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Freedom Fries

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Abstract
Do firms choose inputs that minimize their cost of production, ignoring the attitudes of their owners and employees? We examine this question using an episode of worsening relations between the US and France: from February 2002 to March 2003, France's favorability rating in US public opinion polls fell from 83 percent to 35 percent. Very negative attitudes towards France became common even among college educated Americans with high levels of income, so they were likely prevalent among managers. Using data from 1999-2005, we find that the worsening relations reduced US imports from France by about 15 percent and US exports to France by about 8 percent, compared to other Eurozone or OECD countries. This decline was due in large part to a fall in France's share of the quantity of inputs traded between the Eurozone and the US; this decline is significant even after we control for changes in the product composition of trade flows. We also find that the decline in trade w as accompanied by a similar drop in both business trips and tourist visitations of US residents to France compared to Western Europe. Taken together, our findings suggest that competition cannot eliminate the effect of attitudes on firms' choice of inputs.

Keywords: Trade, Discrimination
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Data: Mostly UN Comtrade and US Census data

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1 Introduction

Economists often assume that firms choose inputs to minimize their cost of production. In other words, we typically assume that "business is business," and attitudes do not affect input choices. This assumption is difficult to test, because unobserved characteristics may affect the suitability of inputs and input suppliers. Firms may ignore attitudes and still pay more to members of groups that supply better inputs.

To control for unobserved inputs characteristics, we consider a change in international relations that affects attitudes, but does not involve a risk of bilateral war, threats of violence, economic sanctions, or even the imposition of substantial tariffs. Neoclassical theory tells us that consumption choices of consumers and governments take attitudes into account, but firms should continue to choose the cheapest inputs. As Becker explains in his seminal work on discrimination (1957): perfect competition eliminates firms whose choice of inputs reflects any considerations other than cost minimization.

But as Becker himself shows, a firm that earns rents may stay in business even if it does not minimize its cost of production. Agency problems within the firm can further magnify the effect of attitudes on the choice of inputs. For example, overseas travel may be required for sales or purchases, and managers' private benefits from business trips may diminish when attitudes worsen. Or managers may exert more effort to find alternative suppliers if they are negatively disposed towards the country of the current supplier. Attitudes outside the firm may also affect its choice of inputs. For example, a firm may base its decisions on perceived benefits from politicians, or politicians' statements (and general public sentiment) may affect the legitimacy of accommodating the attitudes of individuals within the firm.

In addition to informing our understanding of firm behavior, the study of the effects of attitudes also sheds light on the robustness of global trade flows. Historically, international attitudes and relations seem to have mattered for trade: the ratio of world trade to gross domestic product increased before the First World War, declined during the Interwar period, and increased again in recent decades (Irwin 2002). Moreover, recent work (Guiso et al. 2005)

finds that national attitudes are still correlated with patterns of trade.

In order to examine whether this relationship is causal, we require variation in international relations that affects attitudes, but little else. In this paper, we examine the deterioration of relations between the US and France, which took place from 2002-2003. The US government tried to obtain a United Nations (UN) Security Council mandate to use military force against Iraq, and the French government opposed this move; the resulting standoff worsened US public opinion of France. The fraction of US Gallup Poll respondents who viewed France favorably declined from 83 percent in February 2002 to 35 percent in March 2003, and recovered only to 57 percent in February 2006.[1] Negative views of France became prevalent at all levels of education and income; in March 2003, about a third of the respondents with a college degree and household income above $75,000 had a "very negative" view of France, and a third had a "mostly negative" view. This suggests that negative attitudes towards France were probably common among managers. By contrast, attitudes towards Germany worsened much less and recovered quite quickly, and attitudes towards the UK, Spain, and Italy changed very little. The US administration also singled out France in particular: Condoleeza Rice, who was the President's National Security Advisor, was quoted in March 2003 as telling associates to "Punish France, ignore Germany and forgive Russia" (Reuters, 2003). There were also calls in the media to ban French product (Fox News, 2003) and the House of Representatives cafeteria began to serve "Freedom Fries" instead of "French Fries" (BBC, 2006), prompting the title of this paper. A parallel (though smaller) change in attitudes took place in France, where the favorability of the US fell from 63 percent in 2002 to 43 percent in 2003 (Pew Global Attitudes Project, 2006).

This shock to the relations between France and the US provides us with a good opportunity to examine the effect of attitudes on trade. First, as discussed above, we have evidence on the timing, the magnitude, and the causes of the change in attitudes. This is important, because in other circumstances international trade may affect attitudes. For example, per-

[1] We have data on this question since 1991: the fraction who viewed France favorably was around 80 percent until 2002.

ceived gains from trade may motivate the US and China to improve relations and attitudes; at the same time, increased trade may cause Americans to fear that China threatens their jobs. But in the case of the US and France, we have clear reasons for the worsening attitudes, and these reasons are unrelated to trade.

Second, the shock to attitudes allows us to net out fixed effects that characterize the suitability of French-produced inputs for US firms, and vice versa. This is an important advantage, because in many studies of labor market discrimination it is difficult to separate worker characteristics that affect production from those that only affect employers' attitudes.[2] Our study therefore complements research on labor market discrimination (e.g. Bertrand and Mullainathan 2004).

Third, the setting we study avoids the problem that worsening attitudes may be correlated with increased risk. For example, there is evidence that war decreases trade (Martin, Mayer, and Thoenig 2006) and even lower levels of violence can affect economic outcomes (Abadie and Gardeazabal 2003). But trade between the US and France does not involve more risk than trade between other developed countries.

Fourth, we can use other countries in the Organization for Economic Cooperation and Development (OECD) or the Eurozone as plausible counterfactuals for France.[3] This allows us to net out short run changes in trade with the US that may have taken place in absence of the worsening relations with France. The use of Eurozone countries as controls has the added benefit that exchange rate fluctuations do not affect France relative to this group.

Comparing France to OECD or Eurozone countries from 1999-2005, we estimate that US imports from France would have been significantly higher at the end of this period if US relations with France had not deteriorated. There is also some evidence that US exports to France would have been higher. We find that this decline in trade cannot be explained by

[2] One could use a similar strategy to study the effect of attitudes on French workers in the US or US workers in France. However, this strategy faces the challenge that wages and employment relations are highly persistent, and negative attiditudes may affect incoming and outgoing migration. Small sample sizes may also make it difficult to study new hiring in most datasets.

[3] We include Greece, whose entry to the Eurozone was delayed until 2001, and exclude Slovania, who joined the Eurozone in 2007.

an aggregate drop in French trade with the OECD.

The availability of product-level trade data allows us to address other concerns about our identification strategy. For example, changes in the composition of US demand and supply or in the tariff structure may have affected France more than other countries. But we find that most of the decline in France's share of US trade with the Eurozone is attributable to a fall in its share of trade within 4-digit product categories.[4] This decline does not reflect pre-existing trends, and it is not driven by outliers. Interestingly, the decline is almost entirely due to a significant drop in quantities, and there is little change in the price of goods traded with France, compared to the control group. Taken together, our estimates suggest that the worsening relations reduced US imports from France by about 15 percentage points (or about 5 billion dollars in 2005) US exports to France by about 8 percentage points (or about 2 billion dollars in 2005).[5]

Having examined the aggregate effect of relations on trade, we go on to examine the roles of different economic agents in bringing about this change. Using US input-output tables, we identify 2-digit commodity classes where 75 percent or more of US consumption in 1999 is attributable to each of three groups: government, consumers, or firms. Trade between the US and France in commodities used predominantly by government was roughly halved as a result of the worsening relations. But the only commodities in this category are types of ordnance, and they accounted for much less than 1 percent of trade in 1999; so this decline had little impact on aggregate trade flows.[6] Estimates of the effect of relations on imports of commodities used primarily by consumers are less precise, but there is some evidence of a decline in US exports of these goods to France.[7] Finally and most importantly, we find a

[4] Tariffs are imposed by product, so changes in countries' shares within product categories are unlikely to be driven by tariff changes. Moreover, average tariffs on French commodities are still very low (Gresser 2005).

[5] This decline amounts to about 0.2-0.3 percent of US international trade and about 0.4-1.2 percent of France's international trade in 2005.

[6] Our findings are consistent with recent work on the role of political considerations in trade negotiations (Grossman and Helpman 1994; Maggi and Goldberg 1999) and in the provision of foreign aid (Kuziemko and Werker 2006).

[7] Chavis and Leslie (2006) find evidence of a short-lived boycott on French wine, which reduced US demand for a few months in 2003.

decline of approximately 12-15 percentage points in trade of commodities used primarily as firms' inputs (these commodities account for almost half of the trade between the US and France). We find that this decline is due to a fall in France's share of the quantity of goods traded within 4-digit commodity classes.

Worsening attitudes did not only reduce trade between the US and France: they also reduced travel between these two countries. We find that both business travel and tourist visitations from the US to France declined compared to the flows to Western Europe.[8] This suggests that US businesspeople may have been less inclined to travel to France, and this may have contributed to the decline in trade.

But even if worsening attitudes reduced private benefits of managers from travel and trade, we may still be concerned that the cost of changing input suppliers might be too high. Yet we find that France's share (and the US's share) of exports of 4-digit commodities within the OECD rarely accounts for more than a quarter. This evidence, together with the availability of domestic alternatives, suggests that the firms' rents likely allowed them to bear the cost of accommodating the change in attitudes.

