A Touch of Sophistication: FDI and Unit Values of Exports

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Abstract

The debate on trade and growth increasingly focuses on the composition of exports. Exports of more "sophisticated" products appear to be positively correlated with growth, and upgrading the quality of exports is high on the policy agenda of many countries. This study presents evidence suggesting that attracting inflows of FDI offers potential for upgrading a country's export basket. The empirical analysis relates unit values of exports measured at the 4-digit SITC level to data on sectors treated by investment promotion agencies as priority in their efforts to attract FDI. The sample covers 116 countries over the period 1984-2000. The findings are consistent with a positive effect of FDI on unit values of exports in developing countries. However, such a relationship is less evident in developed countries. These results suggest that FDI can help bridge gaps in production and marketing techniques between developing and high income economies.

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Keywords: export quality, unit values, FDI, investment promotion, industrial policy.

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1. Introduction

While export-led growth has often been cited as the engine behind the Asian miracle, recent research has shifted the focus of the debate away from the mere fact of exporting and towards the importance of export composition for growth. For instance, one of the recent stylized facts of development is the finding that countries promoting exports of more "sophisticated" goods grow faster (Rodrik 2006; Hausmann, Hwang and Rodrik 2006).[1]

If "you become what you export" is indeed true, introducing measures facilitating export upgrading becomes a key policy issue. The importance of product upgrading and climbing up the export value chain has been instinctively accepted by politicians. To quote Ross Perot's famous line, politicians tend to believe that it is better to make computer chips than potato chips. Such beliefs are also partially responsible for the recent revival of interest in industrial policy. However, upgrading the quality of exports, especially in a developing country, is not a trivial task given the resources and time needed to build up the capital stock, the skills of the labor force and the reputation in foreign markets.

This study argues that policies aimed at attracting FDI inflows can boost a country's ability to upgrade its export basket. The entry of multinationals can affect the quality of exports through two channels. First, multinationals using a country as an export platform can engage in production of more sophisticated goods than those previously exported by the host country.[2] Second, the presence of multinationals can lead to knowledge spillovers to local firms in the same industry or in the supplying sectors, which in turn can facilitate product upgrading. For instance, in a recent World Bank survey, 24 percent of local enterprises in the Czech Republic and 15 percent in Latvia reported that they have learned about availability of new technologies by observing multinational enterprises operating in their country and their sector. A half of suppliers of multinationals surveyed in the Czech Republic reported improving their quality control systems in response to the request of their multinational customers (Javorcik 2008).[3]

To examine whether FDI is a catalyst for upgrading the export portfolio, we use information on exports of 116 countries during the 1984-2000 period. A cross-country analysis of the relationship between upgrading export products and FDI poses two challenges. First, in order to distinguish the effects of FDI inflows from all other country-specific shocks and policies one would ideally like to use sector-level information on FDI inflows. Unfortunately, such data are

[1] Though others suggest that it is the sophistication of the export structure combined with the ability to export to industrial countries that matters for growth (see Mattoo and Subramanian 2009).

[2] A comparison of unit values of new export products introduced by foreign and domestic firms operating in Mexico (normalized by the mean price of all exported goods within the same product category) indicates that foreign establishments tend export higher quality products (Iacovone and Javorcik 2008). A similar conclusion is reached by Wang and Wei (2008) who find that after controlling for processing trade, exports by foreign-invested firms in China tend to have systematically higher unit values than indigenous firms, suggesting that they produce higher-end product varieties. FDI may also lead to a greater volume of exports. For instance, Arnold and Javorcik (2009) show that foreign acquisitions in Indonesia lead to large increases in the export intensity of the acquired plants.

[3] In the same survey, a quarter of local suppliers of multinationals operating in the Czech Republic reported that the knowledge gained by doing business with a multinational helped them become an exporter, 12% said that they started supplying foreign sister companies of their multinational customer and 9% benefited from the multinational customer recommending them to other companies abroad.

difficult to come by, particularly in a developing country context. To the best of our knowledge, the only sufficiently comprehensive dataset on sectoral FDI figures for a large number of countries is available from the US Bureau of Economic Analysis (BEA). This dataset, however, covers only the US FDI. Although the US FDI is likely to constitute a considerable share of total FDI in certain countries, in others it might not. Using direct FDI measures would therefore be likely to give a less than complete picture of the actual foreign presence in many country-sector combinations.[4] The second challenge in the analysis is to identify the direction of causality. FDI may promote upgrading of export products but it may also be attracted to countries and sectors that are already exporting higher value products.

To address these challenges, our study utilizes a new dataset on industry-level targeting done by national investment promotion agencies (IPAs) rather than the data on actual FDI inflows. The information on whether or not a particular country has been targeting a particular sector in an effort to attract FDI, the timing of such activities and the list of priority sectors is available from the World Bank Census of Investment Promotion Agencies covering over one hundred countries around the world. Sector targeting is considered to be best practice by investment promotion professionals, as it is believed that more intense efforts concentrated on a few priority sectors are likely to lead to greater FDI inflows than less intense across-the-board attempts to attract FDI (Loewendahl 2001; Proksch 2004). Indeed, in the World Bank Census a vast majority of IPAs reported being involved in sectoral targeting. Likewise, a recent empirical analysis by Harding and Javorcik (2007) shows that FDI inflows into sectors explicitly targeted by IPAs more than double in the post-targeting period relative to the pre-targeting period and non-targeted sectors.

Our empirical analysis, based on export data from Feenstra et al. (2005), examines whether export products in the sectors targeted by IPAs tend to have higher unit values post targeting relative to the pre-targeting period and non-targeted sectors. Unit values of export products are calculated at the 4-digit Standard International Trade Classification (SITC) level, while sector targeting information is available at the 3-digit level of the North American Industry Classification System (NAICS).[5] To take into account country endowments and other time-invariant unobservables that could influence unit values of exports from a particular country-sector combination, the empirical specification includes country-sector fixed effects. In other words, our analysis focuses on within country-sector variation in unit values. To control for differences in unit values between products (e.g., the fact that pencils have lower unit values than computers), the empirical specification includes product-year fixed effects. These fixed effects also control for factors that might cause the relative price of pencils to computers to change over time. Finally, the empirical model includes country level controls.

