

# The Asymmetric Effects of Economic Freedom on International Trade Flows

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## Abstract

We employ a gravity equation to estimate the effects of economic freedom on U.S. consumer exports and imports for the years 1999 and 2000. Using the newly updated Fraser Institute's Economic Freedom of the World Index, we find that economic freedom would increase the United States' overall trade volume. We also consider if imports and exports are affected asymmetrically with respect to income, transaction costs, and economic freedom. We find there is considerable difference between how these variables affect the the imports and exports of consumer goods. Our results also give some insight into how economic freedom affects global welfare gains/losses and the U.S. trade position.

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# 1 Introduction

The impact of freedom on economic activity was a favorite topic of authors such as Peter Bauer and Friedrich von Hayek, among others.<sup>1</sup> The basic premise of these authors was that centralized coordination of individual and group action would find it impossible to reach an outcome superior to that which would obtain with private action and information. The upshot of these authors' works was that a necessary condition for sustained economic growth and activity was some minimum level of individual freedom, especially in the allocation of scarce resources, i.e., economic freedom.

In recent years at least two measures of economic freedom have been developed by a third party for a substantial number of countries and years. One measure has been created by the Heritage Foundation with another independently created by the Fraser Institute of Vancouver, British Columbia. These measures of economic freedom, regardless of their flaws, allow for empirical investigation of how international differences in economic freedom impact any number of policy variables, including those investigated by Bauer, von Hayek and others.

The importance of economic freedom in economics is still of interest although a substantial growth literature (e.g. Barro, 1991 Barro and Sala-i-Martin, 1993, and Easton and Walker, 1997) linking elements of freedom to economic performance<sup>2</sup> and some evidence suggests that freedom “Granger Causes” income (Farr, Lord Wolfenbarger, 1998). The Cold War, and (to a lesser extent) its immediate aftermath, divided the world's population between those granted relatively more economic freedom by the prevailing political powers, and those granted relatively little. However, the end of the Cold War has not remedied the dichotomy. Hence, parts of the foreign policy agendas of the “Western,” developed countries promotes, to a greater or lesser extent, improvements in economic freedom in other parts of the world. While this is often characterized as economic, political, or cultural imperialism (as by anti-globalization protestors), an important yet missing element of the debate is what exactly are the benefits to expanded economic freedom.

This paper investigates the impact of economic freedom on international trade flows between the United States and its trading partners. Our investigation serves two major functions. First, we expand the popular gravity model to include the measure of economic freedom of the U.S. trading partner, thereby capturing some of the institutional characteristics of other countries not directly included in previous models. We find that economic freedom does have a significant impact on the total volume of consumer goods and services trade between the U.S. and her trading partners.

The second purpose of this paper is to focus on the implicit assumption in the standard functional form of the gravity model that the impacts of independent variables are symmetric on imports and exports (the components of the total volume of trade between two countries). We question this assumption, especially in the case of economic freedom, and test whether there are asymmetric impacts of other countries' economic freedom and the level of exports and imports to and from the United States.

We find that the economic freedom of a trading partner has a statistically significant and positive effect on the amount of exports from the U.S. to that country. However, economic freedom has a statistically insignificant impact on the level of imports from that country to the United States. We offer some intuitive explanations for why this might be the case and suggest that the asymmetric impacts of economic freedom may have implications for trade policy.

The results tend to confirm the intuition that improved economic freedom motivates an increase in economic activity, arguably for the betterment of society (both the U.S. and its trading partners). To show this, we also estimate what the level of U.S. imports and exports would have been in 1999 and 2000 if *all* her trading partners enjoyed parity in economic freedom with the United States. For 2000 alone the estimated changes in total volume of trade indicate that the United States would have enjoyed a net trade surplus in consumer goods, making the gains substantial for the U.S. However, lest one jump to the conclusion that the promotion of economic freedom by the United States (and other countries) is a negative sum game, our calculations indicate that the U.S. would also import between about 55% more in aggregate for the year 2000 alone. If it is reasonable to assume that other developed countries would experience similar impacts. Therefore, the benefits of improved economic freedom are not one-sided.

As an alternative, we estimate what would have occurred, *ceteris paribus*, if all trading partners had the same level of economic freedom as the Democratic Republic of the Congo, the country with the least economic freedom in our sample. These estimates indicate that the trade deficit of the U.S. would have improved, although total exports and total imports would have both declined. Therefore, we show that a loss in economic freedom in countries that trade with the United States ultimately has impacts shared by other countries.

However, it must also be noted that our investigation of US. trade flows most likely underestimates the total value of improved economic freedom, for several reasons. First, we investigate the impact

of trade between the United States and its trading partners, whereas an aggregate measure would require trade volumes amongst all countries. Secondly, we assume that GDP levels are not impacted by increases (or decreases) in economic freedom. While this is most likely not the case, the short-run nature of our data precludes the modelling of dynamic effects of economic freedom on national incomes.

This study provides empirical insight into how economic freedom impacts trade patterns between the United States and more than one hundred of her trading partners. It is hoped that this study will encourage additional investigation of the relationship between economic variables of interest and the indices of economic freedom created by the Fraser Institute or, alternatively, the measure created by the Heritage Foundation.

The paper is organized as follows: Section 2 briefly outlines the theoretic justification for using the gravity framework; Section 3 examines the data used, particularly the Fraser index in comparison to the alternative provided by the Heritage Foundation, and some descriptive statistics; Section 4 provides empirical analysis of the effects of economic freedom on US imports and exports; Section 5 provides discussion of our results and presents estimates of the gains from economic freedom; concluding remarks and suggestions for future research are offered in the final section.

## 2 The Gravity Model

The gravity model's basic premise is that the volume of trade is determined by the income of any two countries and that higher income countries are 'drawn' towards each other by the gravitational pull of their respective GDPs. It was introduced into the international trade literature by Tinbergen (1962) and Pöynönen (1963) but has long been used in the social sciences to describe migration, shipping, tourism, etc. In its simplest form the volume of trade between any two countries  $i \neq j$  is an increasing function of their incomes and a decreasing function of the distance between them, often interpreted as the transportation, or 'iceberg', cost of moving goods between the countries.

Other variables, such as social, economic and/or spatial dummies; additional costs, such as tariffs or policy indices have also found their way into the literature. Another interesting development is the use of gravity models to estimate the effects of international borders on trade flows, that is, to find the 'distance equivalents' in terms of miles of borders.<sup>3</sup>

The standard gravity representation is given by

$$VOL_{ij} = \alpha_0 D_{i,j}^{\alpha_1} Y_i^{\alpha_2} Y_j^{\alpha_3} N_i^{\alpha_4} N_j^{\alpha_5} \mathbf{X}^\gamma u_{ij}, \quad (1)$$

where the  $\alpha$ s and  $\gamma$  are coefficients to be estimated, and  $u_{ij}$  is a log normally distributed error term, where  $E(\ln u_{ij}) = 0$ . The dependent variable,  $VOL_{ij}$ , is the volume of trade between countries  $i$  and  $j$ . The independent variables include the GDP of each of the trading countries,  $Y_i$  and  $Y_j$ , the distance between the two countries,  $D_{ij}$ , the population of each country  $N_i$  and  $N_j$ , and a matrix of other variables  $\mathbf{X}$ ,<sup>4</sup> Usually, the parameters of interest are  $\alpha_1$ , the elasticity of trade volume with respect to distance,  $\alpha_2$  and  $\alpha_3$ . Generally, the literature finds estimates of these parameters to be given:  $\hat{\alpha}_1 \in [-1.2, -0.6]$ ,  $\hat{\alpha}_2 \in [0.5, 1.1]$ , and  $\hat{\alpha}_3 \in [0.4, 0.8]$ , see Wall (1999 and 2000) and Wolf (2000), Anderson and Marcouiller (2002).

Though the gravity model has been widely adopted because of its empirical success, high  $R^2$ s and tight fits of the parameter estimates, it has lacked rigorous theoretical underpinnings. However, Anderson (1979) and Bergstrand (1985) derived gravity equations from trade models of product differentiation and increasing returns to scale. Additionally, Anderson (1985) is able to show why inserting variables such as tariffs in the matrix  $\mathbf{X}$  may be theoretically consistent. More recently, Deardorff (1998) successfully incorporates the gravity model within the Ricardian and Heckscher-Ohlin-Samuelson frameworks. Feenstra, Markusen, and Rose (2001) show that a version the gravity model is consistent with new theories of international trade including models of: transportation costs; monopolistic competition and national product differentiation; homogeneous products (intra-industry) trade; and an amalgam of imperfect competition and segmented markets models, and ‘reciprocal dumping’. Furthermore, their models provide a theoretical explanation of  $\hat{\alpha}_2 \gtrless \hat{\alpha}_3$ .

Another concern inherent in gravity models, as shown by Anderson (1985), is that the estimates are biased because the error term is not orthogonal to income (GDP). He suggests using IV estimation (in particular lagged GDP). However, simply running a log linear version of the above gravity equation using OLS with an additive error term is a straightforward remedy.

The additional variable we employ is similar to the tariffs and/or other non-tariff barriers to trade included in Wall (1999) in his investigation of the welfare costs of trade protection in the United States. Rather than use measures of barriers to trade we employ a single index to capture overall economic freedoms, which includes the degree of free trade.

### 3 The Data

Our data cover the years 1999 and 2000 and includes the volume of *consumer* imports and exports between the U.S. and 118 and 121 different countries respectively. We are restricted to these two years because of data availability. The data on imports and exports come from the U.S. Census Bureau and USA Trade Online, which offers the total volume of imports and exports by country. We focus purposefully on consumer imports for two reasons. First, it is the source of international trade that has the most direct influence on the welfare of consumers. While capital goods may constitute a large portion of trade between any particular country and the United States, such capital goods would only have an indirect influence on the welfare or utility of the consumers of the trading partner. Further, limiting our investigation to consumer goods is important in the context of economic freedom. One of the important benefits of economic freedom is an increased choice set and the freedom to act upon this increased choice set by individuals. In many countries, limited economic freedom does not reduce the desire or ability to import capital goods from the United States, or to export consumer goods to the United States. Finally, many of the limitations on exports from the United States are in the capital good sector, e.g., computer technology, satellite systems, etc.

Individual country GDP data for each year comes from the IMF's IFS macroeconomic data set. Distance is the great surface distance between the *population* center of the United States, roughly St. Louis, MO, and the individual trading partner's capital (e.g. Moscow, Russia).

Finally, the economic freedom variable we use is the Economic Freedom of the World Index (EFWI) calculated under the sponsorship of the Fraser Institute. Other research in the effects of economic freedom, such as Wall (1999), have used the freedom index calculated by the Heritage Foundation (HFI). Each of the indices identify components of economic freedom and the index is calculated from a weighted average of each of these components. However there are some differences between the two indices. First, the EFWI relies primarily on *quantitative* variables while the HFI uses *qualitative* evaluations that are used to place countries in one of five alternative categories, assigned one-to-five component ratings. Second, unlike the HFI the EFWI has unequal weights across the selected components. Between 1975 and 1998 the Fraser Institute's index is available in five year increments. Recently, the Fraser Institute updated its methodology for calculating the freedom index and, to date, this improved version is only available for the years 1999 (recalibrated) and 2000 – herein lies our data restriction.

Table 1 presents the major components for each of the indices. Each of the components is a function of various subcomponents which are not tabulated to save space. For further information see the Fraser Institute’s *Economic Freedom of World: 2001 Report* for the EFWI and the Heritage Foundation’s *The 2002 Index of Economic Freedom* for the HFI. The weights attached to each of the EFWI components are in parenthesis, with the largest weight belonging to Freedom of Exchange in Capital and Financial Market (17.2%) and smallest for Monetary Policy and Price Stability (9.2%). The weights for the ten components in the HFI are identical (10% each). Because the components across the two indices are not identical, we have organized them thematically (NW). Thus, the EFWI component of **VI. Legal Structure and Property Rights** is organized with the HFI’s **7. Property Rights** and **8. Regulation**.