Taken together, our results suggest that attitudes affect firms' choice of inputs. These findings are consistent with Bandiera et al. (2006), who find that in absence of sufficient incentives managers tend to favor their compatriots. Along with other recent evidence (Bertrand and Mullainathan 2004), our findings suggest that competition may be insufficient to eliminate the effects of discrimination in the market.

The rest of the paper is structured as follows. Section 2 examines the deterioration of the bilateral relations between the US and France. Section 3 investigates the impact of this deterioration on aggregate trade flows between these two countries. Section 4 examine the effects of firms, consumers, and government on trade. Finally, Section 5 concludes.

[8] We also find a drop in France's share of tourist visitations from Western Europe to the US.

2 Deterioration of Relations Between US and France

This section examines the deterioration of relations between the US and France from 2002-2003, and its effect on attitudes. The crisis began in 2002, when the US tried to obtain a UN Security Council mandate to use military force against Iraq, against the strong objections of France. Other European governments were divided in their position: some supported the US, while others were closer to France. But France was in a different position from other Western European countries. First, it had the right to veto Security Council resolutions; the other longtime US ally with veto power, UK, supported the US. Second, it was more active in opposing the US efforts (CNN 2003).

We document the resulting change in US public opinion towards France using Gallup Polls. People were asked for their "overall opinion of [country x]: very favorable, mostly favorable, mostly unfavorable, very unfavorable". Figure 1 shows the favorability rating of 5 major European countries (the fraction of respondents who had a "very favorable" or a "mostly favorable" opinion). From January 1991 to February 2002 there was little change in attitudes towards the UK, France and Germany; all three countries had favorability ratings that fluctuated around 75-95 percent. But from February 2002 to March 2003, France's favorability rating plummeted from 83 percent to 35 percent, recovering only to 57 percent in February 2006. By contrast, the decline in attitudes towards Germany was much smaller and shorter lived. At the same time, US attitudes towards the UK were mostly unchanged. Data for Italy and Spain, although available only twice for each country, suggests that attitudes towards those countries were also mostly unaffected, especially compared to the attitudes towards France.

The negative attitude towards France in the US was both widespread and strong. In February 2002, only 4 percent of US respondents had a "very unfavorable" view of France, and 16 percent had a "somewhat unfavorable view". But in March 2003, about 40 percent had a "very unfavorable" view of France, and about 26 percent had a "somewhat unfavorable" view. Among respondents who completed college and whose household income was above

$75,000, about 33 percent had a "very unfavorable" opinion of France, and about 34 reported a "somewhat unfavorable" opinion. This suggests that negative attitude towards France was likely common among decision makers in the economy, including firm owners and managers.

The evidence that US relations with France were adversely affected is not restricted to public opinion polls. Condoleeza Rice, who was then the National Security Advisor, was quoted in March 2003 as having told associates that the US should "Punish France, ignore Germany and forgive Russia" (Reuters, March 2003). There were also calls to boycott French goods: journalist Bill O'Reilly wrote that his column continues to "boycott French goods, things made in France, not things made by Americans with French labels." (Fox News 2003). And two members of the US House of Representatives, Robert Ney and Walter Jones, decided to change the name "French Fries" to "Freedom Fries" on the House of Representatives' cafeteria menu (BBC 2006).

The change in relations and attitudes was not restricted to one side of the Atlantic: favorable opinion of the US in France declined from 63 percent in 2002 to 43 percent in 2003, reaching 39 percent in 2006. But at the same time, attitudes towards the US worsened in Great Britain, Germany, and Spain, though not as quickly as in France (Pew Global Attitudes Project, 2006). Taken together, these figures suggest that the worsening relations between the US and France, compared to US relations with other Western European countries, may be due more to changes in US attitudes than to changes in French attitudes.

Although the evidence presented thus far indicates a rapid deterioration of relations between the US and France, it is not clear that trade between these countries should have been affected. Both countries have signed trade agreements (e.g. the World Trade Organization), and both have shown commitment to reduce global trade barriers over several decades. The question we address in the next section is: did worsening attitudes affect trade flows?

3 Effect of Relations on Trade Between US and France

In this section we examine how the deterioration of international relations between US and France affected their bilateral trade. We begin by using Comtrade data to examine the changes in US imports from France and from other countries. Figure 2 shows that the growth of US imports from France seems to have slowed down from 2002 onwards, compared to the growth in its imports from other Eurozone and OECD countries. The figure also shows suggestive evidence that US exports to France may have declined. The changes are presented relative to 1999, since the exchange rates between Eurozone countries were fixed on 31 December 1998. Note that after the implementation of the Euro and before the shock to the relations between the US and France, US imports from France seem to have trended very similarly to US imports from other Eurozone countries.

Having examined the trends, we now estimate the following parsimonious specification using a panel of US imports from OECD countries:

$$ln(PQ_{jt}) = \beta France_j(Year_t > 2002) + \delta Year_t + \eta Country_j + \varepsilon_{jt}. \quad (1)$$

The estimates in Panel A of Table 1 use this specification, where the outcome, PQ_{jt} denotes the value of US imports from exporter country j at year t, $France_j$ is an indicator for France, and $Year_t$ and $Country_j$ are vectors of year and country indicators. The data are in nominal US dollars, using C.I.F. (Cost, Insurance and Freight) prices - the price of goods in the US port of arrival.

Our specification treats 1999-2001 as "pre-crisis" years, and 2003-2005 as "post-crisis" years.[9] The choice of 3 years before and after 2002 reflects a tradeoff between different considerations. It allows the change in attitude ample time to affect trade flows, and mitigates measurement error problems that may arise when using year-to-year variation. At the same

[9] We also consider 2002 a "pre-crisis" year, assuming that the effect of relations on trade may have taken time to materialize, but our estimates are almost unchanged if we repeat the analysis excluding the data for 2002.

time, we avoid using a longer period where spurious changes in supply and demand could affect our estimates, and 1999 offers a convenient start date because of the implementation of the Euro.

The baseline result shows that US imports from France declined by about 19 percentage points compared to imports from other OECD countries after relations worsened. Other columns show that this result is robust to using 1999 imports as regression weights, and to discarding the data for 2002. We estimate this regression using data on US imports from OECD countries, assuming that in the short run these countries are plausible controls for France. Eurozone countries are attractive controls because of their similarity to France; the drawback of using only Eurozone countries is that the sample becomes smaller. In practice, the results for US imports change little when we use Eurozone countries as controls.

Panel B of Table 1 shows estimates of specification 1 using US exports instead of imports. Export data are in nominal US dollars, using F.O.B. (Free On Board) prices - the price of goods in the exporting country's port of origin.[10] The results suggest that worsening relations reduced trade by about 8 percentage points compared to other OECD countries. The estimate using Eurozone countries, though not precise, is similar in magnitude to the estimates using the OECD countries.[11]

While these estimates are consistent with the hypothesis that worsening attitudes reduced trade, they may also reflect a decline in French trade for reasons that are unrelated to its relations with the US. But Figure 3 suggests that French trade with other OECD partners actually grew more rapidly from 2002.[12] It is possible that France compensated for the loss

[10] We follow the standard practice of using C.I.F. prices for imports and F.O.B. prices for exports.

[11] Since we are considering the effect on US trade with a single country, France, we may be concerned about the precision of the estimates in Table 1. We re-ran the specification in Column 1 of Table 1, replacing the indicator for France with an indicator for each of the other Eurozone countries. We then averaged the coefficients for each country from the US imports and export regressions. We found that France's average coefficient was the second most negative after that of Luxemburg (the smallest Eurozone country).

[12] As a further check of our previous results, we estimate a "triple difference" regression similar to specification 1, where the dependent variable is log trade with the US or with the rest of the OECD (this avoids zero or near zero trade between smaller trade partners when using logs). The regressor of interest is an indicator for trade between the US and France after 2002, and we include a full set of interactions. The estimates for US imports and exports are -.101 (.042) and -.034 (.026).

of a major trade partner by increasing effort to trade elsewhere, since the US accounted for about 11 percent of French trade with the OECD in 2001.[13]

Having found evidence of a decline in trade between the US and France, we now examine more closely the timing of the change in trade and compare it to the timing of the change in attitudes. Since Comtrade data are annual, we use US Census monthly data on imports and exports. Because the monthly data are volatile, we calculate the average of France's share of US imports from the Eurozone and its share of US exports to the Eurozone for each month from 1999-2005. We then regress this average share on month fixed effects and plot the residuals in Figure 4. The results suggest that France's share began to decline around December 2002, which seems consistent with the Gallup Poll evidence.[14]

Despite the evidence on the timing of the decline in trade, we might still be concerned that the change in trade might not have been only due to attitudes. For example, following the events of 11 September 2001, demand for air travel may have declined. This decline may have reduced demand for airplanes, which were an important export from France to the US. More generally, we would like to control for changes in the composition of US imports due to changes in demand. Similarly, we want to analyze changes in US exports to France net of supply shocks. Finally, we would like to alleviate concerns that the decline in trade was driven by fears that the US may increase tariffs on products where France is a key exporter.[15]

In order to address these issues, we consider France's share in US trade with the Eurozone within each 4 digit commodity group.[16] Analyzing changes within 4 digit commodity groups also allows us to determine the role of prices and quantities in the relative decline of US

[13] By contrast, France accounted for less than 4 percent of US trade with the OECD in the same year. Moreover, the US is a much more closed economy. Therefore, it is likely that any "compensation" effect on behalf of the US towards its other trade partners was likely much smaller.

