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The Trade Effects of the Information Provision About Forced and Child Labor

Margaryta Klymak[1]

School: University of Oxford
Email address: margaryta.klymak@qeh.ox.ac.uk

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Primary discipline: international trade, development economics

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Abstract

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JEL Classification: F14, J81, O11.

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1 Introduction

Events like the revelations of child and forced labor in Uzbekistan's cotton fields in 2007, the Rana Plaza factory collapse in 2013, forced labor in the Thai prawn fishing industry in 2014 and forced labor in textiles production by detained Uyghurs in China in 2019 have brought the issue of labor conditions to the forefront of public debate. Despite numerous international efforts aimed at the prohibition of these labor practices, child and forced labor remains a challenge today. The International Labor Organization (ILO) has estimated that there are around 25 million forced workers worldwide[1], while over 150 million children between the ages of 5 and 17 were engaged in child labor[2] (International Labour Organization, 2017, 2018).

Given the scale and prevalence of the problem around the world, there have been discussions about what proactive steps could be taken to mitigate exploitative labor practices.[3] One possible strategy is to name and shame countries that are known to use child and forced labor in the production of export goods. The rationale for this strategy is to inform the importing governments, firms and consumers of the conditions under which various goods are produced, so that they can decide whether or not to purchase the goods. If importing firms and consumers choose to avoid buying the product, then the market share of exploitative firms and countries is lost and there is a clear incentive for them to cease their use of these exploitative labor practices (Freeman, 1994; Basu, 1999).

While naming and shaming is a plausible strategy, no empirical study to date has examined whether these strategies are effective in discouraging imports of goods produced with child and forced labor. This paper investigates this question by using the most prominent example of a naming and shaming strategy: "List of Goods Produced by Child Labor or Forced Labor" (henceforth TVPRA list) published by the U.S. Department of Labor (DOL). This list has the intended purpose of raising public awareness about forced and child labor practices around the world and motivate governments, companies and

[1] 64% of these workers were engaged in the private economy. The remaining 36% of forced workers are are involved into forced sexual labor (19%) and government imposed forms of forced labor (16%).

[2] 70.9% of child labor is concentrated in agriculture, 17.1% in the services sector and 11.9% of child laborers work in industry

[3] For example, see Basu (1999) for a detailed discussion of child labor issue.

civil society to combat the problem (United States Department of Labor, 2014). It is conceived as an information campaign and inclusion or removal from the list does not depend on import volume.[4] Using this list, I match information about child and forced labor with all U.S. imports data over the period 2001 to 2018. Given that listing applies to specific goods in particular countries, this provides an opportunity to use a three level fixed effects approach, which accounts for multiple confounders. Thus, a decline in the U.S. imports of listed country-good will be compared to the total decline in imports from that country, the total decline in imports of that good and the base level of imports of that good from that country.[5]

My findings suggest that U.S. imports of listed goods from listed countries dropped by around 17% as a result of listing over the course of about four years. One major policy implication is that extra-national policies revolving around information provision are likely to cause drops in trade, and hence might effectively incentivise a foreign government to improve labor practices in their country. The association between listing and imports is only robust for goods which are closer to the point of consumption, where consumers might reasonably be expected to penalise goods which rely on such labor, while the effect for intermediate goods is not stable across specifications. This implies that public information strategies may be efficient in disincentivising the reliance on child and forced labor in the case of export of certain goods but not others.

This paper contributes to three bodies of literature. The first literature examines how the public reacts to information about labor rights violations in the production of goods (Pruitt and Friedman, 1986; Freeman, 1994; Harrison and Scorse, 2010). Accordingly, Freeman (1994) suggests that consumers care about labor standards and that by providing information about the labor conditions that have gone into production of the good, the producer can give them a choice about which good to buy. He argues that even a small change in consumer behaviour would significantly influence revenue, which would in turn push these companies to improve labor conditions. While this idea of labelling[6] may

[4]Indeed the DOL states that it *"... did not distinguish between goods produced for domestic consumption and for export, due to data limitations and because this was not part of the mandate of the TVPRA"* (United States Department of Labor, 2016).

[5]Methodologically, this paper is similar to Frazer and Van Biesebroeck (2010), who examines the effect of Africa Growth and Opportunity Act on imports to the U.S..

[6]Labelling is one example of information provision which could include child labor free stickers, fair

be appropriate for mitigating consumer guilt[7] it has been criticised on the grounds of not being able to improve production conditions in developing countries (Brown, 2001). The other critique concerns the difficulties with the provision of trustworthy information to consumers on labels and the associated monitoring and maintenance costs (Basu, 1999). Firms may mislabel goods produced with poor labor conditions in order to benefit from higher market prices from the label (Freeman, 1994; Rodrik, 2003).[8] The effects of labelling are mixed on the empirical side of the literature with some papers finding that only a small portion of consumers are affected by labels (Dickson, 2001; Prasad et al., 2004), while other papers show a positive relationship between social labelling and reduction in child labor for above subsistence-level households (Chakrabarty and Grote, 2009).

The second literature concerns the link between labor standards and the export performance of countries (i.e. Brown (2001)). A major issue with labor standards measures which emerges in this literature is endogeneity. One key measure of labor standards used is the ratification of ILO conventions, but ratification is often strongly correlated with the level of social, economic and political advancement of a country. Furthermore, ILO conventions may not be binding and absence of ratification in a country does not always imply poor labor conditions. In order to overcome this endogeneity issue researchers have used proxies of labor standards such as the number of strikes in a country, the rate of work injuries (Bonnal, 2010) as well as indicators of trade union rights and democracy (Kucera and Sarna, 2006). This literature generally finds no clear evidence that bad labor conditions are associated with worse trade performance. While child and forced labor violations are certainly related to poor labor standards, the focus of my paper is quite

trade stickers etc. on the physical good. Another example of information provision is listing which provides information in a way that does not physically mark the good. In a consumer survey Marymount University, Center for Ethical Concerns (1999), labelling was the preferred way for consumers to receive information (with 56% of consumers preferring this way), and listing was the second most preferred alternative chosen by 33% of responders.

[7]See also Baland and Duprez (2009) who in a theoretical paper argue that in cases where a minority of consumers react to labels warning of child labor use, there will be no impact on child worker wages and hence the overall incidence of child labor. They argued that child workers will substitute into producing child labor labelled goods (to sell to consumers who do not react to labels) while adult workers shift into producing other goods. Thus labelling induces worker changes between industries but not changes in the overall incidence of child labor. Basu et al. (2006) examine the effects of social labelling based on four features: child labor employment, consumer information, welfare, and trade linkages by employing a theoretical model. They find that consumers and firms benefit from social labelling. The trade sanctions of non-labelled products discourage trade, but do not affect child labor levels.

[8]There is also related literature on the effects of information shocks on reputation and value of firms (Barber and Darrough, 1996; Tadelis, 1999; DellaVigna and La Ferrara, 2010; Glazer et al., 2010).

different. This paper is interested in examining the informational effect of child and forced labor violations rather being focussed on previously researched problems of understanding whether labor standards can affect comparative advantage, improve exports performance etc. Furthermore, the TVPRA list used in this paper has not been used in this literature previously.

The third body of literature related to this paper examines how shifts in consumer sentiment (broadly defined) can affect aggregate trade flows between countries (Michaels and Zhi, 2010; Fuchs and Klanna, 2013; Clerides et al., 2015). While papers have found that consumer sentiment affects trade, all of these papers have examined sentiment changes that fundamentally emerge from political disagreements between countries. For instance, Michaels and Zhi (2010) established a drop in France-U.S. trade as a result of tensions emerging from the Iraq war while Fuchs and Klanna (2013) presented a gravity model for 159 countries and found that exports to China declined after they were visited by the Dalai Lama. Thus far, no paper has examined potential aggregate effects emerging from fundamentally empathetic responses, such as these that may arise in response to information provision about child and forced labor.

