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## Could International Labor Rights Play a Role in U.S. Trade?

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# Could International Labor Rights Play a Role in U.S. Trade?

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Abstract

During its last complete business cycle, from 2001 to 2007, the United States experienced unsustainably high trade deficits. Policymakers are considering a number of measures to avoid a recurrence of such large external imbalances. One such measure is the promotion of better labor rights around the world. Proponents argue that higher labor standards would boost U.S. exports by increasing income growth abroad and reduce U.S. imports by shrinking international price differences. Opponents of such a policy move argue that it is disguised protectionism that will impede trade and harm living standards in the United States and abroad. In this paper, I combine U.S. trade data with data on international labor standards and other relevant economic variables to study if there is a link between labor rights abroad and U.S. trade. The results suggest that the United States would have benefited from more exports if there had been better worker rights around the world, while labor rights would not have had any measurable impact on U.S. imports. That is, the promotion of better worker rights around the world could contribute to fewer external imbalances without impeding international trade flows.

## I.  Introduction

For decades, the U.S. has seen large and growing trade deficits. These deficits could reduce future livings standards due to interest payments on the mounting debt that has accumulated to pay for the trade deficits. Because of the threats to future living standards, economists have long considered the large and growing U.S. trade deficits unsustainable.

Some have argued that the promotion of enforceable labor rights may be one way to address the U.S. trade deficit.[1] Better labor standards in U.S. trading partner countries, especially in less industrialized economies, could theoretically affect U.S. exports and U.S. imports. First, better labor rights outside of the United States could increase demand for U.S. exports by boosting the incomes of workers overseas. Second, better labor standards abroad may reduce the cost advantage that some countries may enjoy by paying their workers poorly, thereby contributing to fewer U.S. imports.

The promotion of labor rights is not without opposition. Higher labor standards may pose barriers to trade as they may push the costs of labor beyond what is warranted by market forces. The result of higher labor standards abroad could thus be more U.S. exports, fewer U.S. imports.

Understanding the connection between labor rights and trade balances is critical for international economic policy. Increasingly, U.S. policymakers have considered the inclusion of labor rights in trade agreements to advance international macro economic stability. Policymakers should be aware, though, of the likely effects of such a policy approach and of the possible tradeoffs that may be involved.

To that end, I analyze the potential links between labor rights, total trade, and trade balances building on the existing literature in a number of ways. First, this paper provides another data point on the link between labor rights and trade, thus contributing to a yet inconclusive literature. Second, I consider the effects of labor rights on U.S. imports and U.S. exports separately to investigate the exact channels by which labor rights affect both the total amount of trade and the trade balance.

This paper is the first such empirical research effort, as far as I can tell. It is organized as follows. In section II, I briefly discuss the relevant literature. This discussion is followed by the presentation of summary descriptive data in section III. Section IV then presents the empirical results and the development of counterfactual scenarios, followed concluding remarks in section V.

## II.  Literature Review

Because trade deficits must be paid for by borrowing overseas, they can become unsustainable if they put a large enough drain on national income. Economists have put the level of unsustainable U.S. trade deficits at approximately 5% of GDP, somewhat

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[1] I use labor rights, labor standards, labor protections, worker rights and worker protections interchangeably.

higher than for other countries (Mann, 2004). From the middle of 2004 through the middle of 2008, the U.S. indeed saw trade deficits at or above 5% of GDP (BEA, 2008).

Trade in its most basic form is a function of income and price differentials (Mann and Plück, 2005). First, higher incomes abroad increase U.S. exports, while higher U.S. incomes lead to more U.S. imports, all else equal. Better worker rights abroad may translate into higher incomes in the countries where they are introduced (Palley, 2000; Flanagan, 2003), e.g. through more opportunities to join a union (Busse, 2002; Baban, 2002). All else equal, this should translate into more U.S. exports.

The potential link between labor rights and more U.S. exports is rather tentative. Bonnal (2008) and Kimberly and Freeman (2003) find no robust link between labor standards and exports. In comparison, Rodrik (1999) finds when using political rights as a proxy for labor rights, that countries with more political rights also have higher wages, after controlling for income, productivity, and other wage determinants. This may imply that labor rights can contribute positively to income growth abroad and thus to U.S. exports.

There may be a few offsetting effects on U.S. exports, though. Specifically, better labor rights may be associated with a more equitable income distribution (Dutt and Mitra, 2006). If higher-income consumers have a lower marginal propensity to consume, a more equitable income distribution would reduce the average marginal propensity to consume. This would thus reduce the marginal propensity to import, which could impede U.S. exports.

Moreover, higher labor standards are seen as potential barriers to trade (Mah, 1997; Beers, 1998), which could adversely impact economic growth (Flanagan, 2003). In effect, job growth could slow, while wages for those with a job could rise. This combination of labor market changes may have an ambiguous effect on U.S. exports.

Further, if comparable goods are more expensive abroad than in the United States, U.S. exports will increase, whereas the opposite is the case and U.S. imports will increase if goods are relatively more expensive in the United States than abroad. These price differentials can be influenced by differences in production costs, including labor costs, varying degrees of labor productivity, and exchange rate changes.

Theoretically, labor standards raise a country's production cost (Busse, 2002). Van Beers (1998) also suggests that goods produced with skilled labor are negatively affected by stricter labor standards by disproportionately raising labor costs in the formal market for skilled labor. Similarly, Mah (1997) concludes that higher labor standards and regulations reduce a country's export performance. The overall effect thus may be that improved labor standards abroad could reduce U.S. imports.

