The economic rationale of antidumping law; The steel industry of the USA

ERASMUS UNIVERSITEIT ROTTERDAM

Department of Economics

Thesis supervisor: Jean-Marie Viaene

Name: T.L. Bleeker

Student nr.: 294562

Email address: 294562tb@student.eur.nl

Telephone nr.: 06-20685389

Abstract

Over the past decades the US steel industry has received lots of protection. One of the protective measurements was the antidumping law and in the past steel producers have been really fond of this law. The USA has been one of the biggest users of antidumping law over the past decades and over half of all cases involved its domestic steel industry. The use of this law drove prices of steel up and created a shortage of steel for domestic steel consumers. It are these steel consumers that suffer from this practice of the US antidumping law. The steel consuming industry is far bigger than its counterpart, the steel producing industry. The use of antidumping law has lead to a lot of forced layoffs and closures of companies. This paper points out that there is no economic rationale supporting such a use of antidumping law. The steel industry is important for domestic security but at the moment there is more than enough steel produced to guarantee it. The use of the antidumping law results in welfare loss for the entire US economy year in year out. The steel consuming industry, the WTO and foreign producers have all criticized this policy and therefore it is time that the antidumping law of the US or the use of it, is changed.

Table of contents

1. INTRODUCTION	4
2. HISTORY OF THE US STEEL INDUSTRY	5
3. THE US STEEL INDUSTRY IN PERSPECTIVE	9
Steel producers	9
GEOGRAPHICAL DISTRIBUTION	9
Production	10
EMPLOYMENT	12
Steel consuming market	12
Institutions	13
GLOBAL COMPARISON	13
4. ANTIDUMPING THROUGHOUT THE YEARS	15
THE CASES	15
Criticized policy	17
5. THE US ANTIDUMPING POLICY	20
THE POLICY	20
6. RATIONALITY	24
THE USA	24
Changing scenarios	27
7. CONCLUSION	29
8. REFERENCES	27
Websites	27
News Articles	28
Bibliogrpahy	28

1. Introduction

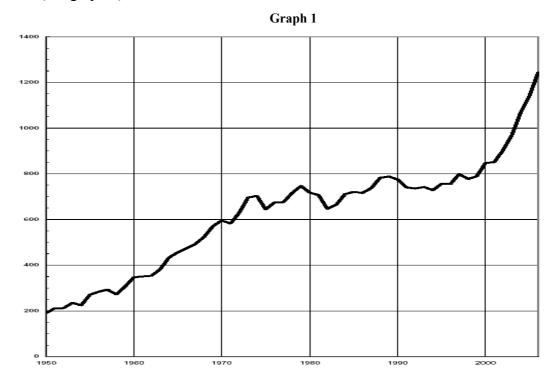
The Unites States has prohibited 'dumping' of imports into the United States in its Anti-Dumping Act of 1916. In this way domestic companies were protected from foreign companies dumping their goods on the US market. According to the WTO there is a case of dumping when a company exports its product at a lower price than it charges on its home market.1 This paper focuses on the role of the antidumping law and the domestic steel industry. The steel industry of the US is the third biggest producer of steel in the world. As in any other open market economy the US steel industry faces competition from all over the world which makes it important to be competitive. In order to ensure fair competition the WTO has set up rules and guidelines for countries to bide by. It for instance prohibits the use of quotas but allows a country to have antidumping law. For decades now the US has been charged with complaints about their antidumping policy. Foreign producers and governments but also parties from inside the US itself are complaining. They have been accused of using it as a protectionist measurement rather than to restore fair trade. This is mainly because the US uses the method of zeroing which makes their policy more restrictive since it determines in more cases that a company is dumping its products. The US is the only major country in the world still using this policy. The US is one of the biggest users of antidumping law in the world and more than half of the cases they initiate involve their steel industry. The problem with the steel industry is, is that many other industries within the US depend on it since steel is their main or one of their raw materials for their own products. This steel consuming industry seems far bigger than the steel producing industry. Antidumping law has as a result that prices of products remain high. This is of course profitable for the US steel industry but could be detrimental to the consuming industry. In the end there should be some sort of economic rationale supporting this practice of the antidumping policy. In this paper I want to find out whether there is an economic rationale supporting this policy with regard to the US steel industry. It is important for this research that it becomes clear what the characteristics of the steel producing and consuming industry and the antidumping policy are and which consequences the policy has for both parties. In the end it should be clear that what the practice of the US antidumping policy is plausible from an economic point of view or whether the US should change it.

¹ WTO website

2. History of the US steel industry

The modern steel industry started of in the 1850's with the Bessemer converter invented by Henry Bessemer. It was the first machine that made the mass production of steel possible. By 1900 the steel industry was booming in the United States as it was the largest producer in the world and demand seemed unending. It was than, in 1901, that US Steel was established by famous men like J.P. Morgan and Andrew Carnegie². At the time it was the largest steel producing corporation in the world.

The steel industry was one of the United States' biggest industries and in 1945 the country was even responsible for the production of half of the world's steel, which was slightly less than 100 millions tons. After the Second World War competition increased for the US steel industry because the European countries and Japan started to rebuild and modernize their industries. In the 1960's the US was still producing about 100 million tons of crude steel but the world production of steel had increased rapidly since the Second World War at nearly 6% each year. This growth continued until the beginning of the seventies which at that time the world production of crude steel was nearly 600 million tons of which the US produced about one fifth (see graph 1).



Note: World steel production in million metric tons

Source: World Steel Association (2008)

² U.S. Steel website

The two oil shocks in the seventies, the first in 1973 and the second 1979, had a great negative influence on both the consumption and production of steel, reducing the annual growth to 0,6% for the next nearly 25 years. It was not until the new millennium started that the world steel production experienced growth rates it had experienced in the sixties. This all had to do with the rapidly developing economy of China and India with which came an increasing demand for steel.³

As stated before, in the period directly following the war the US had the biggest steel producing industry of the world. But since the steel strike of 1959 things changed. The strike was initiated by the labour union United Steelworkers of America (USWA) and was directed against the steel producing companies in the US. In the end the workers only got a small wage increase but over 85% of US steel production had been shutdown for nearly four months. Steel using industries were desperately trying to purchase steel and therefore sought new suppliers and found these in Japan and Korea. Since than the US was no longer a net exporter of steel but a net importer. Of course, as mentioned earlier, the revival of the economies of the countries involved in the Second World War also made the competition in the global steel industry increase. One other very important factor for this shift in export to import was the stance of the dollar which was very strong at the time.