The paper proceeds as follows. Section 2 provides more details on the TVPRA list. The dataset is presented section 3, while the empirical approach is discussed in section 4. Section 5 presents the results, section 6 discusses the robustness of findings before section 7 concludes.

2 Background

There are three broad types of interventions aimed at reducing child and forced labor (Basu, 1999).[9] The first is intranational, which is a set of government laws, regulations or non-governmental programmes aimed at deterring exploitative labor practices inside a country, for instance through providing access to education and nutrition (World Food Programme, 2003; The SOLD Project, 2007; Bangalore Rural Educational and Devel-

[9]Although the paper of Basu (1999) discussed the interventions in the context of child labor, these could also be applicable to forced labor case.

opment Society, 2013). The second, supranational, is the collaboration of governments and international organisations with agreements aimed at the elimination of these labor practices globally. The work of the ILO and its underlying labor conventions is a good example of this (International Labour Organization, 1930, 1957, 1973, 1999). The third is extra-national, which consists of a set of efforts in one country aimed at influencing child and forced labor levels in a foreign country. One of the extra-national methods aimed at eliminating forced and child labor is to name and shame countries that are known to use child and forced labor in the production of export goods. The rationale for this strategy is to inform the importing governments, firms and consumers of the conditions under which various goods are produced, so that they can decide whether or not to purchase the goods. If importing firms and consumers choose to avoid buying the product, then the market share of exploitative firms and countries is lost and there is a clear incentive for them to cease their use of these exploitative labor practices (Freeman, 1994; Basu, 1999).

The most prominent extra-national strategy currently in use is "the List of Goods Produced by Child Labor or Forced Labor", which was established as part of the "Trafficking Victims Protection Reauthorization Act". It was signed into law in 2006 with the aim of facilitating efforts to monitor and combat child labor and forced labor in the production of goods in foreign countries (Federal Register, 2006). It has been issued by the U.S. Government's Bureau of International Labor Affairs at the U.S. Department of Labor since 2009 and is submitted to the Senate every year on December 1. In 2013, the TVPRA was amended to require the submission of the list biennially starting from December, 2014 and thus no list was published been in 2013, 2015 or 2017.[10] The report lists country-goods for which it was believed that child and forced labor were used during the production process (for instance Bangladesh is listed for the use of forced labor in the production of garments). The criteria for the selection of information on which the list is based is that: the nature of the information is relevant and no more than 7 years old;[11] the source of the information is pertinent and probative; the information is corroborated by other sources and that the information shows significant evidence of child and forced labor practices (United States Department of Labor, 2016). The list has the purpose

[10]Thus, in total 6 reports have been published between 2009 and 2017, including 2009, 2010, 2011, 2012, 2014 and 2016. All these reports will be used in the analysis.

[11]Since 2011, the TVPRA restricted this threshold to 5 years.

of increasing the awareness of governments, importing firms and consumers of the child and forced labor practices used in the production of goods.[12] The TVPRA list aims to promote efforts to combat child and forced labor issue; it does not block imports to the U.S. if the good appeared on the list. The most recent report was published in 2018, however due to trade data availability this paper will examine all listing except the last one.

DOL regularly considers removals of country-goods from the list if there is sufficient evidence that child and forced labor has been eliminated or reduced to a single case. DOL conducts a number of checks before removals, which include *"desk reviews, in-person and telephone interviews with key informants, and when possible, travel to the relevant countries to conduct in-person interviews and site visits"* (United States Department of Labor, 2016). Four country-goods have been removed from the TVPRA list since the list was first published. In 2014, three country-goods were excluded: tobacco from Kazakhstan, charcoal from Namibia and diamonds from Zimbabwe and in 2016 garments from Jordan were removed from the list.

A number of governments fear that inclusion on the list might have an adverse impact on their exports. The Royal Thai Embassy (2010) rebutted the inclusion of Thailand (for several goods) on the list, stating that the list risks *"damaging the country's reputation, and inflicting harm on the country's trade"*. A vice minister of Vietnam, Pham Minh Huan (2012), responded to the inclusion of Vietnam on the list stating that *"it might create negative effects on export of garment and brick from Viet Nam to the U.S. and other markets"*. The Vietnam Chamber of Commerce and Industry (2012) responded by stating that the addition of new goods from Vietnam on the list *"will definitely have an adverse impact on the product sales in the United States and over the world [sic]"*. The Malaysian government allocated RM5 million to the Plantation Industries and Commodities Ministry to carry out a study in collaboration with the ILO with the stated aim of encouraging

[12]Note, that the U.S. government also published the report "Findings on the Worst Forms of Child Labor" as well as the "List of Products Produced by Forced or Indentured Child Labor" report. While these reports overlap to a certain degree, they are not used in this paper as they are much smaller. As a robustness check, regressions without including goods earlier mentioned in the "List of Products Produced by Forced or Indentured Child Labor" were performed however this did not change the conclusion of this paper.

the DOL to remove Malaysian palm oil from the TVPRA list (New Straits Times, 2017). There are also a number of examples where companies themselves rely on the TVPRA list. The Walt Disney Company (2019), Ford (2014) and The Coca-Cola Company (2016) used the list as one of the key sources for their Corporate Social Responsibility reports and Code of Business Conduct policies concerning the potential for child or forced labor in their supply chains.

In 2012, the California State enacted "The California Transparency in Supply Chains Act". The law forces retailing and manufacturing companies that are doing business in the state of California and have at least $100 million in gross annual revenue globally to disclose their efforts for eliminating slavery and human trafficking practices from their supply chains. The act explicitly cites the extent of child and forced labor reported in the TVPRA list as the primary motivation for the reporting requirements. The act does not request that companies undertake any actions if forced labor takes place; however requires companies to disclose this information to its consumers and the general public. These reporting requirements are likely to accentuate the effect of this list as a company must disclose, in a prominent place on their website, the labor conditions in their supply chain. As such the presence of a supplying country-good on the TVPRA's list is likely to be problematic for a company that has to disclose their relationship with this country.

This list differs from previous awareness campaigns that have been studied in the literature. A key feature of other awareness campaigns is that they were focused on a specific sector and tried to target consumers by using media directly in an emotive way. By contrast, the TVPRA list is not actively promoted by the United States government and is intended to provide importing firms as well as consumers with trustworthy information about goods that are at high risk of being produced using child or forced labor. Updates to the list, however, are often covered in world media sources such as New York Times (2012), The Guardian (2014) and CNBC (2016).[13]

[13]This list is not without criticism however. There are still a number of concerns have been raised about the evidence base, transparency of selection of goods and countries and the addition and removal of countries from the list (European Commission, 2013). The TVPRA admits that there are constraints when producing the list including data availability, the disproportional appearance of some countries on the list and countries with information gaps (United States Department of Labor, 2014). To the extent that these criticisms diminish public confidence in the list will act against establishing an impact on trade.

3 Data

The starting point for assembling the dataset was the "The List of Goods Produced by Child Labor or Forced Labor". In total there are 139 goods in the list.[14] I matched each good description to the harmonized system six digit (HS6) level commodity codes to extract imports values as reported by the U.S. from Comtrade UN Statistics Division (2018) for every country and good for every year from 2002 until 2018. All HS6 codes corresponding to listed goods were then matched with relevant imports values. The sample consists of 234 countries, which includes 75 countries that were listed for at least one good and 159 other countries.

Overall, 379 listed goods and country combinations appeared on the list between 2009 and 2016. The annual additions of goods, countries and country-goods are shown in table 1. Note that there were some removals from the list in 2014 and 2016, which means the total running differ from the sum of the additions.

[Table 1 approximately here]

The DOL seems to be listing country-goods that attract greater media coverage and mentions in NGO reports. To ascertain this, I constructed two other information measures.[15] The first measure is a media index which accounts for articles mentioning child and forced labor for 28 newspapers[16] in total consisting of 8 major U.S. newspapers and 20 regional newspapers between 2009 and 2015.[17] I supplement the analysis with the second information measure, which is an index compiled from the International Labor

[14]There are four goods that could not be included into the dataset due to a lack of data on Comtrade. These are miraa (stimulant plant), coca (stimulant plant), tanzanite and pornography.

