Exchange Rates and Industry Demands for Trade Protection

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Abstract: The recent confrontation between China and the United States over currency policy illustrates a broader phenomenon: exchange-rate misalignments tend to spill over into trade policy. While previous studies have shown that aggregate protectionist activity is positively related to the level of the real effective exchange rate, we explore this relationship at the industry level. We argue that several industry-specific characteristics determine the protectionist response to changes in the exchange rate, including the extent of exchange-rate pass-through, the level of import penetration, and the share of imported intermediate inputs in total industry inputs. We evaluate our conditional arguments by estimating a negative binomial model of industry-level anti-dumping petitions and find that greater exchange rate pass-through increases the marginal effect of currency appreciation on the demand for trade protection. We find weaker evidence that the protectionist response to real appreciations is positively conditioned by the level of import penetration in an industry and negatively conditioned by dependence on imported intermediate inputs. Lastly, we show that lobbying and congressional voting patterns on recent U.S. legislation to impose trade sanctions on China for maintaining an undervalued currency can be explained by these same industry-specific characteristics.

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Introduction

The ongoing confrontation between China and the United States over currency policy illustrates a broader phenomenon: exchange-rate misalignments tend to spill over into trade policy. Just as the United States has threatened to impose trade barriers on imports from China and other countries that maintain "fundamentally undervalued" currencies, protectionism increased during previous exchange-rate controversies.[1] During the Great Depression, deficit countries that resisted devaluing their currencies also increased their trade barriers.[2] In the Bretton Woods era, at least nine major industrial countries – including Canada, France, Sweden, and the United Kingdom – imposed "import surcharges" (uniform tariffs) in the hope of avoiding exchange rate changes.[3] Similarly, the appreciation of the U.S. dollar in the early 1980s provoked the U.S. Congress to ramp up anti-dumping restrictions and other "administrative" trade barriers.[4]

While previous studies have shown that protectionist activity is positively related to the level of the real exchange rate, we demonstrate that this elasticity varies *by industry*.[5] We argue that several industry-specific characteristics determine the protectionist response to changes in the exchange rate, including the extent of exchange-rate pass-through, the level of import penetration, and the share of imported intermediate inputs in total industry inputs. We predict that industries with higher pass-through, larger import penetration ratios, and lower ratios of

[1] In September 2010, the House of Representatives passed *The Currency Reform for Fair Trade Act* (H.R. 2378), which would allow the U.S. to impose anti-dumping injunctions against China and other countries that maintain "fundamentally undervalued" currencies.
[2] Eichengreen and Irwin 2010; Irwin 2012
[3] Bergsten 1977; Irwin 2011
[4] Kaempfer and Willett 1987; Bergsten and Williamson 1983; Grilli 1988
[5] See Knetter and Prusa 2003, and Oatley 2010.

imported intermediate inputs to total inputs will demand more trade protection in response to currency appreciations.

Section 2 illustrates the puzzle that motivates our analysis: why is it that some industries systematically demand more trade protection than others? We use antidumping petitions filed at the United States International Trade Commission (ITC) to measure industry demand for protection because they can be traced to specific products and vary discretely over time. We match these antidumping petition counts to industry-specific exchange rate data from the Federal Reserve to show that certain industries, such as primary metals manufacturing, are more likely to seek trade protection during currency appreciations than others. We also introduce our general hypothesis that these asymmetric elasticities can be explained by certain industry-level economic characteristics.

In Section 3, we draw on an existing political economy literature to develop arguments about the sensitivity and position of a given industry to exchange-rate fluctuations. More specifically, we relate industry *sensitivity* to currency appreciations to the extent of exchange rate pass-through in an industry. Our theory suggests that firms in high pass-through industries are more likely to demand trade protection during periods of currency appreciation because they compete mainly on price. With respect to *position*, we argue that currency appreciation harms industries with higher import penetration ratios but helps industries with greater imported intermediate inputs as a share of total costs.

In Section 4, we evaluate these conditional hypotheses by constructing a dataset of antidumping petitions at the three-digit North American Industry Classification System (NAICS) level. Using a negative binomial model with several interaction terms, we find that pass-through has a significant positive effect on the protectionist response by a given industry to an appreciation in the real exchange rate. We also find weaker evidence that the protectionist response to real appreciations is positively conditioned by the level of import penetration in an industry and negatively conditioned by an industry's dependence on imported intermediate inputs.

In Section 5, we show that patterns in lobbying and congressional voting on *The Currency Reform for Fair Trade Act* (H.R. 2378), which imposes trade barriers on China and other nations found to have misaligned currencies, were influenced by these same industry-specific characteristics. We show that those industries that explicitly supported the legislation were also the most vulnerable to an undervalued Yuan due to high pass-through. Similarly, industries that opposed the bill tended to be non-traded goods producers, importers, and industries that depend on imported intermediate inputs from China. We also show that industry-level campaign contributions are correlated with House member voting on the bill. The final section concludes with some analytical and policy implications.

2. Exchange Rates and Protectionism

A number of studies have examined the overall relationship between currency appreciation and protectionism. Irwin (2012) and Eichengreen and Irwin (2010) show that aggregate protectionism during the Great Depression was the favored policy response in countries that kept their currencies fixed to gold, once partner countries devalued their own currencies. Oatley (2010) examines "waves" of protectionism in six industrialized countries since the 1970s and connects these protectionist cycles to movements in real exchange rates. Knetter and Prusa (2003) provide similar evidence for the United States, the European Union, Australia and Canada. Their estimates suggest that a one-standard deviation real appreciation of the domestic currency increases anti-dumping filings by 33 percent. Niels and Francois (2006) find that antidumping complaints are systematically related to movements in the exchange rate and current account in Mexico. Bergsten and Williamson (1983), Grilli (1988), and Irwin (2005) all show that protectionist legislation and anti-dumping petitions in the United States vary with the real exchange rate.

In **Figure 1,** we plot the basic association between the level of the exchange rate and aggregate protectionism. We use the real effective exchange rate (REER) of the U.S. dollar because it internalizes the currencies of multiple trading partners and adjusts for differences in price levels across countries. We use anti-dumping cases investigated by the ITC as a measure of protectionism because they provide year-to-year variation. These data clearly indicate that the number of anti-dumping increases when the dollar appreciates. The one outlier—1992—is the exception that tests the rule. On July 8, 1992, the steel industry filed 47 separate anti-dumping petitions on various countries for four types of steel products. If we reduce these 47 cases to four—since this flurry of steel-related cases were not independent—this positive correlation becomes even more significant.

However, when we disaggregate the data to the industry level it becomes readily apparent that some industries demand more protection than others. For example, firms in the Primary Metal Manufacturing industry (NAICS 331) filed 45 percent of all anti-dumping petitions submitted to ITC between 1979 and 2010. The vast majority of these investigations were initiated by firms producing basic steel commodities, such as steel plate, pipe, and wire products. The asymmetry between the primary metals industry and other industries is so large that if we drop all NAICS 331 cases from the sample in **Figure 1**, the relationship between exchange rates and protectionism decreases in magnitude and loses its statistical significance.

We address this puzzle by considering three preliminary hypotheses that are neither mutually exclusive nor collectively exhaustive. First, the primary metals industry could have experienced larger appreciations relative to its trading partners than other industries, which would not be apparent using an aggregate REER index. Second, the steel industry might be more responsive to changes in the exchange rate than other industries. Third, it is possible that our measure of protectionist demands from the primary metals industry is being inflated by confounding variables and that the proper controls would reduce this divergence.