As more and more steel was imported pressure rose on the US government and President Johnson. This pressure finally resulted in the first Voluntary Restriction Agreements (VRA) with Japan and the European Community in 1969. After five years the VRA expired and immediately imports started rising again and the US steel industry started filing a lot of AD and CVD petitions. There again was a need for quantitative restrictions but US President Carter decided otherwise and implemented Trigger Price Mechanisms (TPM) in 1977. The TPM comprised an agreement with the domestic steel industry that they would refrain from filing AD and CVD petitions as long as the import prices of steel would not drop below a certain level. This level was set at the Japanese production costs plus an 8 % profit margin. It is said that the Japanese had the lowest production costs in the world at the time. Although the US government renewed the TPM in 1980, the domestic steel industry was convinced that the mechanism was useless because the imported steel from Europe was subsidized. They therefore started filing AD and CVD petitions again which led to over a hundred petition

³ Boston Consulting Group report, February 2007

⁴ Wikipedia, http://en.wikipedia.org/wiki/Steel_strike_of_1959

filings in January 1982 and to the suspension of the TPM program. Because the US government was afraid all these filings would lead to trade frictions, President Reagan negotiated on new VRA with the European Community in October 1982. This VRA had little effect because the dollar was still strong and steel could still be imported from other regions in the world than the European Community. This led to the industry filing another large amount of AD and CVD petitions in 1984. As a result another VRA was agreed upon, this one being more comprehensive than any other before. With this VRA in motion the industry revived again as production and employment rose. Because the industry was doing better, President George H. Bush decided in 1989 to renew the VRA but only for a period of two and a half years instead of five. When in 1992 this VRA ended the result was again another large amount of petition filings by the industry. This time the government had decided not to renegotiate any VRA and instead had the filed cases investigated by the US International Trade Commission. The result was that only in half of all the filed cases the final decision favoured the US steel industry (Blonigen, Liebman, Wilson, 2007).

Towards the end of the nineties the US economy was doing well and this development had its effect on the steel industry. The industry became more competitive and filed fewer petitions. But in 1997 Thailand was hit by a financial crisis when its government decided to no longer peg the Thai Bath to the US Dollar. It devaluated rapidly and pulled the country in to a crisis. But, as can be clearly seen in 2008 with the financial crisis, a crisis never hits one country alone. By 1998 the whole of Southeast Asia was in financial crisis which also triggered a financial crisis in Russia in August 1998. For the US, this meant an increase of imported steel and as a consequence of that an increase in the AD and CVD filings. With the start of the new millennium the US steel industry was suffering badly. Over more than 30 steel mills, nearly 30%, filed for bankruptcy and prices were at a 20-year low. In 2001 the steel producers also suffered from excess capacity, utilizing only 75 % of total capacity. To relieve the steel producers and avoid massive unemployment President George W. Bush decided in 2002 to implement tariffs of up to 30 % on a wide range of steel products. The implementation of the tariffs was disapproved of by the WTO and the EU threatened to retaliate if they were not banned. In December 2003 Bush withdrew the tariffs stating that the

 ⁵ Boston Consulting Group report, February 2007
⁶ The Michigan Daily, March 6th 2002

safeguard measures had served their purpose and that as a result of economic circumstances it was time to lift them⁷.

The next years, 2002 to 2006, the global steel industry saw a rapid increase in demand and consequently a rise in prices when China's economy started developing at a fast pace. During these years prices of steel tripled and overcapacity shrunk to less than 15 % in 2006. The increasing demand also lead to increasing prices of raw materials used for making steel. Yet none of these increased much more than twice their original value so steelmakers were making profits. But prices stabilized because the increased demand for steel by China decreased since their steel producing industry outpaced their domestic demand. For the first time China became a net exporter of steel though it still relied on the imports of certain more advanced types of steel. But it is only a matter of time before China has completely modernized its production process.

The USA was once the largest producer of steel but other countries, especially in Asia, caught up and the USA saw its share of the market decrease. Due to this increase of competition the US has a long history of antidumping policies. The next chapter will elaborate more on what the industry looks like nowadays.

⁷ President's statement on steel, December 4, 2003

3. The US steel industry in perspective

Steel producers

The steel producing industry is a manufacturing industry; it makes steel from raw materials like iron. There are all kinds of steel which are characterized by the amount or specific combination of iron and other raw materials used when processing it. According to the AISI there are over 3000 catalogued grades of steel. In the US there are two types of facilities that produce steel. These are the integrated mills and the mini mills. The integrated mills use big blast furnaces that run on a sort of coal named coke to produce molten iron which is processed into molten steel in basic oxygen furnaces. This process is relatively capital and energy intensive. The mini mills use an electric arc furnace to make steel out of scrap steel and iron. The mini mills process is a lot less capital intensive and the plant size is smaller than of the integrated mills. Because of the difference in size, output in a mini mill (one million tons per year) is lower than in an integrated mill (three million tons per year) and their workforces are smaller which often are non-unionized workers.⁸ Mini mills are also more specialized and only produce a certain small number of steel products. Before the 1960's there hardly were any mini mills and nearly all the produced steel came from large integrated mills. But in the sixties and seventies scrap prices went down and the production from a mini mill became profitable enough to start serving the market. And in 1999 they were already responsible for 46% of the US steel production. The number of integrated mills has dropped during the last few decades due to the automation of the production process and as a result of that the consolidation and downsizing of the mills.⁹

Geographical distribution

Most steel producing mills are located in the east of the US in the so called Great Lakes region which includes the following states: Ohio, Pennsylvania, Michigan, New York, Indiana and Illinois. For integrated mills it is really important to be near water (which is needed for cooling) and raw materials like coal and iron ore needed in the production process. The South-east also is a quite large steel producing area but in the West of the US production and number of mills located is very limited. Although mini mills basically can be sited

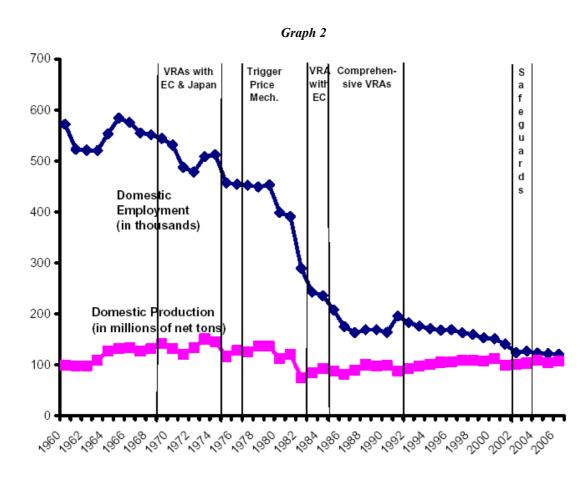
⁸ US Environmental Protection Agency, September 1995

⁹ US Department of Energy, August 2000

everywhere as long if it is not to far away from scrap steel and electricity, they also are found mainly in the East of the US.¹⁰

Production

The production of crude steel in the US has been relatively stable over the years. As stated in chapter 2.1 they were responsible for nearly half of the world production in 1945, which was 100 million tons. In 1960 they were still producing at about 100 million tons but at this point the world production of steel had risen fast (see graph 1). When looking at graph 2 it is easy to see that the line representing the height of production is fluctuating until about the mid eighties. This was the result of the oil crisis in the seventies, a strong dollar and a somewhat failing trade policy. From 1988 and onwards production has been reasonably stable and has steadily developed itself to a level of about 98 million tons.