[15]A detailed discussion about the construction of these information measures is available in appendix B.

[16]The newspapers used are: Chicago Tribune, Los Angeles Times, New York Post, The Washington Post, New York Daily News, The Wall Street Journal, The Boston Globe, USA Today. The regional newspapers are Detroit Free Press, Baltimore Sun, Orlando Sentinel, Hartford Courant, Arizona Republic, Courier-Journal, Cincinnati Enquirer, Daily Press, Bangor Daily News, Reno Gazette-Journal, Asheville Citizen-Times, Argus Leader, Jackson Sun, Great Falls Tribune, The Spectrum, Burlington Free Press, Montgomery Advertiser, St. Cloud Times, Daily News Leader. Overall, around 7 million such websearches were performed.

[17]Due to lack of media data in 2016, 2017 and 2018, the period used in this paper for media analysis is between 2004 and 2015.

Organization reports concerning child and forced labor in certain countries in certain years.

[Figure 1 approximately here]

The top panel of figure 1 presents the average media index for TVPRA listed country-listed goods against not listed countries-listed goods. I present the media index in the top panel, where as expected, countries-goods that were listed have generally a high number of mentions in connection with labor rights in the media. This figure shows that countries-goods that were listed systematically got more media coverage as measured by the index. The bottom panel shows the ILO index for listed countries against not listed countries. This shows that countries that have been listed for at least one good are more likely to have child and forced labor reports written concerning them.[18]

Summary statistics are presented in table 2. It shows that trade values are higher for listed country-goods than for non listed countries non listed goods; thus reflecting a tendency for child and forced labor to be used in goods that a country specialises in exporting. This also shows that listed country-goods get more media coverage than non listed country-goods. In addition, media is increased in the year of listing and the years following listing, reflecting the fact that listing can induce media coverage as well as the possibility that events can occur which reveal information leading to listing as well as media coverage. Capital goods get the most media mentions, followed by consumption goods and then intermediate goods. Panel C of Table 2 splits country-specific variables between listed countries and non listed countries. Listed countries receive more ILO forced and child labor reports concerning them, as compared to the non listed countries. The number of ILO reports does not change sharply when listing began in 2009, which supports the conclusion that the ILO's research is unlikely to be affected by TVPRA listing.

[Table 2 approximately here]

[18]The ILO index for listed and non-listed countries declined in 2015. This decline was larger for listed countries. There are no events in listed or non listed countries that led to this.

Figure 2 depicts which countries were listed and for how many goods they were listed.[19] India was listed for the highest number of goods of all countries with 23 listed goods, followed by Brazil and Vietnam with each being listed for 16 goods. The majority of listed countries are from the Asia-Pacific region, followed by Latin America and the Caribbean region.

[Figure 2 approximately here]

The goods in the TVPRA list are diverse and include consumption, intermediate and capital goods. Table 3 shows the proportion of listed goods in each category. All 6 digit HS code goods were matched with the Broad Economic Categories Classification and then divided into stages of production. The first column shows the number of goods belonging to each stage of production and the second column describes the percentage share of that good in the total number of goods. The third column in the table provides the share of goods in terms of their dollar value (in total U.S. imports) by their production stage. Over half of the listed goods are intermediate goods and their combined share in trade value is only 13%. Capital goods have the highest concentration in total imports.[20] The majority of the goods that appeared on the list are labor intensive rather than capital intensive. This is in line with the literature. Busse (2002) found a positive relationship between child labor and exports of unskilled labor-intensive goods. He argued that child and forced labor increases the comparative advantage of the unskilled labor intensive goods in export markets. The majority of the goods that appeared on the TVPRA list come from the agriculture sector and are at the intermediate stage of production. These are relatively homogeneous and simple (i.e. bricks). However, a small number of goods are broader (i.e. electronics).

[Table 3 approximately here]

[19]Note, that the graph includes all country-goods that appeared on the list, excluding the country-goods for which trade data is not available.

[20]This high concentration trade ratio is driven by the electronics imports to the United States.

4 Empirical strategy

In order to examine whether and to what extent the listing of forced and child labor practices of industries coming from various countries affects trade flows, I use the following econometric model:[21]

$$\text{IMP}_{ijt} = \beta_0 + \beta_1 \text{Listed}_{ijt-1} + \theta_{ij} + \phi_{jt} + \lambda_{it} + \epsilon_{ijt} \tag{1}$$

The dependent variable, IMP_{ijt} is given by the inverse hyperbolic sine transformation of imports, Imports_{ijt}, measured in U.S. dollars and discounted by the applicable U.S. price indices from country i of good j at time t.[22] The regressor of interest, Listed_{ijt-1} is a binary variable that equals one if an industry appeared on the TVPRA list, and zero otherwise. It is lagged by one year to reflect the fact that listing occurs in December, while the data used in this analysis is at the annual level.[23] The terms θ_{ij}, ϕ_{jt} and λ_{it} represent the country-good, good-year and country-year fixed effects and ϵ_{ijt} is the statistical error term.

The fixed effects approach controls for time-invariant heterogeneity that occurs at a country-good level. This is a natural assumption in the international trade context as countries specialise in the production of various goods. Some examples are the large shrimp industry in Thailand and cocoa industry from Cote d'Ivoire, which are a result of those country's respective natural endowments. Similarly countries where labor is relatively abundant continue specialise in producing labor intensive industries, for instance garments in Bangladesh and electronics in China. By including country-industry fixed effects we can explain changes in trade caused by time variant factors including the time variant controls and the treatment of interest, i.e. information revelation. Thus this identification strategy exploits only internal variation in trade flows between the U.S. and a certain country for a particular industry over time.

[21] Methodologically this specification is comparable to Frazer and Van Biesebroeck (2010)

[22] The results are robust when $\log(\text{Imports}_{ijt} + 1)$ used in place of the inverse hyperbolic sine transformation of imports.

[23] For example, a response to a listing occurred in December 2013 would be expected in 2014.

The second pair of fixed effects at good-year level allows for heterogeneity in imports of a specific good into the U.S. in a particular year. The third fixed effects pair at country-year level accounts for unobserved shocks to exporting countries that can occur over time. For example, if a country was subject to import sanctions that were lifted, the U.S. DOL might include some goods from this country into the TVPRA list to warn U.S. consumers.

5 Results

Table 4 shows the results for the response of U.S. consumers and firms to TVPRA listing. All regressions use three level fixed effects, estimated on a balanced panel for all countries for all products from 2001 to 2018. The first column uses specification in equation 1. The dependent variable in columns 4 to 6 is a binary variable capturing whether trade was positive or zero indicating the presence of an importing relationship. The estimates in the first column indicate that the TVPRA listing is associated with a 17% decline of imports into the United States. Columns (2) and (3) show the results using only TVPRA listed goods and only TVPRA listed countries.[24] Column (2) presents findings where the sample is restricted to TVPRA goods only. The coefficient is largely underestimated as compared to the first column. This is due to the regression not taking into account the overall decline of U.S. imports from TVPRA countries. The next column (3) restricts the sample to TVPRA countries only and uses all goods. The coefficient now overestimates the effect of TVPRA listing and is 28%. This result represents the effect just from the import growth for listed and non listed goods. The last column uses the binary variable and shows that inclusion into the TVPRA list decreased the likelihood of a good being listed by 1.4% declined likelihood of imports to the United States.

[Table 4 approximately here]

The number of country-goods added varied substantially with every TVPRA update (as evident from table 1). For example, the release of the list had 281 country-good com-

[24] I define a TVPRA listed good as a good that appeared on the list at least once for one country. I define a TVPRA listed country for a country that was listed at least once for one good.

binations, while the update next year added 30 country-goods, followed by the addition of just 8 country-goods in 2011. I explore whether year of addition to the list matters. The results are presented in Table 5. The estimates show that U.S. imports were negatively affected by listing for most of the additions to the list. This also suggests that results are not predominantly driven by a year with the largest number of listing. The magnitude of the effect for 2014 addition with 11 country-goods added is 12% decline of imports; TVPRA update in 2016 (27 country-goods added) is associated with a 42% decline of imports into the United States.