[14] Appendix Figure A1. shows similar figures for all 12 Eurozone countries. None of these countries shows a large and rapid drop similar to the one France experienced around December 2002.

[15] In practice, tariffs on commodities traded between the US and France are still very low (Gresser 2005), and the imposition of tariffs was likely to have caused a costly trade war between the US and the European Union. Even a Wall Street op-ed supporting the boycott of French commodities argues that raising tariffs is costly (Fund 2003).

[16] We focus on the Eurozone and not the OECD because there are more than 1,000 four digit commodity groups, so we prefer to use countries that are similar to France.

trade with France. In order to analyze the changes in total trade, prices, and quantities, we estimate the following regressions:

$$Y_{it} = \beta(Year_t > 2002) + \delta Commodity_i + \varepsilon_{it}, \tag{2}$$

where $Commodity_i$ are fixed effects for France's share of each commodity. We run this regression where the dependent variable, Y_{it}, is France's share in the value of trade with the Eurozone, $(Q_{Fi}P_{Fi})/(Q_iP_i)$, or the logarithm of this expression.[17] For commodities where quantity data are available separately, we also run this regression using the logarithms of France's share in trade value $(Q_{Fi}P_{Fi})/(Q_iP_i)$, it's share in quantities $(Q_{Fi})/(Q_i)$, and the relative average price of French commodities, $(P_{Fi})/(P_i) \equiv ((Q_{Fi}P_{Fi})/(Q_iP_i)) \,/\, ((Q_{Fi})/(Q_i))$. The results in Table 2 show that the decline in US trade with France is due almost entirely to a change in quantities, not prices. This finding is consistent with a decline in demand, coupled with highly elastic supply.

We now use "within product" variation in France's share of US trade with Eurozone countries to further examine the change in trade after 1999. The left hand side of Figure 5 shows France's share of Eurozone trade with the US, averaged over all products: $\frac{1}{I}\sum_i \left(\frac{P_{Fi}Q_{Fi}}{P_iQ_i}\right)_t$, where I is the number of commodities. The figure shows that France's share was stable at around 0.17-0.18 from 1991-2001, and then declined to around 0.15 in 2005. France's share of US exports was around 0.15-0.16 from 1991-2001, and then declined to about 0.14 in 2005. The right hand side of Figure 5 shows a similar drop after 2001 for the median French share of US imports and exports. Taken together, these results show that the decline in trade between US and France was not driven by pre-existing trends or by a handful of large commodities or by a large change within an unimportant class of commodities; rather, it was a pervasive decline across a broad range of commodities.

Having found a significant drop in France's share of trade with the US, we now evaluate the magnitude of this decline. Our regression estimates in Tables 1 and 2 suggest that US

[17] For convenience we omit the subscript t.

imports from France fell by about 13-21 percent, and US exports to France fell by about 6-13 percent. Our estimates may be slightly upward biased if other US trade partners "benefitted" from shifting business to them. Conversely, these estimates may be slightly downward biased if commodities are bundled together for shipment to (or from) Europe, making other European destinations less favorable when trade with France declines. Taking these considerations into account, our preferred estimate is that US imports from France declined by about 15 percent, or about $5 billion in 2005 prices. Similarly, we estimate that US exports to France declined by about 8 percent, or about $2 billion in 2005 prices.

These estimates of the effect of relations and attitudes on international trade are sizeable. For example, Helpman, Melitz, and Rubinstein (2007) estimate that the effect of WTO membership or sharing a common language on bilateral trade is approximately 10 percent. Our findings therefore suggest that a large and rapid decline in relations can reduce trade quite considerably.

Our findings in this section show that the deteriorating relations and attitudes between the US and France significantly reduced their bilateral trade. What can explain this effect? Our next section examines this question in detail, by looking at the mechanisms through which worsening may have reduced trade. In particular, we focus on trade in firms' inputs.

4 Are Firms Responsible for the Decline in Trade?

In order to assess the role of different economic agents on the flow of trade between the US and France, we would have liked to analyze firm-level transactions. Unfortunately,our data is not sufficiently detailed, so we use evidence on the type of goods that governments, consumers, and firms are likely to use. Using US input-output tables for 1999 from the Bureau of Economic Analysis, we calculate the fraction of total US consumption of each 2-digit commodity group due to government, firms, and consumers. We then identify 2-digit commodity groups where more than 75 percent of consumption is due to each of the

following: government, firms, or consumers.[18]

The results in Table 3 show that there is a single 2-digit commodity group category - ordnance - where the government accounted for more than 75 percent of US consumption in 1999; ordnance accounted for less than 1 percent of US imports from France in 1999. There are 7 commodity groups where personal consumption accounted for more than 75 percent of US consumption; total French imports in these categories accounted for less than 6 percent of US imports from France in 1999. Finally, there are 33 commodity groups for which firms' intermediate inputs accounted for more than 75 percent of US consumption in 1999. Total imports in these categories accounted for more than 46 percent of US imports from France in 1999.

Based on this classification of commodity groups, we re-run the regression in (1) using only the commodities in each of the three categories. The top panel of Table 4 shows a large drop in US imports of ordnance from France. US exports of ordnance to France appear to have declined even more rapidly. The finding in the second panel shows that there was very little change in US imports of French commodities consumed mainly by consumers. There appears to have been a decline in US exports to France of commodities consumed by consumers, but the estimates are typically not very precise. Finally, there is a decline of about 15 percent in both imports and exports of commodities used primarily as firms' intermediate inputs between the US and France.

We further examine the effects of attitudes on trade in firms' inputs by estimating the same specifications as reported in Table 2, this time only for commodities used primarily by firms. The results (Table 5) that France's share of US imports of inputs from the Eurozone fell by about 14-15 percent, and its share in exports fell by about 12-13 percent. The decline in firms' trade was due almost entirely to reduced quantities, and not to a change in prices. These results may reflect a decline in demand, coupled with elastic supply for US (French) firms trading with France (the US).

[18] Our results are robust to using different cutoffs.

How do we interpret the impact of governments, consumers and firms on the response of trade to changing attitudes? We examine each of these in turn, beginning with the role of governments. Our finding that worsening relations reduced trade in commodities consumed primarily by governments is consistent with the view that both governments punished each other. This finding is consistent with economic theory: governments' role in international markets likely reflects political considerations as well as cost minimization (e.g. Grossman and Helpman 1994). This result is also related to recent work, which shows that domestic political considerations affect trade negotiations (e.g. Goldberg and Maggi 1999) and that international aid transfers reflect political bargaining between governments (Kuziemko and Werker 2006). But although the drop in trade of ordnance between the US and France was steep, it can only account for a small fraction of the aggregate decline in trade between the US and France.

Having examined the role of governments, we now turn our attention to consumers. Economic theory tells us that consumers' choice of products reflects their preferences, so a decline in demand for French goods would not be surprising. Table 4 shows a marginally significant drop in US exports of commodities consumed mostly by consumers, and imprecise estimates for US imports of these commodities. Chavis and Leslie (2006) find evidence of a boycott on French wine, which reduced sales of French wine by approximately 13 percent over about 6 months in 2003. To examine the possibility of a longer term impact, we focus on 17 four digit commodity groups where US consumers were more likely to have identified French goods (see Appendix Table A1). We then re-estimate the specifications in the first two columns of the top panel of Table 2 using only these commodities. The estimated coefficients of interest are negative and about 2-3 times larger than the corresponding coefficients in Table 2, though the p-value for the t-test are about 0.15-0.3. In addition, as we report below, there was a large decline in US tourism to France, and vice versa. Taken together, these results suggest that the effect of attitudes on consumers' choices may have been restricted by two different forces. In many cases, consumers may not have known that a particular good was

produced in France, so their attitudes did not matter; and when they did identify a good as French (e.g. due to a brand name), it may have been costly for them to find a good substitute.[19]

Despite the visibility of trade in consumer goods, trade in commodities used as firm inputs is quantitatively much more important. Analyzing the effect of international relations on firm inputs is also more interesting from a theoretical perspective. In his seminal work on Discrimination, Becker (1957) shows that in a perfectly competitive economy, firms whose input choice is affected by considerations other than cost minimization are driven out of the market. According to this reasoning, we should expect the change in attitudes to have little impact on trade in inputs.

But despite this argument, attitudes may still affect trade in inputs even for profit maximizing firms. For example, Besley and Ghatak (2006) characterize a competitive equilibrium where some firms provide public goods along with the private goods they sell. In the setting we consider, firms may avoid trade with a country if some consumers see this trade as a "public bad," although these firms would need to advertise their input choice and charge higher prices. Another possibility is that firms might reduce trade with a foreign country in exchange for some benefits from politicians. But even if we cannot rule out these two channels, we could find no evidence for such behavior on the part of firms.

While attitudes outside firms probably had little direct impact on trade in inputs between the US and France, they may have legitimized the decisions of individuals within firms. As Becker himself notes, firms that earn rents can survive even if they take owners' attitudes into account in when choosing their inputs. Agency problems within the firm can further magnify the effect of attitudes on the choice of input suppliers. For example, managers may be more willing to exert effort to find an alternative supplier if they are negatively disposed towards the country of the current supplier. And the change in attitudes may affect private benefits that managers derive from overseas travel. If managers are less inclined to travel to

[19] Broda and Weinstein (2006) find that substitution elasticities across commodities from different countries are higher for undifferentiated goods than for differentiated goods.