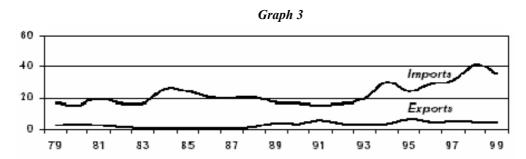


Note: Employment and production for the US steel producing industry **Source:** Blonigen, Bruce A., Benjamin H. Liebman, Wesley W. Wilson (2007)

-

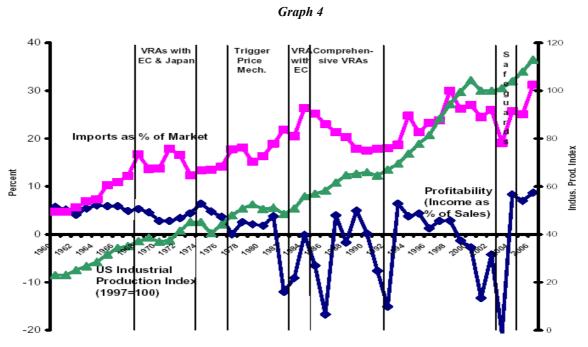
¹⁰ US Department of Energy, August 2000

Graph 3 shows the development of import and export since 1997 until 1999. The line representing the level of imports shows some sharp peeks in the beginning of the eighties and nineties and at the end of the nineties. The two peaks in the beginning of the eighties and nineties can be explained by expiring VRA's and the strong stance of the dollar. The peak in the end of the nineties can be explained by the financial crisis in South-east Asia. Graph 3 also shows the level of export throughout the years which shows to have been relatively stable though it shows two small peaks in 1991 and 1995.



Note: Import and export levels for the US steel producing industry in million net tons **Source:** Margolis, Nancy, Ross Brindle (2000)

Graph 4 shows a more detailed picture of the development of the import penetration from 1960 up and to including 2007. In 1960 just 5% of the total supply of steel on the US market came from imports. In 2007 already 30% of total supply came from imports.



Note: Pink dotted line: import penetration as % of the US steel producing market **Source:** Blonigen, Bruce A., Benjamin H. Liebman, Wesley W. Wilson (2007)

Employment

Like nearly every industrial process, the steal production process has been heavily automated during the years. This development made an increase in productivity possible and along with the consolidation process and the increasing competition, this has resulted in a drop of employment in the steel producing industry. As graph 2 shows, at its peak in the sixties the industry supplied jobs for nearly 600.000 employees. During the years this number dropped rapidly and in 2005 there were just over 150.000 employees active in the industry and in 2007 there were just over 100.000 people employed. A big problem for the US steel industry in the more recent years (from about 1990 and onwards) is that they have to cope with very high legacy costs. These are costs like pensions and health benefits for retired employees. The tariff action by President Bush in 2002 was implemented so that the industry could enjoy some relief of foreign competition and be able to better cope with these high costs. These legacy costs place the US steel industry in a disadvantage since many foreign producers don't have to bear all these costs by themselves.¹¹

Steel consuming market

The steel consuming industry consists of many large industries and the list below shows the most important ones. ¹² For the US steel industry the Automotive and Construction industry are its biggest consumers, respectively making up 13% and 16% of the steel consuming market. ¹³ The US steel industry depends much on the health of these two major consumers. The national army is also becoming a big consumer of steel with national security becoming more and more important for the US. In 2005 the steel consuming market employed over 9.170.000 people. ¹⁴

- Automotive
- Construction, incl. maintenance
- Steel service centres, distributors
- Containers, packaging, shipping
- Machinery, industrial equipment, tools
- Steel for converting and processing
- Rail transportation

¹¹ US Environmental Protection Agency, September 1995

¹² US Census Bureau website

¹³ US Department of Energy, August 2000

¹⁴ CITAC Steel Task Force website

- Contractors' products
- Oil and gas industries
- Electrical equipment
- Appliances, utensils, and cutlery

Institutions

The American Iron and Steel Institute (AISI) is an institute that represents over 75% of US steel producers. It serves as its public voice in the political arena and has as its mission to promote the use of steel. Since this paper is about the practice of the Antidumping law there are also three other institutions that need to be mentioned. These are the Department of Commerce (DOC), the International Trade Administration (ITA), which is a part of the DOC, and the International Trade Commission (ITC). The DOC or companies themselves initiate cases of dumping. After this the ITA, as the government agency handling the dumping investigation, will see whether there is a case of dumping. If there is a case of dumping the ITC will investigate the size of the injury. So these two institutions are responsible for the handling of all the filed antidumping cases by the domestic steel industry and the DOC.

Global comparison

As stated in chapter 2, at the end of the Second World War the US was the biggest producer of steel in the world. Graph 2 shows the development of the production level of steel of the US, which on average has not changed that much. The world production however, has experienced a significant increase. Graph 1 shows this development from just 200 million metric tons in 1950 to 1344 million metric tons in 2007. In this year the US produced 98.2 million metric tons which was just 7.3% of world production. With this level of production the US was the third biggest producer in the world as China, with 489.2, and Japan, with 120.2 million metric tons, were the two biggest producers. In 1997 China made up 13.6% of the global production and in 2007 already 36.4%. A simple calculation shows that China is responsible for nearly 70% of the increase in production for those ten years.

In 2006 418.4 million metric tons of finished steel was exported in the world. Table 1 shows that China was the biggest exporter of steel in 2006. The US is ranked 14th on this list

-

¹⁵ American Iron and Steel Insitute website

¹⁶ International Trade Administration website

¹⁷ International Trade Commission website

¹⁸ World Steel Association 2008

with an export level of 10.2 million metric tons. This is even less than the export level of a little countries like the Netherlands. From table 2 can be derived that the US is by far the biggest importer of steel with an amount of 42.2 million metric tons of imported steel. Add these numbers up and it can be concluded that the US is by far the biggest net importer of steel in the world.

Table 1

Rank	Country	Total exports	
1	China	51.7	
2	Japan	34.6	
3	European Union (25)	32.4	
4	Russia	31.5	
5	Ukraine	30.6	
6	Germany	29.2	
7	Belgium-Luxembourg	24.6	
8	France	18.8	
9	South Korea	18.0	
10	Italy	17.1	
11	Brazil	12.6	
12	Taiwan, China	10.6	
13	Netherlands	10.2	
14	United States	9.6	
15	Turkey	9.2	
16	United Kingdom	8.5	
17	India	6.9	
18	Spain	6.8	
19	Austria	6.5	
20	Canada	6.1	

Note: Total exports of steel in million metric tons

per country in 2006

Source: World Steel Association (2008)

Table 2

Rank	Country	Total imports	
1	NAFTA	42.6	
2	United States	42.2	
3	Germany	37.5	
4	European Union (25)	24.4	
5	Italy	23.9	
6	South Korea	22.4	
7	China	19.1	
8	Belgium-Luxembourg	17.0	
9	France	16.9	
10	Spain	14.2	
11	Turkey	12.3	
12	Canada	11.0	
13	Thailand	10.8	
14	Taiwan, China	10.6	
15	United Kingdom	8.9	
16	Netherlands	8.3	
17	Mexico	8.2	
18	Iran	7.6	
19	United Arab Emirates	6.7	
20	Poland	6.4	

Note: Total imports of steel in million metric tons

per country in 2006

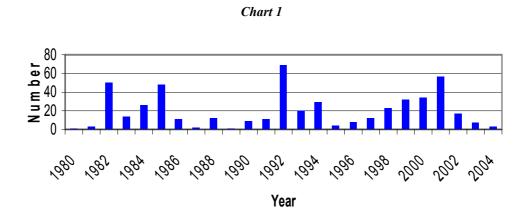
Source: World Steel Association (2008)

4. Antidumping throughout the years

In this chapter a closer look will be given to the antidumping practice of the USA throughout the years. First some statistics on antidumping cases from 1980 onwards will be examined. After this an overview of various reactions to the antidumping practice of the US government will be presented.