[Table 5 approximately here]

Next, I analyse the timing of the effect. For example, firms might have been locked in contracts and were not able to leave at the time when the list just got released. It might also have taken time for firms to find alternative suppliers in a different country. Additionally, consumers became more knowledgeable about goods produced using child or forced labor over time. To allow for timing to play a role, I split the effect of listing by years since listing. The results in table 6 for all years since the listing occurred suggest that it took about four years before the effect took off. The magnitude of the effect is between 6%-16% each year, with magnitude gradually increasing over time.

[Table 6 approximately here]

Although TVPRA listing does not physically mark products, it creates the risk of a consumer backlash if and when the media coverage focuses on the child and forced labor involved in the production of the good as a result of the listing. Given this possible risk, importing firms may move towards substituting suppliers of these goods because they are more likely than consumers to be fully aware of the goods listed status. Thus, the next implication I test is whether industries that are closer to the consumer are more likely to have less trade as a result of naming and shaming. To test whether this is the case, I interact the listed dummy with three stages of production: consumption, intermediate and capital.

[Table 7 approximately here]

The results are presented in table 7. The estimated coefficient for consumption goods shows that imports into the U.S. declined by about 33% as a result of the TVPRA listing, whereas the results for intermediate goods are not statistically significant. This might be due to the fact that final goods do not list on their labels their reliance on imported intermediate goods, even if these were produced using child or forced labour, thereby making it difficult for consumers to penalise these goods and the companies that import them.

I also consider a sectoral decomposition where I divide sample into agricultural, manufacturing and mining goods. Table 8 presents the results for sectors. The estimates suggest that imports declined for manufacturing and other goods. Agriculture and mining goods seem to remain unaffected. Manufacturing is the only sector which showed a statistically significant response to listing with 21% decline.

[Table 8 approximately here]

Given the diversity of countries that can be listed and their dispersion across the globe (see figure 1), it is necessary to test which regions were affected the most by listing. The results presented in in table 9 show that TVPRA listing is associated with almost 30% decline of U.S. imports in East Asia and Pacific, 31% for Middle East and North Africa and 20% for Latin America and Caribbean. Surprisingly, South Asian imports were not affected by the U.S. despite India being listed for the most goods in the world.

[Table 9 approximately here]

Consumers and firms might be more sensitive towards information revelation about a certain type of labor abused. For example, consumers might be less likely to buy goods if they were produced by both types of labor, which might imply a widespread labor violations in industry. Therefore lastly I present the results by listing type: whether a country and a good were listed for child labor, forced labor or both types of labor. These

results are presented in Table 10. The estimates show there is a statistically significant response to listing. However, the results are only statistically significant for both labor types listing and for forced labor listing.

[Table 10 approximately here]

Overall, the results consistently show a negative and statistically significant effect of listing on United States imports with a substantial amount of heterogeneity. I test for the robustness of these results in the section that follows.

6 Robustness checks

The robustness of the findings are tested in several ways. I start by presenting the specification which uses several leads prior to listing event and lags after the listing had occurred.[25] I perform this analysis for an inverse hyperbolic sine transformation of imports, logarithm of imports and import dummy, and present the results in Table 11. The estimates clearly show that the effect became statistically significant after listing announcement, not before.

[Table 11 approximately here]

Next, I am carrying out two placebo tests. In the first placebo test, I drop from my sample all country-goods that were listed at least one year, which represents about 1% of my sample. I then randomly sample 1% of the remaining country-goods and assign them as being listed at some random year in the period 2009-2014 (with an equal probability for each year) and all years following. I estimate equation 1 and record the coefficient of listing. I do this 500 times to get a sample of coefficients corresponding to the case where listing is randomly assigned.

In the second placebo test, I check whether or not the negative effect of listing could come about due to less trade generally taking place with countries that appeared on the

[25] I aggregate the data into two years to reduce the effect of the noise from financial crisis in 2008.

list for particular goods. To do this I repeat the same exercise as in the first placebo test but with a different assignment of placebo listings. Specifically, I now restrict attention to nonlisted country-goods from countries that had been listed for at least one other good. I do this for a listing in a random year in the range 2009-2014. The density of the placebo coefficients can be seen in the bottom two panels of figure 3. Again it can be seen that the observed coefficient is unlikely to be drawn from these distributions.

[Figure 3 approximately here]

I perform a third set of robustness checks in Table 12, where I first change the duration of treatment window. A shorter event window can provide a cleaner identification due to fewer other changes could have taken place. However, it might have taken time for firms to exploit and arrange production of the same goods in non listed countries. Thus as a further robustness check, I estimated the benchmark specification for shorter treatment windows of three and five years pre and three and five years after listing. The estimates are given in columns (1) and (2) of table 12. The results remain negative and statistically significant. The magnitude of the coefficients is much smaller than presented in Table 4. This is partially not surprising because the size of the effect increases over time as shown in table 6 and this event window is precisely when the effect was about to become larger.

The majority of listed countries are low and middle income economies. All specifications until now used all countries in the world as a control group. Given that the export composition of listed countries is likely to differ from more advanced economies, I change the control group by removing all high income countries. These results are given in the columns (3) and (4) of the same table. The findings remain similar with a slightly higher coefficients than found in table 4. Each of the listing effects remain negative and highly significant.

[Table 12 approximately here]

Finally, I use an alternative dependent variable. I replace an inverse hyperbolic sine transformation of imports with the logarithm of imports and replicate Table 4. The

results are provided in Table 13. All estimates are negative, statistically significant and have similar magnitude as previous findings.[26]

[Table 13 approximately here]

[26]In addition I replicate the results using bootstrapped standard errors and different levels of standard errors clustering. The results remain unaffected and are available upon request.

7 Conclusion

Several surveys have shown a negative consumer reaction to goods produced under poor working conditions. A survey by the Walk Free Foundation (2015) has shown avid support for consumer action with 66% of consumers in the United States stating that they would switch to other products if they found out that a good they consume was produced under slavery conditions, while only 14% answered that they would continue buying the product. Furthermore, more than half of American customers[27] would trust the government to identify which products were made using slave labor. A number of surveys suggest that consumers are concerned about the labor conditions under which imported goods are produced, and that they are willing to pay extra for goods that were produced under good working conditions. However it is not clear whether customers will follow throughout these statements under real circumstances or are merely giving a socially acceptable answer.

A number of interventions have been presented as policy responses to child and forced labor. Some of these policy responses are relatively direct including measures discussed in the literature such as improving access to schooling (Edmonds and Pavcnik, 2005), the enforcement of labor standards (Basu, 2001) and the more extreme measure of trade sanctions (Basu, 2003). Other policy responses were based on information provision including labelling, boycotts and listing. As labelling and boycotts face significant costs and hence are difficult to implement broadly, listing has been suggested as an important approach to impact child and forced labor on a large scale.

This paper investigated the trade effects of the information revelation of trade goods produced using child and forced labor. This was done by using the listing of a good on the United States Department of Labor's list of goods produced with child and forced labor. This paper found evidence to support the hypothesis that the provision of information diminished a country's export prospects and the magnitude of the effect increases over time. These findings support the concerns raised by several embassies concerning the effect of the TVPRA list on trade.

In addition, the results are driven by consumption goods, which suggests that con-

[27] After "don't knows" are removed.

sumer pressure is key, consistent with many historical examples of consumers reacting to distasteful information regarding good production by ceasing to buy the good. For instance, the "American Free Produce Association", formed in 1838 (Nuermberger, 1942), opposed slavery in the Southern states and took action by advocating for consumers to only buy goods produced without the use of slaves. Consumer boycotts of sweatshops in the 1990's are another example of consumers refraining from buying goods due to repugnance of the means of production. More recently, Kailash Satyarthi, a 2014 Nobel Peace Prize laureate, advocated for consumers to boycott goods produced using child labor (Gowen and Lakshmi, 2014).[28] There have also been cases of firms boycotting goods from certain countries such as the world's largest retailer Walmart launching a boycott of Uzbekistan's cotton in 2008 (Birchall, 2008).

