreased competitiveness of steel consuming manufacturing industries, withouth having much effect on halting the steel industry's decline (76).

By early 1985 Brazil, as well as other countries, had negotiated "voluntary export restrictions" with the Americans, on its steel sales in the US market. The Brazilian government's general attitude towards this whole conflict seems to have been characterized as follows. First, it tried to take advantage of access to the American market for its steel sales as long as possible. Between 1980 and 1983, the value of its steel exports to the US went up around 60%. Even while it was being threatened with different types of suits, it went on increasing its exports, and opted not to

reach a negotiated solution. Second, when worse came to worse, the Brazilian government seemed to feel it had little leverage or negotiating power on its own to do much but accept the American measures. Moreover, a more coordinated action of exporting countries was not intented, and probably had little chance, in the absence of a strong position on the part of the EEC and Japan. At that point it was quick to accept negotiations with the Americans. Finally Brazil, as have most exporters in these cases (certainly the Europeans and Japan), favored a negotiated agreement in the form, for example, of a voluntary export restriction, instead of unilaterally imposed tariffs or quotas by the USA, or anti-dumping or countervailing duty procedures.

V. THE PATH OF RESTRUCTURING

Though the US steel industry has been much more succesful than many other industries in obtaining government relief, this protection is still small when considering the existing gap between its own costs and those, for example, of a country like Brazil. Crandall (77) has estimated that the voluntary export restrictions for steel in the 1969-1972 period raised domestic steel prices between 1.2% and 3.5%. The TPM only meant a 0.8% to 1.1% increase in these same prices. In both these occasions, it was the price of imported steel that really rose more: 6.3% to 8.3% during

the first scheme and 9.1% to 11.5% during the second. The present system of voluntary restraints will probably not have such a big effect on domestic prices either, certainly not enough to change the fate of many of the larger higher cost integrated steel mills. And, as Crandall (78) has pointed out too, this effect will only be temporary and most probably will not lead to a more competitive US steel industry. So, in the best of cases, the protectionist strategy can only be expected to perhaps delay and temporarily reduce the scale of the trend towards a reallocation of the steel industry form high cost producers, like the USA, to more competitive producers, like Brazil.

If protectionism is not a sufficient response, may the US steel industry regain its competitive edge through internal restructuring and modernization? As was mentioned in previous sections, the industry did modernize its facilities substantially from the late 50's and early 60's till the mid and late 70's. But even now it is lagging behind in introducing the most recent and efficient technologies. According to Crandall (79), this is in part due to the inmense financial costs involved in investing. Existing plants with already deppreciated machinery may find it more economic to produce with this higher operating-cost equipment, than to invest and add the burden of increased

financial services. Empirical evidence shows that US steel companies that were more aggresive to invest and modernize during the mide and late 70's are now confronted with more serious financial woes (80). Furthermore, this factor tends to outrule the possibility of greenfield investments, that require very lumpy initial investments. Inasmuch as modernizations will tend to be through brownfield investments (81), constraints in changing, for example, the scale of the plant or other important factors, may limit the scope of the upgrading of the facility. And unless the plant has a very specific productive bottleneck, introducing a partial modernization may well create an imbalance with the rest of the production technology (82).

The difficulty to reduce other important costs, like labor costs, is also a crucial point. And unlie European facilities, the US steel industry cannot expect government subsidies.

Notwithstanding, the steel industry has been trying to reduce its costs. In the process before the ITC, it reported to have invested in equipment, technology, modifications of existing equipment in order to reduce operational costs and expenditures for environmental controls. These investments affected both iron making and steel making, and further

processing stages. They have included investments in continous casting, one of the main available technological improvements for reducing costs. Through this process, the integrated mills can increase yields, and reduce energy and labor costs (83).

The industry has also aimed at this objective by shutting down inefficient operations, and merging facilities that together can operate at lower costs. Total US steel capacity fell from 158 million tons per year in 1978 to 133 million tons in 1985. Integrated steel capacity declined by 40 million tons between 1976 and 1985. And Crandall estimates that these big facilities could still shed around 30 million tons of capacity by the end of the century (84). In relation to merges, a notable example was the merge of Youngstown and Jones and Laughlin into LTV, and later the acquisition of Republic Steel by LTV in 1983-1984. This in a sense also indicates a more lenient stand on the part of the government with respect to anti-trust regulations (85).