The results suggest a positive relationship between FDI and unit values of exports in developing countries. We find a positive and statistically significant association between a sector being targeted (proxied by an indicator variable or by the number of years the targeting has been in place) and unit values of exported products. This result can be found in a

[4] In addition, the time period covered by the BEA data is quite short, as the FDI stock information starts in 1989. Moreover, in some cases figures in particular country-industry-year cells are suppressed for confidentiality reasons.

[5] Examples of 4-digit SITC products include SITC 8434 Skirts, women's of textile fabric, SITC 8435 Blouses of textile fabric, SITC 6412 Printing paper and writing paper, in rolls or sheets, SITC 6612 Portland cement, ciment fondu, slug cement.

contemporaneous specification as well as the specifications with one, two or three lags. To check that our results are not subject to a reverse causality problem, we conduct a variant of a strict exogeneity test suggested by Wooldridge (2002) and show that the sectors that will be targeted next period (or in two or three periods, depending on the specification) do not have higher unit values before the start of targeting.

The magnitude of the effect is economically meaningful. We find that exports of targeted sectors enjoy a unit value premium of about 11 percent. To put this figure into perspective, the median unit value of manufactured chemical products exported by developing countries is equal to about 62 percent of the median value in developed countries. The corresponding figure for plastic and rubber products is 60 percent. Thus FDI may close about 22 and 17 percent, respectively, of the gap between developing and industrial countries. The results for the developed country subsample appear to be much weaker.

Next we ask whether the association between FDI and unit values tends to be stronger in differentiated products. Differentiated products, defined based on Rauch's (1999) classification, are the goods lacking a reference price because of their intrinsic features or the goods whose price is not set on organized exchanges. Women's skirts and blouses (SITC 8434 and 8435) are an example of differentiated products, while cement and printing paper (SITC 6412 and 6612) are not. In the developing country subsample, we find no difference between the effect of FDI on differentiated and homogenous products. In the developed country subsample, FDI matters only for differentiated products. A likely explanation for this finding is that in developed countries there is little room for upgrading of exported homogenous goods as these countries already possess sophisticated technologies for production of goods such as cement or paper. In contrast, FDI inflows into developing countries may facilitate upgrading of both homogenous and differentiated products.

We also check whether the effects of FDI are more pronounced in the case of final products, as opposed to intermediate inputs and raw materials. It turns out that the effect of FDI manifests itself only in the case of final goods when developing countries are considered. If the seller's reputation matters more in the case of final products than in intermediates, it may be much easier for multinationals than for indigenous producers to obtain higher prices.

A series of robustness checks confirms our baseline findings. We show that the results are robust to controlling for the gross fixed capital formation in the sector, which suggests that the effect is not driven by FDI just bringing in new capital. To attenuate the concern that export unit values may be influenced by transfer pricing, we show that the effect of targeting does not depend on the corporate tax rate. Finally, our conclusions are confirmed when we use sector targeting as an instrument for the presence of US investors.

While our results cannot distinguish between export upgrading being due to exporting by multinationals themselves or due to indigenous producers learning from foreign investors, they suggest that FDI can play an important role in helping developing countries move up the production value chain. They also indicate that the fears that FDI will relegate developing countries to producing only simple low value added products are not warranted.

Our study is related to two strands of the existing literature. The first strand documents quality differences among exports originating in different countries (Schott 2004; Hummels and Klenow 2005). Schott (2004) finds a positive association between country-level capital and skill abundance and unit values of exports. To the extent these country characteristics are proxies for producer productivity, this finding is inconsistent with New Trade Theory which suggests a negative relationship between productivity and prices. The novelty of our study lies in explicitly testing how the movement of production from developed to developing countries affects the unit values of exports. FDI flows are an important aspect of globalization, yet to the best of our knowledge, our study is the first attempt to examine the impact of FDI on unit values of exports in a wide range of countries. Our results indicate that the mapping between unit values and producer characteristics is at least two-dimensional. On the one hand, FDI presence may put a downward pressure on unit values of exports due to superior productivity of foreign affiliates. On the other hand, FDI presence may lead to upgrading of production and marketing techniques and thus increasing the ability of exporters to obtain higher prices in foreign markets. Our findings are consistent with the latter force being dominant and suggest that FDI can contribute to closing the unit value gap between exports originating in developing versus developed countries. Our results not only have policy implications, but also offer a potential explanation for the relatively fast narrowing of the quality gap documented by Hallak and Schott (2008) during the period of rapid globalization between 1989 and 2003.

The second strand of the literature relevant to our work provides a motivation for why we would expect a positive link between the presence of FDI and unit values of exports. The literature includes work suggesting that foreign affiliates tend to export higher quality products (Wang and Wei 2008, Iacovone and Javorcik 2008) and the studies documenting superior performance of foreign affiliates (for a review see Arnold and Javorcik 2009).[6] The literature also encompasses studies examining export externalities associated with the presence of multinationals. In a widely-cited paper, Aitken, Hanson and Harrison (1997) use panel data on 2,104 Mexican manufacturing plants from the period 1986-1990 to demonstrate that the presence of exporting multinationals in the same region reduces the costs of exporting for Mexican firms. No such externalities are found for exporting firms in general. Based on detailed Chinese trade statistics identifying the type of exporters and their location, Chen and Swenson (2008) find that the presence of multinationals in the same industry is associated with more and higher quality trade transactions by Chinese firms. Using the same data set, Swenson (2007) shows that the positive association between the presence of multinationals and new export connections by private Chinese exporters may be driven by information spillovers. Finally, this literature also includes work on intra- and inter-industry productivity spillovers generated by foreign affiliates (for a review of the former see Görg and Strobl (2001), for evidence on the latter see Javorcik (2004)). To the best of our knowledge, our study is the first contribution to the literature on FDI and the quality of exports based on the data from a large number of countries.