The cases

For a closer look on all antidumping cases in the US, the Global Antidumping Database from Bown can be used. ¹⁹ This database gives a comprehensive and detailed overview of all cases regarding antidumping of a specific country during certain years. For the US data has been collected that covers the time period of 1980 to 2005. In these years the US has initiated 1093 cases of which 503 cases involved products of steel which is nearly half of all the cases. Of these 503 cases, 152 were classified by TSUSA codes which stand for Tariff Schedule for the United States Annotated. Import commodities were collected according to this system during the years 1972 till 1988. The other 351 cases are collected according to the Harmonized System Codes, the so called HS-codes. This system is in use since 1989. Since 1980 up to 2005 the US has initiated a grand total of 1093 cases of which nearly half was related to steel products. In this same period the European Union has only initiated 632 cases. Chart 1 shows the distribution of the cases over the years.



Note: Number of antidumping cases concerning steel in the US **Source:** Derived from Bown, Chad P. (2009) "Global Antidumping Database"

.

¹⁹ Chad P. Bown Personal website

The highest amount of cases can be found in 1982, 1985, 1992 and 2001. As described in chapter 2.1 of this paper the high results in 1982 and 1985 were the result of the failing TPM and negotiated VRA's. In 1992 the VRA ended and was not renewed by the government. The rise of cases in the period of 1998-2001, with as highlight 2001, can be explained by the financial crisis in Asia.

When there are accusations of dumping, a dumping case can either be initiated by either the domestic industry or the Department of Commerce (DOC). The case will than be investigated by the ITA which will establish whether the foreign company is dumping its products. After this the ITC will look whether the domestic industry is really injured by the dumping. If these answers are positive the DOC will inform the US Customs Service to levy a duty on the prices of the company accused of dumping. Out of the 503 cases initiated by either the steel industry or the DOC, there is information on 401 of them. Though this means that we miss information on 102 of them, the sample of 401 is big enough to be representative. In 86% of these cases the DOC claimed that there was a proven case of dumping. But only in 55% of these cases the ITC established that the domestic industry was really injured by the activities of the foreign company. In four cases a suspension agreement was arranged and in all the other cases ad valorem duties were imposed.

Table 3

Rank	Rank world production 2008	Country	Number
1	2	Japan	37
2	12	Taiwan	31
3	9	Brazil	30
4	6	South Korea	29
5	1	China	23
6	14	France	21
7	13/34	Spain/Venezuela	20
8	10	Italy	19
9	15/21	Mexico/South Africa	18
10	7	Germany	17
11	16	Canada	16
12	17	United Kingdom	15
13	5	India	14
14	27/29	Argentina/Romania	13
15	18	Belgium	12

Note: Countries most involved in antidumping cases with the US and their rank on the world production list of crude steel

Source: Derived from Bown, Chad P. (2009) "Global Antidumping Database"

Table 3 shows the division of the number of cases over the trading partners of the US. The table gives a clear image of the top 15 countries targeted by the US steel industry and the DOC. The second column of the table also shows how much steel is produced in the country compared to the rest of the world. Rank 3 can not be found in this column since the USA itself was the third biggest producer of steel in the world in 2008. China is the biggest producer of crude steel in the world and its relatively low fifth ranking as targeted country can be explained by the fact that China has only recently started developing rapidly and with it its production of steel. Besides this possible explanation, a clear trend between the amount of steel produced and the amount of cases initiated can not be found.

Criticized policy

The practice of the antidumping policy of the US government has been criticized a lot during the years. Many foreign companies and governments claim that the US uses this policy as a protectionist measurement to support their own industries. A theoretical approach to this situation shows that the ones benefiting from this situation are the people active in the steel producing industries. Those that suffer from this situation are the people active in the steel using industries of the US, the foreign companies that export steel to the US, the companies located in the US exporting steel that experience retaliation practices in foreign countries and in the end the regular American consumer.

In the practice of their antidumping policy the US government is bound to several regulations. Since January the 1st 1995 the country has been a member of the World Trade Organization (WTO). Part of the WTO is the General Agreement on Tariffs and Trade (GATT). Art. 6 of the GATT regards anti-dumping. The WTO considers dumping to occur when a company exports a product at a price lower than the price it normally charges on its own home market. The WTO passes no judgement on whether this is unfair competition but merely looks at the way the governments react to the dumping.²⁰ In short the WTO examines judges and disciplines anti-dumping actions. The US is also a member of the North American Free Trade Area (NAFTA) since January the 1st 1994. This agreement established a free trade area between the USA, Canada and Mexico. This agreement also comprises a notification that art. 6 of the GATT is also in effect in this agreement and there is a dispute settlement system/procedure that deals with disputes that arise over anti-dumping and such.²¹ The

World Trade Organization website
Art. 1902 and further, NAFTA legal text

definition of dumping by the NAFTA is nearly the same as the one of the WTO but it adds to this definition that there is also a case of dumping when the company sells its products at prices lower than the cost of production.²² Than there is also the national law concerning anti-dumping. This law is guarded by the ITC and the ITA and they both have the same definition of dumping as the NAFTA has.

The data presented in this chapter shows that the US steel industry is a heavy user of the antidumping law of the USA. By many this law is thought of as being an instrument of a protectionist policy and they want it to be banned.