Overall, this paper confirms that an information campaign that targets multiple goods and multiple countries can have an impact: the results suggest that a naming and shaming strategy may be effective as a disincentive for countries that export goods made with child and forced labor, but only for certain goods.

[28]Specifically Kailash Satyarthi advocated for boycotts of Indian carpets produced with child labor.

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Data

Table 1: Goods and countries added to the TVPRA list, by year

	2009	2010	2011	2012	2014	2016	Total
Unique goods on list	122	6	2	4	2	3	139
Unique countries on list	58	12	1	3	1	2	75
Country-goods added	281	30	8	26	11	27	379
Total country-goods	281	311	319	345	353	379	

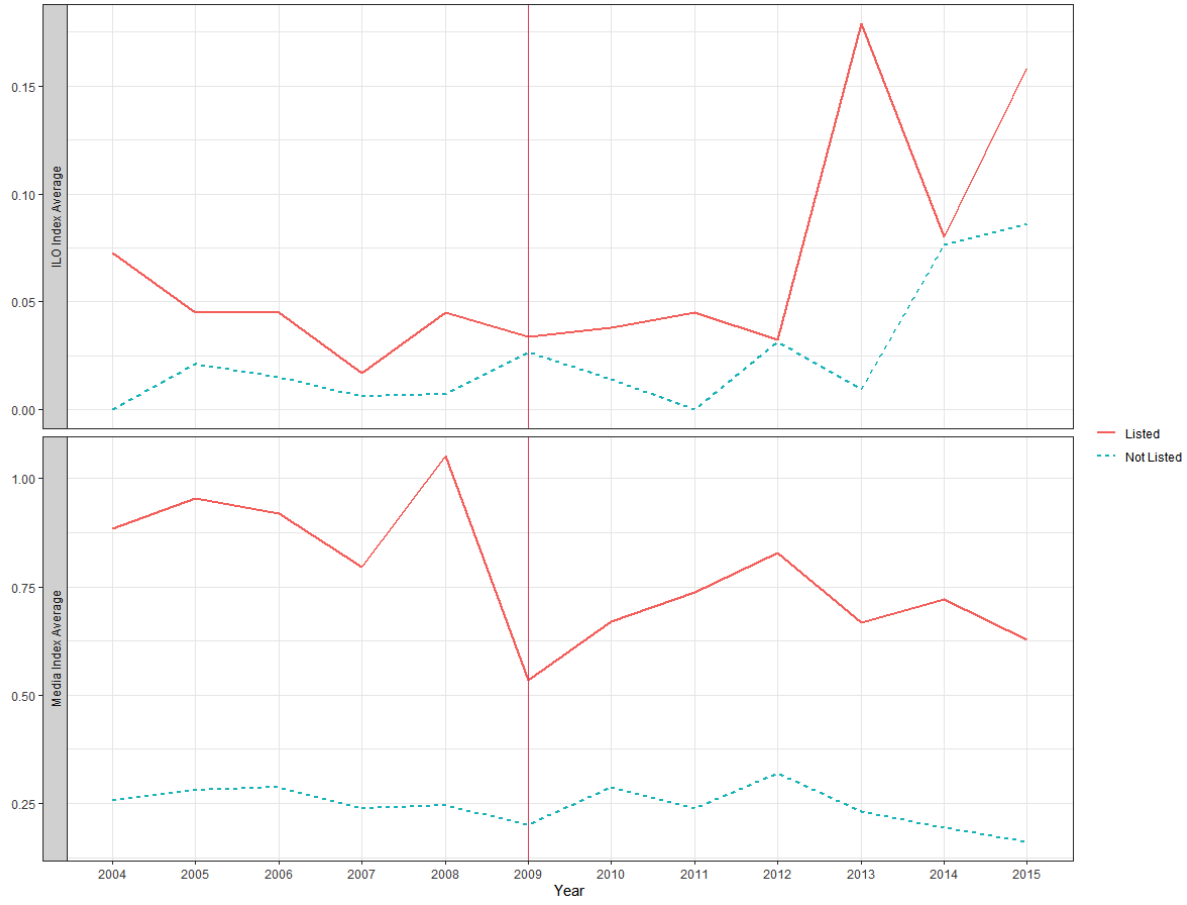

Figure 1: Listing, the media and ILO indices

Table 2: Summary statistics

	Panel A:	Imports values				
	Listed country listed goods no obs.	Listed country listed goods mean	Listed country listed goods SD	Not listed country not listed goods no obs.	Not listed country not listed goods mean	Not listed country not listed goods SD
All	205, 218	US$ 15.350	US$ 358.90	19947654	US$ 1.275	US$ 78.20
2002-2009	91, 208	US$ 12.520	US$ 207.80	8865624	US$ 1.195	US$ 75.11
2010-2018	102, 609	US$ 18.850	US$ 467.40	9973827	US$ 1.380	US$ 82.85
Consumption	79, 488	US$ 17.350	US$ 180.30	-	-	-
Intermediate	122, 634	US$ 3.185	US$ 70.69	-	-	-
Capital	3, 096	US$ 445.900	US$ 2705.00	-	-	-
Agriculture	37, 278	US$ 5.732	US$ 49.42	-	-	-
Manufacturing	156, 708	US$ 17.870	US$ 406.80	-	-	-
Mining	11, 232	US$ 12.060	US$ 191.30	-	-	-
Child Labour	120, 139	US$ 3.625	US$ 62.19	-	-	-
Child and Forced Labour	41, 412	US$ 40.220	US$ 706.30	-	-	-
Forced Labour	22, 746	US$ 35.720	US$ 221.20	-	-	-
	Panel B:	**Average weighted newspapers mentions**				
	Listed country listed goods no obs.	Listed country listed goods mean	Listed country listed goods SD	Not listed country listed goods no obs.	Not listed country listed goods mean	Not listed country listed goods SD
All	130, 056	1.90	2.3	-	-	-
2005-2009	54, 190	1.90	2.3	-	-	-
2010-2015	65, 028	1.90	2.3	-	-	-
Consumption	52, 596	2.20	2.4	-	-	-
Intermediate	75, 408	1.60	2.1	-	-	-
Capital	2, 052	2.90	2.7	-	-	-
Agriculture	24, 684	0.71	1.5	-	-	-
Manufacturing	99, 156	2.30	2.3	-	-	-
Mining	6, 216	0.75	1.4	-	-	-
Child Labour	84, 768	1.70	2.2	-	-	-
Child and Forced Labour	29, 232	2.00	2.3	-	-	-
Forced Labour	16, 056	2.80	2.4	-	-	-
	Panel C:	**Average ILO child and forced labor mentions**				
	Listed country no obs.	Listed country mean	Listed country SD	Not listed country no obs.	Not listed country mean	Not listed country SD
All	1, 168	0.110	0.41	1824	0.028	0.16
2002-2009	511	0.059	0.26	798	0.011	0.09
2010-2017	584	0.150	0.49	912	0.045	0.20
Intermediate	496	0.100	0.38	1824	0.028	0.16
Agriculture	976	0.110	0.43	-	-	-
Manufacturing	48	0.073	0.21	-	-	-
Mining	144	0.066	0.25	-	-	-
Child Labour	896	0.092	0.39	-	-	-
Child and Forced Labour	208	0.110	0.40	-	-	-
Forced Labour	64	0.290	0.57	-	-	-

All trade values are to 3 significant figures and expressed in millions of US Dollars. Newspapers circulations are weighted by circulation and then multiplied by a million as per equation B.1 (but no log applied). A good-country included in child and forced labor will not be separately included in child labor or forced labor. The t-test column shows the p-value from running a t-test on the null hypothesis that listed and not listed values have the same mean. Significance is denoted by: * 10% level, ** 5% level, *** 1% level.

