

Intra-Industry Competition for Political Influence: An Empirical Investigation of U.S. Steel Industry Firms' Lobbying*

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Abstract

Roll call voting at U.S. Congress has been extensively studied, but its analyses have often focused on the question: do electoral campaign contributions buy policies? By so doing, expenditures in informing politicians were omitted. Our empirical investigation of the intra-industry competition for political influence in the steel industry uses both PAC electoral campaign contributions and lobbying expenditures data according to the Lobbying Disclosure Act of 1995. A U.S. roll call vote is analyzed at the firm level for the first time, thus avoiding sectoral aggregation of PAC contributions. Econometric results supports the view of informational lobbying expenditures being a complement to PAC contributions and enabling vertical differentiation; resources spent in informational lobbying increase the quality of PAC contributions and thereby increased the political support for trade protection as low-profit steel producers were requiring.

JEL classification numbers: H4, K0, P1, D72, F13

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1 Introduction

Lobbying influence at U.S. Congress is a source of controversy among political scientists and economists nowadays. Does special interests' money buy policies? One branch of the literature

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claims the existence of such an influence while another remains skeptical and even starts challenging it.

For a long time, and since the pioneering work of Chappell (1982) or Tosini and Tower (1987), much of the empirical work trying to assess the interest groups influence has focused on the electoral campaign donations by political action committees (PAC) only (see Ansolobehere et al. (2002) for a detailed and extensive review of the literature). However, the recent Lobbying Disclosure Act of 1995 has shed light on other possible sources of influence, namely the expenditures in maintaining lobbyists in Washington. These expenditures, which have been repeatedly neglected in most of the literature, turn out to be of a far larger amount than campaign contributions and are mainly related to the costs, for lobbies, of transmitting information to imperfectly informed politicians. Unlike the campaign contribution influence channel, the information transmission channel lacks strong theoretical foundations, and to an even greater extent, empirical investigation. The aim of this paper is to open a new path for empirical studies of the role of information transmission in politics in general, and more specifically at U.S. Congress. Our bottom-up approach will start with the investigation of one of the most traditional lobbies in D.C. politics: the steel industry. Indeed, the heterogeneity of the steel industry makes it a perfect case for conducting a research aiming to a better understanding of information as a lobbying influence channel.

Whereas the study of the role of information acquisition and transmission by lobbies is starting to be endowed with a recent yet developing theoretical literature (Austen-Smith and Wright (1992, 1994), Grossman-Helpman (2001), Anson (2006)), it still severely lacks of empirical investigation. Ansolobehere et al. (2002) are the first to tackle this issue taking advantage of the first public disclosure of lobbying expenditures following the Lobbying Disclosure Act of 1995. From the newly available data, it turns out that interest groups having both a PAC and maintaining a lobby in Washington account for the vast majority of expenditures in campaign contributions and D.C. lobbying. Also their work points out the complementarity between PAC campaign contributions and lobbying expenditures, which is particularly strong for business PACs: the higher their PAC dollars, the higher their lobbying dollars as well.

Unlike corporations, ideological and partisan groups only targeting political friends are seemingly needing a lower effort in information transmission, and thereby a lower level of lobbying expenditures other than PAC contributions.

If one were to tell a "raison d'être" for PAC contributions, then access to time constrained politicians would seem a strong motivation for lobbies according to Ansolobehere et al. econometric results (2002). Ansolobehere et al. bis (2002) yet recently puzzle the latter results after defending the view of campaign contributions as a form of consumption or political participation instead of a rent-seeking investment, for which a return is expected. Starting up with the argument that individual contributions are the bulk of electoral campaigns financing in the U.S., and noticing the low effect of campaign contributions in most roll-call voting analyses after an extensive review of the literature, they argue why corporations and other interest groups form PACs at all given the uncertain little expected return, and that their relatively low share of campaigns financing weakens their political leverage. One possible answer is "*that money buys access, rather than policy directly*".

Unlike any other paper analyzing the effects of PAC contributions, this paper opens another avenue for a better understanding of the role of money giving in politics. Its idea is to relate PAC contributions and informational lobbying expenditures at the firm level, so as to test the following hypotheses regarding the lobbying for political support. The first hypothesis is that, within an industry, firms with conflicting interests will compete for influence in different ways. The second hypothesis is that, though firms with conflicting interest financially contributes to the electoral campaign of a politician, what produces a real influence on a politician is the resources they put in transmitting information to him or her. Efforts in transmitting information enable a vertical differentiation: low-profit firms competing with high-profit firms within an industry exert higher informational lobbying efforts so as to increase the quality of their lobbying, and by so-doing protect themselves from high-profit firms' predatory behavior.

Applied to the steel industry, the model explains how heterogenous steel producers with conflicting interests competed for political influence following the sharp decrease in steel world prices after the Asian crisis hit in 1997-98. While steel industries likely to suffer financial

distress spent large amounts in maintaining a lobby in D.C., more efficient steel industries tended to invest much less in information transmission even though they had financially contributed to electoral campaigns through their own PAC.

Unlike Fisher, Gokcekus and Tower (2003) analysis of H.R. 975 steel import quotas bill, the level of informational lobbying by the various special interests groups is taken into account. Our econometric results shows that a Representative was likely to support the introduction of steel import quotas if he received a PAC contribution from a low-profit steel producer who spent large resources in informational lobbying, while a PAC contribution from a high-profit steel producer was not likely to increase the support for trade protection, and could even sometimes trigger the opposite effect, i.e. decrease the likelihood of accepting steel import quotas.