With respect to methodology, each of the HFI subcomponents is assigned a one-to-five ranking, from low freedom to high freedom (1 to 5) averaged, giving a component score. The overall index is the average of the ten subcomponent scores yielding the index  $HFI \in (0, 5]$ .

The methodology for calculating the EFWI is more complicated and is outlined here. First, once each of the subcomponents were assembled, the index for each country is calculated on a one to ten scale with higher rankings going to countries which are “more free.” Ratings are derived from two main criteria: “categorical characteristics” and “continuous data.” A high categorical-characteristic rating is given to countries with characteristics more consistent with high economic freedom, e.g. countries with few price controls are rated higher than countries with many controls. The  $EFWI \in (0, 10]$ , with 10 being the ‘most free’, see Gwartney and Lawson (2002) for details.

Table 2 presents some basic summary statistics of the variables used. All numbers are in natural logarithms. Looking first at the Freedom Index: the mean for 1999 is 6.17, between Tunisia and Slovakia (both an index of 6.1) and Lithuania (6.2) and increased to 6.29 for the year 2000, between Belize, Cyprus, and Fiji (6.2) and Guatemala, Honduras, and Paraguay (6.3). The mean U.S. exports ( $X$ ), imports ( $M$ ), and total volume of trade ( $TV$ ) all grew from 1999 to 2000, as did non-U.S. GDP. On the other hand, while the standard deviation of exports increased between the two years, the same measure shrunk with respect to imports. Non-U.S. mean population shrunk by about 100,000.

Figures 1 and 2 plot the Fraser Institute’s freedom index on the  $x$ -axis against the log of U.S. exports/imports on the  $y$ -axis, respectively, for the year 2000. As can be easily seen, the scatter plots show a clear upward relationship between each of these indices and exports and imports. Moreover,

there does appear to be differences in the way exports and imports respond to freedom. In particular, the scatter plot for U.S. imports seems more widely distributed in comparison to the plot for U.S. exports. These two observations are what we are interested in investigating.

## 4 Economic Freedom and (Asymmetric) Trade Flows

We estimate a traditional gravity model functional form, however, unlike the standard method of using the total value of trade, we also separate U.S. imports and exports into separate equations and estimate the equations separately for each of the two years 1999 and 2000, or

$$\ln(V_{US,i}) = \beta_0 + \beta_1 \ln(D_{US,i}) + \beta_2 \ln(EFWI_i) + \beta_3 \ln Y_i + \beta_4 \ln N_i + \epsilon \quad (2)$$

where the dependent variable,  $V_{US,i}$ , is given by the total volume of trade ( $TV$ ), exports, and imports between the U.S. and country  $i$ . The independent variables are  $D_{US,i}$ , the distance between St. Louis and the capital of trading country  $i$ ,  $Y_i$ , the GDP of country  $i$ , and  $SFI_i$ , the freedom index of the  $i$ th country. We also include country  $i$ 's population ( $N_i$ ) to help explain the volume of trade.<sup>5</sup> Because our data only contains trade between the United States and the rest of the world (ROW) including U.S. GDP and population only act to shift the intercept term for each of the observations and therefore these variables are omitted. The variables of the most interest are the sign and significance of  $\beta_1$  and  $\beta_2$ . As in the standard gravity model we anticipate  $\hat{\beta}_1 < 0$  and, because all trade flows are from the U.S. to the rest of the world (ROW), this coefficient should be greater for exports than imports. We also consider a pooled specification of equation (2) with a time dummy, taking the value of 0 for 1999 and 1 for 2000.

This specification is closest in spirit to Wall (1999) and Anderson and Marcouiller (2002). Wall investigates the welfare implications of trade openness and economic freedom by using the Heritage Foundation's index of trade policy and Anderson and Marcouiller investigate the effects of a vector of "obstacles of doing business" such as high taxes, regulations, corruption, crime, labor regulations, inflation, etc. In each case, as anticipated, impediments to a well-functioning economy reduce trade flows whether they be *a la carte* or compiled in an index.

However, the question is whether the impacts of distance, GDP and economic freedom are symmetric on both imports and exports. It is likely that the impact of distance would have a greater

impact on the U.S. exports than on U.S. imports from the same country. This is because the potential gains in the United States market, especially in consumer goods, are much greater than would be expected in other countries.

*Ex ante* we expect the following: Economic freedom implies a greater degree of access to foreign markets, goods and services as well as capital. Therefore, we anticipate  $\hat{\beta}_2 > 0$ , more freedom allows consumers to purchase more imported goods both because income is higher and there are fewer barriers to entry and exit of traded goods. Because imports and exports face asymmetric policies and attitudes about traded goods, we hypothesize that the estimated coefficient for the Freedom Index will differ for imports and exports. As we are considering the U.S. versus the ROW, the estimated coefficients for exports will be larger than imports. A plausible explanation of this result is as follows. As individuals maximize their utility over both domestic and imported goods, agents living in countries with greater economic freedom purchase foreign goods from whomever, regardless of freedom, e.g. Iranian oil. Countries with relatively less freedom do not have as much unfettered access to traded goods which undermines U.S. exports to other countries.

Another explanation arises from the relationship between economic freedom and income. A simple regression of GDP on EFWI suggests a strong positive relationship between GDP and the freedom index. There is a considerable amount of research investigating the effects of various social and economic variables, including economic freedom, on income in the economic growth literature, for example Barro (1996), Easterly and Pritchett (1993), Grier and Tullock (1989) Huber et al (1993) and Islam (1996). Moreover, Farr et al (1998) are able to show that freedom Granger causes economic growth. With our data, using simple OLS, we find the 1999 income elasticity of freedom is 3.163, while this same elasticity is 3.646 for 2000. Moreover, the growth of GDP between 1999 and 2000 regressed on the percentage change in the Freedom Index is 0.589. All these estimates are significant at the 1% level.<sup>6</sup> While these simple regressions are unable to capture most determinants of GDP, there is evidence that the two variables are strongly correlated. Moreover, inference made over only a couple of years should not be considered long term and may only be idiosyncratic for 1999 and 2000, though it does corroborate the findings of the above-mentioned authors.

## Results

Results of estimating equation (2) are reported in Table 3. The first column shows the results using total trade flows as the dependent variable, columns two and three present results using exports and imports respectively. Estimates for 1999 appear in the top half and 2000 in the bottom. Heteroscedastic consistent  $t$ -values are in parentheses. The adjusted  $R^2$  for each regression specification is also reported.

We begin our discussion of the gravity estimates focusing on the two commonly used independent variables in the extant literature: distance and GDP. The first observation we make is that estimates for both the distance and GDP coefficients for all three regressions are similar to those found in the existing literature and are statistically significant at standard levels and have the predicted sign. Because gravity research concentrates on *total volume of trade* (due to data availability), we first summarize our results with this as the dependent variable. Our estimate of the distance elasticity,  $\hat{\beta}_1$ , is -1.03 and -1.07 for 1999 and 2000 respectively, which compares favorably with the baseline results found in literature, for example, Wall (1999), Wolf (2000), Feenstra et al (2001), and Anderson and Marcouiller (2002). Both of these estimates are statistically significant at the 1% level.

The estimated coefficient for the other common variable, GDP, is equally as parsimonious, with the income coefficient in the neighborhood of 0.90 compared with about 1.00 found in the literature. Again these estimates are statistically significant at the 1% level. Country  $i$ 's population has a statistically insignificant negative sign in 1999 and becomes statistically significant and positive in 2000. As trading partners of the U.S. become larger, relative to the United States, the U.S. tends to import more than the U.S. exports, although both sides of trade volume are enhanced by similar size. This is consistent with Krugman's intra-industry trade argument and is sensible given the fact that trade in consumer goods is much more intraindustry in nature (see Krugman and Obstfeld (2003), pp. 140).

Now consider the results when we consider the impacts of the variables on exports and imports asymmetrically.<sup>7</sup> Beginning first with distance, in each of the years the absolute value of the distance coefficient for exports ( $X$ ) is greater than for imports ( $M$ ),  $|\hat{\beta}_{1,X}| > |\hat{\beta}_{1,M}|$ : in 1999  $\hat{\beta}_{1,X} = -1.24$  and  $\hat{\beta}_{1,M} = -0.97$ . This gap widens in 2000 with  $\hat{\beta}_{1,X} = -1.40$  and  $\hat{\beta}_{1,M} = -0.91$ , U.S. exports are about 0.5% more responsive to distance than imports.<sup>8</sup> The results for GDP are consistent with the estimates from the total volume of trade, but with a twist. We might expect higher foreign

income to coincide with a greater degree of responsiveness to exports. However, we find the opposite to be true, U.S. imports respond more robustly to increasing GDP in other countries than do U.S. exports,  $\hat{\beta}_{3,M} > \hat{\beta}_{3,X}$  with the difference in the coefficients being about 0.2 and significant at the 1% level. One plausible explanation is intraindustry consumer trade, we import more from countries with higher income because of similar preferences. These consumer imports reflect similarities over the product cycle.

Looking at the results of the effects of economic freedom on the total volume of trade we see that in both 1999 and 2000 there is a strong positive relationship: an elasticity of freedom of 1.24 in 1999 and 2.14 in 2000, both estimates significant at the 5% level. However, there is considerable difference between the estimated coefficients for exports and imports. Increasing economic freedom is insignificant in increasing U.S. imports from other countries, reflecting the fact that the U.S. has no severe restrictions on the majority of consumer imports, especially based upon where the products are made.<sup>9</sup> For 1999 the export-freedom elasticity  $\hat{\beta}_{2,X} = 2.72$  while the import-freedom elasticity is about four times less elastic with a estimate of  $\hat{\beta}_{2,X} = 0.69$ ; in 2000 both coefficients increase though the export elasticity is still larger than the import elasticity: 4.24 versus 1.42. In addition to the differences in the value of the estimated coefficients, the regressions also show that there is *no* statistically significant relationship between U.S. imports and economic freedom while there is a *strong* relationship between U.S. exports and freedom. These results confirm suspicions that utility maximizing U.S. consumers are indifferent as to the origin of their imports and reductions in economic freedom restrict the choices non-U.S. households have in their consumption bundles. This result shows the asymmetric effects of economics freedom on trade flows and supports our disaggregation of the total volume of trade.

On the other hand, the trading partners of the United States who enjoy less economic freedom than the U.S. have institutional factors that limit the inflow of U.S. consumer products to their economies. The actual causes of these limitations, e.g., a lack of property rights or stable fiscal or monetary policies, are not, thus far, identified. Yet, the ability for the U.S. to export to other countries is dramatically enhanced when trading partners enjoy greater economic freedom. A possible explanation arises from indigenous producers attempts to generate rents, an increase in producer surplus, because of favorable protectionist (e.g. import substitution) policies. This rationale is strengthened when we consider the close ties governments often have with industry.

An alternative explanation is that United States' foreign policy, indeed the foreign policy of those countries that enjoy relatively high economic freedom, is directed at improving the choice set of those consumers who live in less economically free countries. The particular manner in which economic freedom is to be improved is still open to debate, both within and outside of target countries. Yet, our results indicate that increases in economic freedom are expected to yield benefits to both the already freer countries, in the form of exports, but to simultaneously yield benefits to those countries that become more free.

The results of the individual least squares regressions are confirmed for each specification by pooling data across years. These pooled results are reported in Table 4. For the three dependent variables, total volume of trade, U.S. imports and U.S. exports, we stack the two years and include a time dummy with the value 0 for 1999 and 1 for 2000. For the total volume of trade the GDP and distance coefficients are consistent with the literature and the freedom elasticity is a statistically significant 1.57. Decomposing trade into exports and imports also yields similar results to those in the single year regressions. The distance elasticity is greater in absolute value for exports than for imports. Similarly, imports are more income elastic than exports. Finally, the freedom elasticity is greater for exports than imports, however, unlike the individual year regressions, the estimated import-freedom elasticity is statistically significant.