This paper is structured as follows. The next section describes the data and the empirical strategy. Section 3 presents the empirical findings, and Section 4 concludes.

[6] Note that in models of heterogeneous firms (in the tradition of Melitz 2003) high productivity firms can be viewed as firms producing a higher quality variety at equal cost.

2. Data and empirical strategy

2.1. Trade data

We use export data compiled by Feenstra et al. (2005) for the period 1984-2000.[7] The data are available at the 4-digit SITC Rev. 2 classification. Unit values are calculated by dividing the export value by the quantity of exports. The value of exports is measured in current US dollars. For some country-product-year combinations there are multiple observations on values and corresponding quantities, as for instance part of exports may be measured according to weight and part according to the number of units. In such cases, we follow Schott (2004) and calculate the unit value as the weighted average, where the shares of total country-product-year value are used as weights.[8]

Since our proxy for the presence of FDI is available in the NAICS (1997) classification, we use a concordance between NAICS and SITC classification.[9] Thus the term ***sector*** refers in the paper to the 3-digit NAICS aggregates, while the term ***product*** is used to denote 4-digit SITC codes.

The trade in agricultural products tends to be more restricted than trade in manufactured products, therefore we exclude the following NAICS-sectors: Crop Production (111), Animal Production (112), Forestry and Logging (113), Fishing, Hunting and Trapping (114). We also exclude Oil and Gas Extraction (211) and Mining except Oil and Gas (212) because we believe that unit values in these sectors may be driven primarily by the quality of the natural resource endowments. This leaves us with 23 sectors with non-missing unit value observations. These are listed in the Appendix Table A1. In Appendix Table A2, we list the average, the minimum and the maximum number of distinct products available per sector. The total number of distinct products covered by our sample is 788.

In Table 1, we compare the median unit values of products exported by developing and developed countries in each sector in year 2000. With the exception of two sectors (Water Transportation (483)[10] and Motion Picture and Sound Recording Industries (512)), the unit values of exports from developing countries are lower than the unit values of developed country exports. As argued by Schott (2004), the systematically lower unit values of developing countries' exports point to the specialization within sectors. Schott interprets his finding—within product specialization rather than between product specialization—as support for the view that capital- and skill-abundant countries use their endowment advantage to produce higher quality varieties.

2.2. Using information on investment promotion activities to proxy for FDI inflows

We exploit data from the 2005 Census of Investment Promotion Agencies to proxy for inflows of FDI to a given sector in a given country in a given year. The Census includes information on

[7] For additional information on the data set, see http://cid.econ.ucdavis.edu/data/undata/FAQ_on_NBER-UN_data.pdf and http://cid.econ.ucdavis.edu/data/undata/undata.html.

[8] Dropping country-product-year combinations for which quantities are reported in multiple units would not change the conclusions of this study.

[9] The concordance comes from http://www.nber.org/lipsey/sitc22naics97.

[10] In our analysis, we use only one product from this sector, namely Ships, boats and other vessels for breaking up (SITC 7933).

whether a country was concentrating its FDI promotion activities on selected priority sectors (so called sector targeting) rather than trying to attract all types of foreign investors. Sector targeting is believed to be the best practice by investment promotion professionals and has been practiced by more than half of the countries surveyed in the Census. If a country was engaged in sector targeting, our data include information on what sectors were targeted and the year when targeting started and ended. Harding and Javorcik (2007) find that targeting on average doubles inflows of FDI to priority sectors in developing countries (relative to non-priority sectors or priority sectors in the pre-targeting period). We therefore believe the information on targeted sectors is a good proxy for inflows of FDI.[11]

Based on the Census data, we construct two variables: (i) an indicator variable called *Sector targeted*$_{sct}$ equal to one if sector s was a priority sector in country *c*'s efforts to attract FDI in year *t*, and zero otherwise, (ii) a continuous variable *Length of sector targeting*$_{sct}$ defined as the number of years country *c* has treated sector *s* as a priority sector prior to (and including) year *t*.[12] We think of *Sector targeted* as a proxy for additional FDI inflows taking place in a given time period and of *Length of sector targeting* as a proxy for the stock of FDI.

There are two advantages of using information on targeted sectors instead of the information on actual FDI inflows. The first advantage is the data coverage in terms of geography and time period. Figures on sector-specific FDI inflows are not readily available for developing countries. In our analysis, we are particularly interested in exploring the link between FDI and unit values of exports in a developing country context. We believe that the effects of FDI are likely to be more pronounced in low income economies which often lag in terms of technological capabilities. The most comprehensive source of sectoral FDI figures is the US Bureau of Economic Analysis (BEA). Unfortunately, BEA only collects information on the US FDI and thus gives a less than complete picture of the actual foreign presence in many countries. It also covers a relatively short time period (the data with wide country coverage start in 1989) and suppresses quite a few country-sector-year cells for confidentiality reasons. The information is suppressed if the number of investments made in a particular country-sector-year combination was small, which means that we would often miss the information on the entry of the first few foreign investors, which are likely to have the most pronounced effect.

The second advantage of utilizing information on investment promotion efforts is that our proxy attenuates endogeneity concerns. Country-sector combinations with high unit value of exports might attract FDI with a greater ease than the sectors with relatively low unit values. This would manifest itself as a positive association between FDI inflows and unit values, but the direction of causality would run from high unit values to high FDI inflows. By employing information on sector targeting we attenuate the potential reverse causality problem. Targeting is a policy tool based on many factors and thus the choice of priority sectors is less likely to be driven by the quality of exports from that sector. Nevertheless, we test whether this is true and show that our assumption is reasonable.

[11] Charlton and Davis (2004) draw similar conclusions for OECD countries.

[12] We include *Length of sector targeting* in the log form (adding one before taking the log).