The paper is organized as follows. Section 2 describes the evolution of the steel industry and its firms heterogeneity, and presents the hypotheses to be tested. Section 3 describes the data as well as the econometric estimation method. Section 4 comments the results and Section 5 concludes.

2 From the steel industry to the steel industries: the raise of opposing interests

2.1 A short history of the U.S. steel industry throughout the 20th century

As of the end of the Second World War, the U.S. steel industry was the strongest in the world; it was facing little international competition. Unlike in Europe and Japan where part of the mills laid in ruins,¹ there had been no massive destruction taking place on U.S. mainland;

¹Europe and Japan had to reconstruct their steel sector. This triggered the signature of the Treaty of Paris establishing the European Coal and Steel Community in 1951, at the roots of today's European Union. In Japan, the Ministry of International Trade and Investment started to plan a modern steel industry sector, in spite of their lack of raw materials.

the industry was running at full capacity. Unlike today, neither the former Soviet Union's closed economy nor developing countries like China, India, South Korea or Brazil did represent an economic threat for American steel producers. Added to the traditionally high barriers to entry in the industry, these elements were naturally protecting the U.S. steel sector from almost any form of competition.

The technology adopted by steel producers was the one developed during the 19th century. Open hearth furnace were used for producing steel, a combination of iron ore and carbon; the adoption of new technologies such as basic-oxygen furnace and continuous casting were long delayed after war time (Moore, 1994; Ahlbrandt, Fruehan and Giarratani (1996)). This lack of technological progress was mainly due to the absence of pressures by the U.S. automobile industry to innovate with new steel products. The low economic dynamism of the American automobile industry, which is the largest steel-using industry, is thus likely to have negatively affected the evolution of technology.

In these circumstances, steel producers constituted a rather homogenous industry. Important scale economies and high fixed costs deterring entry were other important features of the industry. They induced the concentration of steel production by a few firms near the iron ore sources. Geographic concentration was also related to sufficiently high transportation costs which were protecting the industry from competitive pricing in large enough areas. Cartel behavior was widespread and the federal government, who already attempted to use anti-trust laws to break up the largest U.S. steel producer in the early twentieth century, was pursuing its effort of control over this industry; President Harry S. Truman unsuccessfully tried to take over U.S. Steel's mills in 1952; and President John F. Kennedy required a decrease of steel prices, which were considered to be inflationary in 1962.

Another regularity in the steel industry were the permanent conflicts between its unions and the management (Ahlbrandt, Fruehan and Giarratani (1996)). For a long time, steel producers had not even been recognizing unions, and only the Great Depression preceding World War II led to a transformation of the employees representation plans (ERP) into official unions, among them the United Steel Workers of America. Unions pushed for higher wages

and benefits in the years following the Second World War. The use of strikes very often help achieve these results. However they also achieved an unexpected one: the opening of the country to steel imports competition. The 116 days strike of 1959 shut down the ninety percent of the production of the largest U.S. steel producer. The input shortages suffered by steel-using industries were soon compensated by steel imports.

The steel-using industries' reaction triggered calls for protectionism by the steel producers and unions: a first voluntary export restraint agreement (VRA) was negotiated by the Johnson's administration with Japan and the European Community (EC) in 1969, ten years after the 116 days strike of 1959 opened the door to imports. The successful influence of the steel industry in Washington could be explained by several factors; geographical concentration in a few congressional districts and states enabled steel workers to exert a high leverage in federal elections; the reduced number of steel producers in a few areas reduced free-riding incentives to the organization of lobbying; counter-lobbying from geographically dispersed steel-using industries did not exist; and the use of specific factors such as irreversible investments and unskilled workers paid above the average wage in the manufacturing sector encouraged lobbying.

In order to reduce conflicts between steel workers and their management, which in the end are the reason for the surge in imports along with the decrease of transoceanic shipping costs in the sixties (Moore, 1994), an Experimental Negotiation Agreement (ENA) was signed in 1974. It was providing arbitration when the parties were not able to reach a bargaining agreement. In the meantime, state-subsidized European and Japanese steel producers were back to the world market with new capacities and more efficient mills than their American competitors. Developing countries like Brazil, India and South Korea were also newcomers into the world steel market.

The introduction of the ENA and the increase in worldwide steel production capacities were going to coincide with the first oil shock of 1974 and its subsequent worldwide recession. News calls for protectionism arose and President Carter was pushed to inaugurate a trigger price mechanism (TPM) in 1977; a minimum import price for steel was set. Further oil shocks

in 1978 and 1981 worsened steel producers' situation; capacity utilization dropped from 79% to 48% in 1981; and almost 100,000 employees were going to lose their job between 1981 and 1982 (Moore, 1994). This left huge legacy costs to the integrated sector. Once more, the situation resulted in new calls for protectionism. The International Trade Commission (ITC) opened investigations; anti-dumping and countervailing duties were ruled affirmatively. At the end, a new VRA with all major foreign suppliers was negotiated by President R. Reagan in 1984. It only expired in April 1992.