Table 1 confirms that the primary metals asymmetry is robust to additional controls. Firms in the primary metals sector are still more responsive to changes in the real exchange rate than other industries after switching to an industry-specific measure of the real exchange rate and controlling for changes in industry capacity utilization. We use industry-specific exchange rates from 1989-2010 at the 3-digit NAICS level from the Federal Reserve Bank of New York.[6] These data are weighted by imports, exports, and overall trade, which is an *ad hoc* convention of averaging import and export weights.[7] In particular, we use the import-weighted exchange rate (MEER) in our empirical analysis because antidumping measures are protectionist barriers on imports. Furthermore, we use the year-on-year change in the Federal Reserve Board's capacity utilization rate to measure the state of manufacturing activity by industry.[8]

We selected a negative binomial distribution for the dependent variable due to the non-negative integer nature of antidumping petitions and evidence of over-dispersion in our data. We report the results of random effects models for consistency with the rest of our empirical

[6] http://www.newyorkfed.org/research/global_economy/industry_specific_exrates.html
[7] Goldberg 2004
[8] The Federal Reserve Board constructs estimates of capacity and capacity utilization for manufacturing industries at the three-digit NAICS level (Series G.17). For a given industry, the capacity utilization rate is equal to an output index (seasonally adjusted) divided by a capacity index. See http://www.federalreserve.gov/releases/G17/CapNotes.htm

analysis, but these estimates are also robust to fixed effects specifications. Models 2 and 3 show that currency appreciations have a highly significant positive effect on the number of antidumping petitions filed by firms in the primary metals industry. Although the industry-specific exchange rate coefficient is positive in Models 4 and 5, this effect is not significant for the remaining 19 non-primary metals industries. In addition, the p-values suggest that the overall fit of our model for non-steel industries is very weak.

Given that exchange rate fluctuations appear to significantly affect the demand for protection in the primary metals manufacturing industry but not other industries, the next step is to identify structural variables that could potentially explain this asymmetry. For example, the primary metals industry might share certain characteristics with other industries, which would allow us to make generalized conclusions about industry behavior across the manufacturing sector. In other words, which industry-specific characteristics determine the protectionist response to currency appreciations?

3. The Industry-Specific Effects of Exchange Rates

The existing political economy literature has demonstrated that real exchange rate fluctuations have a substantial, but uneven, impact on the profitability and performance of industries.[9] Movements in the exchange rate may cause price changes that: (1) reallocate resources between traded and non-traded goods industries; (2) alter the competitiveness of export industries and import-competing industries; (3) change the input costs of industries that use imported intermediate inputs; (4) alter the input prices of firms that import foreign goods for resale in the domestic market; and (5) change the value of assets denominated in foreign

[9] Frieden 1991; Bodner and Gentry 1993; Broz and Frieden 2006

currencies. Because of this diverse set of influences, exchange-rate movements have very different effects across industries.

At the broadest level, changes in the exchange rate affect non-traded goods industries differently than traded goods industries. Non-traded goods have transportation costs that are high enough to render international trade unprofitable. A real appreciation leads to a rise in the relative price of non-tradable goods and thereby shifts resources from the tradables to the non-tradables sector.[10] More specifically, a real appreciation increases the cost of producing tradable goods and decreases the costs of producing non-tradable goods. As such, it causes the profit and market valuation of non-traded goods industries to rise relative to the profit and market value of traded goods industries.[11] This suggests an asymmetric relationship between real appreciations and industrial performance: appreciation helps non-traded goods producers and harms traded goods producers.

Within the traded-goods sector, an industry's response to exchange-rate movements depends on its international position and market structure. An appreciation lowers the amount of home currency needed to purchase an equivalent unit of foreign currency, resulting in a lower home-currency price of foreign goods and a higher foreign-currency price of home goods. In general, this harms exporters and import-competing industries, as declining competitiveness at home and abroad reduces revenues, and helps importers (wholesalers and retailers) as input costs decline. But the overall sensitivity and position of export and import-competing industries regarding currency appreciations are moderated by three factors: the degree to which changes in the exchange rate pass through to the price of traded goods, the amount of import penetration

[10] Dornbusch 1974
[11] Bodner and Gentry 1993

relative to domestic consumption, and the extent to which an industry depends on imported intermediate inputs.

First, we expect that greater pass-through in an industry will increase its sensitivity to exchange rate fluctuations. Pass-through refers to the elasticity of import and export prices to changes in the real exchange rate. This is an important economic concept because changes in the exchange rate can only impact international competitiveness if they are “passed through” to the price of traded goods.[12] For the same reason, pass-through is politically important because firms are more likely to demand trade protection if their competitiveness is adversely affected by currency appreciations.

Complete pass-through means that market prices change one-for-one with the exchange rate: a 10 percent appreciation of the home currency leads to a 10 percent reduction in import prices and a 10 percent increase in export prices. Therefore, import-competing firms and exporters in high pass-through industries are very sensitive to the exchange rate because it directly affects their competitiveness. By contrast, zero pass-through means that prices remain unchanged in response to changes in exchange rates. Where pass-through is low, producers absorb most or all of exchange rate fluctuations in their profit margins to avoid changing their prices. Low pass-through is also referred to as “pricing-to-market” because the exporter reduces its mark-ups to create price stability in the local currency of importers.[13]

The level of exchange rate pass-through depends largely on market structure and the degree of product differentiation.[14] Pass-through tends to be highest in competitive industries where firms produce homogenous goods and compete mainly on the basis of price (e.g., basic

[12] Goldberg and Knetter 1997; Campa and Goldberg 1999
[13] Krugman 1987; Knetter 1993
[14] Dornbusch 1987; Marston 1990; Knetter 1993; Yang 1997

metal products, minerals, textiles). Consumers are relatively price-sensitive given the large number of available substitutes, and this high elasticity of demand forces producers to discipline their pricing behavior. By contrast, pass-through tends to be lowest in imperfectly competitive industries where producers compete on quality and reputation rather than simply on price. These market characteristics are typically found in industries that produce differentiated and specialized goods with few substitutes. Because demand is relatively inelastic, producers are able to keep prices stable in foreign markets regardless of exchange rate volatility (i.e., pricing-to-market). Low pass-through industries are better insulated from the effects of exchange rate fluctuations since product differentiation prevents foreign goods from being close substitutes for domestic goods.[15]

A simple example illustrates the impact of pass-through on an industry's sensitivity to exchange rate fluctuations. Consider trade between the United States and the Eurozone and assume that the dollar appreciates from $1.25 per euro to parity. Furthermore, let us assume that Eurozone producers charge a set price of €10 for each unit sold. In a situation of complete exchange rate pass-through, the import price for U.S. consumers decreases from $12.50 to $10.00. If Eurozone goods are close substitutes for American goods, U.S. consumers will adjust their consumption by consuming relatively more Eurozone goods. A similar mechanism is triggered in the Eurozone, where the price of the U.S. good increases from €10 to €12.50. In this example of complete pass-through, dollar appreciation harms the competitiveness of U.S. producers and thereby increases imports from the Eurozone and decreases U.S. exports to Europe.