Paris (or New York), they may do so less often, reducing their ability to sell their products overseas.

Is there evidence that the worsening relations affected bilateral travel? Using data from the Office of Travel and Tourism Industries for 1995-2005, we construct an estimate of the number of US resident travelers visitations to France and Western Europe.[20] These data are noisy, since they report total outgoing travel and the percent of the total who traveled to each destination (e.g. 7% of US business travelers in 2005 went to France). Despite the imprecision, Figure 6 shows that US travel to France and western Europe followed similar trends before relations worsened, although there was an overall decline in travel to Western Europe after 2001, probably because of the events of September 11. But the differential decline in travel to France (compared to Western Europe) from the 1999-2001 average to the 2003-2005 average was about 18 percentage points for business and convention travel and about 17 percentage points for other types of travel.

Figure 7 shows that there was also a large decline in travel to the US from France and other Western European countries after 2001. The differential decline in travel to France (compared to Western Europe) from the 1999-2001 average to the 2003-2005 average was only 2 percent for Business travelers and about 12 percent for tourist travel. But even business travel to France showed a marked decline in 2003, when US attitudes towards France were at their worst, and the recovery (again, relative to Western Europe) was only attained in 2005.

Although the evidence presented here suggests that worsening attitudes affected business travel and business transactions between the US and France, we might still be concerned that magnitude of the effect is quite large. Even if attitudes become hostile and agents are motivated to act upon them, is it simply too costly to take these preferences into account when choosing trade partners? Although we have no direct evidence on the cost of substituting French (US) commodities with other commodities, we find that in most 4-digit commodities

[20] Travelers can report multiple destinations, so the data for Western Europe excludes people who visited France and other Western European countries.

France's share (or the US's share) rarely accounted for more than a quarter of trade within the OECD. If we take into account that in many cases domestically produced alternatives also exist, it seems plausible that in many cases firms were able to find alternatives to French (or US) imports that were close in their attributes and price.

Our finding that attitudes can affect business decisions is related to other recent empirical evidence. In a field experiment, Bandiera et al. (2006) find that managers tend to favor their compatriots; this favoritism disappears when incentives are introduced. Our results can be viewed as complementary: increased non-pecuniary incentives may shift firm behavior away from profit maximization. Our results also complement the findings of Bertrand and Mullainathan (2004) that resumes carrying "black sounding" names receive fewer callbacks from potential employees, even when other resume attributes are randomly assigned. These results all suggest that competition is unlikely to eliminate the effects of attitudes on input choices.

5 Conclusions

We examine the deterioration of relations between the US and France from 2002-2003, which worsened Americans' attitudes towards France (and vice versa). This change in attitudes was common even among well-educated people with a high level of income, so it likely affected many managers. At the same time, the worsening relations were not associated with an increase in personal risk or tariff barriers. This change provides an interesting source setting for examining the effect of attitudes on firms' choice of inputs.

We find that US imports from France fell by about 15 percent and US exports to France fell by about 8 percent, compared to other Eurozone or OECD countries. This decline was due in large part to a fall in France's share in the quantity of inputs traded with the US; the decline was large and significant even within 4-digit product categories. We also find a similarly large decline in both US business trips and tourist visitations to France, suggesting

that worsening relations did indeed affect transactions between firms.

One interesting aspect of the experiment we analyze is that it is difficult to rationalize the decline in trade of inputs using standard arguments of cost minimization. The attributes of inputs produced in the France (the US) and by competing input producers, and the characteristics of firms' production processes in the US (France) are not likely to have changed in the short run. This suggests that tastes, and not only simple cost-minimizing calculations, may affect firms' choice of inputs.

Our results also suggest that international trade flows may be sensitive to large changes in relations and attitudes. We conclude that the effect of attitudes may be particularly strong where there are strong incentives to punish a foreign country, as in the case of commodities used by governments, or where the availability of close substitutes lowers the cost of changing a firm's input suppliers. This result may be especially important for understanding the robustness of trade flows between Western countries and other important trade partners.

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Table 1. Effect of Worsening Relations between US and France on Bilateral Trade

		As Baseline, Except:		
	Baseline	Weighted	Excluding 2002	Eurozone Only
		A. Dependent Variable: Log US Imports		
France*(Year>2002)	-0.19	-0.18	-0.21	-0.17
	(0.06)	(0.05)	(0.06)	(0.05)
Observations	203	203	174	84
		B. Dependent Variable: Log US Exports		
France*(Year>2002)	-0.09	-0.08	-0.07	-0.06
	(0.03)	(0.03)	(0.03)	(0.05)
Observations	203	203	174	84

NOTES. This table reports estimates of regressions of log value of trade on an indicator for France interacted with an indicator for the period after 2002, when relations between the two countries deteriorated. All the regressions control for exporting (importing) country fixed effects and time effects. The baseline specification uses CIF (FOB) prices in nominal US dollars for import (export) regressions for OECD trading partners from 1999-2005. The weighted specification uses 1999 exports (imports) as weights. Robust standard errors are in parentheses; standard errors are clustered by exporting (importing) country in the panel regressions.

Table 2. The Effect of Relations on France's Share of US Trade with Eurozone (Within 4-Digit Commodities)

US Imports

	(1)	(2)	(3)	(4)	(5)
	Entire Sample		Only Commodities with Price Data		
Dependent Variable	(QfPf)/(QP)	ln((QfPf)/(QP))	ln((QfPf)/(QP))	ln(Qf/Q)	ln(Pf/P)
Year>2002	-0.015	-0.131	-0.138	-0.130	-0.008
	(0.003)	(0.023)	(0.026)	(0.038)	(0.023)
Observations	8,246	7,527	6,316	6,316	6,316

US Exports

	(1)	(2)	(3)	(4)	(5)
	Entire Sample		Only Commodities with Price Data		
Dependent Variable	(QfPf)/(QP)	ln((QfPf)/(QP))	ln((QfPf)/(QP))	ln(Qf/Q)	ln(Pf/P)
Year>2002	-0.014	-0.128	-0.117	-0.146	0.030
	(0.004)	(0.026)	(0.031)	(0.038)	(0.022)
Observations	8,519	7,717	6,309	6,309	6,309

NOTES. This table reports coefficients from regressions of measures of France's share of US trade with Eurozone on an indicator for the period after 2002. The dependent variable in column (1) is France's share of the value of US trade with the Eurozone; the dependent variable in columns (2) and (3) is the logarithm of France's share of the value of US trade with the Eurozone; the dependent variable in column (4) is the logarithm of France's share of the quantity of US trade with the Eurozone; and the dependent variable in column (5) is the logarithm of the average price of French commodities divided by the average price of Eurozone commodities. All the regressions control for commodity fixed effects. The data are denominated in CIF (FOB) prices in nominal US dollars for US imports (exports) from 1999-2005. Robust standard errors are in parentheses; standard errors are clustered by 4-digit commodities.

Table 3. Commodities Used Mainly by US Government, Consumers or Firms

Product category name	Imports from France ($1,000,000s)	Total Consumption ($1,000,000s)	Government or Consumers or Intermediates Share of Total Consumption
Government share of total consumption ≥ 0.75			
Ordnance and accessories	6	10,287	0.80
Consumers' share of total consumption ≥ 0.75			
Cleaning and toilet preparations	793	48,225	0.78
Apparel	240	121,089	0.86
Footwear, leather, and leather products	238	25,120	0.82
Other transportation equipment	94	28,423	0.76
Household appliances	79	22,417	0.80
Motor vehicles (passenger cars and trucks)	64	167,651	0.99
Tobacco products	1	45,465	0.94
Firm inputs' share of total consumption ≥ 0.75			
Engines and turbines	2,823	19,113	0.97
Industrial and other chemicals	1,926	131,943	0.91
Truck and bus bodies, trailers, and motor vehicles parts	1,075	143,519	0.93
Primary iron and steel manufacturing	686	107,567	0.99
Electronic components and accessories	638	149,520	0.99
Special industry machinery and equipment	627	6,410	0.95
Farm, construction, and mining machinery	617	8,184	0.92
Electrical industrial equipment and apparatus	562	33,538	0.96
General industrial machinery and equipment	448	24,740	0.99
Rubber and miscellaneous plastics products	402	178,831	0.86
Glass and glass products	342	25,095	0.89
Other fabricated metal products	269	84,884	0.91
Plastics and synthetic materials	258	62,136	1.00
Primary nonferrous metals manufacturing	200	96,128	1.00
Heating, plumbing, and fabricated structural metal products	191	74,369	0.98
Stone and clay products	190	79,506	0.95
Paper and allied products, except containers	186	122,553	0.81
Metalworking machinery and equipment	155	15,338	0.89
Lumber and wood products	135	128,172	0.97
Broad and narrow fabrics, yarn and thread mills	123	43,845	0.94
Electric lighting and wiring equipment	108	30,101	0.88
Materials handling machinery and equipment	81	5,799	1.00
Screw machine products and stampings	54	56,142	0.96
Agricultural fertilizers and chemicals	48	20,615	0.84
Metal containers	34	12,886	1.00
Service industry machinery	27	25,894	0.92
Livestock and livestock products	26	101,763	0.96
Forestry and fishery products	23	22,259	0.82
Paints and allied products	16	18,223	0.89
Miscellaneous machinery, except electrical	12	37,781	0.97
Paperboard containers and boxes	12	41,590	0.98
Non-metallic minerals mining	6	16,608	1.00
Metallic ores mining	1	7,183	1.04

Note: This table lists 2-digit commodity classes where share of government, consumers, or firms' intermediate inputs exceeds 75 percent of total US consumption according to the US National Annual Product Account Tables for 1999.