The estimated coefficients on distance and the freedom index vary considerably across imports and exports. To confirm there is a statistically significant difference between these coefficients we perform Wald restriction to test if asymmetries exist between exports and imports with respect to: (1) distance:  $\hat{\beta}_{1,X} = \hat{\beta}_{1,M}$ ; (2) the freedom index:  $\hat{\beta}_{2,X} = \hat{\beta}_{2,M}$ , (3) GDP:  $\hat{\beta}_{3,X} = \hat{\beta}_{3,M}$ ; and (4) the combined effects of distance and economic freedom:  $\hat{\beta}_{1,X} = \hat{\beta}_{1,M}$  and  $\hat{\beta}_{2,X} = \hat{\beta}_{2,M}$ . For these tests we use the estimated coefficients calculated using a SUR framework. Estimates in the SUR regression will not differ from the OLS results because we have the same independent variables in each regression.

Results of the Wald tests are tabulated in columns two and three in Table 5 for each year,  $p$ -values for each test statistic reported in parentheses. We can strongly reject the above null hypotheses for all the restrictions, except for distance in 1999, where we reject the null at the 15% level. Clearly, we cannot treat exports and imports symmetrically with respect to distance and freedom in gravity regressions. This result follows those found in Wolf (2000) who finds that inter-province export and

import trade in Canada are also asymmetric.

Next, because we observed asymmetries within both exports and imports across years we conduct another set of Wald tests to see if the estimated coefficients are different across years:  $\hat{\beta}_{k,\ell}^{1999} = \hat{\beta}_{k,\ell}^{2000}$ ,  $k = 1, 2, 3$  and  $\ell = X, M$ . The Wald tests suggest considerable asymmetries across time for U.S. exports but not for U.S. imports. The most striking implication is that U.S. exports are sensitive to *changes in freedom*, whereas U.S. imports are not. As might be expected, there is no evidence that U.S. exports and imports are sensitive to changes in iceberg costs over the sample period.

## 5 Discussion

Our results indicate that if the rest of the world was to improve its economic freedom relative to the United States, the level of trade between the United States and the rest of the countries in our sample would increase, most notably through an increase in U.S. exports to the rest of the world. Given our results, we next turn to estimating the effect on U.S. exports and imports if the rest of the world enjoyed the same economic freedom as the United States and the change in net exports from increasing economic freedom

### Estimates of Welfare Gains and Losses

From our regression analysis we can estimate the welfare loss of low economic freedom as reflected in the changes in U.S. exports and imports. We have seen that higher economic freedom enhances trade flows between the U.S. and the ROW. Consider first a world where all countries have the *same* level of economic freedom as the United States ( $EFWI = 8.5$  in 1999 and  $8.4$  in 2000) and the Democratic Republic (D.R.) of Congo (formerly Zaire), which is the *least* free nation in the survey (an  $EFWI$  of  $2.7$  and  $3.2$  for 1999 and 2000). We use the U.S. as a benchmark because the data are between the U.S. and the ROW, although Hong Kong has the highest economic freedom index of any country ( $EFWI$  of  $8.9$  and  $8.8$  in 1999 and 2000 respectively) followed closely by Singapore ( $EFWI$   $8.7$  in 1999 and  $8.6$  in 2000).

Estimates of trade volume gain/loss are presented in Table 6 for the U.S. benchmark and the D.R. of Congo benchmark. We report the overall gain/loss of U.S. exports and imports under each benchmark country's 'freedom regime' and the descriptive statistics: mean, maximum ( $Max$ ), minimum ( $Min$ ), and standard deviation ( $SD$ ). All numbers are in billions of \$US. We also report the

percentage change in exports and imports, and the same descriptive statistics under each regime.<sup>10</sup>

If all countries had the same freedom index as the United States, American consumer exports/imports would rise about \$302 billion/\$82 billion in 1999 and \$643 billion/\$263 billion in 2000. That is, the welfare loss, from the ROW having less economic freedom than the United States, in terms of U.S. consumer exports sold to the ROW and ROW consumer exports to the U.S. is \$384 billion and \$906 billion for 1999 and 2000 respectively. The extent of the total welfare loss is magnified when we note that U.S. consumer exports accounted for about 8.45% and 8.40% of total exports for 1999 and 2000 respectively, while consumer imports represented approximately 19.84% and 19.53% (Office of Trade and Economic Analysis, OTEA). In terms of percentage change, on average U.S. exports would rise 195% and 395% and imports would increase 26% and 55% over the two years. The maximum increase in exports/imports would be to D.R. of Congo (the least free country) 2,169%/121% in 1999 alone. It is clear that, for most trading partners, both exports to the United States and imports from the United States would increase if the rest of the world enjoyed a greater level of economic freedom. This is naturally caused by the fact that the vast majority of the countries in our sample fall below the United States in their economic freedom score.

Next consider the case in which all countries had the same economic freedom as the D.R. of Congo. Overall global *loss* would be about \$1.3 trillion in 1999 and \$1 trillion in 2000. There would be an average decline in U.S. exports to the countries of our sample of 87% and 91% in 1999 and 2000, respectively, and an average decline in U.S. imports from the countries of our sample of 42% and 60% for 1999 and 2000, respectively. These numbers are significant when we consider that the total global GDP for these 118 countries plus the United States is about \$30 trillion and total exports and imports, rather than just consumer trade, are taken into account.

### **The U.S. Trade Position**

Having estimated both sides of the trade balance for the United States with the 118 countries in our sample, we are interested in the estimated impact on trade levels of all the trading partners with the United States enjoyed the same level of economic freedom. Specifically, we estimate the change in exports as the difference between the level of trade estimated to occur with the U.S. economic freedom and that estimated using the actual level of economic freedom. We calculate the estimated trade balance by adding the increases to exports and imports to the actual exports and imports that

occurred in 2000 and recalculating the trade balance. These are presented in Table 7. Net U.S. consumer exports were about -\$315 billion and -\$475 billion in 1999 and 2000. According to our estimates the consumer trade deficit would become a \$1.3 billion and \$1.5 billion consumer goods trade *surplus* if each country had the same economic freedom as the U.S. As we have seen, most of this gain is due to the increase in U.S. consumer exports, though U.S. imports also rise.

These changes are measured only in consumer goods, thereby focusing on those imports with the greatest probability of improving consumer welfare in a static, or very short term. Therefore, while the rest of the world gains by exporting more to the United States when they are more free, the United States also stands to gain by encouraging other countries to improve their economic freedom. We have not controlled for the impact of economic freedom on the GDP or GDP growth of the trading partners included in our sample. To do this would require a panel describing countries over time and is clearly an avenue for future research. Because the analysis is static in nature it is reasonable to assume that the impacts on the level of trade between the United States and its trading partners reported here are underestimated.

These findings have important consequences for U.S. trade policy. While it is clearly important to address tariff and non-tariff barriers to trade, it is equally important that the United States and other countries address other aspects of trading partners not usually considered traditional trade policy “levers.” Issues such as stable monetary policy, reduced corruption, stable prices, well established and protected property rights, and a stable banking system, would have direct and indirect economic impacts on the United States. While it is not necessary for other countries to directly imitate the United States in all aspects, indeed such imitation may not be feasible or advisable, an improvement in economic freedom in other countries, however obtained, has value to the United States much more tangible than the exporting of a particular culture or political prescription.

Indeed, it seems that many of these aspects of other countries have been internalized into U.S. trade policy in one form or another. Bilateral and multilateral negotiations with other countries tend to focus on many more aspects than simply average tariff rates. Property rights enforcement in China, for instance, is important to U.S. producers of information products, and yet such enforcement in favor of U.S. producers may become natural if China was to create a stable and well defined property rights for their own citizenry. Monetary and fiscal stability is an expressed concern of the IMF and the World Bank. Clearly these goals have direct benefits for the target countries. However, there is

also an impact on world welfare by the increased ability to trade in consumer products after economic freedom is improved. A similar result to that found in the growth literature.<sup>11</sup>

## 6 Conclusions

International trade in consumer goods seems naturally predicated upon some level of economic freedom. A lack of economic freedom tends to correlate with limited access to foreign goods, most likely to the benefit of those who hold political power. However, does a lack of economic freedom limit a country's ability to export to the United States? This is most likely not the case as foreign governments in countries with highly concentrated political and economic control have foreign currency and capital-good demands. Moreover, countries with less economic freedom may place greater focus on maximizing producer surplus (through exports) rather than consumer surplus (which might be augmented with imports). Therefore, countries with relatively more economic freedom are expected to be able to import more. The more political and economic freedom a country's citizenry enjoys, the more one would expect the U.S. (and other countries) to export to that country, perhaps without a corresponding increase in the level of imports from that country.

We investigate the impact of economic freedom and trade flows by estimating a gravity model using the freedom index developed by the Fraser Institute. We find that distance, the national income and the population of other countries have the expected impacts on the total volume of trade with the United States. We also show higher economic freedom is strongly correlated with increased trade flows. Tests for asymmetric effects of economic freedom on the level of U.S. exports and imports to and from other countries. We demonstrate the level economic freedom in a country does not have a statistically significant impact on the level of U.S. imports but does have a positive and statistically significant impact on the level of country specific U.S. exports. We hypothesize that the increased level of U.S. exports represents a weak gain in social welfare, relative to the situation that would prevail with less economic freedom, and estimate the impact on U.S. trade flows if all countries in the world enjoyed parity with the economic freedom of the United States.

It is clear from our estimates that if the gains to the United States are any indication, an improvement in world economic freedom would enhance the exchange of goods and services amongst the nations of the world, and according to traditional trade theory, such trade is at least weakly welfare enhancing. While economic improvement of the masses may come at the detriment of those

who hold political power and those who benefit from the rents generated by less economic freedom, the solution is left to those hold a comparative advantage in that area.

What seems undeniable, from our initial analysis, is that economic freedom, measured as a combination of many institutional factors, adds to the ability for agents in distant countries to increase the flow of goods and services across borders. However, our measure is static and does not incorporate the possible positive impacts that economic freedom would have on GNP and GNP growth of other countries.

Perhaps most important in our analysis is that we look only at consumer imports. The argument that so-called “globalization” is only a means for developed countries to gain access to natural resources, i.e., capital goods, in exchange for consumer goods, a rather mercantilistic view of trade flows, is challenged by our analysis. If developed countries gain at the expense of lesser developed nations, one would expect to see limited increases or perhaps even decreases in the flow of consumer products from other countries to the United States. However, we find that greater economic freedom tends to increase both the level of exports and imports to and from the United States. While trade in capital goods may also increase with economic freedom, trade in consumer goods arguably has a more direct impact on the well being of the consumer and therefore economic freedom may be construed as a vital ingredient in the improvement of social welfare for many of the countries around of world.

It is hoped that this paper will initiate further investigation into how economic freedom influences world trade and other economic variables of interest. Several avenues for future research seem obvious. First, how does economic freedom influence economic growth, particularly in consumer products? How does this growth then impact trade volumes? How does access to foreign consumer goods influence economic freedom over time? Other questions, such as diminishing returns to policies that target tariff and traditional non-tariff barriers to trade would also prove interesting.

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## Notes

<sup>1</sup>See, for example Peter Bauer's collected essays in *From Subsistence to Exchange and Other Essays*, and Hayek's comments about information (1937 and 1989).

<sup>2</sup>Freedom indicators include: corruption, market capitalization, independent monetary authority, civil war, property rights, etc. See Barro and Sala-i-Martin (1995) and the *Quarterly Journal of Economics*, **108**(3), a special issue on growth, for an good overview

<sup>3</sup>For example: Engel and Rogers (1996), Wall (2000), and others.

<sup>4</sup>For example: dummies for border countries, membership in trade agreements (Parsley and Wei, 2001), intra-state or intra-national trade (Wolf, 2000), directional flows of trade (Wall 2000).

<sup>5</sup>Because a large volume of trade is conducted within the OECD countries we ran the above regression with an OECD dummy as well, the additional variable was insignificant.