Reducing the size of the labor force and obtaining concessions in wages and employee benefits have also been steps taken. To increase labor productivity, efforts to cross-over or merge job responsabilities have been made (86). Some companies like Weirton Steel and LTV Steel have tried

implementing greater labor participation in the decisions and management of the plants. Schemes of "employee ownership" and "labor-management participation" have been tried with apparent success. The objective has been to reduce the confrontational nature of industry-labor relations that has traditionally characterized the US steel industry, increase the compromise and involvement of labor with their companies, ahd thus obtain greater productivity (87).

Additional measures have included readjusting schedules so as to take advantage of off-peak electricity rates, and trying to improve marketing procedures. But a really favorite course of action of many steel companies has been diversification into other activities. US Steel Col, for example, started to diversify into chemicals in the late 60's, and more recently into oil, having bought Marathon Oil. National Steel has diversified into aluminum and financial services, and its parent, National Intergroup, has said it intends to limit steel to only one third of its operations. Armco and Interlake have also diversified strongly and Bethlehem Steel is now exploring this path. Of course, not all steel companies have diversified significantly till now (88). Diversification is, in a sense, a way of getting out of the steel business, or at least a way of reducing its importance within the overall activities of a

company. However, in some cases or during certain periods, it can also serve as a mechanism where higher profit activities "finance" or compensate the lower profits of steel production.

Several authors, like Barnett and Schorsch and Acs (89), stress the emergence of the mini-mill as the revolutionizing force within the US steel industry, and the main option for increased competitiveness. Mini-mills have several advantages over the large integrated mills: lower financial costs due to smaller size and therefore less initial investment; greater energy-use efficiency and less requirements of pollution control; smaller and less unionized labor force; and greater administrative and bureaucratic flexibility which enables a more efficient management. The existence of appropriate technology no longer makes the smaller scale of operations a problem.

Mini-mills have doubled their capacity from 10 million to 20 million tons over the last decade in the USA and they could double it again by the end of the century (90). In the line of products that mini-mills produce, some of these American operations are even competitive with the low-cost, Third World steel producers. However, more than stopping supply of the US market by foreign producers, mini-mill

production has tended to displace production of the larger integrated mills.

Till now, mini-mill technology has not made them apt for producing the whole range of steel products that the large integrated mills produce. Specifically, they have been a minor force in the large structural, sheets and plates markets. In the present, however, they are making efforts to penetrate a broader range of markets (91). But, for the present at least, they will be unable to substitute all the larger integrated-mill production. And these large facilities, even having lost market to the smaller ones, continue to be the overwhelming force within the American industry.

The path of industrial restructuring does not look like an overall solution for the US steel industry's problems, specially the large mills, and for keeping its market share in the long run. Cost differences with other areras are too big, and the cost reduction measures taken are insufficient. Wages and labor costs constitute an item that weighs heavily in the American competitive disadvantage. Moreover the industry's mediocre performance and low possibilities for new investments to compete succesfully, have made management and shareholders very reluctant to invest in this sector in more

modern and efficient plants. They seem more inclined to a strategy that enable them to operate existing facilities at a high enough profit, and in the mean time diversify into other activities. Notwithstanding, some marginal investments to increase efficiency will probably be undertaken. The more dynamic sector of the industry, the mini-mills, will probably expand and continue increasing their share of the industry, but with present technology will not be able to substitute the bulk of the larger mills' production.

Stagnation in new investments will lead to a gradual reallocation of the industry towards those areas where new facilities can be competitively built. However the trend cannot be seen as a very drastic shift of the industry towards these new locations. Important closures of the higher cost large American integrated mills have already occurred, and though the industry may see further closures in the following years, this may be a gradual process. Even though a new steel investment in the US cannot compete with one made in Korea or Brazil, existing American facilities have the advantage of having minor or no financial costs. So, before these facilities become depleted, many of those operating today will be able to go on producing, provided no unexpected downturn in demand occurs and that lower cost producers do not have significant amounts of idle capacity.

However, as demand increases in the future, and US steel plants finally become obsolete, production coming from more competitive areas, like Brazil or South Korea, should tend to absorb the required increase in supply.