The size of the impact of labor rights on production costs may depend on which type of standard is modified (Busse, 2002; Baban, 2002; Martin and Maskus, 2001). For instance, an increase of the legal working age would lower the instances of child labor, reduce the unskilled labor supply and thus increase wages. The elimination of gender

discrimination would increase the labor supply in some labor markets, while at the same time raising wages for women relative to men. And, more opportunities for unionization would raise wages by covering more workers under collective bargaining agreements, with no clear direction for the supply of labor. Although all improvements in labor standards should result in higher wages, the exact wage impact will depend on the specific labor standards that have been improved.

Furthermore, potential cost increases to producers from higher labor standards may be partially offset. The evidence suggests that better labor standards not only go along with higher incomes and better benefits, but also with higher productivity levels.[2] The main economic reasoning here is that employers will find new and better ways to utilize the existing labor when they have to pay more for it. Consequently, potential production cost increases from improved labor standards may be fairly minor and the impact on U.S. imports may be limited.

The link from labor rights to international trade may also run the other way. Several authors argue that more trade may be followed by better labor standards (Flanagan, 2003; Neumayer and Soysa, 2006; Dehejia and Samy, 2007). Aggarwal (1995), for instance, shows that export oriented sectors have higher labor standards in comparison with non-export oriented sectors. Also, Neumayer and Soysa (2006), find a negative relation between trade openness and rights violations. In contrast to Neumayer and Soysa (2006), though, Trubek and Compa (2005) show that trade has negative effects on labor rights by weakening workers' bargaining power. Also, Kucera and Sarna (2004) find no evidence of causality between trade and labor standards. Importantly, if better labor standards are associated with smaller trade deficits and possibly even rising trade levels, it is not automatically clear that there is a reinforcing cycle between labor rights and trade.

The literature review suggests a few tentative hypotheses. First, there is no clear link between labor rights and trade. Second, there is little evidence on the connection between labor standards and trade deficits. Third, better labor rights abroad could lead to higher wages and thus to more U.S. exports, all else equal. Fourth, U.S. imports could shrink due to higher wages abroad, but this effect may be offset since higher wages could accompany higher productivity. And, fifth, the effect of labor rights on U.S. trade balances may depend on which labor standards are improved.

## III.    Data and Methodology

The analysis in this paper combines trade data with data on labor rights and other relevant macro economic data. U.S. exports and imports for each country are taken from U.S. Census Bureau, 2008, FT-900 Foreign Trade Statistics (Census, 2008). Moreover, real imports and real exports are calculated by deflating imports and exports by the implicit import and implicit export price deflator, respectively, which are taken from the Bureau of Economic Analysis' National Income and Product Accounts (BEA, 2008).

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[2] See Weeks (1999) and Aidt and Tzanatsos (2001) for an overview of the link between labor standards and productivity.

Further, I use Freedom House's (2008) civil liberties index as an indicator for existing labor standards.[3] It is a composite index that includes several measures that are close, if not identical to the ILO's core labor standards, such as the absence of discrimination and the freedom of assembly.[4] Freedom House's index of civil liberties ranks countries on a scale from 1 to 7, with 1 indicating the most civil liberties and 7 suggesting the least. Data on each country's civil liberties was obtained from Freedom House's Freedom in the World Report (Freedom House, 2008). Countries with a rating of "1" ensure the freedoms of expression, association, assembly, education, and religion. These countries are characterized by the rule of law, free economic activity, and generally strive for equality of opportunity. Countries with a rating of "2" are deficient in some areas, but are still considered free. Countries that receive scores of "3", "4", and "5" fall into one of two groups. The first group includes countries that receive medium scores for all civil liberties aspects. The second group receives a combination of high and low scores in civil liberties aspects. In these two groups, countries with higher ratings will experience limits on association, censorship, and possibly political terror. Countries that receive a rating of "6" experience severely restricted rights of expression and association, and can be characterized by the incidence of political terror and holding of political prisoners. Countries that receive a civil liberties rating of "7" extend no freedoms to their people.

To simplify the descriptive analysis, I consider rankings of "1", "2", and "3" "some or even strong labor standards" and rankings of "5", "6", and "7" as "limited or no labor standards".[5] Countries with rankings of "4" are ignored because they are indeterminate. I thus classify 69 less industrialized economies as having strong or some worker rights and 44 less industrialized economies as having limited or no labor protections in 2007.

Additionally, several overarching points should be mentioned. Specifically, this analysis emphasizes the link between labor rights and changes in the trade deficit, e.g. over the course of U.S. business cycle, but reduces the number of observations. To control for the robustness of my results, I also consider the levels of exports and imports with countries

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[3] I also use Freedom House's (2008) political rights index to control for the robustness of the multivariate results. Countries with a rating of "1" have free and fair elections and competitive political parties, while minority groups can participate in government. Countries with a rating of "2" are somewhat less free due to the prevalence of one or many of a variety of factors, including political corruption, violence, political discrimination against minority groups, and foreign or military influence on the political process. Countries that receive ratings of "3", "4", or "5" may experience civil war, significant military involvement in politics, unfair elections, and one-party dominance, though people of these countries have some political rights. Countries with a rating of 6 are ruled by dictators, military juntas, religious hierarchies, or autocrats, and extend very few political freedoms to their populations. In countries with a rating of "7", political rights are virtually nonexistent.

[4] See Weller and Singleton (2004) for a discussion of the relevant literature.