<sup>6</sup>Results available on request.

<sup>7</sup> Asymmetries are also addressed in Wolf (2002) with respect to 'home bias,' using intra-Canadian and U.S. trade data. With a gravity specification and a set of dummy variables that accounts for trade flow asymmetries, he shows that home bias is strong.

<sup>8</sup>As shown below, this difference is statistically significant. A possible explanation may be that many countries subsidize their domestic shipping industries, thereby reducing the costs of distance vis-a-vis the U.S. shipping industry. Additional investigation of this possibility is an avenue for future research.

<sup>9</sup>A notable exception is the U.S. embargo on Cuba, and other international sanctions placed on other countries.

<sup>10</sup>Country specific estimates for each benchmark and year are provided in the Appendix.

<sup>11</sup>While our results provide estimates of how trade patterns would change if the rest of the world enjoyed parity with the United States in economic freedom, we do not prescribe that any country should totally mimic the United States in its economic, political or social structure. The Fraser Economic Freedom Index is a weighted average of a number of different institutional factors. Improving the overall *EFWI* of a particular country could come through the adjustment of any number of these institutional factors. Therefore, a particular level of economic freedom could be attained in any number of combinations of different institutional factors, thereby precluding the necessity the direct duplication of any a particular set of policies. Indeed, as the authors are not politicians, we are not in a position to offer an particular agenda that would attain parity with the United States. Such concerns (and agendas) are left to those who hold a comparative advantage in this area. Yet, if trade or foreign policy does not improve economic freedom sufficiently, the impact on world trade may be less than estimated here.

## Tables

Table 1. Comparison of the Two Freedom Indices

EFWI		HFI	
I.	Size of Government: Consumption, Transfers & Subsidies (11%)	1.	Fiscal Burden of the Government
II.	Structure of the Economy Use of Markets (14.2)	2.	Government Intervention in the Economy
III.	Monetary Policy and Price Stability (9.2)	3.	Wages and Prices
IV.	Freedom to Use Alternative Currencies (14.6)	4.	Banking and Finance
V.	International Exchange: Freedom to Trade with Foreigners (17.1)	5.	Monetary Policy
VI.	Legal Structure and Property Rights (16.6)	6.	Trade Policy
VII.	Freedom of Exchange in Capital and Financial Markets (17.2)	7.	Property Rights
		8.	Regulation
		9.	Capital Flows and Capital Investment
		10.	Black Market Activity

**Notes:** Weights for the HFI are equal to 10% for each component. Weights for the EFWI are in parentheses. Each of the EFWI components are made up unequally weighted subcomponents, for details see *Economic Freedom of World: 2001 Report*, Exhibit 1-1.

Table 2. Summary Statistics

	Mean	Std Dev	Minimum	Maximum
$\ln(DIST)$	8.53	0.51	6.78	9.22
1999 (N=119)				
$\ln(TV)$	7.21	2.33	1.79	12.81
$\ln(EX)$	6.32	2.34	1.10	12.02
$\ln(IM)$	6.45	2.55	0.69	12.02
$\ln(FI)$	1.82	0.21	0.99	2.19
$\ln(GDP)$	10.24	1.97	6.51	15.29
$\ln(POP)$	2.36	1.71	-1.45	7.14
2000 (N=119)				
$\ln(TV)$	7.42	2.34	1.55	12.86
$\ln(EX)$	6.37	2.41	0.53	11.96
$\ln(IM)$	6.77	2.53	1.06	12.34
$\ln(FI)$	1.84	0.18	1.16	2.17
$\ln(GDP)$	10.25	1.98	6.48	15.36
$\ln(POP)$	2.35	1.68	-1.39	7.14

**Notes:** All numbers are natural logarithms: *GDP* in Billions of \$US; Exports, Imports, and Total Volume in Millions of \$US; Population in Millions; and Distance in Miles.

Table 3. Gravity Regression Results

	Total		
	Volume	Exports	Imports
	<b>1999</b>		
<i>CONST</i>	3.931 (0.964)	2.992 (0.826)	2.904 (0.558)
$\ln(DIST)$	-1.028*** (-2.881)	-1.244*** (-3.922)	-0.972** (-2.134)
$\ln(FI)$	1.237 (1.959)	2.723*** (4.856)	0.690 (0.857)
$\ln(GDP)$	0.965*** (33.69)	0.874*** (34.38)	1.041*** (28.49)
$\ln(POP)$	-0.034 (-1.152)	0.007 (0.277)	-0.034 (-0.902)
$R^2_{ADJ}$	0.767	0.818	0.685
	<b>2000</b>		
<i>CONST</i>	3.086 (0.758)	1.919 (0.514)	1.464 (0.289)
$\ln(DIST)$	-1.071*** (-3.307)	-1.399*** (-4.717)	-0.906** (-2.247)
$\ln(FI)$	2.137** (2.513)	4.241*** (5.443)	1.416 (1.337)
$\ln(GDP)$	0.906*** (23.85)	0.799*** (22.96)	0.994*** (21.02)
$\ln(POP)$	0.100** (2.371)	0.158*** (4.085)	0.096* (1.827)
$R^2_{ADJ}$	0.817	0.855	0.757

**Notes:** Errors are computed from the heteroscedastic-consistent matrix. Standard errors in parenthesis. \*, \*\*, and \*\*\* represent significance at the 10%, 5% and 1% level respectively.

Table 4. Pooled Gravity Regression Results

	Total		
	Volume	Exports	Imports
<i>CONST</i>	3.541*	2.696	2.124
	(1.759)	(1.478)	(0.837)
$\ln(DIST)$	-1.046***	-1.318***	-0.935***
	(-6.168)	(-8.577)	(-4.375)
$\ln(FI)$	1.572***	3.290***	0.962***
	(4.439)	(10.25)	(2.155)
$\ln(GDP)$	0.945***	0.851***	1.025***
	(59.48)	(59.10)	(51.20)
$\ln(POP)$	0.022	0.066***	0.022
	(1.273)	(4.266)	(1.011)
<i>YEAR DUM</i>	0.161***	-0.031**	0.283***
	(8.649)	(-1.827)	(12.01)
$R_{ADJ}^2$	0.794	0.836	0.724

**Notes:** Errors are computed from the heteroscedastic-consistent matrix. Standard errors in parenthesis. \*, \*\*, and \*\*\* represent significance at the 10%, 5% and 1% level respectively.

Table 5. Wald Asymmetric Restriction Tests for Exports and Imports

Restriction	Exports vs Imports		Across Time	
	1999	2000	Exports	Imports
1. Distance	2.038	41.890	1.191	0.434
	(0.153)	(0.000)	(0.275)	(0.510)
2. Freedom	12.689	15.915	6.512	0.375
	(0.000)	(0.000)	(0.011)	(0.541)
3. GDP	5.101	5.841	0.680	0.002
	(0.024)	(0.016)	(0.410)	(0.967)
4. Distance and Freedom	15.821	23.759	8.054	0.763
	(0.000)	(0.000)	(0.018)	(0.683)

**Notes:** Asymmetric tests done using a system of *SUR* regressions. Restriction 1:  $\hat{\beta}_{1,X} = \hat{\beta}_{1,M}$ ; Restriction 2:  $\hat{\beta}_{2,X} = \hat{\beta}_{2,M}$ ; Restriction 3:  $\hat{\beta}_{3,X} = \hat{\beta}_{3,M}$ ; and Restriction 4:  $\hat{\beta}_{1,X} = \hat{\beta}_{1,M}$  and  $\hat{\beta}_{2,X} = \hat{\beta}_{2,M}$ . The  $\chi^2(q)$  *p*-values are in parenthesis, where *q* is the number of restrictions.

Table 6. Estimated Gains/Losses of Economic Freedom  
U.S. and Democratic Republic of Congo

	US 1999	Congo 1999	US 2000	Congo 2000
Mean EFI	6.31		6.41	
Total <b>Exports</b> ±	302.705	-522.619	643.042	-756.566
<i>Mean</i>	2.565	-4.429	5.450	-6.412
<i>Max</i>	41.648	-144.444	126.521	-272.132
<i>Min</i>	-0.454	-0.004	-0.851	-0.005
<i>SD</i>	6.135	15.540	15.180	27.239
Percentage Change				
<i>Mean</i>	194.954	-87.006	395.287	-91.735
<i>Max</i>	2,169.916	-96.113	5,892.633	-98.630
<i>Min</i>	-11.768	-42.094	-17.906	-12.235
<i>SD</i>	274.625	12.098	749.860	12.513
Total <b>Imports</b> ±	81.983	-317.786	263.102	-683.342
<i>Mean</i>	0.695	-2.693	2.230	-5.791
<i>Max</i>	10.976	-54.590	38.522	-120.699
<i>Min</i>	-0.101	-0.002	-0.321	-0.006
<i>SD</i>	1.737	8.184	6.003	18.039
Percentage Change				
<i>Mean</i>	26.090	-42.875	55.244	-60.420
<i>Max</i>	120.728	-56.111	292.224	-76.130
<i>Min</i>	-3.125	-14.713	-6.375	-4.264
<i>SD</i>	20.422	9.252	46.564	11.872

**Notes:** Export and import gains/losses are in billions of U.S. dollars.

Table 7. Estimated Changes in Net Exports: U.S. as Benchmark

	Actual Net Exports		Estimated Net Exports		Net Export Gain	
	1999	2000	1999	2000	1999	2000
Total	-315.501	-474.607	1.325	1.530	316.826	476.138
<i>Mean</i>	-2.673	-4.022	0.011	0.013	2.685	4.035
<i>SD</i>	10.473	13.699	0.076	0.198	10.477	13.734
<i>Max</i>	109.62	10.648	0.718	1.739	73.121	84.162
<i>Min</i>	-73.398	-84.991	-0.277	-0.909	-10.943	-10.650