[15] Goldberg and Knetter 1997

Now, let us consider the opposite extreme of zero pass-though. Under the full pricing-to-market assumption, appreciation of the dollar does not affect the quantity of goods shipped to the U.S. because European producers do not change their prices and U.S. consumers do not shift their expenditures to European goods. Similarly, within the Eurozone, imports from the U.S. would be unchanged as European consumers would not substitute towards domestic goods. In other words, changes in consumption patterns are now absent as consumer prices in both markets are completely insulated from exchange-rate fluctuations. However, although quantities shipped across borders do not respond to exchange-rate changes, U.S. exporters will still suffer a fall in revenues when the dollar appreciates. With prices set in dollars and no change in demand, the U.S. exporter receives the same amount of euros as before the appreciation took place. This payment has less value in dollar terms, thereby decreasing the revenues of U.S. exporters (revenues from domestic sales are unaffected).

To summarize, exchange-rate changes affect international competitiveness when pass-through is high. This implies that producers in high pass-through industries are very sensitive to the exchange rate and hold clear preferences: appreciation harms their competitiveness and reduces profits, while depreciation improves their competitiveness and raises profits. By contrast, producers in low pass-through industries will be less concerned about changes in exchange rates because they do not induce proportional changes in prices, competitiveness, expenditure-switching, and quantities shipped across borders. The political economy implication is that high pass-through industries will be more likely to make political demands for protectionism during appreciations than industries with low pass-through.

Two additional industry characteristics shape the demand for trade protection during appreciations: the level of import penetration and the ratio of imported inputs to total inputs. We hypothesize that higher import penetration in a given industry will increase that industry's protectionist response to currency appreciations. Import penetration refers to the degree to which domestic producers compete with foreign producers in the domestic market. For example, an industry has greater import penetration when imports represent a larger share of domestic consumption. Therefore, currency appreciations generate more harm to domestic producers because revenues are more vulnerable to changes in competitiveness.[16]

On the contrary, we expect that greater dependence on imported inputs will decrease the demand for trade protection in response to exchange rate appreciation. Imported input dependence refers to the level of imported inputs relative to the total value of production. Therefore, currency appreciation actually benefits industries that depend heavily on imported inputs by lowering input costs. In fact, this benefit may outweigh the adverse revenue effects of a real appreciation in some traded goods industries.[17]

Figure 2 summarizes the effects of exchange-rate changes on industries along the two dimensions discussed above: position and sensitivity. The first dimension – position – represents how an industry is affected by the level of the real exchange rate. Industries that benefit when the exchange rate is "high" (appreciated) are located in the east cells of the figure; industries that prefer a "low" (depreciated) exchange rate are positioned in the cells to the west. The second dimension – sensitivity – reflects the degree of pass-through in an industry. Industries that are more sensitive to movements in exchange rates are industries where pass-through is high: industries producing standardized goods sold in competitive markets on the basis of price. Industries that are less sensitive to exchange-rate movements are industries where pass-through

[16] Campa and Goldberg 1997
[17] Campa and Goldberg 1997

is low: industries that produce differentiated goods sold in less competitive markets where firms command some pricing power.

4. Industry-Specific Exchange Rates and Antidumping Investigations

We use the number of antidumping filings for a given industry to proxy for that industry's overall demand for protection. The advantage of using antidumping filings is that they are measured discretely over time and can be easily traced to specific industries. Therefore, our dependent variable AD_{it} represents the number of antidumping filings to the ITC by industry i in year t. These data were collected from the Global Antidumping Database (GAD) from 1978-2010.[18] Industries in the GAD are categorized by either TSUSA or HS codes, which are too disaggregate for the scope of our analysis. Therefore, we make use of publicly available concordance files online to construct a panel of antidumping petitions for twenty manufacturing industries by three-digit NAICS code.[19]

The first step in our empirical analysis is to select a distribution for the dependent variable that reflects the non-negative integer nature of antidumping petitions. The data reveals that the number of antidumping petitions across industries is highly skewed, which suggests evidence of over-dispersion. In addition, nearly 70% of our observations in the panel equal zero. Several goodness-of-fit tests indicate that the variance of our dependent variable far exceeds the mean, which violates the strict assumptions of the Poisson distribution. Therefore, we conclude that the negative binomial distribution is most appropriate for modeling antidumping petitions at the three-digit NAICS industry level.

[18] http://econ.worldbank.org/ttbd/gad/

[19] Specific details about the concordance process can be found in the data appendix.

Our primary explanatory variable is an industry-specific measure of the real effective exchange rate. Industry-specific exchange rates are crucial to our analysis since we are interested in changes in competitiveness and protectionist lobbying at the industry level. While aggregate REER indexes use the weights of each partner country in the total international trade activity of the entire U.S. economy, industry-specific exchange rates are constructed by weighting partner currencies by the shares of partners in U.S. trade in a specific industry. The Federal Reserve Bank of New York provides industry-specific REER indexes for manufacturing industries by three-digit NAICS code from 1989-2010 on its public website.[20] These data are weighted by imports, exports and overall trade, which is an *ad hoc* convention of averaging import and export weights.[21] We use the import-weighted exchange rate in our empirical analysis because antidumping measures are protectionist barriers on imports. Therefore, we expect that industries will file more antidumping petitions when their import-weighted real exchange rate appreciates, which has the effect of reducing the competitiveness of domestic producers relative to foreign producers.

We also collect data for our three conditioning explanatory variables. To measure pass-through, we exploit the fact that pass-through tends to be high for standardized goods produced in competitive markets, and low for differentiated goods produced in imperfectly competitive markets. Rauch (1999) classifies products into three distinct categories: homogenous, reference priced, and differentiated products. Homogeneous products are highly substitutable and producers compete mainly on price, which is set in organized exchanges. Reference priced products have some unique attributes but remain essentially substitutable, and producers take their prices from industry guides and trade journals. Differentiated products vary across supplier

[20] http://www.newyorkfed.org/research/global_economy/industry_specific_exrates.html
[21] Campa and Goldberg 1997

to meet specific consumer needs, and thus producers compete on quality and other attributes, rather than just on price. We collapse these product classifications into NAICS-3 industries and generate a dummy variable that equals one if pass-through is high and producers complete on price (homogenous and reference priced goods) and zero if pass-through is low and producers do not complete on price (differentiated goods).[22]

We construct import shares by taking the ratio of imports to a proxy for domestic consumption devised by Campa and Goldberg (1997) as follows:

$$MSHARE_{it} = 100 * \left(\frac{M_{it}}{S_{it} - X_{it} + M_{it}} \right)$$

where *M* represents the value of imports, *X* represents the value of exports, and *S* represents total shipments for industry *i* in year *t*. We collect both trade and shipments data by NAICS-3 industries from Schott (2008) on his public website.[23]

Previous papers have measured imported input dependence by multiplying total spending on input *p* by the economy-wide import share for that input.[24] However, this approach relies on an assumption of import comparability, which states that the economy-wide import share for good *p* is equal to the import share for good *p* in a particular industry.[25] We improve upon this methodology by relaxing the import comparability assumption and constructing a direct ratio of imported inputs to total intermediate inputs by industry. The numerator, which equals the sum of all imports by industry containing the keyword "parts" in the product description, comes from Schott (2004) and is available on his public website. The denominator is calculated by the BEA at the three-digit NAICS level.