Table 4. Effect of Worsening Relations between US and France on Trade, by Commodity Type

	US Imports				US Exports			
		As Baseline, Except:				As Baseline, Except:		
	Baseline	Weighted	Excluding 2002	Eurozone Only	Baseline	Weighted	Excluding 2002	Eurozone Only
	A. Commodity groups where government share of total US consumption in 1999 was at least 0.75							
France*(Year>2002)	-0.43	-0.45	-0.51	-0.35	-1.00	-0.97	-1.20	-0.65
	(0.12)	(0.11)	(0.14)	(0.18)	(0.13)	(0.12)	(0.14)	(0.11)
Observations	185	180	159	77	203	203	174	84
	B. Commodity groups where consumers' share of total US consumption in 1999 was at least 0.75							
France*(Year>2002)	0.01	0.03	0.01	0.17	-0.19	-0.19	-0.20	-0.15
	(0.14)	(0.12)	(0.14)	(0.16)	(0.10)	(0.09)	(0.11)	(0.21)
Observations	203	203	174	84	203	203	174	84
	C. Commodity groups where firm inputs' share of total US consumption in 1999 was at least 0.75							
France*(Year>2002)	-0.15	-0.14	-0.18	-0.17	-0.16	-0.15	-0.16	-0.08
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.07)
Observations	203	203	174	84	203	203	174	84

NOTES. This table reports estimates of regressions of log value of trade on an indicator for France interacted with an indicator for the period after 2002, when relations between the two countries deteriorated. All the regressions control for exporting (importing) country fixed effects and time effects. The baseline specification uses CIF (FOB) prices in nominal US dollars for import (export) regressions for OECD trading partners from 1999-2005. The weighted specification uses 1999 exports (imports) as weights. Robust standard errors are in parentheses; standard errors are clustered by exporting (importing) country in the panel regressions.

Table 5. The Effect of Relations on France's Share of US Input Trade with Eurozone (Within 4-Digit Commodities)

US Imports of Commodities Used Mostly as Firms' Inputs

	(1)	(2)	(3)	(4)	(5)
	Entire Sample		Only Commodities with Price Data		
Dependent Variable	(QfPf)/(QP)	ln((QfPf)/(QP))	ln((QfPf)/(QP))	ln(Qf/Q)	ln(Pf/P)
Year>2002	-0.014	-0.143	-0.150	-0.144	-0.006
	(0.004)	(0.033)	(0.035)	(0.053)	(0.033)
Observations	4,606	4,206	3,686	3,686	3,686

US Exports of Commodities Used Mostly as Firms' Inputs

	(1)	(2)	(3)	(4)	(5)
	Entire Sample		Only Commodities with Price Data		
Dependent Variable	(QfPf)/(QP)	ln((QfPf)/(QP))	ln((QfPf)/(QP))	ln(Qf/Q)	ln(Pf/P)
Year>2002	-0.010	-0.122	-0.126	-0.127	0.001
	(0.005)	(0.036)	(0.040)	(0.051)	(0.030)
Observations	4,725	4,367	3,691	3,691	3,691

NOTES. This table reports coefficients from regressions of measures of France's share of US trade with Eurozone on an indicator for the period after 2002. The data are only for commodities where at least 75% of US consumption in 1999 was due to firms. The dependent variable in column (1) is France's share of the value of US trade with the Eurozone; the dependent variable in columns (2) and (3) is the logarithm of France's share of the value of US trade with the Eurozone; the dependent variable in column (4) is the logarithm of France's share of the quantity of US trade with the Eurozone; and the dependent variable in column (5) is the logarithm of the average price of French commodities divided by the average price of Eurozone commodities. All the regressions control for commodity fixed effects. The data are denominated in CIF (FOB) prices in nominal US dollars for US imports (exports) from 1999-2005. Robust standard errors are in parentheses; standard errors are clustered by 4-digit commodities.

Appendix [Not Necessarily for Publication] Table A1. Commodities Identifiable as Originating in France

Commodity Code	Commodity Description	Value of US Imports from France in 1999
H0-0406	Cheese and curd	78,183,168
H0-2204	Grape wines (including fortified), alcoholic grape must	1,086,000,000
H0-2208	Liqueur, spirits and undenatured ethyl alcohol <80%	581,600,000
H0-3303	Perfumes and toilet waters	528,000,000
H0-3304	Beauty, make-up and skin care preparations	151,000,000
H0-4011	New pneumatic tyres, of rubber	146,300,000
H0-4202	Trunks, suit-cases, camera cases, handbags, etc.	136,300,000
H0-6204	Women's, girl's suits, jacket, dress, skirt, etc.	88,680,159
H0-6403	Footwear with uppers of leather	56,578,197
H0-7013	Glassware for table, kitchen, toilet, decoration	170,200,000
H0-7113	Jewellery and parts, containing precious metal	63,337,494
H0-7615	Aluminium ware for table, kitchen, sanitary use	62,205,445
H0-8704	Motor vehicles for the transport of goods	53,754,587
H0-9403	Other furniture and parts thereof	89,086,955
H0-9701	Paintings, drawings, pastels, collages etc., hand made	1,458,000,000
H0-9703	Original sculptures and statuary, in any material	57,057,828
H0-9706	Antiques older than one hundred years	289,600,000

NOTES. This table report 4-digit H0 commodity groups for which, we assume, US consumers would be relatively more likely to identify a commodity as French. These commodity groups were chosen such that the US imported at least $50 million dollars of goods from France in 1999 in each of them.

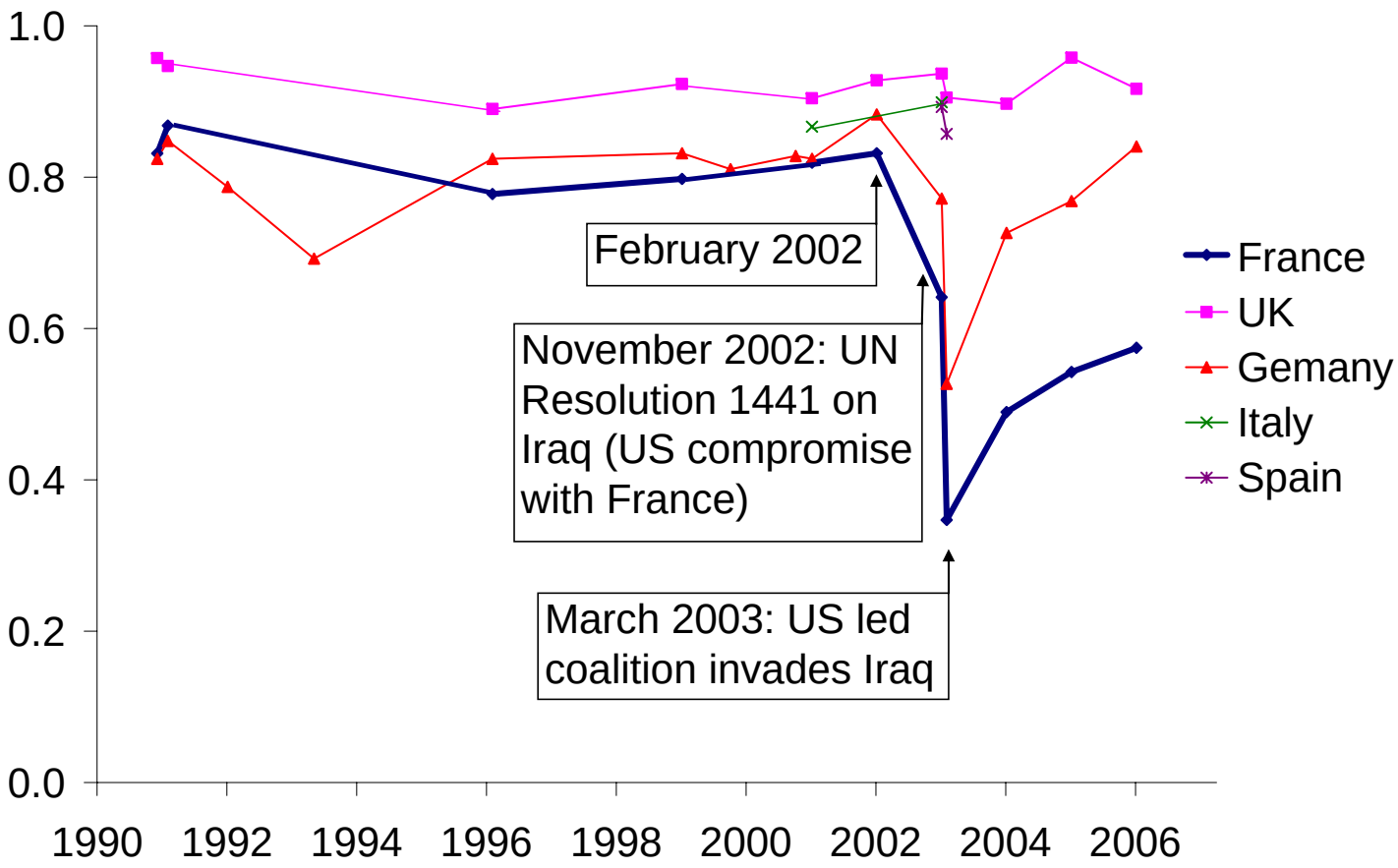


Figure 1. Fraction of US Respondents With a Favorable View of France and other European Countries (Gallup Poll Data; Excluding "Don't Know" Responses)