As stated in the beginning of this chapter the US steel using industry suffers from the US antidumping policy. The steel using industry claims that it suffers from higher prices and shortages in supply of their raw materials since the domestic steel producing industry only supplies 75-80 % of the total of steel needed and tariffs limit imports.²³ In 2002 the steel using industry organized itself in the Steel Task Force (STF) supported by the trade organization Consuming Industries Trade Action Coalition (CITAC) which fights to ensure that consuming industries and manufacturers in America have access to reliable supplies of globally-priced materials necessary for those industries to produce their products.²⁴ The STF wants to ban all tariffs on steel and has tried to achieve this during the years by handing in petitions, publishing research results and even by organizing a ''End the Steel Tariffs'' rally in October 2003.²⁵

As mentioned in chapter 3 of this paper, the US steel producers are represented by the AISI. For years this industry has claimed that they, themselves, are the victims of unfair trade policies of foreign governments. They claim that foreign markets are subsidized heavily and so they themselves are victims of unfair trade politics. In November 2008 they published a report in which they specifically attacked the trade policies of China, Russia, Ukraine and India. Because of foreign unfair trade policies, high legacy costs and dumping foreign firms, the steel producing industry claims in needs help. In another report they also especially stress their importance for national security since the army requires a lot of steel and it can not be

²² NAFTA website

²³ CITAC website

²⁴ idem

²⁵ idem

safe that for this steel they have to rely on foreign producers.²⁶ Also former US president Bush was in favour of protecting the US steel industry by implementing tariffs. An article published on the 9th of February 2002 in the Michigan Daily reports on this matter stating that President Bush thought this was necessary and in line with WTO regulations.²⁷ The article also shows various negative and positive reactions to the implementation of the tariffs. As mentioned in chapter 2 of this paper, a year later the WTO ruled against these tariffs and they had to be removed.

In several cases the WTO has also ruled against the US and its usage of the method of zeroing which will be explained it chapter 5. Two important cases are the Japanese Ball Bearing case and the Mexican Stainless Steel case. In both of these cases the WTO Appellate Body declared the use of zeroing contrary to the US WTO obligations.²⁸ Yet the US still uses the zeroing method in their antidumping policy since the European Community has filed another case regarding this subject against the US in February 2009.

It can be concluded that US antidumping policy is a subject of heavy debate. The steel producing industry claims to need it in order to be able to survive but as a consequence the steel using industry suffers. Foreign exporters like the European Community complain and initiate cases at the WTO Dispute Settlement Body. The next chapter goes in deeper on why there might be a need for such a policy.

American Iron and Steel Insitute website
The Michigan Daily, March 6th 2002

²⁸ World Trade Organization website

5. The US antidumping policy

This chapter elaborates more on the US antidumping policy and up to what level it is really a protectionist policy and if there is a need for it.

The policy

In chapter 4 it was already described how an antidumping case is initiated and which government department deals with the dumping and injury investigation. But there is more to it. In all other countries they determine whether a company is dumping by looking if the prices they charge are beneath normal value. The normal value of a product is its average price charged in the country of production of the exporting firm. If the average of the observed prices in the foreign import market is lower than the normal value, the company is dumping. In the US the DOC uses a different method, namely zeroing. When using zeroing the US treats all observed prices that are above the normal value as if they have occurred at the normal value. This lowers the observed average price drastically, making their antidumping law more restrictive since the observed average price is now nearly always beneath normal value whilst the actual average price could be way above it.²⁹ A numeric example could be a situation in which there are three different prices observed, namely \$5, \$10 and \$15. These three different observations added up and divided by three make up for an average price of \$10. Normally spoken this is the way the average price is calculated. Considering that \$10 is the normal value of a product the company charging these prices is not dumping. When using zeroing the observation of \$15 is noted as the product was sold at \$10, representing the normal value. Now the three observations only add up to 25 and the average price is \$8.33. This means that the company would now be dumping. In general this means that every company that has ever once sold its products at less that normal value even though it has increased its prices afterwards can be accused of dumping practices. As mentioned before the usage of the zeroing method has been disapproved of by the Appellate Body of WTO. At the moment the US is the only member of 153 members of the WTO that uses this method.³⁰

When a firm sells its product beneath normal value and it is found to be dumping and the ITC has established that there is a case of material injury, the company has to pay a bond

²⁹ Nye, December 2008

when it imports to the US. This bond is the preliminary antidumping duty and is equal to the percentage its price fell short of the normal value times the amount they import. After one year, the DOC reviews this bond in the Administrative Review. When it becomes clear that in the past year the price difference, say dumping margin, was smaller than the bond that had to be paid originally the company gets the difference refunded. This works the other way as well so if the margin has increased during the year the company won't get the paid bond refunded and will even have to pay an additional duty. The bond is known as the preliminary antidumping duty and in the Administrative Review it is settled what the final antidumping duty will be.³¹

The ITC defines material injury as 'harm which is not inconsequential, immaterial or unimportant". When evaluating such an injury the Commission has to consider all sorts of economic factors like decline in output, market share and profit but also utilization of capital and the potential impact on wages and growth. It should be noted here that the ITC not only looks at harm done to the domestic industry but also takes into consideration the threat of material injury. Another aspect of the research involves determining whether the products that are dumped are the same as the domestic industry produces. It is logical that a domestic producer of wheat does not suffer material injury when a foreign exporter dumps steel on the domestic market. The industry that can claim a case of dumping is defined as ''the producers as a whole of a domestic like product, or those producers whose collective output of a domestic like product constitutes a major proportion of the total domestic production of the product". The "domestic like product" is described as a "product which is like, or in the absence of like, most similar in characteristics and uses with, the article subject to an investigation". This determination is done on a case by case basis so there are no predetermined groups of products that are homogeneous. This creates a sort of grey area as there is no certainty as to which products are "domestic like" products. 32

The use of zeroing makes the antidumping law of the US more restrictive and companies accused of dumping already have to pay a lot of duties before it is definitely determined that they are involved in such a practice and this determination process takes over 280 days.³³ As

-

³¹ Idem

³² Antidumping and countervailing duty handbook, thirteenth edition (December 2008)

³³ Idem

stated in the previous chapter, the use of zeroing has been challenged several times at the WTO Dispute Settlement Panel.

The obvious reason for having antidumping law is to avoid and penalize dumping activities and by doing so protecting other players on the market. But when looking at the way the US shaped its policy regarding dumping it is hard to uphold that this policy is mainly directed at discouraging dumping. Such a strict policy, so many cases compared to other countries and such a high success rate, 55 % of the cases end in the foreign firm having to pay a duty because they are 'dumping', offers a lot of protection to the domestic industry and therefore the US is charged with accusations of protectionism.

If the US was deliberately disrupting free trade in order to protect the steel industry, would this really be necessary? As mentioned in chapter 4 the producers of steel claim that their industry is vital to national security. Therefore it would be dangerous to rely on foreign imports. A report published by the DOC in October 2001 proves that this is indeed the case. The report also makes clear that the US at that moment produced already three times as much as would be needed in a worst case scenario when a war would break out. Another important research finding from the report was that most of the imported steel was imported from Canada and the EU. This result can also be derived from the more up-to-date report World steel in figures 2008 composed by the World Steel Association. So there seems to be enough steel produced.

The external factor like national security is at stake does not hold but what about the health of the industry. One must look at the industry itself and its health. The last decade the global steel industry has been facing overcapacity. In 2001 the industry was producing at 75 % of its capacity and in 2005 the overcapacity has already shrunk but was still present with companies producing at 80 % of their capacity (see chapter 2). Overcapacity costs a company money. It is a capital-intensive industry so it is not easy to respond to this problem on a short notice like in labour-intensive industry where one just lays off a few employees.