The major steel crisis of the eighties, in the U.S. but also around the world, was the starting point of a major industrial transformation from a homogenous integrated and geographically concentrated industry towards a much more heterogenous and geographically dispersed one. Technological progress in steel processing was introduced with mini-mills which started recycling cheap steel scrap in the seventies; des-unionization appeared as a new phenomenon with the end of the Experimental Negotiation Agreement in 1984. The market was becoming increasingly flexible with respect to the labor force and the technology. Yet the definite move towards the heterogeneity of this industry is to be found in the huge technological progress of mini-mills in the late eighties. They suddenly became able to produce flat-rolled products after having been restricted to the long products markets only. This was opening them the automobile industry and housing markets, exclusively served by the integrated steel producers till then.

Today there is no such one and only steel industry. The way of producing steel has dramatically changed. The number of steel varieties and specialties has also exploded with innovation mainly led by the world leaders: the recently merged Indian firm Mittal and the European firm Arcelor. From the traditional ore based high scale production of geographically concentrated integrated mills, firms in the steel industry have evolved towards the scrap based low-to-medium production scale of geographically dispersed mini-mills, the so-called greenfield mini-mills. Old integrated steel producers have transformed part of their mills into mini-mills, the so-called brownfield mini-mills. Moreover, a highly unionized workforce in integrated mills is progressively being replaced by an every day more flexible workforce in mini-mills, which

only need one seventh of worked hour to produce the same quantity as integrated mills. Steel firms have clearly become heterogenous in the end of the 20th century, more fragmented, more competitive and more international than ever before. This was logically going to call for a move towards international mergers and acquisitions as illustrated by the war for Arcelor's control as of spring 2006, a battle from which the American steel industry was excluded.

While the industry was initially protected from competition by distance, it had to handle with low transportation costs ever in the nineties and with a recently low-barrier-to-trade world environment. It had to switch its political activism in the U.S.; instead of import tariffs and quotas on a variety of steel products in the late nineties, it had to claim for export restraints on scrap after the Chinese demand led to a sharp increase of the price of this input in the early Millennium.

The heterogeneity of steel producing makes the understanding of each individual firm situation a complicated task for outside-the-sector analysts, and to an even larger extent, for any politician. A simple predictable weakly segmented domestic market is more and more getting replaced by a less predictable strongly segmented globally integrated market. Consequently, profits conditions are likely to considerably vary from one firm to another. This is particularly interesting during a period of industrial restructuring, like in the late nineties and early Millennium, where high-profit producers expect to take advantage of low-profit producers' bankruptcies in order to increase their market share or even acquire them at favorable conditions. Therefore a defensive strategy calling for protectionism whenever a negative shock threatens firms' profitability is likely to be opposed to a predatory one by the most efficient producers.

Since our research purpose was to investigate a heterogeneous industry where industrial restructuring increasingly triggered clear opposing interests within the sector, an event was needed to assess U.S. steel firms' conflict of interests following the evolution of the market conditions. A good candidate to illustrate this newly intra-industry divergence of interests is to be found with the Asian crisis of 1997-98, a very important macroeconomic shock which was going to hit the steel industry worldwide. Following the shock, the world price of many

steel products were going to know a sharp decrease likely to put, in the following years, a number of American steel producers in financial distress. More efficient steel producers like mini-mills were likely to take advantage of the external competition of cheap imports in order to aggravate the effects of their own internal competition. Indeed, one would be mistaken to believe that import competition has been the main and single cause of the decline of a number of steel industries in the U.S.. Although the U.S. International Trade Commission concludes in that sense following the Section 201 investigation in 2001, Treado (2003) showed that injury to a few producers, mainly in the flat-rolled steel industry, was primarily caused by internal competition of mini-mills rather than by a flood of cheap imports. According to Treado (2003), empirical evidence points to technology as the main cause of the bankruptcies which occurred in 2001 and 2002. On the one hand, likely-to-bankrupt firms were likely to lobby members of the U.S. Congress in order to get import protection in the very late nineties. On the other hand, the most efficient steel producers were probably more interested in a lack of trade protection for old-integrated producers so as to weaken them. Incidentally, a roll call vote on introducing steel import quotas took place in March 1999. It gave us the opportunity of investigating how likely-to-bankrupt firms and efficient firms influenced politicians in different and maybe opposite ways.

The bill introducing steel import quotas, H.R. 975, went successfully through the House of Representatives in March 1999, but was later refused by the Senate, in June 1999, after subsidies in form of loans at a preferential rate became available for firms producing steel. Facing the competition from abroad, old integrated steel producers eventually managed President Georges W. Bush to introduce special import tariffs on steel products for three years from 2002 onwards, after the U.S. International Trade Commission investigated the sector under Section 201. This triggered a major conflict between the U.S. and its trading partners, particularly the E.U., Brazil, China, Japan, South Korea, New Zealand and Switzerland who complained to the World Trade Organization (WTO) under the dispute settlement procedure. The WTO eventually authorizes these countries to retaliate against the U.S. with the introduction of duties on other products; President Georges W. Bush preferred to put an end to

the conflict by withdrawing the steel special tariffs in 2003. In the meantime, two major U.S. integrated steel producers, Bethlehem and LTV Steel, had bankrupted in 2001 and 2002 after letting the federal government in charge of the unemployed and retired steel workers' legacy costs.