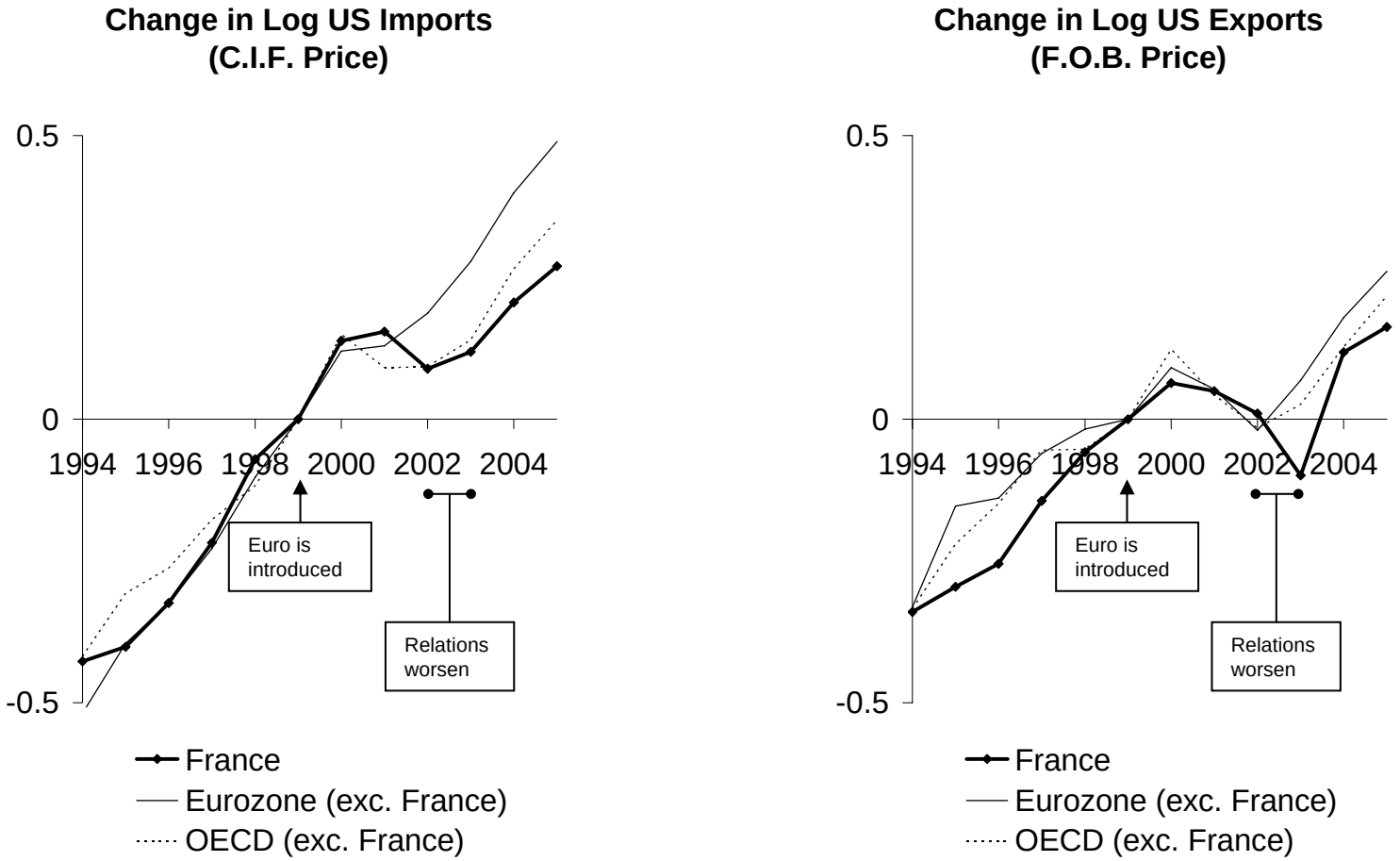


Figure 2. Change in Log Value of US Trade with France, Eurozone and OECD (Nominal US$, Changes Relative to 1999)

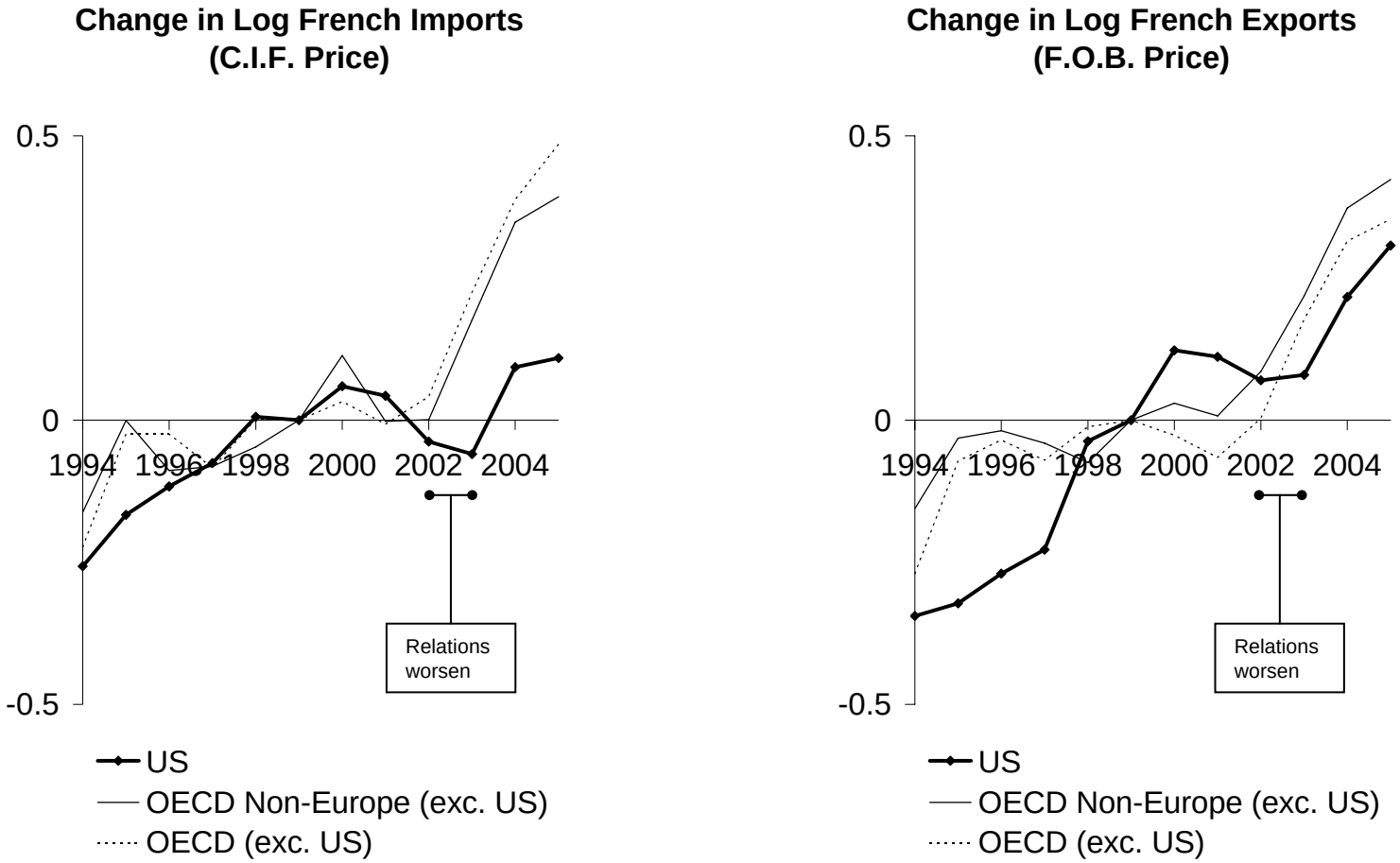


Figure 3. Change in Log Value of French Trade with US and OECD (Nominal US$, Changes Relative to 1999)