VI. CONCLUSIONS

The US steel industry has managed to have different forms of government protection for nearly two decades. The industry's size, the position it traditionally occupied within the American economy, its geographic dispersion, the number of steel workers, the power of their trade union, and the idea of the strategic importance of steel, have been important factors in explaining the industry's political ability to obtain such protection.

These factors will not disappear in the short run, and thus one can expect that the industry will continue to have some ability to obtain protection. Moreover, global economic benefits from allowing a reallocation towards more efficient producing countries, are difficult to grasp by the workers and communities suffering from the adjustment process. And so the affected sectors will continue to press through their Congress leaders, or whatever other available avenue of exerting pressure they have, to obtain governmental relief.

In the Trade Act of 1984, for example, Congress included provisions that explicitly linked steel import quota negotiations with the requirement that large companies reinvest their entire cash flow into steelmaking assets (92). Through this, they are trying to institutionally target the subsistence of a large scale American steel industry, and thus halt its reallocation towards other regions.

However, as time passes, and the industry continues to display a very poor performance, there should be growing awareness within the country that this is not a sector in which the US has long run comparative advantages. Indeed, recent Administrations have given the industry protection due to the political pressure received, but have tried to limit as much as possible the amount of this protection.

Even given the amount of protection the industry has managed to obtain till now, this in no case is sufficient to end its economic plight. What has traditionally occured is that prices of domestic steel have risen only slightly, while imported steel prices have risen sharply. In the case of quota restrictions, the policy seems to have been specially favorable to foreign exporters with large assigned quotas in the US market, who have benefited from increased sales prices.

Moreover, the succesive shcemes of trade protection have proved quite ineffective in halting imports in the long run. Following the imposition of the "voluntary export restraints" in the late 1960's, imports decreased from 16 million tons in 1968 to around 12-13 million tons in the two subsequent years, to rise again sharply thereafter (16-17 million tons in 1971 and 1972). And even this initial decrease seems to have been at least partly caused by other factors, mainly a surge in steel demand in other areas that attracted European and Japanese exports. Imports also fell from 19 million tons in 1978, to 14-16 million tons the two years after the TPM was imposed, but again this coincided with a dollar depreciation that might have limited them anyway. And after the initial fall, they rose again and were high in 1981 (18 million tons), a year in which the TPM was in effect. Finally, in periods in which antidumping and countervailing duties petitions have soared, like the 1982-1984 period, steel imports have been high, though many of these petitions had a favourable determination for the industry (93). The last negotiated steel export restrictions are still too close for a full evaluation. However, even if they mean an initial fall in steel imports, there is a big probability that this will be short lived.

TABLE 7
US STEEL IMPORTS
(millions of metric tons)

1965	9.8	1975	11.5
1966	10.1	1976	13.5
1967	10.8	1977	18.4
1968	16.7	1978	20.2
1969	13.3	1979	16.9
1970	12.7	1980	15.0
1971	17.2	1981	19.0
1972	16.6	1982	16.0
1973	14.4	1983	16.5
1974	15.3		

SOURCE: American Iron and Steel Institute, Annual Statistical Report, Washington, D.C. Selected years.

In sum, protection may play some role in giving the American industry some transitory relief, and in defering the reallocation process somewhat, but given the trends observed till now, it does not seem a sufficient force to stop the process. Nor is there any evidence that protectionism has led the industry to use the relief period in regaining its competitive position. So it cannot be viewed as a long term solution.

This leads us to the question of whether the industry could feasibly restructure and regain its competitiveness. Here the answer seems to be that the cost differentials are so wide and difficult to surmount, specially considering that labor cost differentials would have to be cut drastically, that it seems highly improbable. Big new steel investments

will in all probability not be made in the US, and if forced, for example by legislation like that contained in the 1984 Trade Act, it will probably lead later to closures and bankruptcies.

For a time, however, the US will be able to take advantage of the fact that it already has existing facilities, that have long ago paid off their investment costs. Even if more costly to operate, the fact that there are no or small financial costs, is a considerable advantage. This enables them in many cases to be a better alternative for supplying current demand than investing in new facilities even with substantially lower operating costs. Also it is possible that some of the higher cost US plants, instead of closing, will start operating as rolling mills for processing imported or mini-mill produced slabs (94).