2.2 Intra-industry competition for political influence

The evolution of the steel industry, as described above, had raised opposing interests within the sector. While old integrated producers tried to slow down their decline, new mini-mills producers were aiming to increase their market share of 40 % in the late nineties (Tornell, 1997). The economic survival of the traditional producers of steel was likely to be challenged by any strong macroeconomic shock. The Asian crisis was thus an opportunity for efficient mini-mills producers to gain new market shares in case of exit of integrated steel producers.

The U.S. steel import demand M is defined as follows:

$$M = M(p + \tau),$$

where p is the world price of steel, and τ the level of trade protection, either low with $\tau = 0$, or high with $\tau = \bar{\tau}$. The world price p is normalized to zero in case of international negative macroeconomic shock. In the latter case, the steel import demand is $M = M(0) > 0$ in absence of trade protection ($\tau = 0$); it is $M = M(\bar{\tau}) = 0$ for a high level of trade protection ($\tau = \bar{\tau}$). It is also supposed that only firms of the low-type L , which are sensitive to the effect of an international negative macroeconomic shock on p , face import competition. Distance is assumed to protect firms of the high-type H , i.e. the most efficient producers, from import competition.

Faced with the Asian crisis shock, the likelihood of survival for integrated producers was depending upon their possible influence on U.S. Representatives and Senators. Once more they would seek for import protection.

For modern and efficient steel producers, a possible failure of the lobbying for trade protec-

tion by the traditional steel producers today (t) could only strengthen their market position and profits (π) tomorrow ($t + 1$), i.e. $\pi_{H,t+1}(\pi_{L,t}(0)) > \pi_{H,t+1}(\pi_{L,t}(\bar{\pi}))$; it could even sometimes open opportunities for acquiring old producers so as to reconvert them into mini-mills. Therefore their preferred policy was more likely to be the status-quo, i.e. the absence of any special protection from import competition.

This stylized representation describes the conflicting industrial interests which progressively arose between both type of steel producers over time, and that could potentially result into intra-industry competition for political influence. Indeed, not only a number of integrated steel producers contributed to the electoral campaign of congressmen during the 1997-8 electoral cycle but also more efficient and modern producers.

Finally, it is worth noticing the following in terms of resources spent in informing politicians. Defending the status-quo (i.e. not introducing new import protection provisions) is likely to need a much lower effort in information production and transmission than asking for the introduction of an import quota and showing the risks for the future profitability of the firm. Therefore the quality of lobbying needs to be higher for the firms requiring political support in order to decrease their risks of future financial losses. This hypothesis suggests that informational lobbying expenditures and PAC contributions are complementary and enable vertical differentiation of lobbying where low-profit firms invests the most in increasing the quality of their lobbying.

3 Data and econometric model

3.1 Data

In order to test these hypotheses, the result of the roll-call vote on the bill H.R. 975 introducing steel import quotas is analyzed. This bill was largely accepted with 289 yea against 141 nay on the 17th of March, 1999; it was the beginning of a long claim for protectionism by a group of firms producing steel and the steel labor organization. Although the bill was further rejected by the Senate on the 22nd of June, 1999 (42 yea against 57 nay), a section 201 investigation

was going to be open for the period 1998-2000; its conclusions were going to lead President Bush to introduce special tariffs on steel imports for several months, between 2002 and 2003. A binary variable will reflect 1 for the acceptance and 0 for the refusal of H.R. 975 bill by a Representative.

In a complete innovative way for roll call votes analyses, PAC campaign contributions (C) are taken at the firm level instead of aggregating them at the industry level. Any sectoral aggregation for PAC contributions will be avoided, the only exceptions being firms whose distribution of PAC contributions to Representatives are highly correlated. A number of firms producing steel have formed PACs on top of the labor organization, the United Steel Workers of America. Table 1 displays the PAC contributions by the different producers of steel as well as by the steel labor organization, and the distribution of their contributions between democrats and republicans.

The most striking feature when one observes the contributions figures for the steel producers and for the labor organization is the very low amount spent in campaign donations. The same remark can be made for the automobile industry PACs' contributions, as displayed in table 1, particularly if one takes into account that this industry is likely to lobby on a larger number of issues than steel producers (hence its overall higher level of PAC contributions). Automobile being by far the largest buyer of steel products, and in particular of flat rolled products, which are the most sensitive to import competition (Treado, 2002), we will limit ourself to this industry as for modeling counter-lobbying by steel-using firms.

Yet lobbying does not only consist in campaign donations to politicians but also in transmitting information. This comes at a cost and resources have to be spent to maintain a lobby in Washington. Therefore the traditional roll call voting analysis has to be combined with a closer look at lobbying expenditures in maintaining lobbyists, who spend resources in informing politicians in Washington. This is possible thanks to the new Lobbying Disclosure Act of 1995, which obliges any firm organizing an active lobbying in Washington to publicly disclose its expenditures. According to the Center for Responsive Politics, only 7 digits figures are indicative of a major effort in informational lobbying \bar{e} . Only three organizations related to

the steel industry reach or are closed to reach this limit (see Table 1): Beth Steel, LTV and the American Iron and Steel Institute (which is not a firm but an organization regrouping steel producers). As for the automobile producers (also see Table 1), herein defined as the counter-lobbies, three firms largely exceed the one million dollars in informational lobbying expenditures: Ford, General Motors and Daimler Chrysler. Figures used are the annual expenditures for 1999 supposing that their relative size between firms were similar for the first quarter of the year.