**Notes:** All numbers in billions of U.S. dollars.

Figure 1: U.S. Exports vs. Economic Freedom

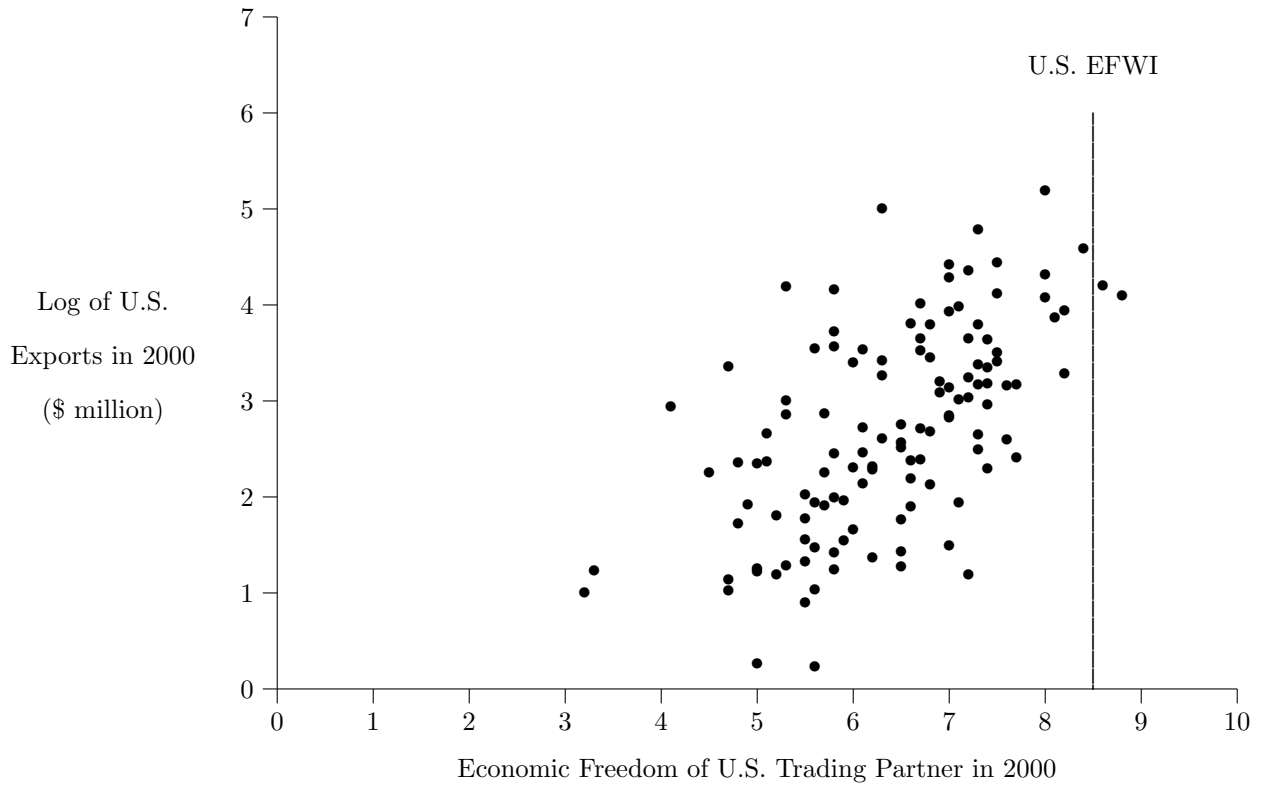
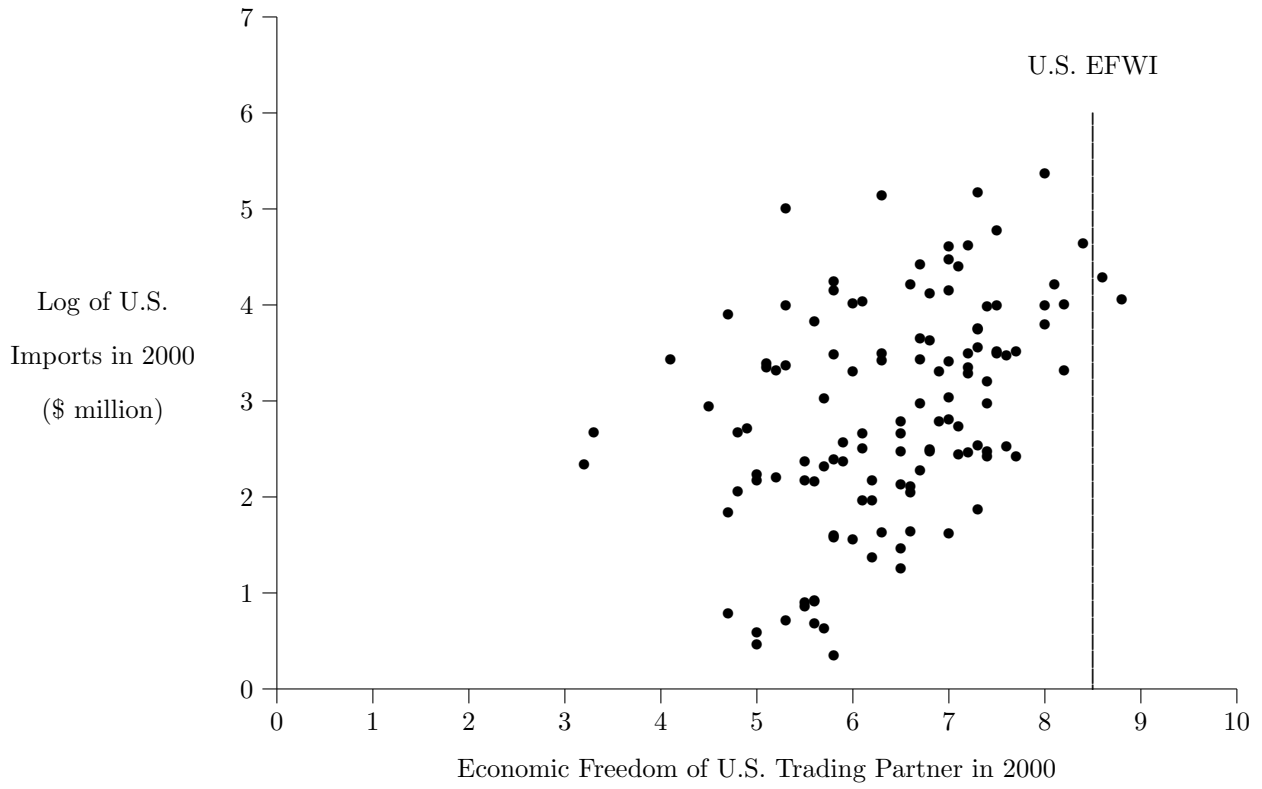


Figure 2: U.S. Imports vs. Economic Freedom



## A. Table Appendix

Table A-1. Estimated One-Year Gains from Economic Freedom By Country:  
United States 1999 Economic Freedom of 8.5 of 10.0 as Benchmark

Trading Country	SFI-1999	Total Volume <sup>a</sup>		Exports <sup>b</sup>		Imports <sup>c</sup>	
		Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Albania	5.1	1.555	88.070	1.812	301.798	0.338	42.287
Algeria	3.4	23.001	210.497	20.483	1111.812	6.494	88.252
Argentina	7.4	26.026	18.692	28.594	45.837	7.092	10.041
Australia	8.1	8.028	6.141	7.947	14.024	2.255	3.384
Austria	7.5	20.695	16.738	22.644	40.603	5.463	9.026
Bahamas	7.2	3.203	22.782	5.707	57.131	0.59	12.142
Bahrain	7.1	0.655	24.924	0.790	63.230	0.136	13.23
Bangladesh	5.5	7.361	71.305	7.713	227.135	1.919	35.059
Barbados	5.9	1.452	57.062	2.062	170.219	0.278	28.669
Belgium	7.4	30.034	18.692	33.177	45.837	8.007	10.041
Belize	6.5	0.654	39.335	1.223	107.587	0.108	20.347
Bolivia	7.0	1.718	27.135	2.499	69.657	0.358	14.345
Botswana	6.9	0.556	29.417	0.666	76.436	0.117	15.486
Brazil	5.1	177.436	88.070	161.385	301.798	55.546	42.287
Bulgaria	5.3	3.831	79.334	4.301	261.847	0.894	38.558
Burundi	5.7	0.209	63.904	0.28	196.82	0.041	31.77
Cameroon	5.3	2.25	79.334	2.547	261.847	0.519	38.558
Canada	8.0	172.611	7.784	273.427	17.946	44.227	4.274
Cent. African Rep.	4.8	0.317	102.71	0.387	373.905	0.064	48.369
Chile	7.4	7.039	18.692	8.612	45.837	1.712	10.041
China	5.4	169.765	75.236	152.165	243.892	55.706	36.781
Colombia	5.4	48.846	75.236	58.501	243.892	12.594	36.781
Congo (DROC)	2.7	1.150	312.906	1.148	2169.916	0.281	120.728
Congo (ROC)	4.3	0.725	132.245	0.776	539.378	0.158	60.075
Costa Rica	7.2	4.063	22.782	6.634	57.131	0.824	12.142
Cote d'Ivoire	5.8	2.778	60.417	3.356	183.093	0.631	30.197
Croatia	4.8	7.738	102.71	7.853	373.905	1.908	48.369
Cyprus	6.0	2.110	53.831	2.303	158.133	0.470	27.185
Czech Republic	6.5	11.118	39.335	12.751	107.587	2.738	20.347
Denmark	7.5	19.279	16.738	21.482	40.603	4.992	9.026
Dominican Rep	6.8	8.496	31.774	13.518	83.59	1.798	16.656
Ecuador	5.8	8.434	60.417	11.38	183.093	1.897	30.197
Egypt	6.7	11.57	34.210	13.106	91.146	2.990	17.855
El Salvador	7.2	5.16	22.782	8.803	57.131	1.045	12.142
Estonia	6.9	1.037	29.417	1.409	76.436	0.211	15.486
Fiji	6.4	0.447	42.032	0.555	116.537	0.089	21.642
Finland	7.6	12.519	14.842	14.33	35.623	3.165	8.033
France	6.8	235.909	31.774	226.251	83.59	73.447	16.656
Gabon	4.3	1.545	132.245	1.525	539.378	0.353	60.075
Germany	7.5	189.205	16.738	186.963	40.603	59.362	9.026
Ghana	5.5	1.996	71.305	2.421	227.135	0.448	35.059
Greece	6.9	17.166	29.417	18.258	76.436	4.489	15.486
Guatemala	6.5	11.567	39.335	18.452	107.587	2.470	20.347
Guyana	6.6	0.322	36.729	0.546	99.135	0.056	19.085
Haiti	6.4	2.929	42.032	5.134	116.537	0.565	21.642
Honduras	6.4	4.001	42.032	6.808	116.537	0.788	21.642
Hong Kong	8.9	-3.989	-5.527	-4.539	-11.768	-1.011	-3.125
Hungary	6.8	8.618	31.774	10.074	83.59	2.099	16.656
Iceland	7.7	1.427	13.001	2.010	30.881	0.288	7.063
India	6.3	49.457	44.825	50.035	126.023	14.82	22.972
Indonesia	6.1	15.539	50.719	15.087	146.773	4.389	25.742
Iran	5.1	27.196	88.070	25.354	301.798	7.71	42.287
Ireland	8.1	4.889	6.141	6.195	14.024	1.171	3.384
Israel	6.5	14.59	39.335	14.589	107.587	3.818	20.347
Italy	7.1	138.458	24.924	134.639	63.23	42.329	13.23
Jamaica	6.6	5.025	36.729	8.271	99.135	0.999	19.085
Japan	7.3	323.003	20.706	279.202	51.34	109.761	11.079
Jordan	7.0	0.974	27.135	1.283	69.657	0.207	14.345
Kenya	6.6	1.237	36.729	1.541	99.135	0.277	19.085
Korea	6.9	43.142	29.417	42.347	76.436	12.45	15.486
Kuwait	6.8	3.957	31.774	4.219	83.59	0.943	16.656
Latvia	6.6	1.465	36.729	1.93	99.135	0.306	19.085
Lithuania	6.2	2.673	47.719	3.285	136.087	0.59	24.338
Luxembourg	8.3	0.496	2.988	0.655	6.697	0.106	1.657

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.