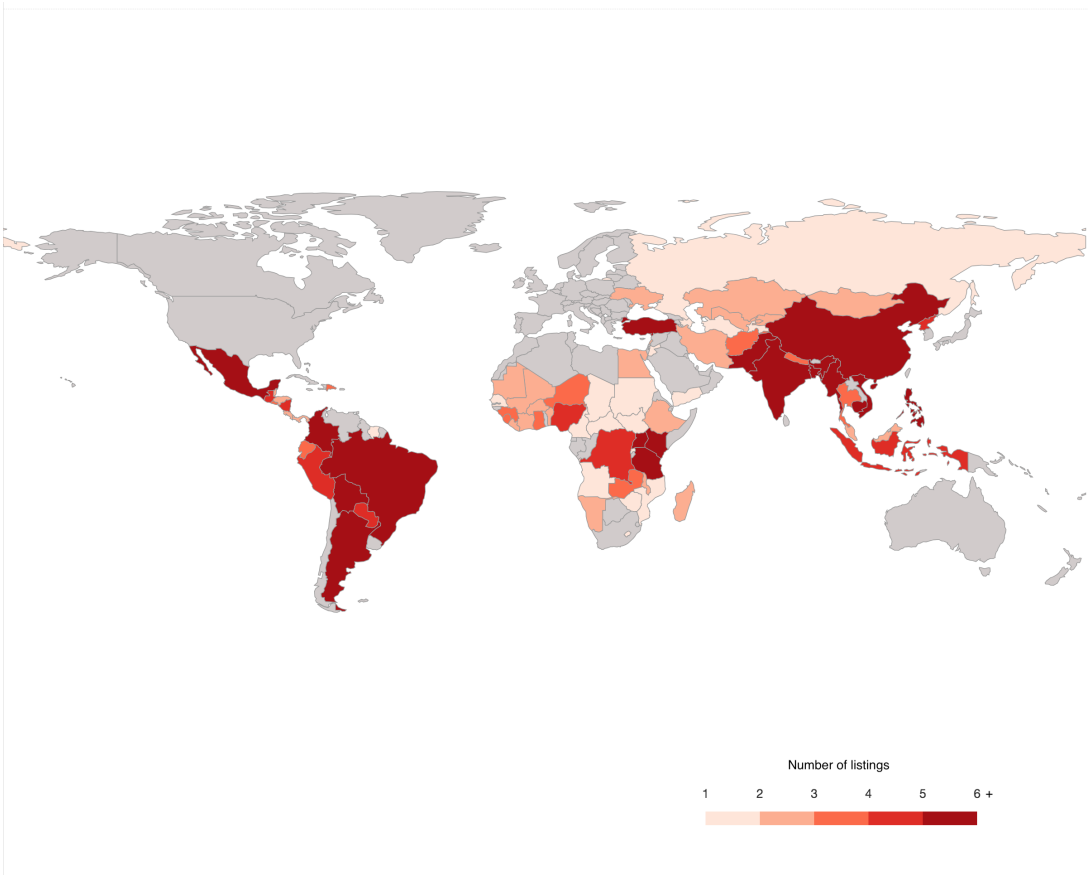

Figure 2: Listed countries. Note: the map shows the intensity of listing by each country as of the 2016 list edition. A darker red color on the map implies more listing. Grey represents for countries that did not appear on the list.

Table 3: Composition of listed HS6 codes: 2010-2018

by stage of production	Number of codes	Percentage of HS6 codes	Percentage by value
Capital	168	5.3 %	47.3 %
Consumption	1,365	43.0 %	39.8 %
Intermediate	1,643	51.7 %	12.9 %
by sector of production			
Agriculture	334	19.3 %	6.1 %
Manufacturing	1,212	69.9 %	89 %
Mining	188	10.8 %	4.9 %

Note: stage of production allocated according to the Broad Economic Categories classification.

Results

Table 4: Benchmark results of the TVPRA listing

Sample:	Full	Only TVPRA goods	Only TVPRA countries	Full	Only TVPRA goods	Only TVPRA countries
				Dependent variable:		
	IMP	IMP	IMP	Import Dummy	Import Dummy	Import Dummy
Listed t-1	-0.187^{***}	-0.001	-0.322^{***}	-0.014^{***}	-0.006^{***}	-0.023^{***}
	(0.026)	(0.026)	(0.029)	(0.002)	(0.002)	(0.002)
Good-Year	Yes	Yes	No	Yes	Yes	No
Good-Country	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year	Yes	No	Yes	Yes	No	Yes
Observations	19,033,268	6,135,674	6,316,350	19,033,268	6,135,674	6,316,350
R^2	0.820	0.811	0.806	0.743	0.733	0.719

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. Dependent variables: in columns (1) - (3), IMP, is the inverse hyperbolic sine transformation of imports; columns (4) - (6), Import Dummy, uses an indicator of presence of an importing relationship.

Table 5: Effect of the TVPRA listing by year of first listing

	Dependent variable:	
	IMP	Import Dummy
	(1)	(2)
Listed First in 2009	-0.201^{***}	-0.013^{***}
	(0.033)	(0.002)
Listed First in 2010	0.026	0.0004
	(0.044)	(0.003)
Listed First in 2011	0.179^{**}	0.014
	(0.082)	(0.009)
Listed First in 2012	-0.025	-0.019^{***}
	(0.069)	(0.005)
Listed First in 2014	-0.123^{*}	-0.009^{*}
	(0.064)	(0.005)
Listed First in 2016	-0.548^{***}	-0.029^{***}
	(0.127)	(0.011)
Good-Year	Yes	Yes
Good-Country	Yes	Yes
Country-Year	Yes	Yes
Observations	20,152,872	20,152,872
R^2	0.816	0.739

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. Dependent variables: in column (1), IMP, is the inverse hyperbolic sine transformation of imports; column (2), Import Dummy, uses an indicator of presence of an importing relationship.

Table 6: Effect of TVPRA listing by time from listing

	Dependent variable:	
	IMP	Import Dummy
	(1)	(2)
First Year Listed	-0.064^{*}	-0.007^{**}
	(0.035)	(0.003)
Second Year Listed	-0.082^{**}	-0.008^{***}
	(0.036)	(0.003)
Third Year Listed	-0.065^{*}	-0.007^{**}
	(0.038)	(0.003)
Fourth Year Listed	-0.128^{***}	-0.012^{***}
	(0.036)	(0.003)
Fifth Year Listed	-0.156^{***}	-0.015^{***}
	(0.039)	(0.003)
Sixth Year Listed	-0.151^{***}	-0.014^{***}
	(0.039)	(0.003)
Seventh Year Listed	-0.136^{***}	-0.013^{***}
	(0.042)	(0.004)
Eights Year Listed	-0.163^{***}	-0.013^{***}
	(0.046)	(0.004)
Ninth Year Listed	-0.164^{***}	-0.011^{***}
	(0.048)	(0.004)
Good-Year	Yes	Yes
Good-Country	Yes	Yes
Country-Year	Yes	Yes
Observations	10,076,436	10,076,436
R^2	0.859	0.785

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. Dependent variables: in column (1), IMP, is the inverse hyperbolic sine transformation of imports; column (2), Import Dummy, uses an indicator of presence of an importing relationship.

Table 7: Effect of the TVPRA listing by Stages of Production

	Dependent variable:	
	IMP	Import Dummy
	(1)	(2)
Listed t-1 × Capital	-0.791^{**}	-0.039^{*}
	(0.352)	(0.021)
Listed t-1 × Consumption	-0.398^{***}	-0.033^{***}
	(0.052)	(0.004)
Listed t-1 × Intermediate	0.003	0.002
	(0.028)	(0.002)
Good-Year	Yes	Yes
Good-Country	Yes	Yes
Country-Year	Yes	Yes
Observations	20,152,872	20,152,872
R^2	0.816	0.739

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. Dependent variables: in column (1), IMP, is the inverse hyperbolic sine transformation of imports; column (2), Import Dummy, uses an indicator of presence of an importing relationship.