As Table 2 also shows, there are indeed two types of firms, one type sensitive to a negative macroeconomic shock while the other is not. Dividing firms in several clusters of profitability before the Asian crisis hit, it can be observed that while some firms kept similar levels of profit before and after the Asian crisis, others simply moved from profit to losses.

Besides data directly enabling the test of the four hypotheses, a number of controls have to be included in the roll call voting analysis so as to take into account the party belonging of the Representative (a binary variable coded with 1 for a Democrat and 0 for a Republican), as well as different congressional districts characteristics, particularly as referred to the employment structure.

As shown in Treado (2003), flat rolled steel products are the segment of the steel market characterized by a strong competition from mini-mills and imports for the traditional steel integrated producers. Congressional districts with a high employment in integrated plants producing flat rolled products are likely to support the introduction of an import quota. Likewise districts with greenfield mini-mills producing flat rolled products are likely to remain indifferent to the introduction of a quota, mainly due to the lack of unionization of its workforce. In order to build the statistic for the number of employees in the integrated steel plants producing flat rolled product, we combined data from three sources: the County Business Patterns from the U.S. Census for 1999, the correspondence between districts and counties built by Baldwin and Magee (2000), and the Steel Plant Database from the University of Pittsburgh for 1999. We were then able to derive the number of employees in integrated plants only producing flat rolled products, and the number of employees in greenfield mini-mills only

producing flat rolled products, all by congressional district. Following the same method, we were able to construct the statistic for the number of employees in the steel specialty industry, which always tries to get niches protecting them from foreign competition.

Finally, employment in the automobile industry is also incorporated to the roll-call voting analysis using both the County Business Patterns from the U.S. Census for 1999, and Baldwin and Magee's (2000) correspondence between districts and counties. We distinguish between employment in cars, light trucks and heavy trucks manufacturing by congressional district.

3.2 Econometric model

The hypotheses are tested using H.R. 975 roll call voting on the introduction of steel import quotas. The empirical model consists in estimating the following probit equation by the maximum likelihood:

$$V_i = \beta_0 + \sum_j \beta_{1j} * C_{ij} + \sum_k \beta_{2k} * C_{ik} + \beta_3 * PARTY_i + \beta_4 * INT_i + \beta_5 * MINI_i + \beta_6 * SPEC_i + \sum_l \beta_{7l} * AUTOMAN_{il} + \varepsilon_{i,s}$$

where

V_i	is the Representative i 's vote ($0 = no; 1 = yes$) in March 1999;
C_{ij}	is the PAC contribution paid by <i>STEEL</i> firm j or labour organization to Representative i for 1997-98;
C_{ik}	is the PAC contribution paid by the <i>AUTOMOBILE</i> firm k to Representative i for 1997-98;
$PARTY_i$	is the party to which the Representative i belongs;
INT_i	is the 1999's number of employees in integrated mills only producing flat rolled products in the congressional district of Representative i ;
$MINI_i$	is the 1999's number of employees in greenfield minimills only producing flat rolled products in the congressional district of Representative i ;
$SPEC_i$	is the 1999's number of employees in steel specialty plants in the congressional district of Representative i ;
$AUTOMAN_{il}$	is the 1999's number of employees in the sector l of the automobile industry in the congressional district i ;
$\varepsilon_{i,s}$	is the stochastic term of the probit equation for Representative i belonging to the State s .

We assume $E[\varepsilon_{i,s}, \varepsilon_{-i,s}] \neq 0$, i.e. the residuals for Representatives $i \neq -i$ originating from a same State s are correlated. Due to the importance of the transmission of information by lobbies to politicians in our modeling, it is convenient to take into account the possible exchange of information between politicians. We assume that Representatives originating from a common State are likely to communicate. Exchange of information between Representatives of a same State s is not likely to be random as it is supposed to be for communication between Representatives of different States $s \neq -s$, i.e. $E[\varepsilon_{i,s}, \varepsilon_{-i,-s}] = 0$. Residuals are thus clustered by States s , $s = 1..50$.

The general hypothesis of a complementarity between PAC contributions and expenditures in informational lobbying, which posits a lobbying of higher quality conducted by low profit firms, imply different signs for the PAC contributions of the various steel producers j and steel using industries k , given the amount e (either low \underline{e} or high \bar{e}) spent in informational lobbying and the firms' profit conditions; if $e_j = \bar{e}$ and the post-crisis profit is negative, then $\beta_{1j} > 0$ (hypothesis 1); if $e_j = \underline{e}$ and the post-crisis profit is positive, then $\beta_{1j} \leq 0$ (hypothesis 2); if $e_k = \bar{e}$ and the downstream firm has low expected profits, then $\beta_{2k} < 0$ (hypothesis 3); and if $e_k = \underline{e}$ and the downstream firm has high expected profits, then $\beta_{2k} \geq 0$ (hypothesis 4).

Additionally, β_3 is expected to be positive since democrats are less open to free trade than republicans.² As for congressional districts' employment features, we only expect β_4 and β_6 to be positive whereas the other coefficients (for the mini-mills and automobile industry employment explanatory variables) are a priori undetermined.