When talking about employment in the steel producing sector it is easy to see that it has decreased a lot during the last decades. In 2005 there were about 150.000 and in 2007 just over 100.000 people active where there once used to be over 600.000 employees. Production has been relatively stable during the past decades and the decreasing amount of jobs has to do

with the fact that the industry is heavily atomized during the years. As mentioned before, the industry does face high legacy costs which foreign companies don't have to bear all by themselves. This seems to be a problem.

The steel industry's main consumers, the automotive sector and construction sector, are in bad shape at the moment. Both of them suffered a great deal due to the financial crisis of which the almost bankruptcy of General Motors³⁴ and dropping prices of houses³⁵ form good examples. This of course has its effect on the steel industry as they are now stuck with an even bigger supply of steel and less profit. But it has to be said that another important customer of the steel industry is increasing its demand, namely the Department of Defence. Because of the war in Iraq and Afghanistan there is more demand for steel.

At the moment many steel producing companies are severely hit by the credit crisis and the consequential economic slowdown. An article posted on the 29th of December 2008 in the Daily Commercial News even states that steelmakers should be happy when they make just 65 % of the revenue they have made previous years. The industry also suffers from lower prices, layoffs, lower production levels and lower demand.³⁶ The Financial Post stated in an article published on April the 27th 2009 that the revenue of US Steel, one of the biggest steel producing companies in the US, has dropped with nearly 50 % in the first quarter of 2009.³⁷ But this is all because of the credit crisis and the entire economy is suffering from this which makes their need for help not any bigger than that of any other American industry.

The current shape of the steel industry has much to do with the credit crisis just like the entire global economy is suffering due to the crisis. Therefore it can hardly be blamed on dumping activities of foreign companies. The structural problems seemed to be the loss of employment and overcapacity. The next chapter will elaborate on whether therefore the steel producing industry deserves protection and if it is rational to do so.

³⁴ Reuters, 2009

³⁵ Los Angeles Times, 2009

³⁶ Daily Commercial News, 2008

³⁷ Financial Post, 2009

6. Rationality

This chapter will elaborate on whether it is rational for the US to protect its steel producing industry and on the way they do.

The USA

From the point of view of the US it seems good to protect your own industries since you can secure jobs and domestic production. But is it worth it? As stated earlier in chapter 4, the consequences of the antidumping policy are higher prices and a lack of supply. The steel producing industry is only able to meet the demands of the consuming market for about 75 %. For the rest of their supply of raw materials the steel using industry has to rely on imports. But the import market is being crippled by the tariffs. Because of this the steel using industry is not able to buy the steel they need at global competitive prices but also faces problems in getting enough raw materials.³⁸ Higher prices and volatile supply end up in high production costs which lead to higher prices that have to be paid by consumers and makes the steel using industry less competitive compared to the global market. This lack of competitiveness and high costs in the end lead to forced job losses and bankruptcies.³⁹

Given the known consequences of the antidumping policy for the steel using industry, it would be logical that they will be offset by advantages for the steel producing industry. As mentioned in chapter 3 and chapter 4 the US steel producing industry employed just over 150.000 people in 2005. At the same time the steel using industry, which exists of many industries, employed over 9.170.000 people. A short calculation shows that for every steelproducing job there are 61 steel-using jobs. 40 This shows that the steel using industry is far bigger than the production industry. A simple conclusion could be that it would be very unprofitable to protect the industry which supplies 150.000 jobs over the one that supports 9.170.000 people with an income. So compared to the steel consuming industry, the steel producing industry is relatively small. Though the steel consuming industry is far bigger, on a segregated level the companies active in this industry are smaller. Francois and Baughman (2003) showed that 98 % of the industry exists out of companies smaller than 500 persons which makes them price takers since they are to small to negotiate and set a fair reasonable

³⁸ CITAC website ³⁹ idem

⁴⁰ idem

price. So their problem is that they either have to absorb the higher prices or charge higher prices for their products themselves. Increasing their own prices makes them less competitive compared to foreign suppliers and thus lead to a surge in imports. Absorbing the higher prices into their own would incur higher costs and lower profits which in the end could lead to bankruptcies. Especially for a lot of small companies this is detrimental since they do not have the benefit of economies of scale since they are small and thus gives them less space and opportunities to absorb the higher costs.

The US steel industry, with its nearly 150.000 employees in 2005 is also relatively small compared to the total economy of the US in which 144.336.000 people are employed. In 2007 there were 100.206 people employed in the steel producing industry which makes up for 0.7 % of the US labour force. The steel using industry makes up over 15.74 % of the total labour force. The industry's gross product was 36.504,3 million dollars in 2007 which is 0.26 % of the US gross domestic product. The amount of steel that is imported into the US was 1.45 % in 2004, 1.685 % in 2006 and finally rose to 1.74 % in 2008 as calculated in shares of total US imports. In 2008 and finally rose to 1.74 % in 2008 as calculated in shares of total US imports.

As mentioned before antidumping duties raise the prices of imports. A report for the US congress published in November 2004 stated several findings of researches on antidumping throughout the years. The researches made clear that the annual welfare loss to the US economy due to antidumping duties ranged between two to four billion. With the steel industry making up nearly half of all cases initiated, a carefully estimated calculation shows that the US pays 9000 US dollar per active worker in the steel producing industry to make sure that he keeps his job. Hancois and Baughman (2003) show that in 2002 over 200.000 Americans lost their job due to higher steel prices. This means that more people lost their job than there are people employed in steel producing industry. But there are more costs associated with imposing antidumping duties. A study done by Feinberg and Reynolds (2006) has shown that both on country and firm level, one that had suffered US antidumping duties was more likely to impose such duties on exporting US firms. Basically this means that foreign firms or countries retaliate against the US by doing the same. This study (Feinberg and Reynolds, 2006) has shown, by using a regression model, that if the US had not used

⁴¹ CIA World Factbook

⁴² U.S. Census Bureau

⁴³ Trade Stats Express, 2008

^{44 1.35} billion US dollars / 150.000 employees

antidumping law in the period of 1996 - 2003, the number of cases initiated against exporting US firms would have dropped with 25 %. As retaliation and consequently antidumping duties lead to charging higher prices this can only have the effect that exporting firms from the US lose market share on foreign markets. So it can be said that retaliation increases the welfare costs to the US economy.

The earlier mentioned report by the AISI published in November 2008 states that foreign governments distort the free market because they are giving financial support to their domestic steel industries. Therefore, they claim, it is justified to apply such a strict trade law and impose such tariffs. This leads to a vicious cycle in which neither of the governments will back down. It seems that the only credible way to ask foreign governments to stop protecting their domestic industries is for the US to stop with it first or make a quid pro quo deal. Either of these arrangements will lead to the US having to abandon its restrictive trade law.

The empirical data already shows that it does not seem wise to protect the steel producing industry. The costs are high and the size of the domestic industry benefiting from the duties stands in no proportion compared to the domestic industry suffering from it. But there are more reasons that help judge the rationality behind the US antidumping law.