[5] This division allows us to maximize the number of available observations. Our multivariate results, though, alternatively define countries as having some or even strong labor rights if they have a civil liberties score of "1" and "2" and as having limited or no labor standards with a civil liberties score of "6" and "7". Moreover, we also use an alternative indicator from Freedom House – the political rights indicator – and perform the same analysis as discussed in the body of this report. This way we can make sure that our results hold up, even if we define labor rights more along the lines of political engagement. The results for the same analyses as for our primary labor standards measure that we conduct again for these two alternative definitions of labor standards are summarized in the appendix.

with different labor standards. Also, this study only includes less industrialized economies. All industrialized countries had some to strong labor standards in 2007, while only a little over 60% of less industrialized countries did.[6] Finally, data included in this study run from 1992 to 2007. The year 1992 is chosen as the starting point because complete comparative data are not available for earlier years, largely due to the break-up of the Soviet Union and the transition of formerly planned economies to market-based economies in the early 1990s.

The summary description of the data proceeds in several steps. First, I compare the ratio of U.S. exports to U.S. imports with countries that have some or even strong labor standards with the same ratio for countries that have limited or no labor standards. This ratio implicitly accounts for the size of the trading partner country and thus allows for a comparison by labor standards of relative differences in the bilateral trade balances between industrializing economies and the United States.

Second, I calculate real U.S. exports to and real U.S. imports from each country and report average trade flows. I then compare real U.S. exports and real U.S. imports by labor standards.

Third, I account for the effects of other relevant determinants of trade – income levels, oil production, and exchange rate changes – and compare trade data by labor rights in addition to each of these factors.

Specifically, oil production data are from the U.S. Energy Information Administration, Production of Crude Oil Including Lease Condensate (EIA, 2008). Data for the years 2005 through 2007 are projections. Each country's average daily production was divided by the total daily production of the corresponding year. Only countries that meet or exceed one percent of total daily production are considered oil-producers.

Also, per-capita GDP is defined as GDP on a purchasing power parity basis for each country divided by its population, based on data from the IMF's International Financial Statistics (IMF, 2008a) and World Economic Outlook (IMF, 2008b).

Moreover, the real exchange rates are calculated as the period average nominal exchange rates adjusted by the consumer price indices of the respective country and the U.S.: (e*CPI(US)/CPI(Foreign)), where *e* is the nominal exchange rate. Nominal exchange rate data are taken from the International Monetary Fund, International Financial Statistics (IMF, 2008a). The exchange rate is reported as national currency/U.S. dollar. Consumer price indexes are taken from the IMF's International Financial Statistics (IMF, 2008a).

Fourth, I look at the total U.S. trade balance with countries with some or strong labor rights and those with limited or no labor rights to get a sense if the comparison by labor standards is substantial enough to make a difference for the total U.S. trade deficit.

## IV.    Descriptive Statistics

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[6] Authors' calculations. See appendix for additional information on data, data sources, and definitions.

I first consider the ratio of U.S. exports to U.S. imports with less industrialized countries in 2000 and 2007 in Table 1, I separately calculate the ratios for countries with some or even strong labor standards in the first column and for countries with limited or no labor standards in the second column. The difference of the two averages is reported in the third column. A positive sign of the difference indicates that stronger labor rights are associated with smaller trade deficits, larger trade surpluses and bigger improvements in the trade balance.

Table 1 shows that larger trade deficits are correlated with weaker labor rights. Specifically, on average, U.S. exports amounted to 74.5% of U.S. imports in countries with strong or some labor rights in 2000, compared to an average ratio of 36.0% for countries with limited or no labor protections during the same period. The difference for the median ratios is smaller: 83.2% to 74.1%, respectively. And, by 2007, the gap in the average and median ratios of U.S. exports to U.S. imports had widened. That is, stronger labor rights are associated with a larger change in the ratio of U.S. exports to U.S. imports, or a smaller growth rate of the U.S. trade deficit.

*** INSERT TABLE 1 HERE ***

Because U.S. trade deficits with China have grown sharply, I calculate the data without including China. Table 1 shows that the earlier results hold. Countries with strong or some labor rights had a higher ratio of U.S. exports to U.S. imports in 2000 and 2007 than countries with limited or no labor rights. Thus, labor standards are associated with smaller trade deficits, even when China is excluded. And again, the ratios of U.S. exports to U.S. imports consistently grew faster or deteriorated less for countries with strong or some labor rights than countries with weaker labor rights.

Next, the figures in Table 2 illustrate that the United States exports more to countries with stronger labor rights. In 2000, U.S. exports to countries with strong or some worker rights were 182.3% greater than U.S. exports to countries with limited or no worker rights. If China is excluded from the analysis, the difference was 253.5%. In 2007, the difference was still 93.5% for all less industrialized economies and a difference of 327.2% in U.S. exports when China is left out of the analysis.

These data also cautiously suggest that stronger labor rights abroad may also be correlated with the growth of U.S. exports. When data without China are considered in Table 2, I find that the average export amount grew by 12.9% from 2000 to 2007 for countries with some or even strong labor rights, while it declined by 6.6% for countries with limited or no labor rights.

The data in Table 2 also show that labor rights are positively correlated with fewer U.S. imports. For one, U.S. imports from countries with limited or no labor standards were larger than U.S. imports from countries with some or even strong labor standards in 2007. More importantly, U.S. imports grew faster from 2000 to 2007 for countries with limited or no labor rights than for countries with some or even strong labor rights. Over time the

potentially positive link between stronger labor rights and fewer U.S. imports has grown, such that by 2007, the United States imported on average less from countries with strong or some labor rights than from countries with limited or no labor standards (Table 2).