4 Results

Table 3 shows that hypothesis 1 is verified for Bethlehem and LTV Steel. Both firms, who were traditional old-integrated steel producers, were very sensitive to the Asian crisis in terms of profits as shown in table 2. They contributed to the electoral campaign of various Representatives and produced a high effort in information transmission. The statistically significant and positive coefficient for their contribution variable is fully consistent with hypothesis 1.

AK Steel and Texas Industries' negative coefficients are consistent with hypothesis 2. Both firms were not sensitive to the Asian crisis in terms of profits as shown in table 2. They contributed to various Representatives and produced a low effort in information transmission, because they did not need to show any risk for their future profitability. The statistically significant and negative coefficient for their contribution variable is fully consistent with hypothesis 2. Intra-industry competition for influence led those firms to advocate for the status-quo, i.e. no trade protection, so as to weaken the economic viability of the old-integrated steel

²Whereas it has been the opposite for a long time with Republicans more protectionist than Democrats (Destler, 1995)

producers.

For three firms, Allegheny Teledyne, Carpenter Technology and Acme Metals, coefficients are not significant. These firms were not in financial distress following the Asian crisis, and did not produce a major informational lobbying effort. The econometric results regarding the coefficient of their PAC contributions are thus consistent with hypothesis 2.

As for the steel labor organization, the United Steel Workers of America (USWA), its PAC contributions coefficient is not significant neither, but as shown by Ansolobehere et al. (2002), labor organizations produce lower levels of effort in information transmission since they tend to *a priori* support friendly Representatives.

A colinearity problem exists between the *STEEL* variables Bethlehem and AISI (American Iron and Steel Institute). As displayed in Table 4, the introduction of the AISI variable as a regressor makes the Bethlehem variable lose its statistical significance. The correlation matrix between the *STEEL* variables in Table 5 shows the relatively high correlation between the two explanatory variables AISI and Bethlehem, and thereby the source of colinearity. Adding up AISI and Bethlehem into a single variable does not change any conclusions as for our hypotheses testing (see Table 6). It is worth noticing that including the AISI variable enables to take into account the possible effects of steel firms, mostly old-integrated producers, who did not directly contribute through a PAC but who are financing the AISI due to their membership.

As for the counter-lobbying, hypothesis 3 is verified. As recent evidence has shown (e.g. the possible alliance between Renault-Nissan and General Motors), the American car industry's prospects severely deteriorated during the early Millennium.³ The industry proved to be very sensitive to any negative evolution of the market conditions. The negative statistically significant effect of its financial contribution on the likelihood of accepting quotas along with a high effort in informational lobbying is thus no surprise. Unfortunately, the lack of heterogeneity in the car industry keep us inconclusive as for hypothesis 4. Notice that Ford, General Motors and Daimler Chrysler PAC contributions were added up since their correlation matrix in Table 7 shows a very similar pattern in money giving to Representatives: colinearity issues

³In this respect, read The Economist's article: "America's car industry: shape up or ship out", Oct 9th 2003.

are thereby avoided.

The other variables behave as expected, particularly the positive influence on the likelihood of accepting import quotas of democrats and of massive employment in integrated mills producing flat-rolled products: unions are more likely to mobilize workers in congressional districts than to inform non-partisan Representatives. Once more, the steel specialty firms interests in getting import protection is illustrated by the positive effect of their workers on the likelihood of accepting the bill. Neither less organized and less unionized mini-mills workers nor employees in the car industry seem to affect the roll call vote.

Communication between Representatives does matter as illustrated by the comparison between econometric results in Table 8, without clustered residuals, and econometric results in Tables 3, 4 and 6, with clustered residuals: coefficients are statistically more significant with clustering by State than without.

Eventually, if one correlates the individual contributions by each steel firm to a Representative with the steel employment in his congressional district, values for the correlation coefficients range from a minimum of -0.02 to a maximum of 0.22 with a median value of 0.05. This means that steel firms do not necessarily target Representatives with high level of steel employment in their district, but try to build up large territorial coalitions instead. Since the employment in the traditional steel industry is geographically concentrated, this strategy is rational.

Overall, the hypothesis of intra-industry competition for political influence find a good support from data and econometric estimation after taking care of other important factors, which should lead to further investigations of the same nature for other sectors. It also shows that PAC contributions and informational lobbying expenditures are complementary, enabling lobbying vertical differentiation in order to gain political influence.

5 Conclusion

This paper has shed a new light on the way of analyzing roll call votes at U.S. Congress. For a long time, the literature has focused on the influence of PAC contributions in buying policies. Weird results were often raised like the huge effect of money giving on the probability of voting in favor of lobbies' interests. These weird results were first examined by taking a better care of the econometric estimation method, e.g. using instruments to control for the likely endogeneity of PAC contributions (Chappell (1982) or Stratmann (1991)), which appears to reduce the effect of PAC contributions in roll call votes analyses. Ansolobehere et al. (2002) provide us with another explanation: campaign contributions are not a form of investment but consumption.

We highlight the importance of including informational lobbying expenditures into the modeling of lobbying influence. Only using electoral campaign contributions is likely to introduce a bias into the analysis and produce inconsistent econometric results.

We show that in the case of intra-industry competition for political influence, informational expenditures are used in order to introduce vertical differentiation. Low-profits steel producers increased the quality of their PAC contributions by producing higher efforts in information transmission to politicians than high-profit steel producers made. This appeared clearly after the Asian crisis hits in 1997-98 and triggered a sharp decrease of world steel prices, which was followed by a strong lobbying activity led by less efficient steel producers.