The US may be expected then to continue being an important supplier of current demand. However, as demand grows over time, other low cost producers will tend to absorb the required expansion in steel capacity. In this process, the US share within the market will shrink, as it actually has been falling over the past decades, and the reallocation of the industry will in fact take place. Given present conditions good candidates to absorb this expansion in

capacity are LDC countries, and perhaps among them the most promising are Brazil and South Korea.

The most dynamic sector within the US steel industry over the past years has been the mini-mill sector. Its cost advantages have enabled it to have a growing share of the US industry, and to be today the only profitable investments in steel. It has become competitive with the production of other countries in the line of products in which it specializes. However, mini-mills are not till now technically adequated to substitute the entire line of steel products. More than being a substitute for foreign steel production, these small producers have tended to displace the production coming from the large integrated US plants, though they still constitute a minor part of this industry.

Under these conditions, one might expect an effective but gradual and slow reallocation of the industry towards LDC's. Many people suggest that the US should not be so reluctant in allowing this shift, specially in carbon steel products. They argue that the country should let go of this technologically more unsophisticated production, and instead shift its steel industry towards the production of specialty steel that is more intensive in technology. Moreover, the consumers of specialty steel have more exacting and diverse

needs, that make marketing and consumer services important features of competition, in which US producers could have an important advantage, specially within their domestic market (95). This seem to be one of the paths taken for example by Japan. However, as the bul of steel production is carbon steel products, this would all the same involve a down-scaling of the industry.

Another area of international specialization within the industry, in which Japan also seems to be concentrating, is the sale of steel technology. US involvement in the setting up of raw steel facilities in low cost areas, could be a road for the industry. A greater internationalization in US steel production is an interesting feature that might be emerging in the last years. The Japanese NKK bought 50% of one of National Steel's plants in 1984, and other important Japanese producers have purchased shares of American steel companies. Ivaco, Inc., a Canadian steel firm, now has the control of three US steel mini-mills. And there is some speculation about the possibility of future alliances between US steel companies and European or Third World producers (96).

In this scenario, the perspective for Brazil's steel industry, and its long run access to the US market, would not be bad. However, there are several considerations that must be made. In the first place, this is a long term view, which

in no case means that there will not be a considerable amount of commercial conflicts around steel exports and trade restrictions put up by the US, in the shorter run. It is probably in the interest of a country like Brazil, whose steel exports to the US constitute an important export item, to try to maintain negotiated agreements in the meantime, so as to assure its access to this market.

A second consideration is the convenience that Brazil emphasize that it will be a dependable and secure supplier. This will weaken the argument that the US industry should be protected on account of security considerations, be they economic or political.

Finally, the fact that the industry is tending to reallocate towards countries like Brazil, does not mean that these countries can increase their supplly with no restriction. Expansion plans in these countries should make careful consideration of existing capacity and the expected trend in future demand.

NOTES

1. Crandall, R. (1981), pp. 24-28 and Harris, A.W. (1983), pp. 14-15.

2. Walter, I. (1983), pp. 484-486.

3. Crandall, R. (1981) and Walter, I. (1983).

4. Crandall, R. (1981), p. 24.

5. Crandall, R. (1981), pp. 5-10.

6. Crandall, R. (1981), p. 23.

7. Walter, I. (1983), pp. 485-486 and Crandall, R. (1981), pp. 32-38.

8. Crandall, R. (1981), p. 27.

9. Crandall, R. (1981), chapter 2.

10. Harris, A.W. (1983), pp. 14-15 and Crandall, R. (1981), pp. 24-26.

11. Crandall, R. (1981), pp. 34-38.

12. Harris, A.W. (1983), chapters 2, 4 and 9; Hogan, W.T. (1983), chapter 9; Crandall, R. (1981), Introduction; and Walter, I. (1983), pp. 491-497.

13. Hogan, W.T. (1983), pp. 202-203.

14. Walter, I. (1983), pp. 493-494.

15. Hogan, W.T. (1983), p. 153.

16. US International Trade Commission (1984,a).

17. American Iron and Steel Institute (1984), OECD (1985), US International Trade Commission (1984,a), US Congress Senate Committee on Foreign Relations (1984) and Hogan, W.T. (1983).