*** INSERT TABLE 2 HERE ***

As a second step, in Table 3, I look at the differences in the U.S. trade balances by countries' labor standards in addition to one other factor, such as income, oil production and exchange rate changes. In 2000, the ratios of U.S. exports to U.S imports with all groups of countries with some or even strong labor standards were smaller than the ratios with countries with limited or no labor standards in the same categories. This remained true for all countries in 2007, even for non-oil producing countries, whereas in 2000, stronger worker rights were associated with larger ratios of exports to imports.

*** INSERT TABLE 3 HERE ***

Again, the particular focus is on the possible correlation between labor rights and changes in the trade deficit. I find that the ratio of U.S. exports to U.S. imports either improved more or deteriorated less from 2000 to 2007 among countries that had stronger worker rights than it did among countries with weaker labor rights. This was true for all countries, except oil producing countries. While stronger worker rights were associated with larger ratios of U.S. exports to U.S. imports among oil producing countries in 2000 and 2007, this advantage diminished over time.

*** INSERT TABLE 4 HERE ***

Finally, in Table 4, I consider total U.S. trade balances relative to U.S. GDP. Countries with limited or no labor standards had larger trade deficits in 2000 and 2007 than countries with some or even strong worker protections. The trade deficit with countries with limited or no labor standards amounted to 1.4% of U.S. GDP in 2000. At the same time, the U.S. trade deficit with countries that had strong labor protections totaled 0.8% of GDP. Also, in 2007, the trade deficit with countries that had limited or no labor protections amounted to 2.4% of U.S. GDP, while the total U.S. trade deficit with countries that had strong labor protections came to a mere 0.9% of U.S. GDP. Additionally, the data for the changes in the total U.S. deficits indicate that the deficit with less industrialized economies that had limited or no labor rights has expanded much faster than the total trade balance with countries with weak worker rights from 2000 to 2007.

## V.    Multivariate Analysis

In this part, I am interested in analyzing whether better labor rights result in more U.S. exports after controlling for income growth overseas and for relative prices of exports and also whether U.S. imports decline in response to greater labor rights abroad, after income and relative prices are accounted for. I then use the estimation results to generate

several counterfactual scenarios to estimate what would have happened to U.S. trade if all trading partner countries had some or strong worker rights.

**V.1 Model development**

In studying these relationships, I will consider the short-term and long-term links between worker rights, imports, exports, and the potential impact of improved worker rights on total U.S. trade. I will address both issues by estimating a dynamic OLS model separately for real imports and for real exports. The dynamic OLS model, which is similar to an Error Correction Model (ECM), permits for the distinction between short-run and long-run effects. The separate estimation for imports and for exports allows for an assessment of the total impact of labor rights on U.S. trade.

The basic estimation model for real imports thus follows the standard specification of trade equations[7]:

$$\Delta imports_{i,t} = \beta_0 + \beta_1 \Delta imports_{i,t-1} + \beta_2 imports_{i,t-1} + \beta_3 \Delta USgdp_t + \beta_4 \Delta USgdp_{t-1}$$
$$+ \beta_5 USgdp_{t-1} + \beta_6 \Delta re\lim prices_{i,t} + \beta_7 \Delta re\lim prices_{i,t-1} + \beta_8 re\lim prices_{i,t-1} + \beta_9 \Delta laborrights_{i,t}$$
$$+ \beta_{10} \Delta laborrights_{i,t-1} + \beta_{11} laborrights_{i,t-1} + \beta_{12} oilproducer_{i,t} + \varepsilon_{i,t}$$

where *imports* are real imports from country *i* in time period *t*, *USgdp* is real U.S. GDP (BEA, 2008), *relimprices* are world market prices for U.S. imports relative to domestic prices in the United States, *laborrights* refer to the full civil liberties index, and *oilproducers* is a dummy variable that takes on the value of one if a country is an oil producer. All variables, except for the oil producer dummy, are expressed as natural logs.

Relative import prices are the ratio of the implicit price deflator to the consumer price index. The consumer price index is the annual average of the consumer price index for urban consumers (CPI-U) from the Bureau of Labor Statistics (2008).

Following on the discussion in the literature review, I expect that imports are positively correlated with real GDP and negatively correlated with relative import prices, i.e. if imports become more costly relative to domestic prices, imports should decline. Furthermore, all else equal, trade balances with oil producing countries should be greater since the U.S. was a net importer of oil during the years under investigation. And, imports should be lower when worker rights are stronger abroad. Since higher scores of the civil liberties index proxy for worse labor rights, I would expect a positive estimated parameter for the labor rights variable in determining real imports.

For real exports, the estimation equation looks as follows:

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[7] See (Mann and Plück, 2005) for a detailed summary on past estimates of trade determinants.

$$\Delta \exp orts_{i,t} = \beta_0 + \beta_1 \Delta \exp orts_{i,t-1} + \beta_2 \exp orts_{i,t-1} + \beta_3 \Delta USgdp_i + \beta_4 \Delta USgdp_{t-1}$$
$$+ \beta_5 USgdp_{t-1} + \beta_6 \Delta rel \exp rices_{i,t} + \beta_7 \Delta rel \exp rices_{i,t-1} + \beta_8 rel \exp rices_{i,t-1} + \beta_9 \Delta laborrights_{i,t}$$
$$+ \beta_{10} \Delta laborrights_{i,t-1} + \beta_{11} laborrights_{i,t-1} + \varepsilon_{i,t}$$

where *exports* are real exports to country *i* in time period *t*, *gdp* is the real trading partner country's GDP, and *relexprices* are world market prices for U.S. exports relative to domestic prices in trading partner countries. In particular, real GDP is defined as nominal GDP divided by the GDP deflator, with data taken from the IMF's International Financial Statistics and World Economic Outlook (IMF, 2008a, 2008b) and relative export prices are the ratio of the implicit export deflator converted into foreign currency relative to the CPI in each trading partner country. All price indexes are calculated with 2000 as the base year. Again, all variables are expressed as natural logs.