The hypothesis of vertical differentiation of lobbying should be further tested for other sectors and industries. Many other cases should be closely examined so as to reach a consensus.

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APPENDIX

Table 1: PAC Contributions and Lobbying Expenditures by Organization

Organization	PAC Contributions ^a			Lobbying Expenditures ^a (e)
	Total	1998 Dem	Rep	1999
<i>STEEL</i>				
Bethlehem	43.7	18.2	25.5	2,320
LTV	68.3	27.8	40.5	1,299
Allegheny	45.6	15.8	29.8	< 20
AK ^b	35.2	6.7	28.5	40
Carpenter	11.5	0.5	11	< 20
Acme	3	1	2	< 20
Texas Ind.	15.5	2	13.5	< 20
AISI ^c	31.8	14.8	17	840
USWA ^d	1,088	1,084	4	303
<i>AUTO</i>				
Ford Motors	414.7	103.2	311.5	8,360
GM	339.5	83.4	256.1	5,800
Daimler Ch.	493.4	193	300.4	5,520

^a in thousands of dollars;

^b including Armco's numbers since AK made a takeover on it in sept. 1999;

^c American Iron and Steel Institute;

^d United Steel Workers of America;

Source: The Center for Responsive Politics.

Table 2: Evolution of Steel Firms' Operating Profits After the Asian Crisis

Firm	Type	Operating Profit ^a (π_{1998}) 3 rd quarter 1998	Operating Profit ^a (π_{1999}) 3 rd quarter 1999
Texas Industries	<i>H</i>	n.a.	128,158 ^b
U.S. Steel	<i>L</i>	65,000	(26,000)
Nucor	<i>H</i>	65,130	68,160
Allegheny Teledyne	<i>H</i>	65,500	43,600
AK	<i>H</i>	30,100	40,100
Bethlehem	<i>L</i>	37,100	(89,800)
National	<i>L</i>	32,500	(7,600)
Ispat International	<i>H</i>	27,000	20,000
LTV	<i>L</i>	11,000	(58,000)
Timken	<i>H</i>	13,570	12,440
Commercial Metals	<i>H</i>	14,920	16,720
Carpenter Technology	<i>H</i>	12,200	10,200
Steel Dynamics	<i>H</i>	8,400	10,500

^a in thousands of dollars;

^b consolidated results;

Source: www.newsteel.com.

Table 3: Econometric Results for H.R. 975 Steel Import Quotas Vote
(clustered residuals by state and without AISI)

Variables	Lobbying Expenditures ^a (<i>e</i>)	Operating Profits ^b (π)	Coefficient ^c (β)	Std Error
<i>STEEL</i>				
Bethlehem	2,320	(89,800)	0.00088***	0.00044
LTV	1,299	(58,000)	0.00027*	0.00018
Allegheny	< 20	43,600	0.00032	0.00026
AK ^d	40	40,100	-.00062***	0.00014
Carpenter	< 20	10,200	0.00044	0.00168
Acme	< 20	n.a.	-.00029	0.00022
Texas Ind.	< 20	128,158	-.00123***	0.00034
AISI	840	colinear with Bethlehem		
USWA	303		0.00001	0.00004
<i>AUTO</i>	19,680		-.00009***	0.00002
<i>PARTY</i> 1= <i>democrat</i>			1.73574***	0.24143
<i>INT</i>			0.00106***	0.00022
<i>MINI</i>			0.00055	0.00191
<i>SPEC</i>			0.00380**	0.00202
<i>AUTOMAN</i>				
Cars			0.00006	0.00006
Light trucks			0.00001	0.00010
Heavy trucks			0.00058	0.00044
Constant			-.22421*	0.14856
# of observations	430	Pseudo R^2	0.3467	
Max. likelihood	-177.73			

^a in thousands, lobbying expenditures for 1999;

^b in thousands, operating profits for 3rd quarter 1999 (published dec. 1999);

^c ***, **, * respectively for statistically significant at the 5, 10, and 15 % level;

^d including Armco's numbers since AK made a takeover on it in sept. 1999;

Note: the dependent variable *VOTE* takes values 1 (yes) or 0 (no), 3.17.1999.

Table 4: Econometric Results for H.R. 975 Steel Import Quotas Vote
(clustered residuals by state and with AISI)

Variables	Lobbying Expenditures ^a (e)	Operating Profits ^b (π)	Coefficient ^c (β)	Std Error
<i>STEEL</i>				
Bethlehem	2,320	(89,800)	0.00049	0.00066
LTV	1,299	(58,000)	0.00027*	0.00019
Allegheny	< 20	43,600	0.00032	0.00026
AK ^d	40	40,100	-.00065***	0.00013
Carpenter	< 20	10,200	0.00050	0.00168
Acme	< 20	n.a.	-.00027	0.00022
Texas Ind.	< 20	128,158	-.00122***	0.00034
AISI	840		0.00103**	0.00059
USWA	303		0.00001	0.00004
<i>AUTO</i>	19,680		-.00009***	0.00002
<i>PARTY</i> 1=democrat			1.75061***	0.24368
<i>INT</i>			0.00108***	0.00021
<i>MINI</i>			0.00059	0.00193
<i>SPEC</i>			0.00368***	0.00183
<i>AUTOMAN</i>				
Cars			0.00006	0.00006
Light trucks			0.00002	0.00010
Heavy trucks			0.00060	0.00044
Constant			-.23218*	0.14773
# of observations	430	Pseudo R^2	0.3504	
Max. likelihood	-176.74			

^a in thousands, lobbying expenditures for 1999;

^b in thousands, operating profits for 3rd quarter 1999 (published dec. 1999);

^c ***, **, * respectively for statistically significant at the 5, 10, and 15 % level;

^d including Armco's numbers since AK made a takeover on it in sept. 1999;

Note: the dependent variable *VOTE* takes values 1 (yes) or 0 (no), 3.17.1999.