Table A-1 (Cont.). Estimated One-Year Gains from Economic Freedom By Country:  
United States 1999 Economic Freedom of 8.5 of 10.0 as Benchmark

Trading Country	SFI-1999	Total Volume <sup>a</sup>		Exports		Imports	
		Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Madagascar	5.0	0.698	92.732	0.772	324.055	0.155	44.246
Malawi	4.4	0.464	125.736	0.518	500.585	0.100	57.555
Malaysia	6.9	6.351	29.417	6.503	76.436	1.650	15.486
Mali	5.6	0.703	67.531	1.149	211.473	0.144	33.39
Malta & Gozo	6.6	0.875	36.729	1.089	99.135	0.178	19.085
Mauritius	7.2	0.303	22.782	0.364	57.131	0.062	12.142
Mexico	6.4	314.716	42.032	416.477	116.537	85.968	21.642
Morocco	6.0	9.799	53.831	11.732	158.133	2.38	27.185
Myanmar	3.3	16.265	222.173	12.597	1214.419	4.861	92.172
Namibia	6.6	0.409	36.729	0.510	99.135	0.083	19.085
Nepal	5.7	0.966	63.904	1.177	196.82	0.212	31.770
Netherlands	7.9	25.533	9.474	28.863	22.055	6.927	5.184
New Zealand	8.4	0.348	1.474	0.407	3.275	0.083	0.820
Nicaragua	6.8	1.179	31.774	2.212	83.59	0.213	16.656
Niger	5.1	0.670	88.070	0.865	301.798	0.138	42.287
Nigeria	5.0	8.896	92.732	9.555	324.055	2.292	44.246
Norway	7.4	19.716	18.692	22.105	45.837	5.059	10.041
Oman	7.2	1.458	22.782	1.698	57.131	0.328	12.142
Pakistan	5.4	11.189	75.236	11.644	243.892	2.979	36.781
Panama	7.6	2.341	14.842	3.906	35.623	0.465	8.033
Papua New Guinea	5.2	0.826	83.608	0.910	281.107	0.181	40.392
Paraguay	6.7	2.330	34.210	3.027	91.146	0.508	17.855
Peru	6.6	14.432	36.729	18.352	99.135	3.497	19.085
Philippines	7.2	5.357	22.782	6.145	57.131	1.359	12.142
Poland	5.8	38.502	60.417	39.382	183.093	10.59	30.197
Portugal	7.3	15.545	20.706	18.463	51.340	3.899	11.079
Romania	3.9	13.427	162.047	12.483	734.078	3.616	71.238
Russia	3.7	69.284	179.672	59.112	862.617	21.386	77.576
Senegal	4.9	1.976	97.607	2.416	348.033	0.433	46.272
Sierra Leone	4.0	0.336	153.971	0.427	678.522	0.067	68.271
Singapore	8.7	-0.923	-2.835	-1.022	-6.136	-0.227	-1.593
Slovakia	6.1	4.871	50.719	5.699	146.773	1.130	25.742
Slovenia	5.7	6.496	63.904	6.954	196.82	1.544	31.770
South Africa	6.9	10.94	29.417	11.139	76.436	2.942	15.486
Spain	7.3	72.432	20.706	77.38	51.340	20.721	11.079
Sri Lanka	6.0	2.130	53.831	2.315	158.133	0.506	27.185
Sweden	7.4	28.081	18.692	30.750	45.837	7.477	10.041
Switzerland	8.1	10.971	6.141	12.531	14.024	2.874	3.384
Syria	4.6	4.972	113.663	5.042	432.126	1.235	52.793
Taiwan	7.2	22.252	22.782	21.900	57.131	6.222	12.142
Tanzania	5.6	1.440	67.531	1.652	211.473	0.331	33.390
Thailand	6.8	10.872	31.774	11.228	83.590	2.921	16.656
Togo	4.3	0.548	132.245	0.648	539.378	0.114	60.075
Trinidad & Tobago	6.9	2.314	29.417	3.490	76.436	0.462	15.486
Tunisia	6.1	5.103	50.719	5.999	146.773	1.196	25.742
Turkey	5.6	41.185	67.531	39.793	211.473	11.733	33.390
Uganda	6.4	0.799	42.032	1.026	116.537	0.172	21.642
Ukraine	4.3	11.513	132.245	11.664	539.378	3.016	60.075
United Arab Emirates	7.1	5.081	24.924	5.282	63.230	1.253	13.230
United Kingdom	8.4	14.868	1.474	16.630	3.275	4.369	0.820
Uruguay	6.7	3.668	34.210	4.318	91.146	0.842	17.855
Venezuela	5.1	68.14	88.070	77.182	301.798	17.981	42.287
Zambia	6.2	0.467	47.719	0.592	136.087	0.097	24.338
Zimbabwe	5.6	0.999	67.531	1.137	211.473	0.223	33.390
Total	6.31	182.077	54.21	302.705	194.95	81.983	26.09

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.

Table A-2. Estimated One-Year Gains from Economic Freedom:  
Congo (DROC) 1999 Economic Freedom of 2.70 of 10.0 as Benchmark

Trading Country	Total Volume <sup>a</sup>		Exports <sup>b</sup>		Imports <sup>c</sup>	
	Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Albania	-0.961	-54.452	-0.494	-82.299	-0.284	-35.538
Algeria	-2.710	-24.802	-0.859	-46.614	-1.083	-14.713
Argentina	-99.212	-71.254	-58.375	-93.575	-35.422	-50.147
Australia	-97.115	-74.294	-53.821	-94.977	-35.431	-53.162
Austria	-88.682	-71.728	-52.314	-93.806	-30.630	-50.606
Bahamas	-9.879	-70.264	-9.298	-93.078	-2.389	-49.195
Bahrain	-1.832	-69.745	-1.160	-92.809	-0.502	-48.702
Bangladesh	-6.040	-58.512	-2.907	-85.588	-2.124	-38.812
Barbados	-1.577	-61.962	-1.067	-88.096	-0.404	-41.707
Belgium	-114.49	-71.254	-67.732	-93.575	-39.99	-50.147
Belize	-1.102	-66.255	-1.033	-90.855	-0.242	-45.477
Bolivia	-4.381	-69.21	-3.319	-92.526	-1.202	-48.197
Botswana	-1.297	-68.657	-0.803	-92.227	-0.36	-47.680
Brazil	-109.71	-54.452	-44.009	-82.299	-46.681	-35.538
Bulgaria	-2.731	-56.568	-1.381	-84.059	-0.864	-37.227
Burundi	-0.198	-60.305	-0.123	-86.924	-0.052	-40.302
Cameroon	-1.605	-56.568	-0.818	-84.059	-0.501	-37.227
Canada	-1638.6	-73.896	-1444.438	-94.804	-545.899	-52.759
Can. African Rep	-0.157	-50.907	-0.082	-79.122	-0.043	-32.782
Chile	-26.834	-71.254	-17.582	-93.575	-8.550	-50.147
China	-129.88	-57.56	-52.938	-84.85	-57.6	-38.032
Colombia	-37.370	-57.56	-20.352	-84.85	-13.023	-38.032
Congo (ROC)	-0.240	-43.754	-0.103	-71.833	-0.072	-27.479
Costa Rica	-12.53	-70.264	-10.809	-93.078	-3.339	-49.195
Cote d'Ivoire	-2.812	-61.149	-1.604	-87.529	-0.857	-41.015
Croatia	-3.835	-50.907	-1.662	-79.122	-1.293	-32.782
Cyprus	-2.459	-62.744	-1.291	-88.628	-0.733	-42.379
Czech Republic	-18.727	-66.255	-10.768	-90.855	-6.120	-45.477
Denmark	-82.614	-71.728	-49.629	-93.806	-27.989	-50.606
Dominican Rep.	-18.204	-68.086	-14.864	-91.912	-5.089	-47.150
Ecuador	-8.536	-61.149	-5.441	-87.529	-2.576	-41.015
Egypt	-22.827	-67.496	-13.168	-91.579	-7.803	-46.606
El Salvador	-15.913	-70.264	-14.341	-93.078	-4.234	-49.195
Estonia	-2.420	-68.657	-1.700	-92.227	-0.649	-47.680
Fiji	-0.697	-65.602	-0.430	-90.461	-0.186	-44.891
Finland	-60.887	-72.187	-37.824	-94.025	-20.113	-51.056
France	-505.51	-68.086	-248.777	-91.912	-207.914	-47.150
Gabon	-0.511	-43.754	-0.203	-71.833	-0.162	-27.479
Germany	-810.78	-71.728	-431.943	-93.806	-332.841	-50.606
Ghana	-1.638	-58.512	-0.912	-85.588	-0.496	-38.812
Greece	-40.065	-68.657	-22.03	-92.227	-13.820	-47.680
Guatemala	-19.483	-66.255	-15.582	-90.855	-5.520	-45.477
Guyana	-0.586	-66.886	-0.502	-91.227	-0.134	-46.049
Haiti	-4.571	-65.602	-3.985	-90.461	-1.172	-44.891
Honduras	-6.245	-65.602	-5.285	-90.461	-1.634	-44.891
Hong Kong	-55.661	-77.12	-37.076	-96.113	-18.161	-56.111
Hungary	-18.466	-68.086	-11.077	-91.912	-5.941	-47.150
Iceland	-7.972	-72.633	-6.134	-94.234	-2.099	-51.496
India	-71.635	-64.925	-35.75	-90.043	-28.572	-44.288
Indonesia	-19.454	-63.498	-9.162	-89.129	-7.337	-43.033
Iran	-16.815	-54.452	-6.914	-82.299	-6.48	-35.538
Ireland	-59.147	-74.294	-41.956	-94.977	-18.405	-53.162
Israel	-24.574	-66.255	-12.32	-90.855	-8.534	-45.477
Italy	-387.45	-69.745	-197.622	-92.809	-155.816	-48.702
Jamaica	-9.151	-66.886	-7.611	-91.227	-2.410	-46.049
Japan	-1103.9	-70.767	-507.571	-93.333	-492.136	-49.676
Jordan	-2.485	-69.21	-1.705	-92.526	-0.695	-48.197
Kenya	-2.253	-66.886	-1.418	-91.227	-0.668	-46.049
Korea	-100.69	-68.657	-51.096	-92.227	-38.333	-47.680
Kuwait	-8.478	-68.086	-4.639	-91.912	-2.671	-47.150
Latvia	-2.668	-66.886	-1.776	-91.227	-0.739	-46.049
Lithuania	-3.598	-64.225	-2.163	-89.599	-1.059	-43.669
Luxembourg	-12.468	-75.058	-9.325	-95.299	-3.436	-53.945
Madagascar	-0.401	-53.323	-0.194	-81.318	-0.122	-34.650
Malawi	-0.167	-45.33	-0.076	-73.542	-0.050	-28.621
Malaysia	-14.822	-68.657	-7.846	-92.227	-5.080	-47.680
Mali	-0.619	-59.426	-0.469	-86.278	-0.171	-39.568
Malta & Gozo	-1.594	-66.886	-1.002	-91.227	-0.429	-46.049
Mauritius	-0.933	-70.264	-0.593	-93.078	-0.252	-49.195
Mexico	-491.19	-65.602	-323.287	-90.461	-178.317	-44.891
Morocco	-11.421	-62.744	-6.575	-88.628	-3.711	-42.379
Myanmar	-1.609	-21.974	-0.437	-42.094	-0.682	-12.937

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.

Table A-2 (Cont.). Estimated One-Year Gains from Economic Freedom By Country:  
Congo (DROC) 1999 Economic Freedom of 2.7 of 10.0 as Benchmark