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[22] For more information, see the data appendix.
[23] http://faculty.som.yale.edu/peterschott/sub_international.htm
[24] Campa and Goldberg 1997
[25] Feenstra and Jensen 2009

We incorporate all three conditional hypotheses about the effect of exchange rates on the industry-level demand for protection in the following negative binomial model:

$$Y_{it} = \alpha_{it} + \beta X_{it} + \sum_{j=1}^{3} \rho_j Z_{jit} + \sum_{k=1}^{3} \gamma_k X_{it} Z_{kit} + \mu \Delta M_{it} + \varepsilon_{it}$$

where *Y* represents the number of antidumping petitions; *X* represents the level of the import-weighted real exchange rate; *Z* represents the *k*th conditional variable, which equals either the pass-through rate, import share, or dependence on imported inputs; and ΔM represents the change in manufacturing capacity utilization for industry *i* in year *t*. The error term is assumed to be uncorrelated with our dependent variables. We use a random effects model to allow us to interpret the coefficient on the component term for pass-through, which does not vary over time. However, our results are also robust to fixed effects specifications and we report clustered standard errors by NAICS-3 industry to control for correlation within a given industry.

We are primarily interested in the parameters β and γ_k, which is a vector of *k* elements corresponding to our interaction terms. Given the negative binomial distribution of the dependent variable, we can estimate the marginal effect of the real exchange rate for industry *i* in year *t* as a partial derivative expressed in terms of the number of antidumping petitions:

$$\frac{\partial Y_{it}}{\partial X_{kit}} = \exp\left(\beta + \sum_{k=1}^{3} \gamma_k \right)$$

Table 2 evaluates our industry-specific arguments about the causal link between exchange rates and protectionism. Model 1 confirms that an increase in the real exchange rate has a positive effect on the rate of antidumping petitions, which is significant at the 5 percent level. Model 2 shows that this relationship is robust to additional controls. Pass-through has a significant positive sign, as we expect, although import share has a marginally negative and insignificant sign. When we include dependence on imported inputs in Model 3, we see that the sign on the real exchange rate turns marginally negative and loses its significance. Pass-through still has a positive effect on antidumping petitions, but this effect is only significant at the 10 percent level. In addition, the large p-value suggests that this model is a poor fit for our data.

However, these first three models are incomplete because they assume that each regressor has an independent effect on our dependent variable. To evaluate the conditional hypotheses generated above, we must include three interaction terms to go along with our component terms. Column (4) reports the results of our interaction model. We observe that β remains slightly negative and insignificant, as does the effect of capacity utilization. Next, we interpret the coefficients on Z_j as the effect of our modifying variable *j* when *X* is equal to zero.[26] T he signs are the opposite of what we expect, but this is not crucial to our analysis since a real exchange rate of zero is a highly improbable scenario.

Instead, we turn to the coefficients in vector γ, which directly test our conditional hypotheses, above. We find that pass-through has a significant positive effect on the protectionst response by a given industry to an appreciation in the real exchange rate. Perhaps surprisingly, this variable provides most of the explanatory power in our model. **Figure 3** shows a marginal effects plot to allow for more meaningful interpretation of our pass-through interaction term. We observe that the marginal effect of the real exchange rate conditioned on pass-through ($\beta + \gamma_{PT}$) is negative when pass-through is low and positive when pass-through is high. The significant coefficient on γ_{PT} refers to the positive slope of the solid line. However, the dashed lines representing a 95% confidence interval remain on either side of the zero line at both values of pass-through. This means that marginal effect as a whole is insignificant, most likely

[26] Brambor et al. 2006

because β is both negative and insignificant. In other words, the change in the marginal effect due to pass-through is significant, although the level of the marginal effect is not significant.

The interactions of import share and imported input dependence with the real exchange rate carry the expected sign, respectively. However, we cannot reject the null hypothesis that either is significantly far away from zero to generate any substantive conclusions about their effect on the demand for protection. Furthermore, we cannot rule out the possibility that their lack of statistical significant is due to some degree of measurement error. Future research should make use of new data being constructed by Feenstra and Jensen (2009) to fully understand the effect of imported input dependence.

Thus far, our model can only explain antidumping petitions per industry as a function of industry-level characteristics. However, this leaves open the possibility that our estimates are picking up the effect of omitted variables that influence the overall rate of petitioning activity. For example, it is possible that broad changes in domestic institutions or geopolitics could increase the demand for protectionism across all industries in the same year. Because of the intangible nature of these shifts in the political landscape, it is nearly impossible to model them explicitly. Therefore, we construct an alternate dependent variable to measure the number of antidumping petitions per industry as a share of total petitions in a given year. The denominator inherently controls for all possible trends in overall protectionist activity, which allows us to isolate changes in the demand for protection at the industry level more precisely. Column (5) shows that our previous results are robust to these additional controls in a linear model. The magnitude of our coefficients changes slightly because our units switch to continuous patent shares. However, we still observe a significant positive effect of pass-through on the protectionist response to exchange rate appreciations, and our import share interaction term is slightly positive at the 10 percent level.

5. Lobbying and Voting on *The Currency Reform for Fair Trade Act of 2010*

The previous section provided suggestive evidence that exchange rate fluctuations spill over into trade policy in ways that reflect diverse industry sensitivities and preferences. However, exchange rates also cause trade tensions even when they are fixed. For years, China's policy of pegging its currency to the U.S. dollar had inflamed Congressional protectionism, and these sentiments were only moderated when the Chinese let the yuan appreciate by about 15 percent after 2005. The continued rise in the U.S. trade deficit with China as well as complaints from certain U.S. manufacturing industries led some members of Congress to call for more aggressive policies toward China. A number of bills have been introduced to pressure China into adopting a more flexible currency policy.[27] We assess our arguments in the context of one of these bills: H.R. 2378: *The Currency Reform for Fair Trade Act*, which passed the House by a roll-call vote of 348-79 on September 29, 2010.

The Currency Reform for Fair Trade Act provides a mechanism to (1) determine when a foreign country is engaging in currency manipulation, and (2) impose U.S. trade policy remedies to offset the adverse effects of this currency manipulation. The criteria for determining currency manipulation are based on a number of factors, including whether the real effective exchange rate of the country's currency is undervalued by an average of at least 5 percent during the preceding 18 months, whether the country is engaged in large-scale intervention in foreign exchange markets during that 18 month period, and whether the country holds foreign currency

[27] Morrison and LaBonte 2008

reserves greater than the amount of the country's foreign debt obligations that are due within the next year. If the administering authority—the International Trade Administration (ITA) in the Commerce Department—determines that manipulation has occurred, it can impose an antidumping duty or a countervailing subsidy to correct for undervaluation. It is not clear whether this enforcement mechanism violates WTO guidelines.

Vesting authority for currency matters in the ITA reinforces the point that exchange rates have distributional effects that fall along industry lines. The ITA is the government agency that grants "administered protection" to domestic industries by carrying out antidumping and countervailing duty investigations upon the request of domestic industries, and, in conjunction with the International Trade Commission, decides whether or not to grant protection to those industries.[28] Previous research has shown that the ITA and ITC are highly susceptible to demands for protectionism from specific industries.[29]

In this section, we consider whether differences in lobbying and congressional voting on H.R. 2378 are responsive to the cross-cutting and diverse industry pressures associated with an appreciated exchange rate. Since H.R. 2378 aims to combat the undervaluation policies of China (or other nations) with trade remedies, we expect patterns of lobbying and legislative voting to reflect the industrial winners and losers of dollar appreciation. When China engages in sterilized intervention and accumulates foreign reserves, the yuan becomes undervalued compared to its market value. Where pass-through is high, this causes Chinese exports to the United States to become relatively inexpensive, which in turn diminishes the competitiveness of U.S. producers.

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[28] "Administered protectionism" means that legislative approval is not required for implementing a specific trade barrier. However, legislative consent *is* required for executive agencies like the ITA and ITC to exercise their quasi-judicial powers.