Table 5: steel firms' PAC contributions correlation matrix

	Beth	LTV	Alleg.	AK	Carp.	Acme	Texas	AISI	USWA
Beth	1								
LTV	0.36***	1							
Alleg.	0.38***	0.22***	1						
AK	0.15***	0.09**	0.10***	1					
Carp.	0.17***	0.01	0.02	-0.01	1				
Acme	-0.02	0.02	-0.02	-0.01	-0.01	1			
Texas	-0.02	-0.02	-0.02	-0.01	-0.01	-0.01	1		
AISI	0.73***	0.36***	0.34***	0.16***	0.04	-0.02	-0.03	1	
USWA	0.02	0.02	-0.04	-0.04	-0.04	0.03	-0.06	0.03	1

Note: ***, **, * respectively for statistically significant at the 5, 10, and 15 % level.

Table 6: Econometric Results for H.R. 975 Steel Import Quotas Vote
(clustered residuals by state and with AISI and Bethlehem aggregated)

Variables	Lobbying Expenditures ^a (<i>e</i>)	Operating Profits ^b (π)	Coefficient ^c (β)	Std Error
<i>STEEL</i>				
Beth+AISI	3,160	(89,800)	0.00072***	0.00030
LTV	1,299	(58,000)	0.00026*	0.00018
Allegheny	< 20	43,600	0.00032	0.00025
AK ^d	40	40,100	-.00066***	0.00014
Carpenter	< 20	10,200	0.00049	0.00170
Acme	< 20	n.a.	-.00027	0.00022
Texas Ind.	< 20	128,158	-.00122***	0.00034
USWA	303		0.00001	0.00004
<i>AUTO</i>	19,680		-.00009***	0.00004
<i>PARTY</i> 1= <i>democrat</i>			1.74508***	0.24298
<i>INT</i>			0.00110***	0.00021
<i>MINI</i>			0.00059	0.00192
<i>SPEC</i>			0.00366***	0.00183
<i>AUTOMAN</i>				
Cars			0.00006	0.00006
Light trucks			0.00002	0.00010
Heavy trucks			0.00060	0.00044
Constant			-.22787	0.14802
# of observations	430	Pseudo R^2	0.3500	
Max. likelihood	-176.85			

^a in thousands, lobbying expenditures for 1999;

^b in thousands, operating profits for 3rd quarter 1999 (published dec. 1999);

^c ***, **, * respectively for statistically significant at the 5, 10, and 15 % level;

^d including Armco's numbers since AK made a takeover on it in sept. 1999;

Note: the dependent variable *VOTE* takes values 1 (yes) or 0 (no), 3.17.1999.

Table 7: automobile firms' PAC contributions correlation matrix

	Ford	GM	Daimler
Ford	1		
GM	0.74***	1	
Daimler	0.69***	0.75***	1

Note: ***, **, * respectively for statistically significant at the 5, 10, and 15 % level.

Table 8: Econometric Results for H.R. 975 Steel Import Quotas Vote
(unclustered residuals by state and without AISI)

Variables	Lobbying Expenditures ^a (e)	Operating Profits ^b (π)	Coefficient ^c (β)	Std Error
<i>STEEL</i>				
Bethlehem	2,320	(89,800)	0.00088**	0.00051
LTV	1,299	(58,000)	0.00027	0.00025
Allegheny	< 20	43,600	0.00032	0.00028
AK ^d	40	40,100	-.00062*	0.00039
Carpenter	< 20	10,200	0.00044	0.00170
Acme	< 20	n.a.	-.00029	0.00145
Texas Ind.	< 20	128,158	-.00123*	0.00076
AISI	840	colinear with Bethlehem		
USWA	303		0.00001	0.00004
<i>AUTO</i>	19,680		-.00009***	0.00003
<i>PARTY</i> 1= <i>democrat</i>			1.73574***	0.19443
<i>INT</i>			0.00106*	0.00071
<i>MINI</i>			0.00055	0.00238
<i>SPEC</i>			0.00380*	0.00237
<i>AUTOMAN</i>				
Cars			0.00006	0.00008
Light trucks			0.00001	0.00011
Heavy trucks			0.00058*	0.00037
Constant			-.22421***	0.10629
# of observations	430	Pseudo R^2	0.3467	
Max. likelihood	-177.73			

^a in thousands, lobbying expenditures for 1999;

^b in thousands, operating profits for 3rd quarter 1999 (published dec. 1999);

^c ***, **, * respectively for statistically significant at the 5, 10, and 15 % level;

^d including Armco's numbers since AK made a takeover on it in sept. 1999;

Note: the dependent variable *VOTE* takes values 1 (yes) or 0 (no), 3.17.1999.