The estimated parameters for the changes indicate short-run relations and the estimated coefficients for the levels show the long-run relationship. Specifically, the estimated coefficients on the differenced natural logarithms reflect short-run links between the explanatory variables and U.S. imports and U.S. exports such that the estimated parameters show the impact of a one-percentage point change in the explanatory variable on real U.S. imports and U.S. exports.

In comparison, the coefficients on the levels of the natural logarithms represent the long-run relationship between the explanatory variables and real U.S. exports and U.S. imports. The estimated parameters show the effect of a one percent increase in the explanatory variable on real U.S. imports and U.S. exports.

Based on the previous discussion, I expect that real U.S. exports are positively correlated with real GDP overseas and negatively with relative export prices, i.e. when exports become less expensive relative to domestic prices overseas exports should increase. Finally, U.S. exports should be greater to countries with better worker rights. Since lower scores on the civil liberties variable proxy for better labor rights I would expect a negative estimated parameter for the civil liberties variable in the export regression.

For U.S. imports, there are 1863 complete observations. These observations generate an unbalanced panel with 137 countries and a maximum of 14 observations per country.

Also, for the regression estimation of U.S. exports, there are 1495 complete observations. These observations comprise an unbalanced panel of 114 industrializing countries with a maximum of 14 observations per country.

**V.2 Estimation results**

Table 5 presents the estimation results for real imports. Specifically, column 2 shows the expected sign for each variable, column 3 shows the baseline estimation results, which include only income and relative prices, column 4 shows the expanded model, which also includes a dummy for oil producers and the civil liberties index, and column 5 shows the

estimation results for the full model expressed in their original, non-logarithmic form to ensure that my initial results are robust. All estimations use country fixed effects.

The regression estimates for the determinants of real imports include only industrialized economies for the years from 1992 to 2007. In particular, the analysis covers 137 countries in an unbalanced panel with the total number of observations per country ranging from two to 14, the maximum number of observations per country that could be included in the regression.

The estimated coefficients for the determinants of real imports of the baseline model either have the expected sign or are statistically insignificant, with one exception. Specifically, the baseline results show that real imports increase in response to a higher real U.S. GDP in the short run. In addition, higher relative prices of imports reduce imports in the long-run, as expected. In the short-run, though, higher relative import prices are actually associated with higher imports, contrary to the expected sign. This result is consistent with the well-known J-curve effect, such that it takes some time for import demand to adjust to price changes, especially in the form of exchange rate changes.

The initial results remain robust when the regression includes a dummy for oil producers and labor rights variables (Table 5). Moreover, the estimated parameters for the dummy for oil production and for the labor rights variables are statistically insignificant. The somewhat tentative conclusion from the descriptive statistics that U.S. imports are lower in the presence of better labor rights abroad disappears when I account for other relevant factors.

Finally, I re-estimate the full model with the variables not defined in their natural log form (Table 5).[8] The results are again robust. Specifically, higher incomes in the U.S. translate into more real imports, while higher relative import prices reduce real imports in the long run. Moreover, the dummy for oil producer countries is positive and statistically significant, indicating that real import levels are on average larger from oil producing countries than from non-oil producing countries.

***INSERT TABLE 5 HERE***

Next, I estimate the regression model for real exports (Table 6). This regression analysis covers 114 countries in an unbalanced panel with the total number of observations per country ranging from five to 14, the maximum number of observations per country that could be included in the regression.

The baseline results show either the expected sign or are statistically insignificant. Specifically, exports increase along with higher incomes abroad, both in the short run and

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[8] I estimated a number of additional specifications for the regression of the determinants of imports and for the regression of the determinants of exports. In particular, I estimated a specification that included interactive terms between geographic region and labor rights. Also, I estimated the regression for a subset of years, specifically for the business cycle after 2000. The results remain robust in those specifications.

in the long run. Also, there is some indication that as expected, lower relative prices lead to increased exports, at least in the long run.

As before, I extend the baseline model by including labor rights in addition to the original variables (Table 6). The original estimation results remain robust in this new specification. Real exports are again positively correlated with incomes abroad and negatively with relative export prices, as expected. The results further indicate that exports increase in response to improved labor rights, which are proxied by a lower civil liberties score, as the estimated negative coefficient on the contemporaneous difference and on the lagged level of labor rights show. That is, better labor rights help to boost exports both in the short run and in the long run. A reduction in the civil liberties index from "6" to "5", for instance, is equal to a 16.7% reduction. Each one percent reduction in the civil liberties index increases exports by 0.35%, so that such an improvement in the civil liberties index permanently raises real exports by 5.8%.

I then re-estimate the regression model again using variables that are not transformed into natural logarithms and find that the estimation coefficients are largely robust. Exports are positively correlated with incomes abroad. Lower relative export prices boost real exports. And, better labor rights contribute to higher real exports, at least in the long-run, as witnessed by the negative estimated coefficient on the lagged level of labor rights. In particular, a standard deviation decrease of the civil liberties index – 1.60 – increases real exports by $287.53 million. This effect is in addition to indirect effects that civil liberties may have on exports, e.g. by changing productivity growth and relative prices.