Protectionist measurements distort the principles of the free market economy. When a company is no longer exposed to competition it does not have the incentive any more to innovate and to stay ahead of the market. In the case of the steel producing industry, it can be said that antidumping law stimulated overproduction. The industry was already facing overcapacity, even on a global level, and protectionist trade law would only make sure that they would keep producing at their current levels. Overproduction puts downward pressure on the prices since there is more supply than demand. These lower prices than again stimulate the steel producing industry to initiate more dumping cases. Since the steel producing industry is a capital intensive industry with high fixed costs, especially the integrated mills, it is not easy to cut back production and let the costs decrease at the same time. It takes a lot of time to cut back on these fixed costs. This looks like a problem which can not be solved on a short notice. But as described in chapter 3, the integrated mills have seen their share of the market drop rapidly as the more efficient mini mills had their upcoming. The downsizing, consolidation and the shift of production to mini mills are developments already going on for decades. These are developments that have nothing to do with possible dumping practices from abroad

companies and therefore even after years of receiving protection these developments have not stopped.

Having antidumping law is appealing to governments. Quotas were banned from international trade on the 1st of January 2005 and during the Uruguay Round governments agreed upon to cut all tariffs. ⁴⁵ The WTO does not however prohibit antidumping law which makes sense since dumping itself distorts free trade. So it is one of the few possible protectionist measurements left for a government to use. But as mentioned in chapter 5, the US uses the method of zeroing to determine dumping. This method has been challenged at the WTO and has been found contrary to WTO regulations. Leaving their restrictive practice of their antidumping law would imply that the steel producing industry in the would face more competition of more efficient producers from abroad. As a consequence the industry could shrink due to forced layoffs and closings. Since the production of steel is very centralized in the North-East of the country, the layoffs will be spread amongst just a few states. This sudden rise in unemployment will of course have its effect only on those states and will only incur high costs on them. The same accounts for the losses in revenue, gross product etc. Local economies will suffer from the closures of mills. This looks like a problem but compared to the total US economy does not seem to be that big a deal.

As described in chapter 3 the US steel industry faces high legacy costs which foreign firms do not have to bear. Helping out the steel industry because they can not compete with lower foreign prices sets a bad precedent for other industries. Other industries in the US face those costs as well and have to bear those themselves. If every industry was given such a royal treatment as the steel industry it could have detrimental effects on the US economy.

Changing scenarios

When looking at the empirical data at hand it seems unwise of the US government to protect the steel industry the way it does since it hurts many more American people than it helps. Also from rational point of view it seems strange to leave an inefficient industry intact and shelter it for foreign competition. The policy of the US should change if they want to turn this thing around. They should start with dropping the use of the method of zeroing. It has been disapproved of by the WTO and they should take the average of observed prices in the

-

⁴⁵ WTO website

normal way just like other countries do. This will lead to some steel companies having to close down mills and layoff workers. Maybe these workers can be schooled and be employed again in the steel consuming sector. Having the ability to buy steel for lower prices should create some opportunities for steel consuming companies to expand their businesses and in this way of set the loss of jobs in the steel producing sector.

Another option for the US could be to not change their policy but to change the injury test done by the ITC in the antidumping investigation. The injury test now looks at whether the domestic steel industry is hurt or threatened to be hurt by the 'dumping'. If this test would also check what the consequences are for the steel consuming industry it would be possible to even out the negative impact for the steel producers with the positive impact for the steel users. Though such a test encompasses a lot of factors and probably takes more time it is economically seen wiser.

Since steel is important for such a big part of the economy and for national security the US should at least set a level of production which is required at the minimum. They should investigate how much steel is needed to make sure that the steel consuming industry can meet their minimum requirements of supply and domestic security is supplied with a guaranteed level of production in a possible worst case scenario. When they decrease the protectionist measurements for the steel industry they should also keep an eye on the level of total US production and how this changes. Production will decrease but if it stays above this critical value for minimum requirements than everything should be alright.

Whatever the US government decides to do, it is best to shift the focus more from the steel producing industry to the steel consuming industry. When this industry is healthy and competitive it will have far more effect on the US welfare compared to the steel producing industry if they would still be protected. The shift of focus will result in lesser losses to welfare and possibly more gains.

7. Conclusion

The US has a long lasting history of protecting the domestic steel industry using antidumping law. Their steel industry was once the biggest in the world but after World War Two everything started to change as international competition gradually developed. Nowadays it is an important industry as it is important for the steel consuming industry and national security. But when looking at the absolute numbers, the steel industry is compared to the steel using industry and the national economy rather small.

The antidumping policy of the US has received lots of criticism during the years. The WTO has judged the method of zeroing as contrary to the US its obligations towards the WTO in several cases like the Japanese Ball Bearing case and the Mexican Stainless Steel case. In 2002 the Steel Task Force was formed to put more pressure on the government as the need for change was that high. The critiques seem justified since as far is known the US is the only country to use the method of zeroing and the STF has come up with studies pointing out the detrimental effects this policy has on the US economy. This paper has found no real rational explanation for why it makes, economically seen, sense to protect the steel industry so heavily using antidumping law. It does help to keep many uncompetitive companies up and running but it has a negative effect on the steel consuming industry which has a far larger negative impact on the total economy. It is therefore economically rationale to shift the focus of the government more on the steel using industry and make sure that this industry is healthy and competitive and loosen the antidumping policy even though this would mean that the steel producing industry will suffer from it.

8. References

Websites

Bush, George W. December 4 2003. President's statement on steel.

http://www.whitehouse.gov/briefing_room/OfficialStatements/ (downloaded December 23 2008)

CIA World Fact Book. US. 2009.

https://www.cia.gov/library/publications/the-world-factbook/geos/us.html (downloaded April 15 2009)

Consuming Industries Trade Action Coalition's Steel Task Force

Footnote 14: Steel-consuming jobs versus steel-producing jobs by state and congressional data. 2005.

http://www.citac.info/map_new/index.html (downloaded January 2 2009)

Footnote 23: http://www.citac.info/steeltaskforce/about/mission.php (downloaded January 2 2009)

Footnote 24: http://www.citac.info/index.php (downloaded January 2 2009)

Footnote 25: http://www.citac.info/steeltaskforce/steel tariffs/index.php (downloaded January 2 2009)

Footnote 35: Section 201 Tariff Remedies have harmed U.S. steel consuming manufacturers

http://www.citac.info/steeltaskforce/201issues/post201/secrion201tariff_29_06_2002.php (downloaded January 2 2009)

Footnote 36: Baker, Laurin M. June 20 2005. Steel users speak out.

http://www.citac.info/steeltaskforce/events/06 20 05.php (downloaded January 2 2009)

Footnote 37: Steel-consuming jobs versus steel-producing jobs by state and congressional data. 2005.

http://www.citac.info/map_new/index.html (downloaded January 2 2009)

International Trade Administration

http://www.ita.doc.gov/fairtrade/index.asp (downloaded January 4 2009)

International Trade Commission

http://www.usitc.gov/trade_remedy/731_ad_701_cvd/index.htm (downloaded January 4 2009)

North American Free Trade Agreement

Footnote 21: http://www.nafta-sec-alena.org/en/view.aspx?x=343&mtpiID=ALL#mtpi152 (downloaded January 14 2009)