Trading Country	Total Volume <sup>a</sup>		Exports <sup>b</sup>		Imports <sup>c</sup>	
	Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Namibia	-0.745	-66.886	-0.469	-91.227	-0.200	-46.049
Nepal	-0.911	-60.305	-0.520	-86.924	-0.269	-40.302
Netherlands	-198.05	-73.487	-123.828	-94.623	-69.945	-52.347
New Zealand	-17.818	-75.424	-11.851	-95.450	-5.478	-54.324
Nicaragua	-2.525	-68.086	-2.433	-91.912	-0.603	-47.150
Niger	-0.414	-54.452	-0.236	-82.299	-0.116	-35.538
Nigeria	-5.116	-53.323	-2.398	-81.318	-1.795	-34.650
Norway	-75.157	-71.254	-45.127	-93.575	-25.264	-50.147
Oman	-4.497	-70.264	-2.766	-93.078	-1.327	-49.195
Pakistan	-8.560	-57.560	-4.051	-84.85	-3.080	-38.032
Panama	-11.386	-72.187	-10.309	-94.025	-2.956	-51.056
Papua New Guinea	-0.548	-55.533	-0.269	-83.211	-0.163	-36.396
Paraguay	-4.597	-67.496	-3.042	-91.579	-1.326	-46.606
Peru	-26.281	-66.886	-16.888	-91.227	-8.438	-46.049
Philippines	-16.521	-70.264	-10.012	-93.078	-5.505	-49.195
Poland	-38.968	-61.149	-18.827	-87.529	-14.384	-41.015
Portugal	-53.129	-70.767	-33.565	-93.333	-17.483	-49.676
Romania	-3.027	-36.536	-1.076	-63.255	-1.138	-22.421
Russia	-12.443	-32.267	-3.947	-57.592	-5.389	-19.550
Senegal	-1.056	-52.142	-0.557	-80.262	-0.316	-33.732
Sierra Leone	-0.084	-38.492	-0.041	-65.703	-0.023	-23.766
Singapore	-24.895	-76.468	-15.968	-95.865	-7.893	-55.417
Slovakia	-6.098	-63.498	-3.461	-89.129	-1.889	-43.033
Slovenia	-6.130	-60.305	-3.071	-86.924	-1.959	-40.302
South Africa	-25.532	-68.657	-13.44	-92.227	-9.058	-47.680
Spain	-247.550	-70.767	-140.672	-93.333	-92.907	-49.676
Sri Lanka	-2.483	-62.744	-1.297	-88.628	-0.789	-42.379
Sweden	-107.040	-71.254	-62.776	-93.575	-37.344	-50.147
Switzerland	-132.720	-74.294	-84.868	-94.977	-45.159	-53.162
Syria	-2.111	-48.254	-0.893	-76.557	-0.720	-30.778
Taiwan	-68.629	-70.264	-35.68	-93.078	-25.211	-49.195
Tanzania	-1.267	-59.426	-0.674	-86.278	-0.392	-39.568
Thailand	-23.297	-68.086	-12.346	-91.912	-8.269	-47.150
Togo	-0.181	-43.754	-0.086	-71.833	-0.052	-27.479
Trinidad & Tobago	-5.401	-68.657	-4.211	-92.227	-1.421	-47.680
Tunisia	-6.389	-63.498	-3.643	-89.129	-2.000	-43.033
Turkey	-36.242	-59.426	-16.235	-86.278	-13.905	-39.568
Uganda	-1.248	-65.602	-0.796	-90.461	-0.356	-44.891
Ukraine	-3.809	-43.754	-1.553	-71.833	-1.380	-27.479
United Arab Emirates	-14.217	-69.745	-7.753	-92.809	-4.611	-48.702
United Kingdom	-760.72	-75.424	-484.764	-95.450	-289.277	-54.324
Uruguay	-7.236	-67.496	-4.338	-91.579	-2.197	-46.606
Venezuela	-42.13	-54.452	-21.047	-82.299	-15.111	-35.538
Zambia	-0.628	-64.225	-0.390	-89.599	-0.174	-43.669
Zimbabwe	-0.879	-59.426	-0.464	-86.278	-0.264	-39.568
Total	-845.673	-62.652	-522.619	-87.00	-317.786	-42.875

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.

Table A-3. Estimated One-Year Gains from Economic Freedom:  
United States 2000 Economic Freedom of 8.4 of 10.0 as Benchmark

Trading Country	SFI-1999	Total Volume <sup>a</sup>		Exports <sup>b</sup>		Imports <sup>c</sup>	
		Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Albania	5.5	2.417	147.23	2.460	502.601	0.659	82.157
Algeria	4.1	50.066	363.219	38.976	1994.687	18.088	176.129
Argentina	7.2	72.875	39.024	64.919	92.281	26.690	24.395
Australia	8.0	18.707	10.991	14.477	22.990	7.415	7.154
Austria	7.5	37.029	27.408	33.790	61.713	12.782	17.408
Bahamas	7.1	6.044	43.243	10.228	104.032	1.232	26.884
Bahrain	7.3	0.893	34.986	0.885	81.355	0.245	21.989
Bangladesh	5.1	24.966	190.53	19.918	730.061	9.181	102.714
Barbados	5.8	2.790	120.699	3.347	381.066	0.651	68.960
Belgium	7.5	51.061	27.408	48.09	61.713	17.565	17.408
Belize	6.2	1.461	91.379	2.490	262.546	0.275	53.733
Bolivia	6.7	4.834	62.144	5.956	160.919	1.274	37.743
Botswana	7.0	1.004	47.653	0.958	116.683	0.285	29.458
Brazil	5.8	377.348	120.699	303.451	381.066	152.31	68.96
Bulgaria	5.5	7.531	147.23	7.047	502.601	2.275	82.157
Burundi	5.6	0.358	137.889	0.400	458.266	0.089	77.568
Cameroon	5.5	4.814	147.23	4.539	502.601	1.457	82.157
Canada	8.0	396.042	10.991	638.730	22.990	112.052	7.154
Cen. African Rep	5.0	0.602	203.091	0.614	802.787	0.156	108.479
Chile	7.5	15.397	27.408	16.010	61.713	4.888	17.408
China	5.3	614.925	167.599	435.598	605.111	283.196	91.967
Colombia	5.6	111.755	137.889	121.635	458.266	34.929	77.568
Congo (DROC)	3.2	4.901	686.758	4.073	5892.633	1.622	292.224
Congo (ROC)	4.9	1.471	216.465	1.303	883.552	0.422	114.53
Costa Rica	7.3	11.221	34.986	16.734	81.355	2.715	21.989
Cote d'Ivoire	5.9	5.48	112.781	5.679	347.423	1.592	64.919
Croatia	5.6	11.368	137.889	10.154	458.266	3.521	77.568
Cyprus	6.2	3.206	91.379	2.805	262.546	0.941	53.733
Czech Republic	7.0	17.297	47.653	17.565	116.683	5.391	29.458
Denmark	7.6	29.959	23.852	28.340	52.879	10.007	15.226
Dominican Rep	6.7	24.44	62.144	35.676	160.919	6.096	37.743
Ecuador	5.3	19.026	167.599	22.046	605.111	5.244	91.967
Egypt	6.7	34.074	62.144	31.517	160.919	11.900	37.743
El Salvador	7.2	12.906	39.024	21.010	92.281	3.003	24.395
Estonia	7.1	1.683	43.243	1.983	104.032	0.429	26.884
Fiji	6.2	0.549	91.379	0.561	262.546	0.141	53.733
Finland	7.7	19.356	20.439	18.863	44.634	6.313	13.113
France	7.0	434.213	47.653	354.861	116.683	176.45	29.458
Gabon	5.2	2.388	178.719	1.993	664.44	0.706	97.216
Germany	7.5	392.955	27.408	327.587	61.713	162.768	17.408
Ghana	5.7	3.414	129.058	3.635	417.892	0.964	73.173
Greece	6.9	32.195	52.264	28.037	130.318	11.140	32.123
Guatemala	6.3	32.966	84.945	48.928	238.76	8.184	50.289
Guyana	6.6	0.596	67.440	0.908	178.103	0.122	40.707
Haiti	6.5	6.276	72.994	10.729	196.706	1.356	43.783
Honduras	6.3	10.365	84.945	16.579	238.76	2.339	50.289
Hong Kong	8.8	-9.211	-9.465	-8.505	-17.906	-3.208	-6.375
Hungary	6.7	17.97	62.144	17.413	160.919	5.692	37.743
Iceland	7.7	2.034	20.439	2.501	44.634	0.501	13.113
India	6.1	197.333	98.147	157.589	288.432	83.226	57.314
Indonesia	6.0	47.349	105.273	35.462	316.640	19.045	61.04
Iran	5.0	56.179	203.091	41.935	802.787	21.527	108.479
Ireland	8.1	8.087	8.083	8.857	16.677	2.466	5.285
Israel	6.8	27.926	57.090	22.406	145.029	9.917	34.883
Italy	7.1	293.001	43.243	235.295	104.032	119.436	26.884
Jamaica	7.0	7.991	47.653	13.184	116.683	1.763	29.458
Japan	7.3	808.276	34.986	550.765	81.355	385.215	21.989
Jordan	7.3	1.871	34.986	2.073	81.355	0.518	21.989
Kenya	6.6	3.29	67.440	3.356	178.103	0.991	40.707
Korea	7.0	106.06	47.653	83.234	116.683	42.202	29.458
Kuwait	7.0	6.124	47.653	5.265	116.683	1.956	29.458
Latvia	6.8	2.905	57.090	3.253	145.029	0.775	34.883
Lithuania	6.5	5.132	72.994	5.357	196.706	1.45	43.783
Luxembourg	7.6	3.315	23.852	3.418	52.879	0.925	15.226
Madagascar	5.2	1.757	178.719	1.547	664.44	0.535	97.216
Malawi	4.7	0.952	245.947	0.883	1073.696	0.272	127.571
Malaysia	6.7	23.227	62.144	20.507	160.919	8.54	37.743
Mali	5.6	1.779	137.889	2.067	458.266	0.46	77.568
Malta & Gozo	6.5	1.342	72.994	1.350	196.706	0.351	43.783
Mauritius	7.2	0.619	39.024	0.574	92.281	0.177	24.395
Mexico	6.3	1038.001	84.945	1265.205	238.760	336.905	50.289
Morocco	6.1	22.218	98.147	23.010	288.432	6.870	57.314
Myanmar	3.3	36.213	636.677	21.925	5159.424	15.204	275.499

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.

Table A-3 (Cont.). Estimated One-Year Gains from Economic Freedom By Country:  
United States 2000 Economic Freedom of 8.4 of 10.0 as Benchmark

Trading Country	SFI-1999	Total Volume <sup>a</sup>		Exports <sup>b</sup>		Imports <sup>c</sup>	
		Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Namibia	6.6	0.933	67.44	0.912	178.103	0.257	40.707
Nepal	5.9	2.481	112.781	2.507	347.423	0.725	64.919
Netherlands	8.0	39.639	10.991	38.642	22.990	13.921	7.154
New Zealand	8.2	1.396	5.286	1.304	10.761	0.452	3.471
Nicaragua	6.5	3.748	72.994	6.485	196.706	0.785	43.783
Niger	5.5	1.339	147.23	1.524	502.601	0.346	82.157
Nigeria	5.3	27.647	167.599	24.941	605.111	9.506	91.967
Norway	7.3	39.051	34.986	36.105	81.355	13.041	21.989
Oman	7.4	2.255	31.117	2.158	71.186	0.675	19.661
Pakistan	5.1	35.318	190.53	28.476	730.061	13.052	102.714
Panama	7.4	6.126	31.117	9.361	71.186	1.433	19.661
Papua New Guinea	5.8	1.537	120.699	1.414	381.066	0.447	68.960
Paraguay	6.3	4.190	84.945	4.581	238.760	1.151	50.289
Peru	6.9	29.565	52.264	34.052	130.318	8.864	32.123
Philippines	7.0	17.33	47.653	15.847	116.683	6.078	29.458
Poland	5.7	96.306	129.058	79.31	417.892	35.352	73.173
Portugal	7.4	28.500	31.117	29.247	71.186	9.116	19.661
Romania	4.8	26.802	230.724	21.948	973.437	9.219	120.886
Russia	4.7	196.709	245.947	146.655	1073.696	79.420	127.571
Senegal	5.7	3.437	129.058	3.913	417.892	0.916	73.173
Sierra Leone	5.0	0.614	203.091	0.74	802.787	0.146	108.479
Singapore	8.6	-2.116	-4.905	-1.851	-9.498	-0.730	-3.277
Slovakia	5.8	11.165	120.699	10.374	381.066	3.416	68.960
Slovenia	6.1	8.721	98.147	7.946	288.432	2.628	57.314
South Africa	6.8	27.375	57.090	21.873	145.029	10.273	34.883
Spain	7.3	155.267	34.986	140.375	81.355	57.950	21.989
Sri Lanka	6.0	5.337	105.273	4.531	316.64	1.758	61.040
Sweden	7.4	52.902	31.117	48.387	71.186	18.362	19.661
Switzerland	8.2	11.214	5.286	11.033	10.761	3.795	3.471
Syria	5.0	28.361	203.091	21.347	802.787	10.213	108.479
Taiwan	7.2	63.923	39.024	48.018	92.281	25.437	24.395
Tanzania	6.0	3.659	105.273	3.498	316.640	1.131	61.040
Thailand	6.6	30.711	67.440	24.586	178.103	11.575	40.707
Togo	4.7	1.012	245.947	1.042	1073.696	0.266	127.571
Trinidad & Tobago	7.2	3.971	39.024	5.472	92.281	0.943	24.395
Tunisia	6.1	10.431	98.147	10.217	288.432	3.164	57.314
Turkey	5.8	99.555	120.699	78.486	381.066	38.179	68.960
Uganda	6.5	2.199	72.994	2.333	196.706	0.633	43.783
Ukraine	4.5	27.969	279.642	23.801	1311.408	9.585	142.025
United Arab Emirates	7.4	6.409	31.117	5.452	71.186	2.113	19.661
United Kingdom	8.4	0.000	0.000	0.000	0.000	0.000	0.000
Uruguay	6.8	6.611	57.09	6.438	145.029	1.976	34.883
Venezuela	5.8	148.867	120.699	157.06	381.066	47.279	68.96
Zambia	6.5	0.944	72.994	1.013	196.706	0.258	43.783
Zimbabwe	4.8	3.554	230.724	2.854	973.437	1.148	120.886
Total	6.41	689.992	100.39	643.042	395.29	263.102	55.244

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.