[29] Hansen 1990; Hansen and Park 1995

Therefore, we expect U.S. producers of high pass-through traded goods to lobby in support of H.R. 2378.

However, an undervalued Chinese currency also provides benefits to certain U.S. industries. At the broadest level, the non-traded goods sector gains from a weaker yuan, as the price of non-traded goods increases relative to the price of traded goods. Therefore, we expect U.S. producers of non-traded goods and services to oppose H.R 2378. In addition, an undervalued yuan benefits U.S. producers that rely on standardized intermediate inputs from China by lowering their inputs costs. For example, the computer and electronics industries should oppose this legislation because they depend heavily on China for imported components. Lastly, wholesalers and retailers that import finished consumer goods from China gain from a weak yuan since it reduces the domestic currency cost of purchasing Chinese goods. Since a large share of Chinese imports to the U.S. are standardized consumer goods such as textiles and apparel, toys and games, and consumer electronics, we expect importers and retailers of these goods to oppose H.R. 2378.

Table 3 provides a list of the lobby organizations that took a formal position on H.R. 2378. This information is from MAPLight.org, a nonprofit and nonpartisan research organization that provides data on the influence of money on politics. To identify the positions of industries on H.R. 2378, the research staff at Maplight.org searched public documents, congressional testimony, industry web sites, and news databases. When researchers found an industry group that registered explicit support or opposition to the legislation, they posted the original source material to their website. **Table 3** also contains links to these original documents.

As illustrated in the table, the supporters of H.R. 2378 disproportionally represent industries related to primary metals manufacturing: the American Iron & Steel Institute, which represents U.S. steel manufacturers; the United Steelworkers representing labor in this industry, and the Aluminum Extruders Council, the trade association of the aluminum processing industry. Another supporter, the Alliance for American Manufacturing, is a coalition of manufacturers in metals processing industries. It is noteworthy that industries supporting the legislation belong to the same NAICS category (Primary Metal Manufacturing) that is so heavily overrepresented in anti-dumping petitions. However, two overarching labor organizations that represent workers in multiple industries also expressed support for the bill: the AFL-CIO and the International Association of Machinists and Aerospace Workers.

The organizations that opposed H.R. 2378 also represent a diverse but largely predictable group of industries. For example, we can identify many non-tradable industries such as the Coalition of Service Industries, the Financial Services Roundtable, and the Securities Industry & Financial Markets Association. In addition, this list includes several importers that distribute finished Chinese goods to U.S consumers: the American Apparel & Footwear Association, the National Retail Federation, the Pacific Coast Council of Customs Brokers & Freight Forwarders, and the Sporting Goods Manufacturers Association. It is also expected that TechAmerica, the leading high-tech trade association for industries that import intermediate inputs from China in global sourcing operations and/or have large investments in China, opposed the bill.

However, the large showing of farm sector organizations opposing the bill is not consistent with our analytical framework. These farm organizations represent industries that produce homogenous commodities that compete on the basis of price, such as soybeans, grains, and beef. Since pass-through is typically high for standardized goods, China’s undervalued yuan policy harms American grain farmers and cattle ranchers since it raises the price of U.S. farm products in China and reduces the competitiveness of U.S. exports relative to other food exporting countries.

One possible reason for this divergence from our theory is that the specific enforcement mechanism outlined in H.R. 2378—imposing trade barriers on Chinese imports to induce a more flexible currency policy—would likely result in retaliatory barriers against U.S. farm exports. China is the second largest export market for U.S. agricultural products, and American farm organizations express concern that tensions over currency manipulation might provoke a trade war. As the American Soybean Association noted in a letter to Congress opposing H.R. 2378: "Legislating antidumping duties or CVDs to remedy currency policies will not get us any closer to the goal of market-driven exchange rates. China is unlikely to proceed more quickly with currency reforms if threatened with this action. Additionally, China could mount a successful challenge to U.S. actions in the WTO, which could shift the international community's focus from China's trade policies to ours, and potentially threaten U.S. exports into our fastest growing foreign market."[30] At a time when agricultural prices are rising and the U.S. farm sector is good health, American farmers appear unwilling to risk their international position for a more flexible Chinese currency.

Overall, the lobbying activity on this currency bill provides substantial support for our arguments. Moreover, industry pressures in the legislative arena are similar to those that drive anti-dumping protectionism in the executive branch, especially regarding the overrepresentation of metal producing industries. But does lobbying "matter" in terms of influencing how members of Congress voted on H.R. 2378? To evaluate this question, we correlate industry-level campaign contributions with Congressional vote tallies on the bill.

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[30] American Soybean Association, (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China Business Council.

Table 4 presents preliminary support for the argument that campaign contributions at least partially determine voting behavior on H.R. 2378. The table combines three types of data: (1) campaign contributions given to each member of Congress in the two years prior to the vote on H.R. 2378 (September 1, 2008 – August 31, 2010)[31]; (2) the corresponding vote by each member of Congress on every bill[32]; and (3) the position of each industry group on H.R.2378.[33] To obtain these industry positions, the MAPlight.org research team searched public records (e.g., Congressional testimony, news databases, and trade associations' websites) to identify interest groups that took positions on the bill, and then categorized these groups by industry. The contributions data are then mapped to these position data by way of the industry of the donor, which is provided by the Center for Responsive Politics for all donations over $200.

The top half of **Table 4** indicates that House members voting "yes" on H.R. 2378 received about 7 times more in contributions from industry groups that supported the legislation on average than members that voted "no." Similarly, the table at the bottom indicates that members voting "no" on H.R. 2378 received about $11,000 more in contributions on average from industry opponents of the legislation than members that voted "yes." Therefore, we can identify a statistically significant relationship between industry-level campaign contributions and member voting on the protectionist legislation.

To control for any confounding variables, we present results of multivariate probit regressions in **Table 5.** Model 1 includes just the contributions data, and the results are both expected and statistically significant. Model 2 adds the variable "DW Nominate" to control for the personal ideology of the House member (higher values indicate a more right-wing ideology).

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[31] Contributions data are from the Center for Responsive Politics.
[32] House Vote data are from GovTrack.us
[33] The source for support/opposition data is MAPLight.org

The negative sign on this coefficient suggests that right-leaning members were less likely to vote in favor of the bill. Model 3 includes some additional controls for constituency characteristics. For example, “Percent Employed in Manufacturing” represents manufacturing employment as a share of the working-age population for a given district. This coefficient is positive and marginally significant at the 10 percent level, indicating that members who represent more manufacturing workers were more likely to vote “yes” on H.R. 2378. However, the estimate on “Percent Employed in Agriculture” is negative but not significant, providing somewhat weaker evidence that American farmers oppose using trade remedies against China. Similarly, “Percent Employed in FIRE” represents the share of the district population employed in finance, insurance, and real estate—a proxy for the relative importance of the non-traded goods sector in a given district. We expected this variable to have a negative sign since non-traded goods industries benefit from currency appreciation, but our results indicate no significant effect. Nevertheless, we observe the expected signs on our primary explanatory variables in all models.