***INSERT TABLE 6 HERE***

**V.4 Counterfactual scenarios**

The multivariate results indicate that better labor rights abroad can have a positive impact on U.S. exports, but that they will have little direct effect on U.S. imports. Importantly, though, the factors that determine U.S. imports and U.S. exports are likely influenced by the level of worker rights as well as other, related institutions in trading partner countries. The question thus is whether U.S. trade would have looked materially different in the past if all trading partner countries with weak or no worker rights had had income growth and relative price levels akin to those of countries with some or strong worker rights.

What would have happened to U.S. trade between 2000 and 2007[9] – the last complete business cycle -- if income and relative prices in countries that had weak labor rights had changed to income levels and relative prices of countries that had some or strong worker rights? To answer this counterfactual question, I proceed in several steps. First, I estimate the export and import equations for countries with weak labor rights. Then, I calculate the predicted average change of the natural log of real U.S. imports and real U.S. exports if the observations of countries with some or strong worker rights would have also occurred in countries with weak or no worker rights. That is, I combine the parameter estimates from countries with weak or no worker rights with the observations from countries with

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[9] Data for 2000 are included to allow a comparison between business cycle peaks.

some or strong worker rights. After all, the argument is that institutional changes will alter income and relative prices (the observations), but not the relationships between these observations and trade, which are influenced by consumer preferences and producer technologies, among other factors. Third, I use the predicted average changes in the natural logs of real U.S. imports and real U.S. exports to generate 1,000 random observations of natural logs of real U.S. imports and U.S. exports for each year for all countries with weak or no worker rights. The simulation is done by using the average predicted changes in the natural log and adding a randomly generated factor to this average. The random factor is taken from a uniform distribution with mean zero and standard error of one. Fourth, I calculate the average predicted natural logs of imports and exports for each country with weak or no worker rights for each year from 2000 to 2007 over all available 1,000 observations. Finally, the calculations are repeated for two different samples – all observations for countries with weak labor rights and only complete observations. In addition, I calculate all relevant statistics for single years between 2000 and 2007 to make sure that the conclusions are not overly influenced by a single year. I report the simulated average real exports and real imports and the relative difference to the original observations in Table 7.

The summary figures for the simulations in Table 7 show clearly that there may be a substantial benefit to U.S. exports from greater worker rights around the world. The data show that on average, for instance, real exports would have been about three times as large if incomes and relative export prices in countries with weak or no worker rights had been similar to incomes and relative export prices in countries with some or strong worker rights. At the same time, though, U.S. imports would have largely remained unchanged if incomes and relative import prices in countries with weak or no worker rights had become similar to incomes and relative import prices in countries with some or strong worker rights.

The conclusions are robust. They hold if all observations for countries with weak or no worker rights are considered or if only those observations are considered, for which complete data on all relevant variables exist. Also, the results are not overly influenced by observations in one given year (Table 7).

***INSERT TABLE 7 HERE***

## VI.    Conclusion

Part of the discussion over future trade agreements in the United States comprises a consideration of the inclusion of labor and environmental standards. For much of the past three decades, the United States has experienced large and growing trade deficits, which reached levels that were widely considered unsustainable. In this paper, I analyze whether the proliferation of better worker rights would have helped to reduce the United States' trade deficit and if so, what would have been the primary driving factors.

The empirical analysis, based on data from the early 1990s through 2007, leads to the conclusion that U.S. trade deficits would have been smaller if there had been better worker rights around the world.

The result is driven primarily by improvements to U.S. exports. For instance, a multivariate analysis finds a positive correlation between better worker rights abroad and U.S. exports, but no such systematic relationship exists for imports. Also, simulations based on the multivariate estimates show that U.S. real exports would have almost tripled between 2000 and 2007 if the economic circumstances in countries with weak or no labor rights had been instead similar to those circumstances in countries with some or strong worker rights. The proliferation of better worker rights abroad thus could result in more balanced U.S. trade, while also increasing the total flow of trade between the United States and its trading partner countries.

**Table 1**

**U.S. Exports to U.S. Imports, by Labor Standards in 2000 and 2007**

| | Some or even strong labor standards | Limited or no labor standards | Actual difference |
|---|---|---|---|
| **All less industrialized economies** | | | |
| Average in 2000 | 74.5 | 36.0 | 38.5 |
| Median in 2000 | 83.2 | 74.1 | 9.1 |
| Average in 2007 | 73.1 | 26.2 | 46.9 |
| Median in 2007 | 114.1 | 56.9 | 57.2 |
| Change of average from 2000 to 2007 | -1.4 | -9.8 | 8.4 |
| Change of median from 2000 to 2007 | 18.2 | 0.8 | 17.5 |
| **All less industrialized economies, without China** | | | |
| Average in 2000 | 74.5 | 54.3 | 20.2 |
| Median in 2000 | 83.2 | 75.5 | 7.7 |
| Average in 2007 | 73.1 | 41.1 | 31.9 |
| Median in 2007 | 114.1 | 58.5 | 55.6 |
| Change of average from 2000 to 2007 | -1.4 | -13.1 | 11.7 |
| Change of median from 2000 to 2007 | 18.2 | -0.3 | 18.5 |

Notes: Author's calculations. All figures are in percent. Changes of changes are percentage point differences.