Appendix Table A3 presents detailed information on the sample used in the empirical analysis. It lists the minimum and maximum number of sectors available for each country, the number of observations and the number of observations pertaining to targeted sectors. Our data on investment promotion efforts include 91 countries whose IPAs responded to the question on targeting and 25 countries which did not have an investment promotion agency in 2004 and thus are treated as not engaged in targeting. Out of 91 countries, 52 reported having been engaged in targeting at any point in the period covered by our sample (1984-2000). Thirty of those countries provided the exact timing information on at least one priority sector. In our analysis, we include all country-sector combinations for non-targeted sectors and all country-sector combinations for priority sectors for which the exact information on the timing of targeting is available. This leaves us with 116 countries, for 30 of which we capture active targeting policies taking place during the time period considered.

Our data set also includes information on population size and GDP per capita taken from the World Bank's *World Development Indicators* (WDI) and inflation figures provided by the IMF's *International Financial Statistics*. The summary statistics are presented in Table 2.

2.3. Empirical strategy

To examine the relationship between the quality of export products and FDI, we estimate the following model:

$$\ln Unit\_value_{pct} = \alpha + \beta\ Sector\_targeted_{sct} + \pi \ln Export\_value_{pct} + X_{ct}\theta\ + \gamma_{cs} + \gamma_{pt} + \varepsilon_{pct}$$

where $Unit\_value_{pct}$ is the unit value (value of exports/quantity of exports) of product p exported by country c at time t, which is our measure of export quality.[13] Products are defined at the 4-digit SITC level. $Sector\_targeted_{sct}$ is a dummy taking the value one if country c's investment promotion agency considered sector s, to which the product p belongs, as a priority (targeted) sector for attracting FDI inflows at time t, and zero otherwise. Sectors are classified according to the 3-digit NAICS 1997 classification. $Sector\_targeted_{sct}$ also takes the value of zero if country c did not have an investment promotion agency at time t.

The empirical specification incorporates a number of controls, including the size of the exporting industry proxied by the value of country c's exports of product p at time t ($Export\_value_{pct}$) and several country-level characteristics (X_{ct}). As suggested by the findings of Hummels and Klenow (2005), we control for the size of the exporting economy with the logarithm of the population size. To control for the level of development, we include the logarithm of the GDP per capita (in current USD). Finally, to take into account macroeconomic stability in the exporting country, we add inflation.

Our specification also includes country-sector (γ_{cs}) and product-year (γ_{pt}) fixed effects. The former take out all time-invariant characteristics specific to a particular country-sector combination that might be important for unit values. Examples of such characteristics include

[13] Although unit values are imperfect proxies for product quality, they have been widely used in the literature (see for instance Schott 2004 and Hallak 2006).

availability of natural resources or climatic conditions. In other words, our analysis focuses on within-country-sector variation in unit values. As there are large differences in unit values between products, e.g., pencils are cheaper than computers, we include product-year fixed effects. These fixed effects not only absorb unit value differences across products, but they also take out all observed and unobserved global factors that might change the relative unit values over time. For instance, if the relative prices of computers to pencils goes down in year t due to technological progress or changes in demand, this effect will be absorbed by the product-year fixed effect.

Our variable of interest, *Sector_targeted*, is at the country-sector-year level and our dependent variable is at the more disaggregated country-product-year level. Therefore we cluster standard errors at the country-sector-year level, as suggested by Moulton (1990).

3. Results

Foreign companies, typically employing more advanced technologies than national firms, are likely to export products of higher quality than local firms.[14] This would be consistent with Schott's (2004) finding of a positive association between export unit values and the capital intensity of exporting countries' production techniques. Foreign companies can affect the quality of a sector's exports in several ways. First, they can move the sector along the intensive margin by exporting relatively larger quantities of higher valued products than domestic firms. Second, multinationals can induce movement along the extensive margin by producing higher quality / higher priced versions of the already exported product categories or by introducing new, higher value products to the country's export basket. Third, multinationals can facilitate movement of local producers along either the intensive or the extensive margin through knowledge spillovers. As trade statistics available to us do not distinguish between exports by domestic and foreign companies, our analysis will capture the sum of all the above effects.

The results presented in Table 3 are consistent with higher export unit values being found in sectors experiencing increased foreign presence. We find a positive and statistically significant coefficient on the *Sector targeted* variable in the subsample of developing countries (columns 1 through 4). This is true in a specification with the contemporaneous indicator *Sector targeted* as well as in the specifications where the variable of interest enters as the first, second or third lag.

The magnitude of the effect is economically meaningful: targeted sectors are found to export products whose unit values are 11 percent higher than the average unit value of the same product observed in a given year.[15] This magnitude is plausible as it captures the average effect found during the duration of targeting. It is also sensible when one considers the fact that the median unit value of exports from developing countries is on average (across all years and products) equal to 62 percent of the unit value of products exported form developed countries,

[14] As mentioned earlier, the superior productivity of foreign companies documented in the literature (e.g., Arnold and Javorcik 2009) may manifest itself in their ability to produce higher quality products at equal cost.

[15] This figure is based on the coefficient from the first specification: exp(.103)-1 = .11.

suggesting that there is a lot of room for catching up.[16] Another way of putting this figure into perspective is to note that the median unit value of manufactured chemical products exported by developing countries is equal to about 67 percent of the median value in developed countries (see Table 1). The corresponding figure for plastic and rubber products is 60 percent. Thus FDI may close about 22 and 17 percent, respectively, of the gap between developing and industrial countries in terms of export quality.

In contrast to the strong association found for developing countries (significant at the one percent level), the results for developed countries (columns 5 through 8) are less robust. The contemporaneous effect is not statistically significant, while lags are significant only at the 10 percent level. The magnitude of the coefficients is also much smaller. A weaker and quantitatively smaller effect for developed countries is consistent with the view that foreign presence is closing a technology gap. For a developed economy, there is less of a technology gap to close and the foreign presence has a minor effect on the unit values of exports.