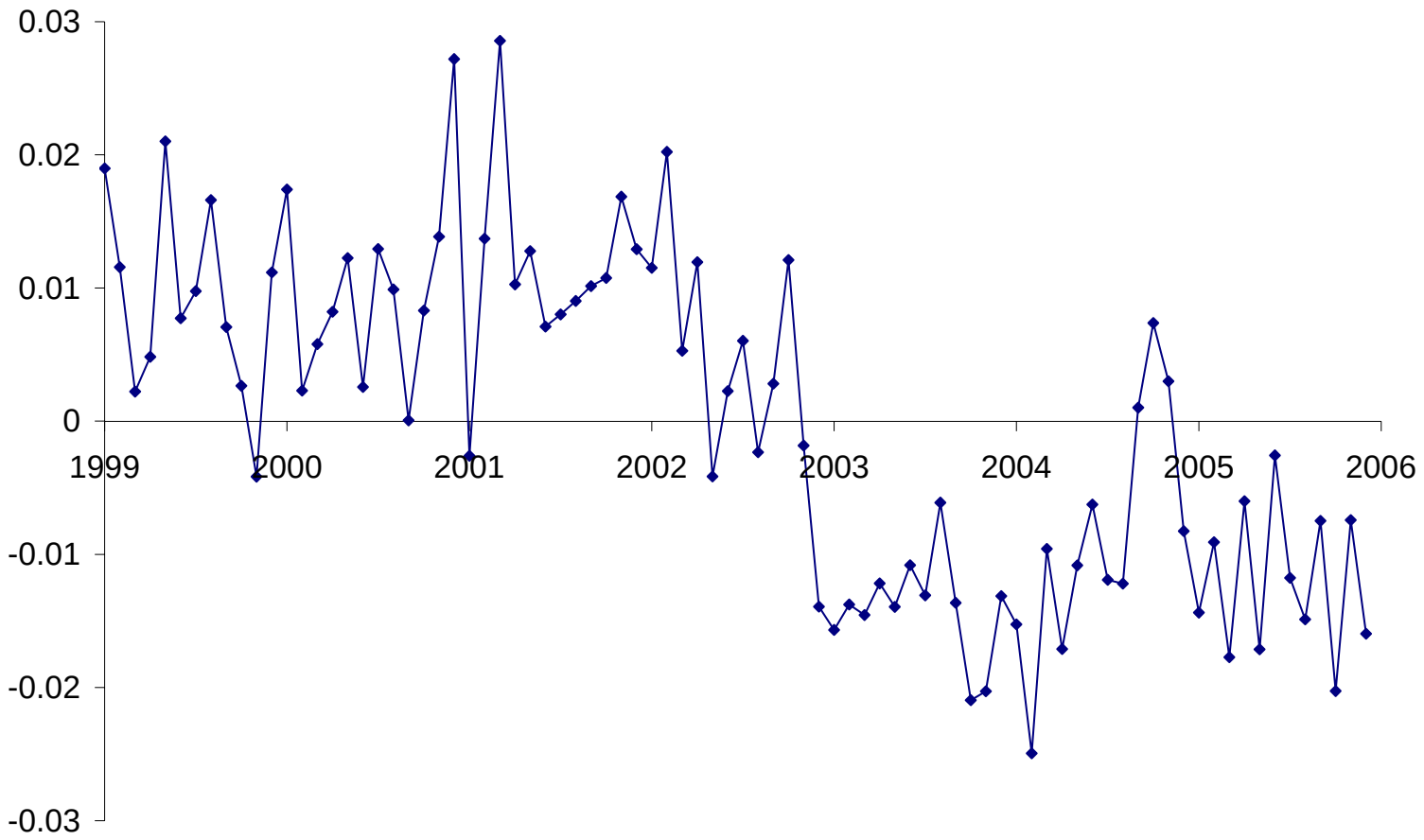


Figure 4. Average of France's Shares of US Imports from Eurozone and Exports to Eurozone (Residual After Netting Out of Month Fixed Effects)

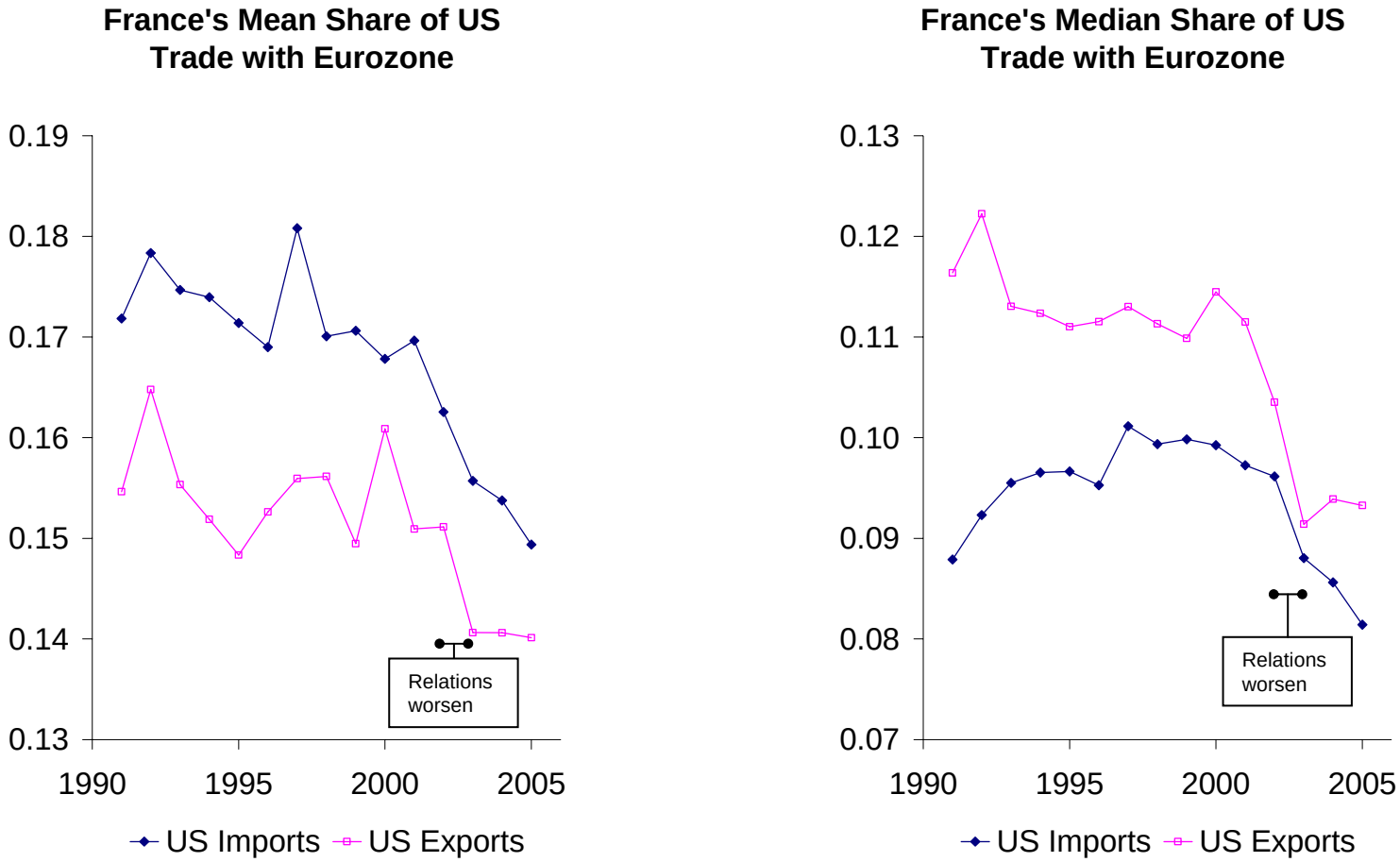


Figure 5. Change in France's Share of US Trade with Eurozone Countries (Mean and Median Shares Over 4-Digit Product Categories)

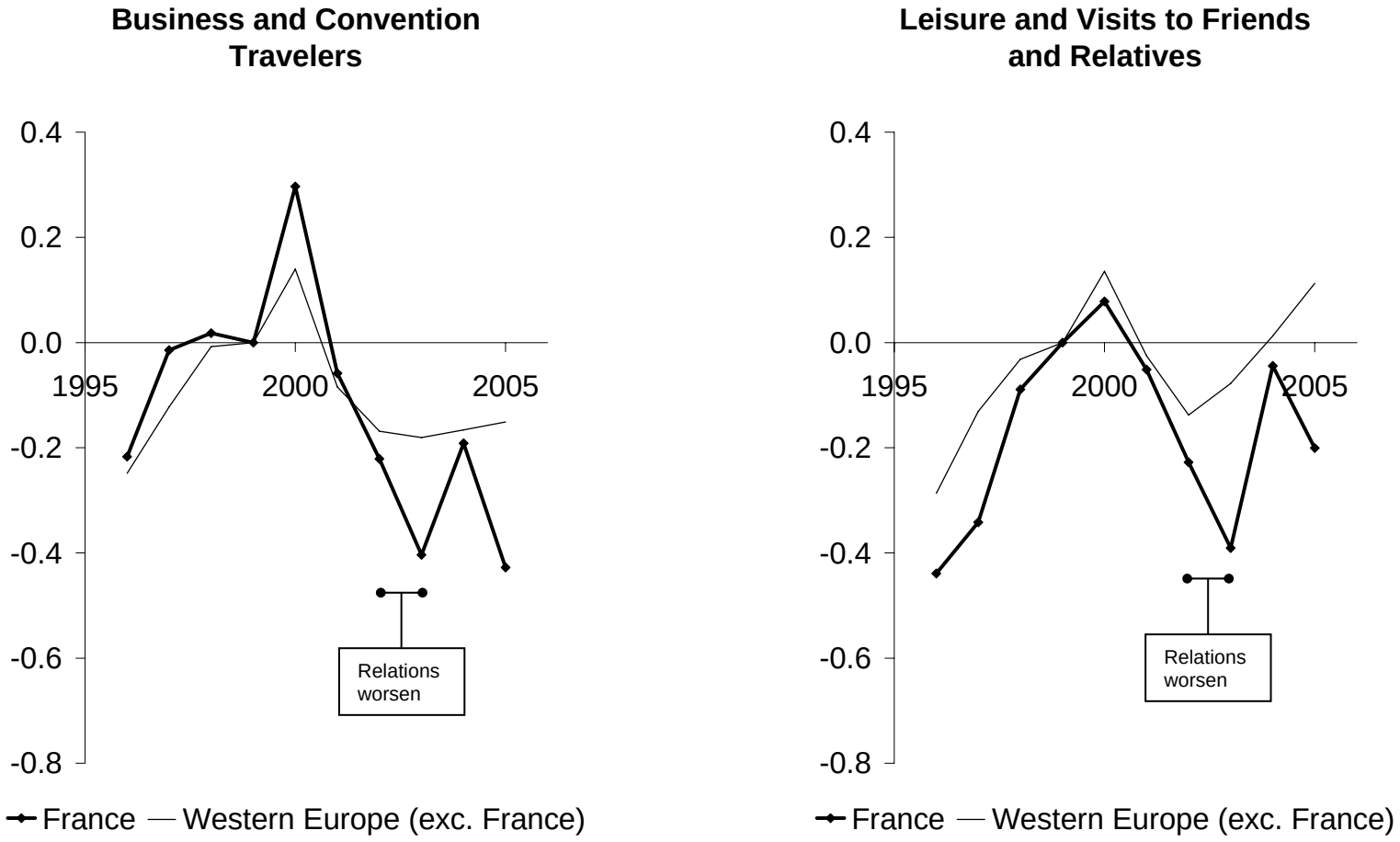


Figure 6. Changes in Log US Resident Travelers to France and Western Europe (Source: Office of Travel and Tourism Industries)