In **Table 6**, we provide a substantive interpretation of these probit results. We simulated the predicted probability of observing a vote in favor of H.R. 2378 from Model 3 above, and then examined how these predicted probabilities *change* in response to an exogenous increase in campaign contributions.[34] These simulations yield meaningful substantive effects. Increasing contributions from industries that support the bill by one standard deviation—about $11,500—increases the likelihood that a member will vote “yes” on the bill by about 6 percentage points. The 95 percent confidence interval does not cross over the zero line, indicating that this effect is statistically significant at the 5 percent level. Similarly, an increase in the level of contributions from industries that oppose the bill by one standard deviation—about $29,000—increases the

[34] The simulations were performed with “Clarify” software developed by Tomz, Wittenberg and King (1998).

likelihood that a member will vote "no" on the bill by about 2 percentage points. However, the confidence interval suggests that the negative sign may be due to chance.

6. Conclusions and Implications

Casual observation suggests that some industries demand more trade protection than others. For example, the primary metals manufacturing industry accounts for nearly half of all anti-dumping petitions filed in the United States over the past thirty years. Furthermore, the elasticity of this demand to changes in the exchange rate varies widely across industries. The effect of currency appreciations on the number of antidumping petitions filed by the primary metals manufacturing industry remains significant even after controlling for changes in capacity utilization rates. By the same token, some U.S. industries have vigorously supported legislation to impose trade sanctions on China for its currency undervaluation while other industries strongly oppose such laws.

We presented a framework for identifying the positions and sensitivities of industries to exchange-rate fluctuations and evaluated our conditional hypotheses using industry-specific measures of the demand for protection. We found that greater exchange rate pass-through increases the marginal effect of currency appreciations on the number of anti-dumping petitions filed by traded goods industries. With respect to legislative policy, we found that industry lobbying positions and congressional voting on *The Currency Reform for Fair Trade Act* follow a similar pattern. Industries that lobbied in support of the bill were the most vulnerable to China's undervalued currency due to high exchange rate pass-through. Industries that opposed the bill were non-traded goods producers, importers, and industries that depend on imported intermediate inputs from China. We also found that campaign contributions from supporters increased the likelihood that a member voted in favor of the bill.

Our research moves scholarship on the relationship between exchange rates and trade protection in a new direction. While prior studies have established a basic connection between currency appreciations and increases in overall protection, we disaggregate exchange rates and protectionist demands to the industry level in order to evaluate more precise conditional hypotheses. We also model variation in this elasticity of demand by exploiting certain industry-level characteristics such as exchange rate pass-through, import penetration, and dependence on imported inputs.

Despite these innovations, we note several opportunities for improvement. First, and most importantly, we can improve the precision of our estimates with even more disaggregation of the data. We measure our variables of interest at the 3-digit NAICS level, which classifies industries into just 33 broad categories such as "chemicals," "wood products" and "transportation equipment." These categories group together an enormous diversity of industries, which introduces a great deal of measurement error in our data. Moving towards 6-digit NAICS codes would allow us to expand our panel to 466 distinct industries. However, the Federal Reserve Bank of New York only constructs industry-specific exchange rates for NAICS-3 industries at this time. In addition, our current measures of imported input dependence are still imprecise even after relaxing the import comparability assumption. Future research should take advantage of new estimates that incorporate data from input-output tables in both the numerator and denominator of this ratio.

Data Appendix

Concordance of Industry Codes: Antidumping petitions in the Global Antidumping Database (GAD) are categorized by either TSUSA or HS codes. First, we convert each of these respective codes to SIC codes using publicly available concordance files.[35] We replace missing SIC codes with those from the NBER Antidumping Database.[36] In addition, we reduce some HS codes to four significant figures to increase the number of SIC matches, since the former is far more disaggregated. Next, we convert these SIC classifications to NAICS codes.[37] Some of the concordances required manual overriding. For example, we mapped SIC 3312 to NAICS 331 based on bridge files from the Census Bureau.[38] The GAD reports multiple entries for antidumping petitions associated with more than one product. We drop duplicate cases with the same case ID and NAICS-6 code to avoid over-counting these omni-petitions, which were often filed in the primary metals manufacturing industry. Finally, we construct a panel of antidumping petitions per year by collapsing the dependent variable by NAICS-3 code.

Product Classifications and Pass-Through: We collect Rauch (1999) "conservative" product classifications from Jon Haveman's public website.[39] We assign a pass-through value of 0 to differentiated products, 1 to reference priced products, and 2 to homogeneous products traded on an organized exchange. This design ensures that larger magnitudes reflect a greater degree of exchange rate pass-through based on the theory presented in this paper. Because the raw data is organized by SITC industry codes, we use publicly available concordance files to categorize the data by 1999 NAICS codes.[40] Then, we convert these outdated NAICS codes to their 2002 equivalents to ensure consistency with our other explanatory variables.[41] We construct average pass-through values for each industry in our sample by collapsing the data by NAICS-3 code. Finally, we construct a dummy variable for high pass-through that equals 1 if the average is greater than or equal to 0.5, which reflects the fact that both reference priced and homogenous goods are produced by industries that compete mainly on price.

[35] TSUSA to SIC: http://cid.econ.ucdavis.edu/usixd/wp5515d.html; HS to SIC: http://faculty.som.yale.edu/peterschott/sub_international.htm

[36] http://www.nber.org/antidump/

[37] http://www.macalester.edu/research/economics/page/haveman/trade.resources/tradeconcordances.html#FromusSIC

[38] http://www.census.gov/epcd/ec97brdg/E97B1331.HTM

[39] http://www.macalester.edu/research/economics/page/haveman/trade.resources/tradedata.html#Rauch

[40] http://www.nber.org/lipsey/sitc22naics97/

[41] http://www.macalester.edu/research/economics/page/haveman/trade.resources/tradeconcordances.html#FromNAICS

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Table 1: Random Effects Negative Binomial Models, Primary Metals vs. Other Industries

	(1) All Industries	(2) Metals	(3) Metals	(4) Non-Metals	(5) Non-Metals
Real Effective Exchange Rate (MEER)	0.013**	0.045***	0.046***	0.009	0.008
	(0.006)	(0.012)	(0.012)	(0.006)	(0.006)
Δ Capacity Utilization	-0.015		-0.029		-0.013
	(0.013)		(0.018)		(0.016)
Constant	-1.984***	-4.916***	-5.008***	-1.646**	-1.648**
	(0.615)	(1.351)	(1.336)	(0.675)	(0.676)
Observations	660	33	33	627	627
Groups	20	1	1	19	19
P-Value	0.0370	0.000264	0.000342	0.161	0.271
Chi-squared	6.591	13.31	15.96	1.965	2.614

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Random Effects Negative Binomial Models with Interactions

	(1) AD Count	(2) AD Count	(3) AD Count	(4) AD Count	(5) AD Share
Real Effective Exchange Rate (MEER)	0.013** (0.006)	0.015*** (0.005)	-0.003 (0.011)	-0.044 (0.030)	-0.003** (0.001)
Δ Capacity Utilization	-0.015 (0.013)	-0.009 (0.016)	-0.024 (0.027)	-0.033 (0.028)	-0.001 (0.002)
Pass-Through (PT)		0.787*** (0.259)	0.730* (0.389)	-4.628* (2.508)	-0.227* (0.133)
Import Share		-0.011 (0.008)	-0.025 (0.017)	-0.108 (0.104)	-0.008* (0.005)
Imported Inputs			0.022 (0.016)	0.249 (0.231)	0.017 (0.013)
MEER*PT				0.051** (0.024)	0.003** (0.001)
MEER*Import Share				0.001 (0.001)	0.000* (0.000)
MEER*Imported Inputs				-0.002 (0.002)	-0.000 (0.000)
Constant	-1.984*** (0.615)	-2.238*** (0.602)	-0.004 (1.143)	4.313 (3.099)	0.287** (0.132)
Observations	660	560	300	300	300
Groups	20	20	20	20	20
P-Value	0.0370	0.00123	0.0730	0.00737	0.0149
Chi-squared	6.591	18.00	10.08	20.92	18.99