As for the other controls, we find that a positive correlation between GDP per capita and unit values, which, as expected, suggests that more developed countries export more sophisticated products. The data also indicate a negative correlation of the population size with export unit values, which is consistent with the finding of Hummels and Klenow (2005) that more labor-abundant countries tend to export lower priced products. Additionally, in the developed country subsample we find that products with a higher volume of exports tend to have higher unit values.

In the Appendix, we test the robustness of our results. First we show that excluding the volume of exports from the regression has no effect on the estimated coefficients (see Table A4). Then we focus on the argument of Bertrand et al. (2004) that estimations with a difference-in-difference method using panel data are likely to be subject to serial correlation problem, which means that their standard errors could be severely underestimated. We take Bertrand et al.'s advice on how this problem could be remedied and conduct two robustness checks. In Table A5, we demonstrate that our results remain highly significant if we cluster standard errors on country-sector level (instead of country-sector-year combinations as in the baseline model). In Table A6, we follow their advice and ignore the time-series information when computing standard errors. We do so by regressing the logarithm of the export unit values on control variables (other than the variable of interest) and the fixed effects. We keep the residuals only for sectors that were designated by their countries as priority sectors in investment promotion efforts. We divide these residuals into two groups: residuals from the years before targeting started and residuals from the post targeting years. Then we calculate the average for each country-sector combination for the pre- and post-targeting period. Finally, we regress the two-period panel of mean residuals on the dummy denoting targeted sectors. As evident from Table A6, the dummy remains positive and significant in the developing country subsample. We therefore feel confident that our baseline results are not subject to the autocorrelation problem.

Returning to our baseline specification, in Table 4 we include the length of sector targeting instead of the indicator variable. It is intuitive to expect that the sectors targeted for a longer

[16] If the mean is used, rather than the median, the unit values of the exported products from developed countries are 68 percent of the unit values of products exported by developed countries.

time period will attract larger inflows of FDI by the virtue of greater effort on the part of an investment promotion agency. The results confirm our earlier conclusions. We find a strong positive association between sector targeting and unit values in developing countries, but not in developed countries. Taken together, Table 3 and Table 4 point to a weaker, if any, effect of foreign presence on unit values of exports in developed countries. This is what we would expect from a simple framework where foreign presence reduces technological gap between the source country and host country firms/sectors.

One may be concerned about investment promotion agencies choosing to target sectors with more sophisticated exports (that is with higher unit values of exports). To attenuate this concern, we conduct a variant of a strict exogeneity test, as suggested by Wooldridge (2002, p. 285). We do so by adding an additional regressor which takes the value of one for the year immediately preceding the first year of targeting sector *s* by country *c*, and zero otherwise. A statistically significant coefficient on this dummy would indicate that targeted sectors had higher unit values (relative to other sectors) even before targeting started. The first column of Table 5, however, indicates that this is not the case. The dummy bears a negative sign that is not statistically significant. Moreover, the F-test reported at the bottom of the table indicates that the difference between the coefficients on the dummy and the *Sector targeted* variable is statistically significant at the 5 percent level. In the second column, we repeat the exercise asking whether targeted sectors exhibited higher unit values during the two-year period preceding targeting. In column 3 and 4, we do so for the three- and four-year periods, respectively. We find no indication that the sectors with higher unit values were chosen for targeting in developing countries. The additional regressors are never statistically significant, and the F-tests reject the equality between the coefficients on each dummy and *Sector targeted*. In all four models, the coefficients on *Sector targeted* are larger in magnitude than the coefficients on pre-targeting dummy. This exercise gives us confidence that it is the FDI presence that is leading to higher unit values of exports rather than the other way around. This is, however, not the case in the developed country subsample. The coefficients on pre- and post-targeting periods are not statistically significant. Even though the former coefficients bear negative and the latter positive signs, the hypothesis of equality of coefficients cannot be rejected.

Next we examine whether the association between FDI and unit values tends to be stronger in differentiated products. Differentiated products are the goods lacking a reference price because of their intrinsic features or the goods whose price is not set on organized exchanges. Examples of differentiated products include women's skirts and blouses (SITC 8434 and 8435), while non-differentiated products include cement and printing paper (SITC 6412 and 6612). The classification of differentiated products was compiled by Rauch (1999) and is based on 4-digit SITC Rev. 2 classification. Rauch suggested two definitions, a conservative and a liberal one, in order to account for the ambiguities arising in the classification. The conservative definition minimizes the number of commodities that are classified as homogeneous goods, while the liberal definition maximizes this number. We employ the liberal definition. We hypothesize that differentiated products offer more room for quality upgrading and thus the effect of FDI could be stronger in those product categories.

The results in Table 6 show different patterns present in the developing and developed country subsample. In developing countries we find no difference between the effect of FDI on

differentiated and homogenous products, while in the developed countries FDI matters only in the differentiated product category. A possible explanation for this finding is that in developed countries there is little room for upgrading of exported homogenous goods as these countries already have access to sophisticated technologies for production of goods such as cement or paper. In contrast, FDI inflows into developing countries may facilitate upgrading of both homogenous and differentiated products.

In Table 7, we ask whether the effects we attribute to FDI differ between exports of final goods, intermediate inputs and raw materials. To check this, we interact our variable of interest with an indicator for final goods compiled by the WTO Trade Policy Review Division.[17] Note that this classification differs from the one focusing on differentiated products. Not all final products are differentiated goods (beer made from malt and tomatoes are a case in point). Similarly, not all differentiated products are final goods (examples include silk yarn and leather). As evident from the table, FDI appears to be affecting only the unit values of final goods rather than unit values of all products exported from developing countries. As before, we find no statistically significant relationship for the developed country subsample.

As our results are consistent with FDI inflows being associated with higher unit values of exports, the natural question to ask next is whether this effect is due to additional investment in physical assets or to the knowledge and know-how brought by foreign investors. To shed light on this question we control for investment (gross fixed capital formation) taking place in a given sector in a given country at time *t*-1. The data on investment come from the World Bank's Trade, Production and Protection dataset database (described in Nicita and Olarreaga 2007)[18] and enter in the log form. As evident from Table 8, there is no statistically significant relationship between lagged investment and unit values of exports, however the link between sectors targeted by investment promotion efforts and unit values of exports remains strong.