Footnote 22: http://www.nafta-sec-alena.org/en/view.aspx?x=283#What%20is%20dumping (downloaded January 14 2009)

Trade Stats Express. 2008.

http://tse.export.gov/MapFrameset.aspx?MapPage=NTDMapDisplay.aspx&UniqueURL=xfuarm55f3o3jxnymfajla55-2009-5-20-6-26-9 (downloaded April 16 2009)

US Census Bureau

Footnote 12: http://www.census.gov/ (downloaded December 21 2008)

Footnote 39: Imports of steel products

http://www.census.gov/foreign-trade/Press-Release/steel index.html#2005 (downloaded December 21 2008)

U.S. Steel: History of U.S. Steel.

http://www.uss.com/corp/company/profile/history.asp (downloaded Decmber 21 2008)

Wikipedia: Steel strike of 1959

http://en.wikipedia.org/wiki/Steel_strike_of_1959 (downloaded Decmber 21 2008)

World Trade Organization

Footnote 20: http://www.wto.org/english/tratop_e/adp_e/adp_e/adp_e.htm (downloaded January 10 2009)

Footnote 28: http://www.wto.org/english/tratop_e/dispu_e/dispu_status_e.htm: cases D 322 and D 344

(downloaded January 11 2009)

Footnote 42: <a href="http://www.wto.org/english/tratop_e/tariffs_

News articles

U.S. steel producers endure slump in revenue and production. *Daily Commercial News*. December 29 2008. http://www.dailycommercialnews.com/article/id31888 (downloaded April 28 2009)

Reuters. 2009. U.S. Steel posts steeper loss than expected. *Financial Post*. April 27. http://www.financialpost.com/story.html?id=1539462 (downloaded May 10 2009)

Reuters. 2009. U.S. appeals in anti-dumping compliance case at WTO. Reuters. May 20 http://www.reuters.com/article/politicsNews/idUSTRE54J3EB20090520 (downloaded June 8 2009)

Hong, Peter Y. 2009. U.S. home prices continue to drop in February. *Los Angeles Times*. April 29 2009. http://www.latimes.com/business/la-fi-housing29-2009apr29,0,1793568.story (downloaded May 10 2009)

"Bush places tariff to assist faltering U.S. steel industry". The Michigan Daily, March 6 2002. http://www.michigandaily.com/content/bush-places-tariff-assist-faltering-us-steel-industry (downloaded December 23 2008)

Emery, Chelsea, Soyoung Kim. 2009. GM in ''intense'' preparations for bankruptcy: source. *Reuters*. April 7 http://www.reuters.com/article/newsOne/idUSTRE5363ZM20090407 (downloaded April 28 2009)

Bibliography

American Iron and Steel Institute

Footnote 15:

http://www.steel.org/AM/Template.cfm?Section=Our_Members&Template=/CM/HTMLDisplay.cfm&ContentI D=31231 (downloaded January 2 2009)

Footnote 26: American Iron and Steel Institute, Strengthening America's Competitiveness http://www.steel.org/AM/Template.cfm?Section=111th_Congressional_Reports&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=28876 (downloaded February 3 2009)

Antidumping and Countervailing Duty Handbook, thirteenth edition. United States International Trade Commission. December 2008.

http://www.usitc.gov/trade_remedy/731_ad_701_cvd/handbook_2008.pdf (downloaded on June 8)

Barrette, Michael, Gregory Waldrip. September 1995. Profile of the Iron and Steel Industry. U.S. Environmental Protection Agency Office of Compliance

http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/iron&stl.pdf (downloaded December 23 2008)

Blonigen, Bruce A., Benjamin H. Liebman, Wesley W. Wilson. December 2007. TRADE POLICY AND MARKET POWER: THE CASE OF THE US STEEL INDUSTRY. Working paper. National Bureau of Economic Research

http://www.nber.org/papers/w13671 (downloaded December 20 2008)

Boston Consulting Group, Filiep Deforche, Jim Hemerling, Dowon Kim, Walter Piacsek, Michael Shanahan, Meldon Wolfgang, Martin Wörtler. February 2007. Beyond the boom: the outlook for global steel http://www.bcg.com/impact_expertise/publications/files/Beyond_Boom_Feb2007.pdf (downloaded December 20 2008)

Bown, Chad P. (2009) "Global Antidumping Database," [Version 5.0 Beta, May], available at www.brandeis.edu/~cbown/global ad/ (downloaded July 16 2008)

Elwell, Craig K. November 23 2004. Dumping of exports and antidumping duties: Implications for the US economy. Report for Congress of the Congressional Research Service https://www.policyarchive.org/bitstream/handle/10207/1443/RL31468_20041123.pdf?sequence=2 (downloaded April 16 2009)

Feinberg, Robert M., Kara M. Reynolds. April 2006. Friendly fire? The impact US antidumping enforcement on US exporters. Working Paper, American University.

http://www1.american.edu/academic.depts/cas/econ/workingpapers/2006-04.pdf (downloaded December 24 2008)

Dr. Francois, Joseph, Laura M. Baughman. February 4 2003. The unintended consequences of U.S. steel import tariffs: a quantification of the impact during 2002. Prepared for the CITAC foundation. http://www.tradepartnership.com/pdf files/2002jobstudy.pdf (downloaded April 24 2009)

Margolis, Nancy, Ross Brindle. August 2000. Energy and Environmental Profile of the U.S. Iron and Steel Industry. Energetics, Incorperated. Prepared for U.S. Department of Energy, Office of Industrial Technologies. http://www1.eere.energy.gov/industry/steel/pdfs/steel_profile.pdf (downloaded December 27 2008)

Nye, William W. 13 December 2008. Competitive Advocacy Opportunity: Zeroing in US Antidumping Enforcement. Discussion Paper of the Economic Analysis Group. http://74.125.77.132/search?q=cache:xJARF5UHOY8J:www.usdoj.gov/atr/public/eag/240246.pdf+US+antidumping+welfare+loss&hl=nl&ct=clnk&cd=2&gl=nl (downloaded February 4 2009)

Price, Alan H., Timothy C. Brightbill, Christopher B. Weld, Charles L. Capito, Robert E. Morgan. November 2008. Raw Deal: How Governmental Trade Barriers and Subsidies Are Distorting Global Trade in Raw Materials. Prepared for American Scrap Coalition.

http://www.steel.org/AM/Template.cfm?Section=White_papers&CONTENTID=26678&TEMPLATE=/CM/ContentDisplay.cfm (downloaded February 3 2009)

US Department Of Commerce, Bureau of Export Administration. October 2001. The effects of imports of iron ore and semi-finished steel on the national security. http://www.bis.doc.gov/defenseindustrialbaseprograms/osies/2-3-2-reports/ironnsteelreport010902.pdf (downloaded February 10 2009)

World Steel Association, World Steel in Figures 2008 2nd Edition. http://www.worldsteel.org/index.php?action=publicationlist (downloaded 3rd January 2009)