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Lobby Organizations that Support and Oppose H.R. 2378

Support H.R. 2378	***Oppose H.R. 2378***
American Iron & Steel Institute	American Apparel & Footwear Association
United Steelworkers	American Meat Institute
Aluminum Extruders Council	American Soybean Association
Alliance for American Manufacturing	Coalition of Service Industries
AFL-CIO	Financial Services Roundtable
International Association of Machinists and Aerospace Workers	International Dairy Foods Association
	National Cattleman's Beef Association
	National Council of Farmer Cooperatives
	National Fisheries Institute
	National Retail Federation
	Pacific Coast Council of Customs Brokers & Freight Forwarders
	Securities Industry & Financial Markets Asso.
	Sporting Goods Manufacturers Association
	TechAmerica
	U.S. Chamber of Commerce
	USA Poultry & Egg Export Council

Notes: Data on these organizations, their positions on H.R. 2378, and their campaign contributions to members of Congress are from the Center for Responsive Politics (OpenSecrets.org). Supporting documents are below.

SUPPORTERS

American Iron & Steel Institute

Gibson, Thomas J. (2010, August 22). *Letter to Speaker Pelosi, Leader Hoyer & Chairman Levin*. Retrieved September 29, 2010, from Steel.

Aluminum Extruders Council

Fair Currency Coalition (2010, September 23). *Petition to House & Senate Leadership*. Retrieved September 29, 2010, from Tooling, Manufacturing & Technologies Association.

Alliance for American Manufacturing

Boos, Scott (2010, September 28). *Letter to Members of the U.S. House of Representatives*. Retrieved September 29, 2010, from American Manufacturing.

AFL-CIO

Parks, James (2010, September 14). *Bold Action On China Currency Would Help U.S. Economy*. Retrieved September 29, 2010, from AFL-CIO.

International Association of Machinists and Aerospace Workers

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United Steelworkers

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OPPONENTS

American Apparel & Footwear Association

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

American Meat Institute

AMI (2010, September 28). *AMI Urges Congress to Oppose Currency Reform and Fair Trade Act* . Retrieved October 5, 2010, from Meat AMI.

American Soybean Association

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

Coalition of Service Industries

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

Financial Services Roundtable

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

International Dairy Foods Association

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

National Cattleman's Beef Association

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

National Council of Farmer Cooperatives

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National Fisheries Institute

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

National Retail Federation

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

Pacific Coast Council of Customs Brokers & Freight Forwarders

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

Securities Industry & Financial Markets Association

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

Sporting Goods Manufacturers Association

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

TechAmerica

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

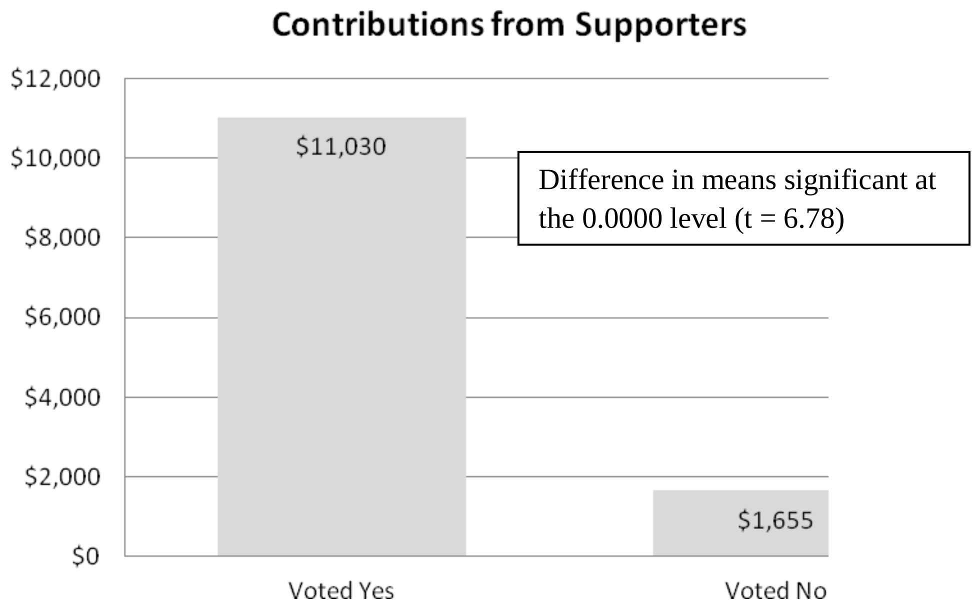
US Chamber of Commerce

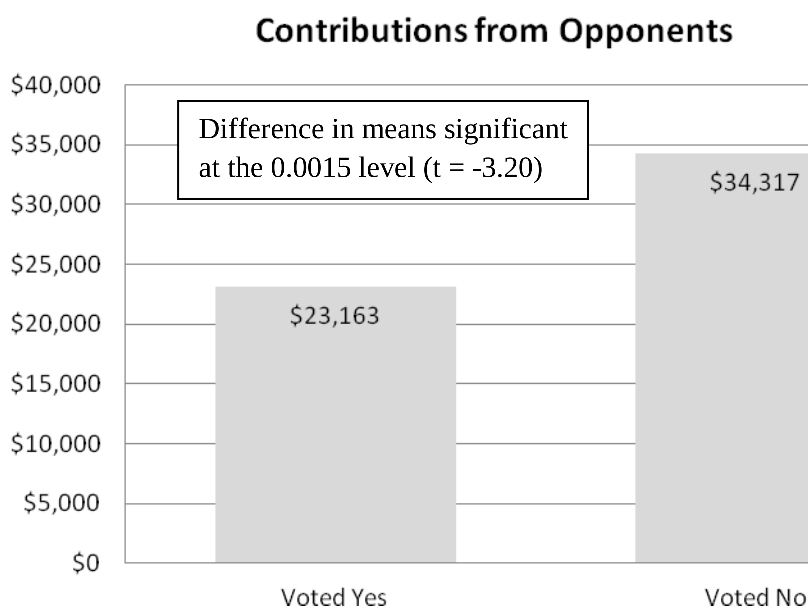
US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

USA Poultry & Egg Export Council

US China Business Council (2010, September 14). *Letter to Chairman Levin and Ranking Member Camp*. Retrieved September 29, 2010, from US China.