One may wonder whether the effect of FDI on unit values of exports could reflect transfer pricing activities of multinational corporations. We check this possibility by adding to the model an interaction between the host country's tax rate and the dummy for targeted sectors as well as the tax rate itself (see Table 9). We expect that higher tax rates would give multinationals an incentive to underprice their exports in order to shift the profits out of the country. The data on tax rates come from the World Tax Database.[19] We use the highest corporate tax rate reported in the database.[20] We find a positive correlation between the corporate tax rate and the unit value of exports, i.e. the opposite of what presence of transfer pricing would suggest. The interaction term is never statistically significant in the developing country subsample. More importantly, controlling for tax rate strengthens our previous results on the positive link between FDI and quality of exports.

[17] We are grateful to Francis Ng from the World Bank for sharing with us the classification of products according to their state of processing.

[18] See: http://go.worldbank.org/4Z6UU7TO40.

[19] See: http://www.bus.umich.edu/OTPR/otpr/introduction.htm

[20] We do acknowledge though that this exercise is imperfect as it does not control for tax reductions or tax holidays that may have been awarded to individual multinationals.

The lack of strong results for high income countries may be due to FDI having two opposite effects on unit values of exports. On the one hand, FDI may lead to exporting of more sophisticated (higher unit value) products. On the other hand, if multinationals are more productive than local producers, they may be able to produce and export the same products at lower prices. To shed light on this question, we augment our specification by controlling for labor productivity in sector *s* of country *c* at time *t* (using the value added per worker reported in the World Bank's Trade, Production and Protection database). The results, reported in Table 10, show a positive link between FDI and export sophistication in both developing and high income countries. In most cases, the magnitude of the effect is larger for developing countries.

Our earlier work (Harding and Javorcik 2007) has convincingly shown that the sectors prioritized in investment promotion efforts receive more than double the amount of FDI inflows received by other industries (and by priority sectors before investment promotion efforts begin). Nevertheless, in this paper, we also perform an instrumental variable analysis in order to show that there is a positive link between the variation in FDI *attributable* to investment promotion efforts and unit values of exports.

Unfortunately, the information on FDI presence at the required level of disaggregation is available only for the US and is much more limited in terms of the time period and the number of countries covered (we lose 40,000–60,000 observations in the developing country subsample). We consider several measures of FDI: the value of FDI inflows, the value of assets of US affiliates operating in each host country in a given sector, and the value of sales and employment of such affiliates. All data come from the BEA. We instrument for each measure of FDI using our *Sector targeted* dummy. As shown in Table 11, in 6 of 8 specifications, our instrument is positively and significantly linked to the FDI presence in a host country. The Anderson test indicates that our model does not suffer from the weak instrument problem. The second stage regressions confirm our earlier findings. We find a positive and statistically significant link between FDI presence and unit values of exports. As these estimates represent the effect of FDI originating only from the US, they are not directly comparable to the earlier findings which capture the effect of investment promotion on FDI originating from all parts of the world.

4. Conclusion

The recent literature has postulated that the sophistication of a country's export basket has strong implications for its future economic growth (Hausmann, Hwang and Rodrik 2006). This view has given impetus to policy makers to search for measures helping exporters climb up the value added ladder. However, little evidence of successful interventions has been discovered.

This study argues that the policies aimed at attracting FDI inflows offer a potential recipe for upgrading a country's export basket. The results of our empirical analysis indicate a positive relationship between FDI and export sophistication in developing countries. The magnitude of the effect is economically meaningful. Sectors prioritized in national efforts to attract FDI are found to have 11 percent higher unit values of exported products than other sectors or prioritized sectors before the policy takes effect. This magnitude is plausible when one

considers the fact that the median unit value of exports from developing countries is on average (across all years and products) equal to 62 percent of the unit value of products exported form developed countries, suggesting that there is a lot of room for catching up. Further, there is no indication of a reverse causality problem as there is no evidence of priority sectors exhibiting higher unit values in the pre-targeting period. The results for developed countries are less robust and suggest that such an effect may be present only in differentiated products. In sum, our findings suggest that attracting FDI inflows can be a viable strategy for developing countries wishing to upgrade the quality of their export basket.

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Table 1: Median unit values in USD, year 2000, by sector

	Developing countries		Developed countries		Median developing/Median developed
NAICS97	No. of observations	Median	No. of observations	Median	
221	4	0.019	6	0.046	0.42
311	2177	1.133	1392	1.501	0.75
312	224	1.456	147	3.238	0.45
313	809	4.079	554	6.827	0.60
314	428	3.561	274	5.541	0.64
315	1166	16.590	520	27.551	0.60
316	400	8.382	228	13.597	0.62
321	469	0.688	276	1.067	0.64
322	430	0.758	327	0.891	0.85
323	170	2.825	123	3.966	0.71
324	246	0.262	167	0.287	0.91
325	2374	1.083	1954	1.620	0.67
326	392	1.941	279	3.230	0.60
327	664	0.892	535	2.130	0.42
331	1067	0.605	755	0.887	0.68
332	805	2.131	577	4.583	0.46
333	1956	5.700	1554	11.711	0.49
334	1035	24.750	827	46.632	0.53
335	502	4.834	361	7.716	0.63
336	880	6.797	625	12.594	0.54
337	99	2.533	46	3.624	0.70
483	14	688.750	15	525.131	1.31
512	11	96.833	13	36.761	2.63

Note: The table shows the median unit values of exports by NAICS 1997 sectors in the year 2000. The number of observations reflects that there are several countries exporting products corresponding to the particular sector and that there are several products within each sector. The median is other words calculated across products and countries for the given sector in the year 2000. For a description of NAICS 1997 codes, see Appendix Table A1.