Table 8: Effect of the TVPRA listing by Sectors of Production

	Dependent variable:	
	IMP	Import Dummy
	(1)	(2)
Listed t-1 × Agriculture	0.046	0.003
	(0.060)	(0.005)
Listed t-1 × Manufacturing	-0.237^{***}	-0.017^{***}
	(0.031)	(0.002)
Listed t-1 × Mining	0.063	−0.00001
	(0.101)	(0.007)
Good-Year	Yes	Yes
Good-Country	Yes	Yes
Country-Year	Yes	Yes
Observations	20,152,872	20,152,872
R^2	0.816	0.739

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. Dependent variables: in column (1), IMP, is the inverse hyperbolic sine transformation of imports; column (2), Import Dummy, uses an indicator of presence of an importing relationship.

Table 9: Effect of TVPRA listing by region

	Dependent variable:	
	IMP	Import Dummy
	(1)	(2)
East Asia and Pacific	-0.359^{***}	-0.024^{***}
	(0.048)	(0.003)
Europe and Central Asia	-0.079	-0.004
	(0.055)	(0.004)
Latin America and Caribbean	-0.218^{***}	-0.025^{***}
	(0.076)	(0.006)
Middle East and North Africa	-0.382^{***}	-0.034^{***}
	(0.130)	(0.010)
South Asia	0.004	0.003
	(0.052)	(0.004)
Sub-Saharan Africa	0.046	0.002
	(0.036)	(0.003)
Good-Year	Yes	Yes
Good-Country	Yes	Yes
Country-Year	Yes	Yes
Observations	20,152,872	20,152,872
R^2	0.816	0.739
Adjusted R^2	0.804	0.722

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. Dependent variables: in column (1), IMP, is the inverse hyperbolic sine transformation of imports; column (2), Import Dummy, uses an indicator of presence of an importing relationship.

Table 10: Effect of TVPRA listing by labor type

	Dependent variable:	
	IMP	Import Dummy
	(1)	(2)
Listed t-1 × Forced Labor	−0.406***	−0.035***
	(0.047)	(0.004)
Listed t-1 × Child Labor	0.010	0.00002
	(0.030)	(0.002)
Listed t-1 × Child and Forced Labor	−0.474***	−0.029***
	(0.071)	(0.006)
Good-Year	Yes	Yes
Good-Country	Yes	Yes
Country-Year	Yes	Yes
Observations	20,152,872	20,152,872
R^2	0.816	0.739

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. Dependent variables: in column (1), IMP, is the inverse hyperbolic sine transformation of imports; column (2), Import Dummy, uses an indicator of presence of an importing relationship.

Robustness checks

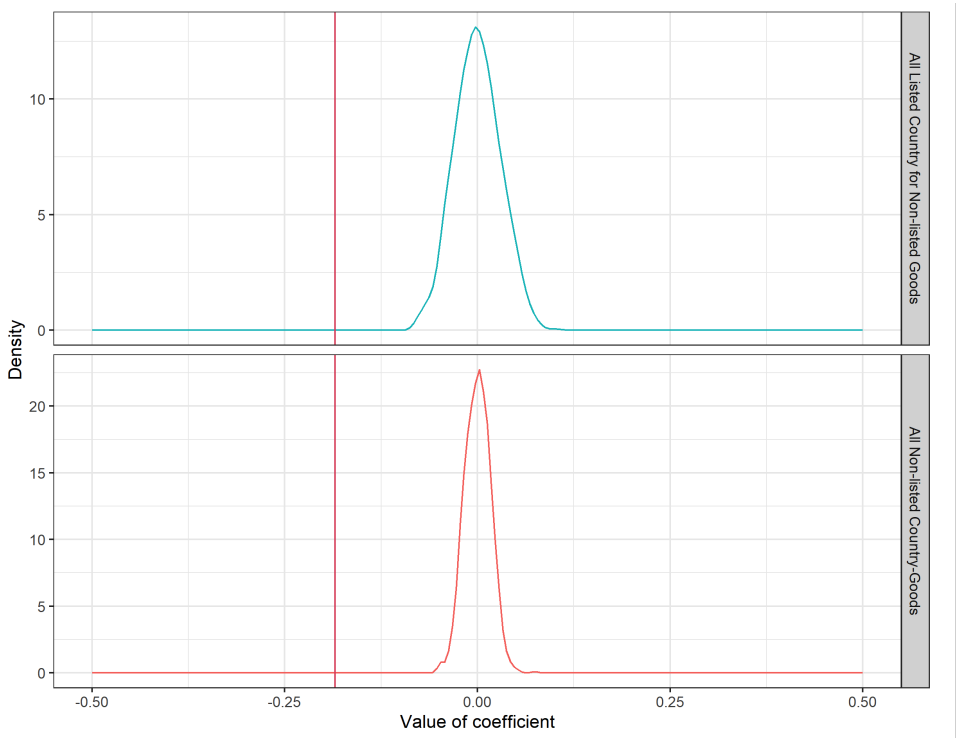

Figure 3: Placebo test results. Note: above are the densities of two placebo tests. The bottom test was performed by randomising on all non-listed countries and goods. The top test done by randomising on all for all listed countries for non-listed goods.

Table 11: The effect of listing before and after

	Dependent variable:		
	IMP	Import Dummy	Log Trade
	(1)	(2)	(3)
$Before - listing_{t-3,t-4}$	−0.015	−0.001	−0.014
	(0.025)	(0.002)	(0.023)
$Before - listing_{t-1,t-2}$	−0.022	0.001	−0.022
	(0.025)	(0.002)	(0.024)
$After - listing_{t,t+1}$	−0.127***	−0.010***	−0.120***
	(0.031)	(0.003)	(0.030)
$After - listing_{t+2,t+3}$	−0.173***	−0.013***	−0.164***
	(0.034)	(0.003)	(0.033)
$After - listing_{t+4,t+k}$	−0.211***	−0.016***	−0.200***
	(0.030)	(0.002)	(0.028)
Good-Year	Yes	Yes	Yes
Good-Country	Yes	Yes	Yes
Country-Year	Yes	Yes	Yes
Observations	12,315,644	12,315,644	12,315,644
R^2	0.844	0.769	0.847

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. The dependent variable in the first column is an inverse hyperbolic sine transformation of imports; second column is an indicator whether a country imported a certain good in a certain year into the United States; third column uses a logarithm of imports to the United States.

Table 12: Replication of benchmark results with different samples

Sample:	2007 – 2013	2007 – 2013	2005 – 2015	2005 – 2015	No HI	No HI
	Dependent variable:					
	Log Trade	Import Dummy	Log Trade	Import Dummy	Log Trade	Log Trade
	(1)	(2)	(3)	(4)	(5)	(6)
Listed t-1	-0.040^{*}	-0.003^{*}	-0.153^{***}	-0.012^{***}	-0.232^{***}	-0.017^{***}
	(0.024)	(0.002)	(0.025)	(0.002)	(0.027)	(0.002)
Good-Year	Yes	Yes	Yes	Yes	Yes	Yes
Good-Country	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,076,436	10,076,436	11,453,648	11,453,648	19,033,268	19,033,268
R^2	0.856	0.781	0.794	0.705	0.823	0.818

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. *No HI* sample excludes high income countries. The dependent variable in columns (1), (3), (5) and (6) is a logarithm of imports to the United States inverse hyperbolic sine transformation of imports; in columns (2) and (4) the dependent variable is an indicator whether a country imported a certain good in a certain year into the United States.