Table 4: Campaign Contributions and House Member Voting on H.R. 2378





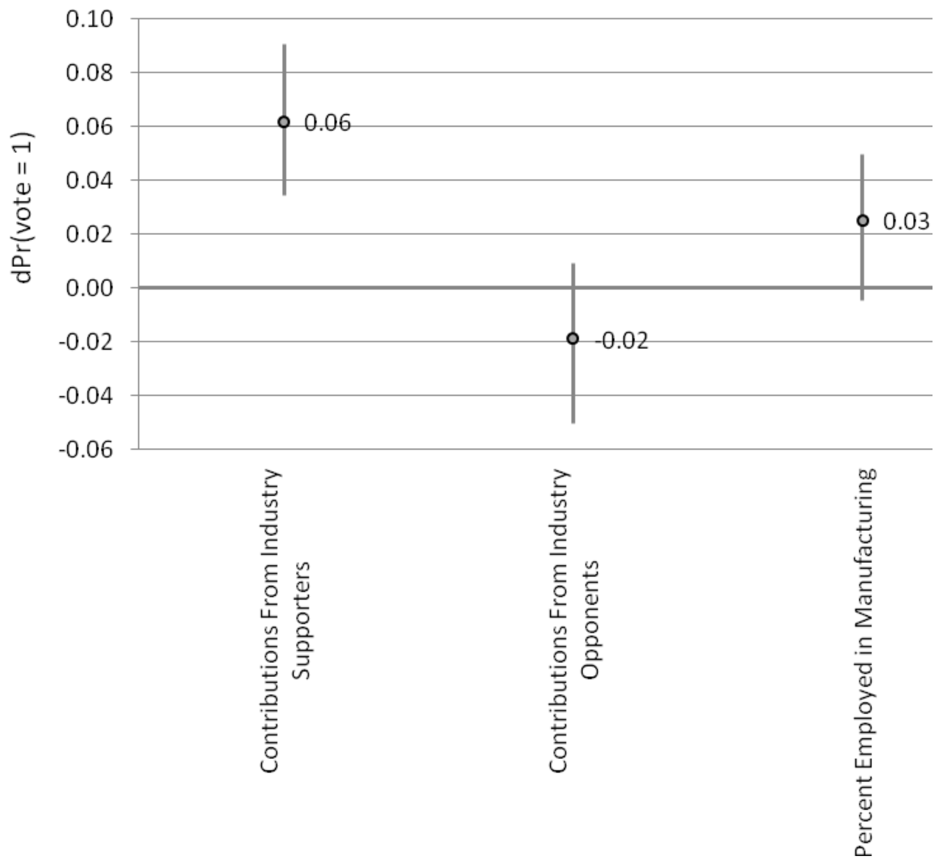
Notes: Includes contributions to congressional campaigns of House members in office on the day of vote from industry groups invested in the vote (according to Maplight.org), September 1, 2008 – August 31, 2010. Contributions data are from the Center for Responsive Politics (OpenSecrets.org). Member vote data are from GovTrack.us.

Table 5: Probit Regressions of the Vote on H.R. 2378

	(1)	(2)	(3)
Contributions from Industry Supporters	0.096	0.047	0.041
	(0.018)***	(0.014)***	(0.013)***
Contributions from Industry Opponents	-0.006	-0.004	-0.003
	(0.003)**	(0.003)	(0.003)
DW-Nominate (Member Ideology)		-1.014	-1.109
		(0.198)***	(0.206)***
Percent Employed in Manufacturing			2.643
			(1.572)*
Percent Employed in FIRE			3.766
			(4.783)
Percent Employed in Agriculture			-0.688
			(4.376)
Constant	0.549	0.943	0.372
	(0.115)***	(0.144)***	(0.522)
Observations	429	429	429
Pseudo R2	0.174	0.248	0.256

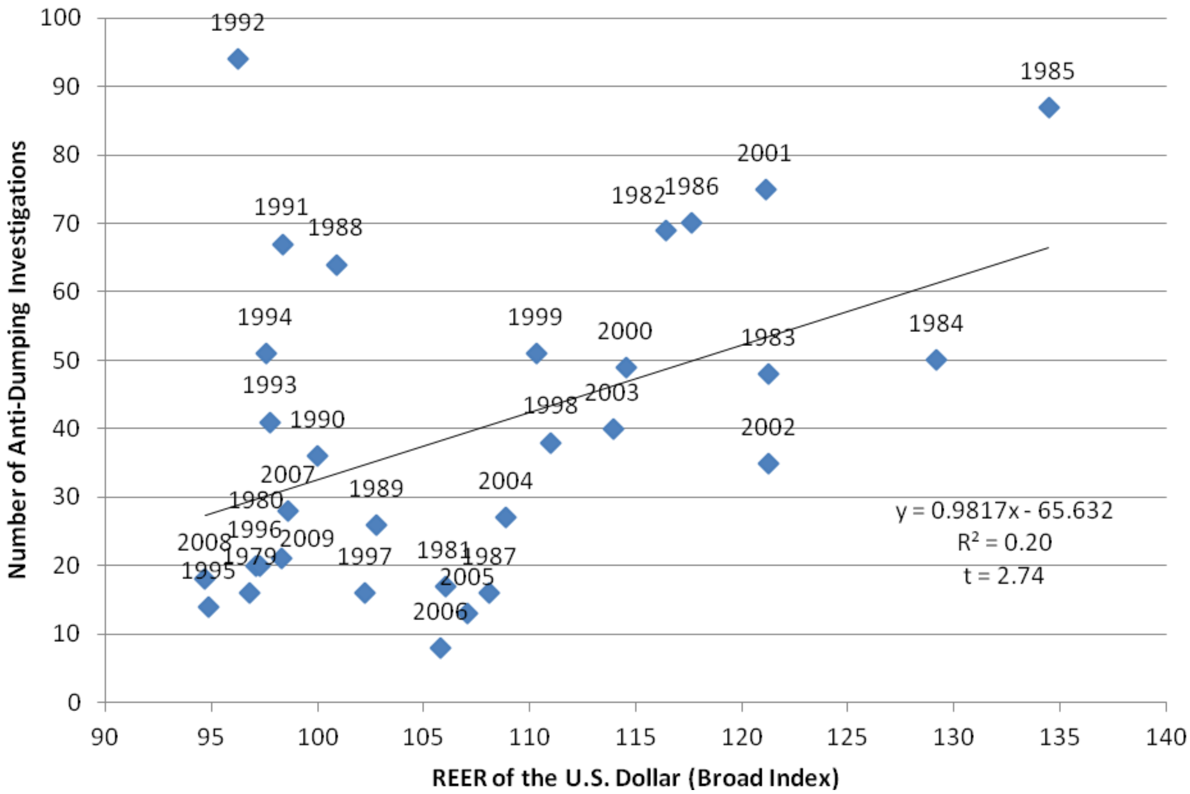
Notes: Robust standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6: Substantive Effects of Industry Contributions on House Member Voting



Notes: Values represent the change in the predicted probability of voting in favor of H.R. 2378 as each variable of interest is increased by one standard deviation over its mean, holding other variables at their means. Estimates are from Model 3 in Table 4. The whiskers indicate 95 percent confidence intervals.

Figure 1: Exchange Rates and Anti-Dumping Investigations, 1979-2009



Notes: The figure plots the association between the number of anti-dumping cases investigated by the International Trade Commission and the Real Effective Exchange Rate (REER) of the U.S. dollar. Data on anti-dumping investigations are from Bown (2010). The REER data are from the Federal Reserve Board's "Broad" index. The broad index is a weighted average of the foreign exchange values of the U.S. dollar against the currencies of a large group of major U.S. trading partners. The index weights, which change over time, are derived from U.S. export shares and from U.S. and foreign import shares.

Figure 2: Industry Positions and Sensitivities to the Real Exchange Rate

Industry *Position* on the Level of the Exchange Rate

Industry *Sensitivity* to the Exchange Rate	Low	High
Low	• Producers of differentiated traded goods (e.g. autos)	• Producers using imported intermediate inputs (e.g. electronics) • Wholesalers and retailers of imported differentiated goods
High	• Producers of standardized traded goods (e.g. steel)	• Producers of non-traded goods (e.g. housing, finance) • Wholesalers and retailers of imported standardized goods

Figure 3: Marginal Effects Plot