Table 2: Summary statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Developing					
log Unit value	135489	1.029	1.848	-11.860	11.110
Sector targeted	135489	0.057	0.233	0.000	1.000
Length of sector targeting	135489	0.309	1.116	0.000	19.000
log Export value product	135489	5.569	2.025	-9.220	2.950
log GDP per captia	135335	7.717	0.897	4.455	9.413
log Population	135489	17.060	1.576	11.961	20.956
Inflation	135489	1.105	5.266	-0.176	237.731
High income					
log Unit values	150302	1.519	1.890	-9.634	11.252
Sector targeted	150302	0.032	0.175	0.000	1.000
Length of sector targeting	150302	0.249	0.887	0.000	21.000
log Export value product	150302	-4.449	2.246	-9.220	3.733
log GDP per captia	150302	9.742	0.524	7.737	10.708
log Population	150302	16.325	1.262	12.384	18.659
Inflation	150302	0.048	0.165	-0.032	3.738

Table 3: Unit values and sector targeting

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.103*** **				0.013			
	[0.017]				[0.017]			
L. Sector targeted		**0.084*** **				**0.029***		
		[0.018]				[0.017]		
L2. Sector targeted			**0.069*** **				**0.037***	
			[0.021]				[0.019]	
L3. Sector targeted				**0.047** **				**0.044***
				[0.021]				[0.024]
L. Export value	-0.001	-0.001	-0.001	-0.001	0.019***	0.019***	0.020***	0.021***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
L. GDP per capita	0.143***	0.142***	0.141***	0.138***	0.237***	0.237***	0.228***	0.217***
	[0.012]	[0.012]	[0.011]	[0.012]	[0.020]	[0.020]	[0.020]	[0.019]
Population	-0.657***	-0.639***	-0.609***	-0.627***	-0.335***	-0.339***	-0.349***	-0.330***
	[0.068]	[0.068]	[0.067]	[0.070]	[0.068]	[0.068]	[0.067]	[0.068]
Inflation	0.000	0.000	0.000	-0.001	0.008	0.008	0.010	0.006
	[0.001]	[0.001]	[0.000]	[0.001]	[0.015]	[0.015]	[0.015]	[0.014]
Observations	135489	135489	119526	112255	150302	150302	143094	140047
R-squared	0.78	0.78	0.80	0.81	0.83	0.83	0.84	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector cs was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 4: Unit values and the length of sector targeting

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Length of sector targeting	**0.072*** **				0.016			
	[0.012]				[0.012]			
L. Length of sector targeting		**0.065*** **				**0.024***		
		[0.014]				[0.015]		
L2. Length of sector targeting			**0.063*** **				0.029	
			[0.019]				[0.020]	
L3. Length of sector targeting				**0.047** **				0.025
				[0.021]				[0.028]
L. Export value	-0.001	-0.001	-0.001	-0.001	0.019***	0.019***	0.020***	0.021***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
L. GDP per capita	0.143***	0.142***	0.142***	0.138***	0.238***	0.238***	0.228***	0.217***
	[0.012]	[0.012]	[0.011]	[0.012]	[0.020]	[0.020]	[0.020]	[0.019]
Population	-0.659***	-0.642***	-0.617***	-0.632***	-0.335***	-0.338***	-0.348***	-0.330***
	[0.068]	[0.068]	[0.068]	[0.070]	[0.068]	[0.068]	[0.067]	[0.068]
Inflation	0.000	0.000	0.000	-0.001	0.008	0.008	0.010	0.006
	[0.001]	[0.001]	[0.000]	[0.001]	[0.015]	[0.015]	[0.015]	[0.014]
Observations	135489	135489	119526	112255	150302	150302	143094	140047
R-squared	0.78	0.78	0.80	0.81	0.83	0.83	0.84	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Length of sector targeting is the number of years the country-sector ci has been targeted by the country's IPA in year t. Length of sector targeting equals zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Length of sector targeting, export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 5: Are sectors with higher unit values of exports chosen for targeting?

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.059*** **	**0.059*** **	**0.057*** **	**0.061*** **	0.019	0.019	0.020	0.017
	[0.020]	[0.020]	[0.021]	[0.021]	[0.019]	[0.019]	[0.019]	[0.020]
1 year before sect. targ.	-0.018				-0.031			
	[0.036]				[0.031]			
1 and 2 years before sect. targ.		-0.011				-0.011		
		[0.021]				[0.026]		
1, 2 and 3 years before sect. targ.			-0.014				-0.001	
			[0.018]				[0.021]	
1, 2, 3 and 4 years before sect. targ.				0.002				-0.012
				[0.017]				[0.019]
L. Export value	-0.005**	-0.005**	-0.005**	-0.005**	0.005**	0.005**	0.005**	0.005**
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
L. GDP per capita	0.104***	0.104***	0.104***	0.104***	0.232***	0.232***	0.232***	0.232***
	[0.009]	[0.009]	[0.009]	[0.009]	[0.014]	[0.014]	[0.014]	[0.014]
Population	-0.009	-0.009	-0.009	-0.008	0.110***	0.110***	0.109***	0.110***
	[0.007]	[0.007]	[0.007]	[0.007]	[0.017]	[0.017]	[0.017]	[0.017]
Inflation	0.001	0.001	0.001	0.001	0.041***	0.041***	0.041***	0.041***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.015]	[0.015]	[0.015]	[0.015]
Observations	135489	135489	135489	135489	150302	150302	150302	150302
R-squared	0.76	0.76	0.76	0.76	0.82	0.82	0.82	0.82
Test coeff F	4.33	8.36	10.77	7.80	2.21	1.01	0.67	1.46
Test coeff p	**0.04**	**0.00**	**0.00**	**0.01**	0.14	0.32	0.41	0.23

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector cs was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The variable "1 and 2 years before sect. targ." is a dummy variable equal 1 in year t-1 and t-2 if targeting of sector started in year t, and 0 otherwise. The other versions of this variable are defined in an analogous way. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 6: Are the effects stronger for differentiated products?