18. Mueller, H. (1982), Harris, A.W. (1983), p. 14 and US International Trade Commission (1984,a).

19. Crandall, R. (1981), chapters 1, 4 and 6 and Hogan, W.T. (1983), pp. 105-113.

20. This refers to the construction of a completely new plant in a new site, as opposed to the modernization of an old facility.

21. Crandall, R. (1985), p. 23.

22. Crandall, R. (1981), pp. 24-25 and US International Trade Commission (1984,a).

23. Walter, I. (1983), pp. 485-486.

24. Walter, I. (1983), pp. 484-490 and Crandall, R. (1981), chapter 2.

25. Hogan, W.T. (1983), chapter 5, Crandall, R. (1981), chapter 1 and Crandall, R. (1985).

26. Mueller, H. (1982) and Crandall, R. (1981), chapter 4.

27. Mueller, H. (1982) and Crandall, R. (1981), chapter 4.

28. Mueller, H. (1982).

29. Hogan, W.T. (1983), pp. 161-163.

30. Hogan, W.T. (1983), pp. 161-163 and Mueller, H. (1982).

31. Mueller, H. (1982).

32. Mueller, H. (1982) and Crandall, R. (1981), chapter 4.

33. Mueller, H. (1982) and Crandall, R. (1981), chapter 4.

34. Crandall, R. (1981), chapter 4.

35. US Congress Senate Committee on Foreign Relations (1984) and The New York Times: April 20, 1984, May 31, 1984 and June 1, 1984.

36. Mueller, H. (1982).

37. Crandall, R. (1981), chapter 1.

38. Hogan, W.T. (1983), chapter 4.

39. Hogan, W.T. (1983), chapter 3.

40. Hogan, W.T. (1983), chapters 3, 4 and 7.

41. Hogan, W.T. (1983), p. 161-163.

42. Walter, I. (1983), pp. 497-500.

43. Hogan, W.T. (1983), pp. 165-166.

44. US International Trade Commission (1984,a).

45. US International Trade Commission (1984,a).

46. Walter, I. (1983), p. 495.

47. Cline, W. (1983).

48. Walter, I. (1983), pp. 492-497.

49. US ITC investigations on steel imports due to petitions for anti-dumping tariffs and countervailing duties against subsidies: 1981-1985, US International Trade Commission (1984,a) and US Congress Senate Committee on Foreign Relations (1984).

50. Dwyer, P. (1985) and The New York Times, September 19, 1984.

51. US International Trade Commission (1984,a).

52. Dwyer, P. (1985).

53. US Congress Senate Committee on Foreign Relations (1984), and The New York Times: December 21, 1983, January 28, 1984, February 29, 1984, April 20, 1984, June 1, 1984 and July 4, 1984.

54. The New York Times: January 28, 1984, April 20, 1984, May 31, 1984 and August 27, 1984.

55. Dwyer, P. (1985) and US International Trade Commission (1984,a).

56. US International Trade Commission (1984,a).

57. US International Trade Commission (1984,a).

58. Trade Act of 1974. United States Code Annotated, Title 19, Customs Duties, Section 2251.

59. Dwyer, P. (1985) and US International Trade Commission (1984,a).

60. Dwyer, P. (1985) and US International Trade Commission (1984,a).

61. Dwyer, P. (1985) and International Trade Commission (1984,a).

62. Dwyer, P. (1985).

63. Dwyer, P. (1985).

64. US Congress, Congressional Budget Office (1984), pp. 35-38.

65. The New York Times: August 31, 1984, September 5, 1984, September 19, 1984 and September 20, 1984.

66. The New York Times, September 5, 1984.

67. The New York Times, September 20, 1984.

68. The New York Times, August 30, 1984.

69. The New York Times, August 27, 1984.

70. The New York Times, September 24, 1984.

71. The New York Times, September 19, 1984.

72. Dwyer, P. (1985) and The New York Times: September 19, 1984 and September 20, 1984.

73. Dwyer, P. (1985) and The New York Times, September 19, 1984.

74. The New York Times, September 19, 1984.

75. The New York Times, September 24, 1984.

76. The New York Times, September 20, 1984.

77. Crandall, R. (1981), cahtper 5.

78. Crandall, R. (1985) and The New York Times, September 20 1984.

79. Crandall, R. (1981), chapter 4.

80. Crandall, R. (1985).

81. Investments in modernizing existing plants and facilities.

82. Crandall, R. (1985).

83. US International Trade Commission (1984,a) and Business Week (1984).

84. Crandall, R. (1985).

85. US International Trade Commission (1984,a); Crandall, R. (1981), chapter 1; and Crandall, R. (1985).

86. US International Trade Commission (1984,a).

87. "Employee Ownership and Participation in the Steel Industry", Conference (1985).