Table A-4. Estimated One-Year Loss from Economic Freedom:  
Congo (DROC) 2000 Economic Freedom of 3.20 of 10.0 as Benchmark

Trading Country	Total Volume <sup>a</sup>		Exports <sup>b</sup>		Imports <sup>c</sup>	
	Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Albania	-1.126	-68.576	-0.44	-89.944	-0.429	-53.558
Algeria	-5.668	-41.123	-1.271	-65.046	-3.04	-29.599
Argentina	-153.74	-82.329	-68.092	-96.791	-74.708	-68.285
Australia	-146.18	-85.893	-61.681	-97.948	-75.341	-72.681
Austria	-113.22	-83.806	-53.276	-97.301	-51.448	-70.066
Bahamas	-11.431	-81.793	-9.497	-96.595	-3.101	-67.65
Bahrain	-2.116	-82.843	-1.055	-96.974	-0.766	-68.898
Bangladesh	-8.265	-63.072	-2.35	-86.149	-4.319	-48.317
Barbados	-1.663	-71.948	-0.808	-91.972	-0.537	-56.923
Belgium	-156.13	-83.806	-75.822	-97.301	-70.697	-70.066
Belize	-1.21	-75.675	-0.891	-93.95	-0.311	-60.805
Bolivia	-6.176	-79.391	-3.54	-95.646	-2.190	-64.882
Botswana	-1.712	-81.233	-0.791	-96.384	-0.649	-66.994
Brazil	-224.94	-71.948	-73.239	-91.972	-125.724	-56.923
Bulgaria	-3.508	-68.576	-1.261	-89.944	-1.483	-53.558
Burundi	-0.181	-69.763	-0.079	-90.684	-0.063	-54.728
Cameroon	-2.242	-68.576	-0.812	-89.944	-0.950	-53.558
Canada	-3094.9	-85.893	-2721.323	-97.948	-1138.466	-72.681
Ken. African Rep	-0.182	-61.476	-0.065	-84.935	-0.067	-46.847
Chile	-47.079	-83.806	-25.243	-97.301	-19.674	-70.066
China	-242.11	-65.987	-63.516	-88.234	-157.22	-51.057
Colombia	-56.541	-69.763	-24.07	-90.684	-24.644	-54.728
Congo (ROC)	-0.406	-59.776	-0.123	-83.587	-0.167	-45.304
Costa Rica	-26.569	-82.843	-19.947	-96.974	-8.506	-68.898
Cote d'Ivoire	-3.545	-72.955	-1.513	-92.534	-1.421	-57.953
Croatia	-5.751	-69.763	-2.009	-90.684	-2.484	-54.728
Cyprus	-2.655	-75.675	-1.004	-93.95	-1.065	-60.805
Czech Republic	-29.486	-81.233	-14.509	-96.384	-12.26	-66.994
Denmark	-105.83	-84.258	-52.226	-97.449	-46.415	-70.622
Dominican Rep	-31.223	-79.391	-21.205	-95.646	-10.48	-64.882
Ecuador	-7.491	-65.987	-3.215	-88.234	-2.911	-51.057
Egypt	-43.53	-79.391	-18.733	-95.646	-20.457	-64.882
El Salvador	-27.228	-82.329	-22.037	-96.791	-8.406	-68.285
Estonia	-3.183	-81.793	-1.841	-96.595	-1.078	-67.65
Fiji	-0.455	-75.675	-0.201	-93.95	-0.159	-60.805
Finland	-80.203	-84.692	-41.242	-97.586	-34.26	-71.161
France	-740.2	-81.233	-293.128	-96.384	-401.282	-66.994
Gabon	-0.863	-64.574	-0.262	-87.244	-0.361	-49.719
Germany	-1201.5	-83.806	-516.501	-97.301	-655.124	-70.066
Ghana	-1.875	-70.886	-0.795	-91.358	-0.736	-55.848
Greece	-49.679	-80.647	-20.687	-96.157	-22.996	-66.314
Guatemala	-29.686	-76.493	-19.334	-94.347	-10.039	-61.683
Guyana	-0.695	-78.718	-0.486	-95.359	-0.192	-64.126
Haiti	-6.707	-78.012	-5.184	-95.049	-1.961	-63.342
Honduras	-9.334	-76.493	-6.551	-94.347	-2.869	-61.683
Hong Kong	-86.119	-88.493	-46.849	-98.63	-38.303	-76.13
Hungary	-22.957	-79.391	-10.35	-95.646	-9.784	-64.882
Iceland	-8.427	-84.692	-5.468	-97.586	-2.72	-71.161
India	-150.42	-74.815	-51.095	-93.518	-86.969	-59.892
Indonesia	-33.242	-73.909	-10.421	-93.047	-18.39	-58.942
Iran	-17.005	-61.476	-4.437	-84.935	-9.296	-46.847
Ireland	-86.298	-86.262	-52.073	-98.053	-34.134	-73.157
Israel	-39.149	-80.033	-14.817	-95.911	-18.653	-65.611
Italy	-554.2	-81.793	-218.475	-96.595	-300.549	-67.65
Jamaica	-13.622	-81.233	-10.891	-96.384	-4.009	-66.994
Japan	-1913.9	-82.843	-656.503	-96.974	-1206.987	-68.898
Jordan	-4.43	-82.843	-2.472	-96.974	-1.622	-68.898
Kenya	-3.84	-78.718	-1.797	-95.359	-1.561	-64.126
Korea	-180.8	-81.233	-68.754	-96.384	-95.976	-66.994
Kuwait	-10.439	-81.233	-4.349	-96.384	-4.448	-66.994
Latvia	-4.072	-80.033	-2.151	-95.911	-1.458	-65.611
Lithuania	-5.485	-78.012	-2.589	-95.049	-2.098	-63.342
Luxembourg	-11.71	-84.258	-6.298	-97.449	-4.289	-70.622
Madagascar	-0.635	-64.574	-0.203	-87.244	-0.274	-49.719
Malawi	-0.217	-56.029	-0.066	-80.414	-0.089	-41.979
Malaysia	-29.673	-79.391	-12.189	-95.646	-14.68	-64.882
Mali	-0.9	-69.763	-0.409	-90.684	-0.324	-54.728
Malta & Gozo	-1.434	-78.012	-0.652	-95.049	-0.508	-63.342
Mauritius	-1.306	-82.329	-0.602	-96.791	-0.494	-68.285
Mexico	-934.72	-76.493	-499.951	-94.347	-413.237	-61.683
Morocco	-16.936	-74.815	-7.461	-93.518	-7.179	-59.892
Myanmar	-0.362	-6.365	-0.052	-12.235	-0.235	-4.264

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.

Table A-4 (Cont.). Estimated One-Year Loss from Economic Freedom:  
Congo (DROC) 2000 Economic Freedom of 3.20 of 10.0 as Benchmark

Trading Country	Total Volume <sup>a</sup>		Exports <sup>b</sup>		Imports <sup>c</sup>	
	Difference	Percentage Change	Difference	Percentage Change	Difference	Percentage Change
Namibia	-1.089	-78.718	-0.488	-95.359	-0.405	-64.126
Nepal	-1.605	-72.955	-0.668	-92.534	-0.647	-57.953
Netherlands	-309.76	-85.893	-164.635	-97.948	-141.443	-72.681
New Zealand	-22.882	-86.618	-11.891	-98.152	-9.589	-73.619
Nicaragua	-4.005	-78.012	-3.133	-95.049	-1.135	-63.342
Niger	-0.624	-68.576	-0.273	-89.944	-0.225	-53.558
Nigeria	-10.885	-65.987	-3.637	-88.234	-5.277	-51.057
Norway	-92.47	-82.843	-43.037	-96.974	-40.861	-68.898
Oman	-6.039	-83.335	-2.944	-97.143	-2.386	-69.492
Pakistan	-11.691	-63.072	-3.36	-86.149	-6.14	-48.317
Panama	-16.406	-83.335	-12.774	-97.143	-5.066	-69.492
Papua New Guinea	-0.916	-71.948	-0.341	-91.972	-0.369	-56.923
Paraguay	-3.773	-76.493	-1.81	-94.347	-1.412	-61.683
Peru	-45.62	-80.647	-25.126	-96.157	-18.3	-66.314
Philippines	-29.542	-81.233	-13.091	-96.384	-13.822	-66.994
Poland	-52.897	-70.886	-17.338	-91.358	-26.982	-55.848
Portugal	-76.326	-83.335	-39.912	-97.143	-32.219	-69.492
Romania	-6.733	-57.964	-1.851	-82.087	-3.332	-43.684
Russia	-44.812	-56.029	-10.984	-80.414	-26.134	-41.979
Senegal	-1.888	-70.886	-0.855	-91.358	-0.699	-55.848
Sierra Leone	-0.186	-61.476	-0.078	-84.935	-0.063	-46.847
Singapore	-37.918	-87.913	-19.192	-98.49	-16.774	-75.34
Slovakia	-6.655	-71.948	-2.504	-91.972	-2.82	-56.923
Slovenia	-6.647	-74.815	-2.576	-93.518	-2.746	-59.892
South Africa	-38.376	-80.033	-14.465	-95.911	-19.322	-65.611
Spain	-367.66	-82.843	-167.324	-96.974	-181.574	-68.898
Sri Lanka	-3.747	-73.909	-1.332	-93.047	-1.697	-58.942
Sweden	-141.68	-83.335	-66.031	-97.143	-64.9	-69.492
Switzerland	-183.78	-86.618	-100.638	-98.152	-80.473	-73.619
Syria	-8.585	-61.476	-2.259	-84.935	-4.411	-46.847
Taiwan	-134.86	-82.329	-50.365	-96.791	-71.201	-68.285
Tanzania	-2.569	-73.909	-1.028	-93.047	-1.092	-58.942
Thailand	-35.846	-78.718	-13.164	-95.359	-18.234	-64.126
Togo	-0.23	-56.029	-0.078	-80.414	-0.088	-41.979
Trinidad & Tobago	-8.377	-82.329	-5.739	-96.791	-2.64	-68.285
Tunisia	-7.951	-74.815	-3.313	-93.518	-3.306	-59.892
Turkey	-59.344	-71.948	-18.943	-91.972	-31.514	-56.923
Uganda	-2.35	-78.012	-1.127	-95.049	-0.916	-63.342
Ukraine	-5.175	-51.746	-1.387	-76.448	-2.584	-38.294
United Arab Emirates	-17.165	-83.335	-7.44	-97.143	-7.468	-69.492
United Kingdom	-1339.8	-87.29	-742.401	-98.331	-659.898	-74.504
Uruguay	-9.268	-80.033	-4.258	-95.911	-3.717	-65.611
Venezuela	-88.738	-71.948	-37.907	-91.972	-39.026	-56.923
Zambia	-1.009	-78.012	-0.489	-95.049	-0.373	-63.342
Zimbabwe	-0.893	-57.964	-0.241	-82.087	-0.415	-43.684
Total	-1,406.94	-744.53	-756.566	-91.74	-683.342	-60.42

Notes: Totals are in billions \$US.

<sup>a</sup> Estimates obtained using parameters reported in Column 2 of Table 3.

<sup>b</sup> Estimates obtained using parameters reported in Column 3 of Table 3.

<sup>c</sup> Estimates obtained using parameters reported in Column 4 of Table 3.