Table 13: Replication of benchmark results with the logarithm of trade

Sample:	All	Only TVPRA	Only TVPRA	All	Only TVPRA	Only TVPRA
	Dependent variable:					
	Log Trade			Import Dummy		
	(1)	(2)	(3)	(4)	(5)	(6)
Listed t-1	-0.177^{***}	0.003	-0.306^{***}	-0.014^{***}	-0.006^{***}	-0.023^{***}
	(0.025)	(0.025)	(0.028)	(0.002)	(0.002)	(0.002)
Good-Year	Yes	Yes	No	Yes	Yes	No
Good-Country	Yes	Yes	Yes	Yes	Yes	Yes
Country-Year	Yes	No	Yes	Yes	No	Yes
Observations	19,033,268	6,135,674	6,316,350	19,033,268	6,135,674	6,316,350
R^2	0.824	0.814	0.810	0.743	0.733	0.719

Standard errors in parentheses * p<0.10, ** p<0.05, *** p<0.01. Controls in all columns include country-year, good-year, and country-good interaction dummies. Standard errors are crusted at good level. Within R^2 are reported. The dependent variable in columns (1) - (3) is a logarithm of imports to the United States inverse hyperbolic sine transformation of imports; in columns (4) - (6) the dependent variable is an indicator whether a country imported a certain good in a certain year into the United States.

Appendices

A Forced and child labor definitions and conventions

The List of Goods Produced by Child Labor or Forced Labor report uses the adopted definitions of indentured child and forced labor coming from International Labour Organisation Conventions. The definitions below are the exact definitions used by the United States Department of Labor (2014) during the creation of the list.

"Child labor under international standards means all work performed by a person below the age of 15. It also includes all work performed by a person below the age of 18 in the following practices: (A) All forms of slavery or practices similar to slavery, such as the sale or trafficking of children, debt bondage and serfdom, or forced or compulsory labor, including forced or compulsory recruitment of children for use in armed conflict; (B) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic purposes; (C) the use, procuring or offering of a child for illicit activities in particular for the production and trafficking of drugs; and (D) work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children. The definitions used in developing the TVPRA List are based on standards adopted by the ILO. The ILO has adopted two conventions relating to child labor, the Minimum Age Convention, 1973 (C. 138) and the Worst Forms of Child Labor Convention, 1999 (C. 182). The ILO has also adopted two conventions relating to forced labor, the Forced Labor Convention, 1930 (C. 29) and the Abolition of Forced Labor Convention, 1957 (C. 105)."

"Forced labor under international standards means all work or service which is exacted from any person under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily, and includes indentured labor. Forced labor includes work provided or obtained by force, fraud or coercion, including: (1) by threats of serious harm to, or physical restraint against any person; (2) by means of any scheme, plan or pattern intended to cause the person to believe that, if the person did not perform such labor or services, that person or another person would suffer serious harm or physical restraint; or (3) by means of the abuse or threatened abuse of law or the legal process."

B Media and ILO indecies

B.1 Media index

The search queries for media index were identical for all newspapers in order to get consistent results and consisted of country name, child and forced labor keywords as well as listed industry name and synonyms.[29] Given the difference in newspapers circulation levels, I weight the media coverage index for each newspaper by its weekday circulation level. In order to create a sample representative of the U.S. population, I selected these newspapers based on a few criteria. First, collectively these newspapers are read by a large proportion of U.S. consumers with a share of total daily newspaper circulation of approximately 21%.[30] The media sources were chosen from the list of the most circulated U.S. daily newspapers - eight newspapers used in this search are among the top ten most read in the United States (Cision, 2016). Second, the set of regional newspapers that I chose are well spread geographically and are not concentrated in one area with 24 states being represented.

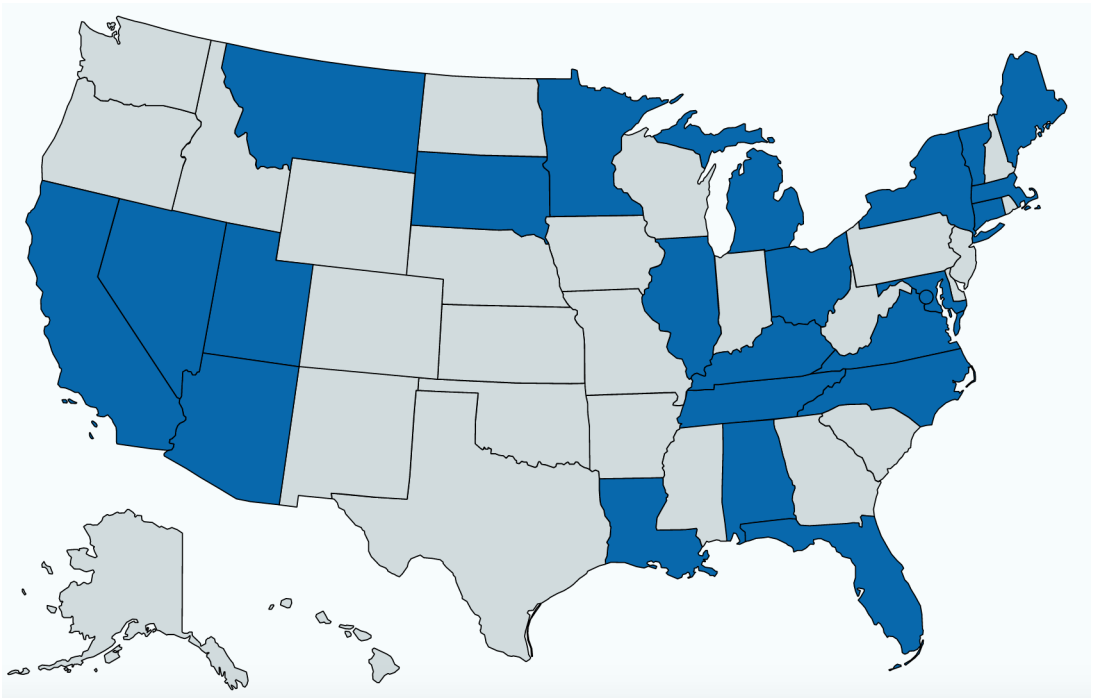

Figure B.1: Media coverage of U.S. states

[29]For example, the query for footwear in Russia was "("footwear" or "boots" or "shoes" or "heels" or "sneakers" or "sandals" or "flip-flops" or "sandals") and ("Russia" or "Russian Federation") and ("forced labor" or "child labor" or "exploitative labor" or "bondage" or "exploited labor" or "exploited worker").

[30]Author's calculations available upon request.

This media data was converted into a media index. Denoting the raw number of media hits for newspaper n relating to country i, industry j in year t as $m_{n,i,j,t}$, the circulation of newspaper n as c_n and the sets of newspapers, countries, industries and years as N, I, J, T, the media index is calculated as:

$$\text{Media Index}_{i,j,t} = \log(1 + 1,000,000 \sum_{n \in N} \left[\frac{c_n}{C} \frac{m_{n,i,j,t}}{m_n} \right]) \tag{B.1}$$

Where C is the total circulation of all newspapers in the sample $C = \sum_{n \in N} c_n$ and a newspaper's hits from all queries is denoted $m_n = \sum_{i \in I} \sum_{j \in J} \sum_{t \in T} m_{n,i,j,t}$.This formula is complicated but has the desirable properties that each newspapers contribution to the index is weighted by its circulation. In addition m_n is added to ensure that a low circulation newspaper that happens to have a disproportionately large number of hits in total cannot contribute disproportionately to the index. A multiple of one million is added such that the media index comes out to be in the range of approximately 0-10 but the implications of the regressions are similar with different constants here.

B.2 ILO index

ILO publications are categorised by subject matter, country and year. A publication count was taken for documents pertaining to child labor or forced labor for each country and each year.

$$\text{ILO Index}_{i,t} = \log(1 + \frac{1}{2}(\text{No.Child Labor Reports}_{i,t} + \text{No.Forced Labor Reports}_{i,t})) \tag{B.2}$$

Given that these measures can only capture information about goods that were listed and cannot be compared to the media coverage of goods that were never listed, I do not use them in the regression analysis.