88. US International Trade Commission (1984,a); Business Week (1984); and Crandall, R. (1985).

89. Barnett, D.F. and Schorsch, L. (1983) and Acs, Z. (1984).

90. Crandall, R. (1985).

91. Crandall, R. (1981), chapter 1 and Crandall, R. (1985).

92. Crandall, R. (1985).

93. US International Trade Commission (1984,a).

94. Crandall, R. (1985).

95. Business Week, (1984).

96. Crandall, R. (1985) and Business Week (1984).

BIBLIOGRAPHICAL REFERENCES

Acs, Zoltan (1984). The Changing Structure of the US Economy. Lessons from the Steel Industry. Praeger Publishers, New York.

Barnett, D. and Schorsch, L. (1983) Steel. Upheaval in a Basic Industry. Ballinger Publishing Company, Cambridge, Mass.

Bergsten, F., Horst, T. and Moran, T. (1978). American Multinationals and American Interests. Brookings Institution, Washington, D.C.

Business Week (1984). "The Worlwide Steel Industry: Reshaping to Survive". August 20.

Business Week (1985). "The New Trade Strategy". October 7.

Cline, William (1983). "Introduction and Summary". Trade Policies in the 1980's, Cline, W. (ed.), Institute of International Economics, Washington, D.C.

Crandall, Robert (1981). The US Steel Industry in Recurrent Crisis. Brookings Institution, Washington, D.C.

---------- (1985). Trade Protection and the "Revitalization" of the Steel Industry. Draft, December 13. Presented at the American Economic Association Annual Meeting, New York, December 27-30, 1985.

Dwyer, Paul (1985) "International Trade: Rejection of Recommendation on Steel Import Regulation". Harvard International Law Journal, Vol. 26, Winter.

Harris, A.W. (1983). US Trade Problems in Steel. Japan, West Germany, and Italy. Praeger Publishers, New York.

Hogan, William T. (1983). World Steel in the 1980's: a Case of Survival. D.C. Heath and Company, Lexington, Mass.

Instituto Latinoamericano del Fierro y del Acero (ILAFA) (1983). Anuario. Santiago, Chile.

Mueller, Hans (1982). A Comparative Analysis of Steel Industries in Industrialized and Newly Industrializing Countries. Conference Paper Series 72, Business and Economic Research Center, Middle Tennessee State Univerrsity, April.

Mutti, John (1981). Taxes, Subsidies and Competitiveness Internationally. National Planning Association, Washington, D.C.

Steel Panel Committee on Technology and International Economic and Trade Issues, National Academy of Engineering and National Research Council (1983). The Competitive Status of the US Steel Industry. National Academy Press, Washington, D.C.

Time (1985). The Battle Over Barriers. October 7.

US Congress, Congressional Budget Office (1984). The Effects of Import Quotas on the Steel Industry. July.

US Congress, Office of Technology and Assessment (1981). US Industrial Competitiveness. A Comparison of Steel, Electronics and Automobiles. Washington, D.C.

US Congress Senate, Committee on Foreign Relations (1984). The Steel Industry. US Government Printing Office, Washington, D.C., July 6.

US International Trade Commission (1984). Carbon Steel and Certain Alloy Steel Products, Vol. 1 and 2. Report to the President on Investigation N.TA-201-51 Under Section 201 of the Trade Act of 1974. USITC Publication 1553, Washington, D.C., July.

US International Trade Commission (1984). Competitive Assessment of the US Foundry Industry. USITC Publication 1582, Washington, D.C., September.

Volk, Steven. "The International Competitiveness of the US Economy. A Study of Steel and Electronics". Mimeo.

Walter, Ingo (1983). "Structural Adjustment and Trade Policy in the International Steel Industry". Trade Policy in the 1980's; Cline, W. (ed.), Institute for International Economics, Washington, D.C.

Weintraub, Sidney (1984). Free Trade Between Mexico and the United States. Brookings Institution, Washington, D.C.