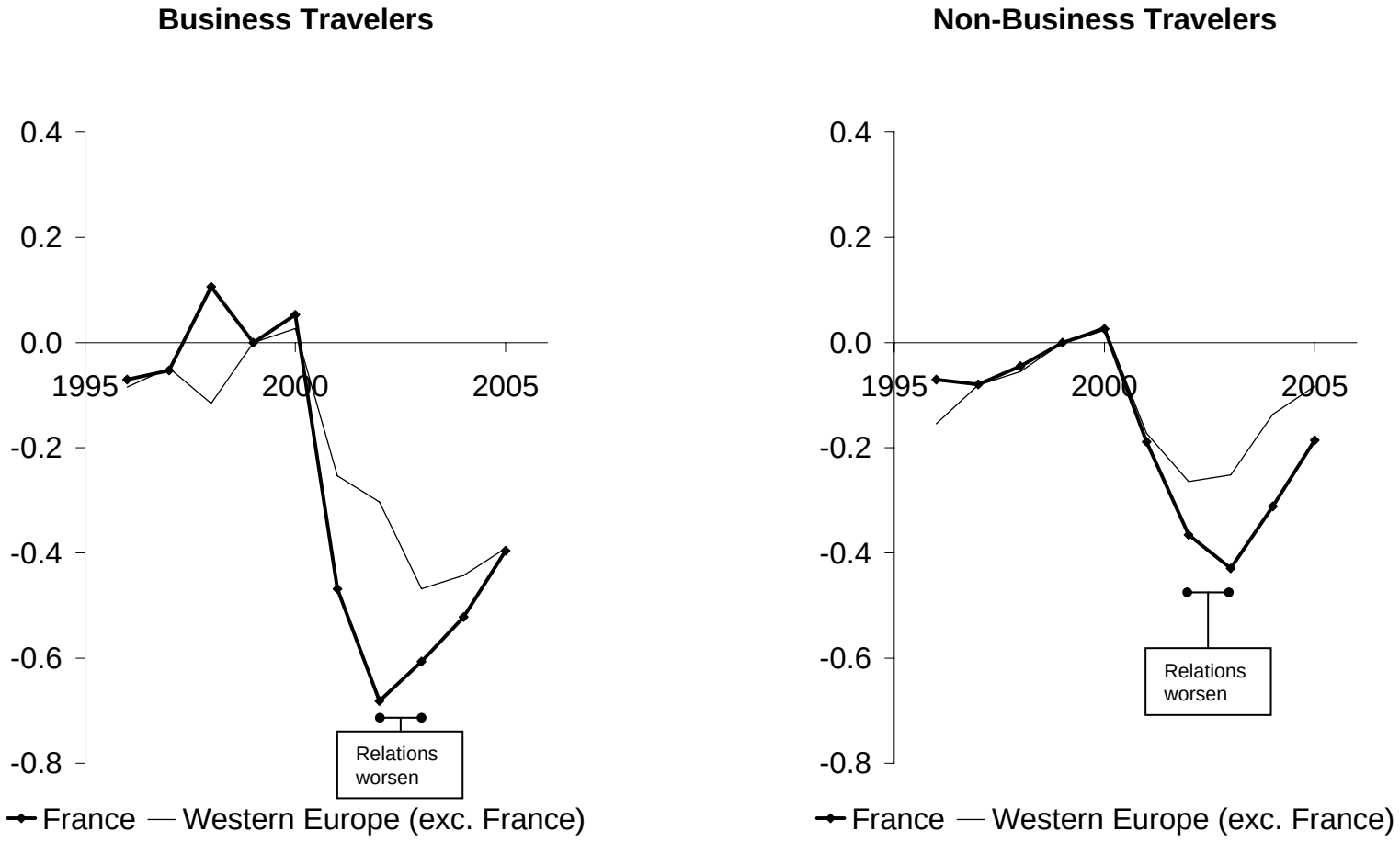
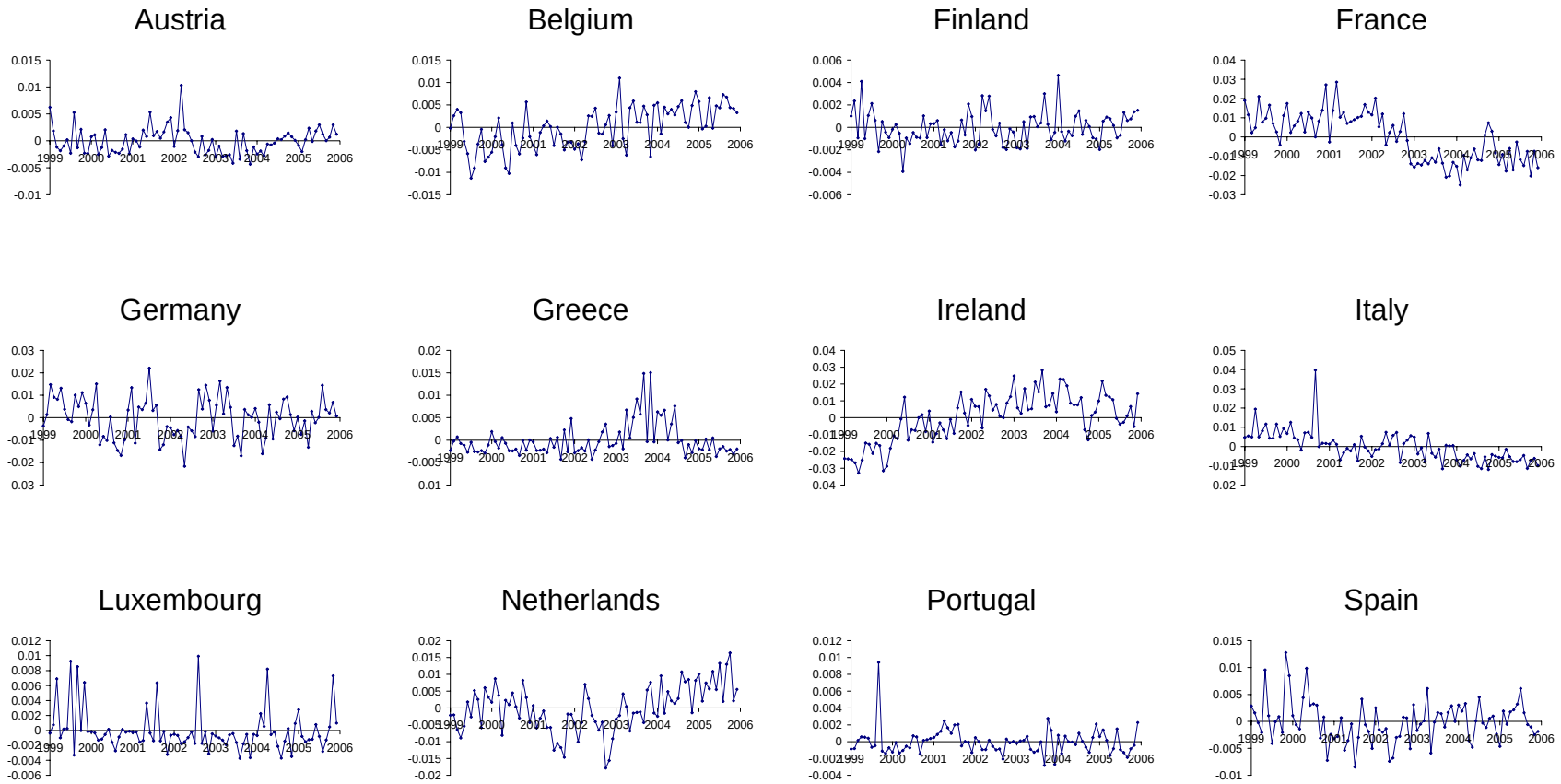


Figure 7. Changes in Log Travelers to US from France and Western Europe (Source: Office of Travel and Tourism Industries)



Appendix [Not for Publication] Figure A1. Average of Countries' Shares of US Imports from Eurozone and Exports to Eurozone (Residual After Netting Out of Month Fixed Effects)

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