**Table 2**
**Exports and Imports in 2000 and 2007**

| | Some or even strong labor standards | Limited or no labor standards | Actual difference |
|---|---|---|---|
| **All less industrialized economies** | | | |
| *2000* | | | |
| Exports | $4,560 | $1,615 | 182.3% |
| Imports | -$6,284 | -$4,610 | -36.3% |
| *2007* | | | |
| Exports | $5,148 | $2,660 | 93.5% |
| Imports | -$7,047 | -$10,169 | 30.7% |
| *Change from 2000 to 2007* | | | |
| Exports | 12.9% | 64.7% | -51.8% |
| Imports | -12.1% | -120.6% | 108.4% |
| | | | |
| **All less industrialized economies, without China** | | | |
| *2000* | | | |
| Exports | $4,560 | $1,290 | 253.5% |
| Imports | -$6,284 | -$2,440 | -157.5% |
| *2007* | | | |
| Exports | $5,148 | $1,205 | 327.2% |
| Imports | -$7,047 | -$2,930 | -140.5% |
| *Change from 2000 to 2007* | | | |
| Exports | 12.9% | -6.6% | 19.5% |
| Imports | -12.1% | -20.1% | 7.9% |

Notes: Author's calculations. Levels are in millions of chain weighted real U.S. dollars (in 2007 dollars) and changes are in percent. Dollar values are averages weighted by each country's GDP on a purchasing power parity basis. Changes are changes of the weighted averages in 2000 and 2007. Changes of changes are percentage point differences.

**Table 3**

**U.S. Exports to U.S. Imports, by Country Characteristics and Labor Standards in 2000 and 2007**

| | Some or even strong labor standards | Limited or no labor standards | Actual difference |
|---|---|---|---|
| **Averages** | | | |
| *2000* | | | |
| Low income countries | 57.1 | 17.8 | 39.3 |
| High-income countries | 76.2 | 56.3 | 19.9 |
| Oil producing countries | 85.9 | 27.5 | 58.5 |
| Non-oil producing countries | 64.3 | 87.1 | -22.8 |
| *2007* | | | |
| Low income countries | 69.4 | 22.4 | 46.9 |
| High income countries | 73.5 | 39.3 | 34.2 |
| Oil producing countries | 65.8 | 24.5 | 41.3 |
| Non-oil producing countries | 81.0 | 47.1 | 33.9 |
| *2000 to 2007* | | | |
| Low income countries | 12.3 | 4.6 | 7.7 |
| High income countries | -2.7 | -17.0 | 14.3 |
| Oil producing countries | -20.1 | -2.9 | -17.2 |
| Non-oil producing countries | 16.7 | -40.0 | 56.7 |
| Fast appreciating currencies | -5.3 | -24.9 | 19.6 |
| Slow appreciating currencies | 2.8 | -17.9 | 20.7 |

Notes: Authors' calculations. All figures are in percent. Changes of changes are percentage point differences.

**Table 4**
**U.S. Trade Balances Relative to GDP, by Labor Standards in 2000 and 2007**

|  | Some or even strong labor standards | Limited or no labor standards | Actual difference |
|---|---|---|---|
| 2000 | -0.8 | -1.4 | 0.5 |
| 2007 | -0.9 | -2.4 | 1.5 |
| 2000 to 2007 | -0.1 | -1.0 | 0.9 |

Notes: Author's calculations. Levels are in percent. Changes are in percentage points. All figures represent the ratio of the sum of all trade balances among one particular group of countries in U.S. dollars relative to the U.S. GDP in that year.

**Table 5**
**Regression Analysis of Real Imports**

| Dependent variable: real imports in $ millions | | Baseline | Model with labor rights | Model with labor rights, non-logarithmic version |
|---|---|---|---|---|
| $\Delta$imports$_{t-1}$ | "+/-" | -0.12*** | -0.12*** | 0.27*** |
| | | (0.02) | (0.02) | (0.03) |
| imports$_{t-1}$ | "+/-" | -0.29*** | -0.30*** | 0.03*** |
| | | (0.02) | (0.02) | (0.00) |
| $\Delta$USgdp$_t$ | "+" | 5.42*** | 5.33*** | 2.50*** |
| | | (1.57) | (1.58) | (0.43) |
| $\Delta$USgdp$_{t-1}$ | "+" | 0.62 | 0.62 | -0.95** |
| | | (1.38) | (1.39) | (0.40) |
| USgdp$_{t-1}$ | "+" | -0.26 | -0.23 | -0.17** |
| | | (0.33) | (0.34) | (0.09) |
| $\Delta$relIMprice$_t$ | "-" | -0.48 | -0.46 | 30.12** |
| | | (0.57) | (0.57) | (14.23) |
| $\Delta$relIMprice$_{t-1}$ | "-" | 2.05*** | 2.01*** | 20.20 |
| | | (0.70) | (0.70) | (17.23) |
| relIMprice$_{t-1}$ | "-" | -1.29*** | -1.24*** | -13.51* |
| | | (0.39) | (0.39) | (8.29) |
| oilproducer$_t$ | "+" | | 0.11 | 563.52* |
| | | | (0.12) | (301.52) |
| $\Delta$laborrights$_t$ | "+" | | -0.07 | 1.15 |
| | | | (0.11) | (95.62) |
| $\Delta$laborrights$_{t-1}$ | "+" | | -0.03 | 41.31 |
| | | | (0.10) | (84.31) |
| laborrights$_{t-1}$ | "+" | | -0.01 | 42.98 |
| | | | (0.09) | (79.00) |
| Constant | "+/-" | 9.90** | 9.40** | 2585.27 |
| | | (4.64) | (4.77) | (1696.20) |
| | | | | |
| N | | 1863 | 1863 | 1863 |
| R-squared | | 0.20 | 0.19 | 0.19 |
| F-statistic | | 55.08 | 36.79 | 33.15 |
| p-value | | 0.00 | 0.00 | 0.00 |

Notes: All estimates based on regressions with country fixed effects. * indicates significance at 10%-level, ** indicates significance at 5%-level, and *** indicates significance at 1%-level. Figures in parentheses are standard errors.

**Table 6**
**Regression Analysis of Real Exports**

| Dependent variable: real exports in $ millions | | Baseline | Model with labor rights | Model with labor rights, non-logarithmic version |
|---|---|---|---|---|
| $\Delta exports_{t-1}$ | "+/-" | 0.00 | 0.01 | 0.02 |
| | | (0.03) | (0.03) | (0.03) |
| $exports_{t-1}$ | "+/-" | -0.51*** | -0.53*** | -0.13*** |
| | | (0.03) | (0.03) | (0.01) |
| $\Delta gdp_t$ | "+" | 0.49*** | 0.45*** | 3.62*** |
| | | (0.09) | (0.09) | (0.57) |
| $\Delta gdp_{t-1}$ | "+" | 0.15*** | 0.13** | -0.08*** |
| | | (0.06) | (0.06) | (0.01) |
| $gdp_{t-1}$ | "+" | 0.09*** | 0.10*** | 1.98*** |
| | | (0.03) | (0.03) | (0.38) |
| $\Delta relEXprice_t$ | "-" | -0.08 | -0.07 | 0.00 |
| | | (0.13) | (0.12) | (0.00) |
| $\Delta relEXprice_{t-1}$ | "-" | 0.09 | 0.07 | 0.00 |
| | | (0.09) | (0.09) | (0.00) |
| $relEXprice_{t-1}$ | "-" | -0.11* | -0.08 | 0.00 |
| | | (0.07) | (0.07) | (0.00) |
| $\Delta laborrights_t$ | "-" | | -0.24** | -134.50 |
| | | | (0.10) | (85.10) |
| $\Delta laborrights_{t-1}$ | "-" | | 0.07 | 78.53 |
| | | | (0.10) | (78.88) |
| $laborrights_{t-1}$ | "-" | | -0.35*** | -179.82*** |
| | | | (0.08) | (68.76) |
| Constant | "+/-" | 3.54*** | 3.77*** | 1050.51*** |
| | | (0.59) | (0.59) | (270.64) |
| | | | | |
| N | | 1495 | 1495 | 1495 |
| R-squared | | 0.26 | 0.26 | 0.14 |
| F-statistic | | 57.39 | 44.10 | 20.13 |
| p-value | | 0.00 | 0.00 | 0.00 |

Notes: All estimates based on regressions with country fixed effects. * indicates significance at 10%-level, ** indicates significance at 5%-level, and *** indicates significance at 1%-level. Figures in parentheses are standard errors.

## Table 7
## Summary of Simulations for Real Imports and Real Exports in Countries with Weak or No Worker Rights if Incomes and Relative Prices Had Mirrored Those in Countries with Some or Strong Worker Rights

| | Actual for all countries with weak or no worker rights | Predicted for all countries with weak or no worker rights | Average differences | Actual for countries with weak and no worker rights and complete obs. | Predicted for countries with weak and no worker rights and complete obs. | Average differences |
|---|---|---|---|---|---|---|
| **Real exports** | | | | | | |
| Total | $1,480 | $4,762 | 228.7% | $1,028 | $3,516 | 230.0% |
| 2000 | 1,351 | 4,752 | 309.7 | 1,536 | 5,518 | 244.0 |
| 2001 | 1,391 | 4,932 | 302.7 | 1,460 | 5,429 | 288.8 |
| 2002 | 1,094 | 3,756 | 283.8 | 848 | 3,154 | 275.9 |
| 2003 | 1,048 | 3,411 | 860.2 | 577 | 2,068 | 1,159.5 |
| 2004 | 1,254 | 3,855 | 211.4 | 638 | 1,989 | 202.7 |
| 2005 | 1,600 | 4,760 | 298.0 | 790 | 2,486 | 244.7 |
| 2006 | 2,013 | 5,853 | 279.3 | 979 | 3,032 | 263.6 |
| 2007 | 2,262 | 7,134 | 223.8 | 1,316 | 3,619 | 219.6 |
| **Real imports** | | | | | | |
| Total | 5,589 | 4,988 | -12.6 | 5,997 | 5,170 | -12.6 |
| 2000 | 3,945 | 3,317 | 3.7 | 4,201 | 3,426 | 3.7 |
| 2001 | 3,881 | 3,986 | 0.8 | 4,128 | 4,176 | 0.8 |
| 2002 | 4,077 | 3,659 | 13.3 | 4,363 | 3,659 | 13.3 |
| 2003 | 4,405 | 3,693 | -2.2 | 4,646 | 3,827 | -2.3 |
| 2004 | 5,583 | 4,410 | -3.0 | 6,005 | 4,573 | -3.0 |
| 2005 | 7,058 | 5,945 | 7.5 | 7,599 | 6,180 | 9.3 |
| 2006 | 8,310 | 7,450 | 14.9 | 8,819 | 7,602 | 14.9 |
| 2007 | 8,669 | 8,523 | -5.1 | 9,776 | 9,247 | -5.1 |

Notes: Absolute values are in millions of 2000 dollars. Differences are percent differences relative to the original values. Average differences are averages of the ratios of the difference between the predicted and the actual value to the actual value for a given year and a given country.

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