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.077*** **				**-0.032***			
	[0.021]				[0.017]			
Sect targ*diff product	0.025				**0.045***			
	[0.025]				[0.027]			
L. Sector targeted		**0.066*** **				-0.024		
		[0.021]				[0.018]		
L. Sect targ*diff product		0.009				**0.065****		
		[0.027]				[0.028]		
L2. Sector targeted			**0.067*** **				-0.010	
			[0.022]				[0.020]	
L2. Sect targ*diff product			-0.001				**0.059***	
			[0.030]				[0.035]	
L3. Sector targeted				**0.065*** **				-0.004
				[0.025]				[0.027]
L3. Sect targ*diff product				-0.018				0.077
				[0.034]				[0.048]
L2. Export value	-0.004*	-0.004*	-0.004*	-0.005**	0.014***	0.014***	0.014***	0.015***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
L. GDP per capita	0.143***	0.143***	0.142***	0.139***	0.210***	0.211***	0.212***	0.202***
	[0.012]	[0.012]	[0.012]	[0.012]	[0.020]	[0.020]	[0.020]	[0.019]
Population	-0.633***	-0.612***	-0.606***	-0.620***	-0.348***	-0.349***	-0.348***	-0.344***
	[0.068]	[0.068]	[0.068]	[0.071]	[0.069]	[0.069]	[0.069]	[0.070]
Inflation	0.000	0.000	0.000	-0.001*	0.014	0.014	0.014	0.012
	[0.000]	[0.000]	[0.000]	[0.000]	[0.016]	[0.016]	[0.016]	[0.015]
Observations	111498	111498	111498	100608	130693	130693	130693	125769
R-squared	0.79	0.79	0.79	0.81	0.85	0.85	0.85	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. The dummy for differentiated products takes the value 1 if Rauch (1999) classified the SITC-4 code as a differentiated product according to the liberal definition, and 0 otherwise. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 7: Are the effects different for final goods?

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.039***				0.007			
	[0.022]				[0.018]			
Sect targ*final product	**0.097*****				0.019			
	[0.027]				[0.025]			
L. Sector targeted		0.023				0.015		
		[0.023]				[0.018]		
L. Sector targ*final product		**0.092*****				0.030		
		[0.028]				[0.024]		
L2. Sector targeted			0.011				0.026	
			[0.024]				[0.021]	
L2. Sector targ*final			**0.087*****				0.025	
product			[0.031]				[0.029]	
L3. Sector targeted				-0.008				0.023
				[0.025]				[0.026]
L3. Sector targ*final				**0.086****				0.039
product				[0.034]				[0.038]
L. Export value	0.019	0.018	-0.003	0.001	0.179***	0.179***	0.179***	0.186***
	[0.041]	[0.041]	[0.040]	[0.041]	[0.017]	[0.017]	[0.017]	[0.017]
L. GDP per capita	0.142***	0.141***	0.141***	0.138***	0.236***	0.235***	0.225***	0.214***
	[0.012]	[0.012]	[0.011]	[0.012]	[0.020]	[0.020]	[0.020]	[0.019]
Population	-0.652***	-0.632***	-0.603***	-0.623***	-0.301***	-0.308***	-0.318***	-0.297***
	[0.068]	[0.068]	[0.067]	[0.070]	[0.068]	[0.068]	[0.068]	[0.068]
Inflation	0.000	0.000	0.000	-0.001	0.009	0.009	0.011	0.006
	[0.001]	[0.001]	[0.000]	[0.001]	[0.015]	[0.015]	[0.015]	[0.014]
Observations	135489	135489	119526	112255	150302	150302	143094	140047
R-squared	0.78	0.78	0.80	0.81	0.83	0.83	0.84	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. The dummy for final goods is defined at the 4-digit SITC level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 8: Is it about FDI or any investment? Controlling for gross fixed capital formation (GFCF) in the sector

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.116*** **				0.021			
	[0.017]				[0.018]			
L. Sector targeted		**0.077*** **				**0.039***		
		[0.017]				[0.021]		
L2. Sector targeted			**0.063*** **				**0.055*** **	
			[0.018]				[0.024]	
L3. Sector targeted				**0.055*** **				**0.075*** **
				[0.021]				[0.033]
L.GFCF	-0.001	-0.001	-0.002**	-0.001	-0.002**	-0.002**	-0.002**	-0.003***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
L. Export value product	0.061	0.061	0.033	0.050	0.098***	0.098***	0.105***	0.117***
	[0.068]	[0.068]	[0.061]	[0.067]	[0.017]	[0.017]	[0.017]	[0.017]
L. GDP per capita	0.132***	0.129***	0.115***	0.114***	0.230***	0.231***	0.231***	0.217***
	[0.014]	[0.014]	[0.014]	[0.014]	[0.022]	[0.022]	[0.020]	[0.020]
Population	-0.848***	-0.811***	-0.781***	-0.822***	-0.317***	-0.329***	-0.346***	-0.312***
	[0.073]	[0.073]	[0.073]	[0.076]	[0.072]	[0.073]	[0.071]	[0.072]
Inflation	0.001	0.001	0.001	0.000	0.003	0.002	0.005	0.002
	[0.001]	[0.001]	[0.001]	[0.001]	[0.015]	[0.015]	[0.015]	[0.014]
Observations	79281	79281	70543	66799	112062	112062	106624	104192
R-squared	0.80	0.80	0.82	0.83	0.85	0.85	0.86	0.86

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector cs was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. GFCF, export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 9: Controlling for the effects of tax rate

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.156****				**0.425*****			
	[0.061]				[0.106]			
Sector targeted*tax rate	0.000				-0.012***			
	[0.002]				[0.003]			
Tax rate	0.000				0.001**			
	[0.001]				[0.000]			
L. Sector targeed		**0.165****				**0.175***		
		[0.080]				[0.103]		
L. Sector targeted*tax rate		-0.001				-0.004		
		[0.002]				[0.003]		
L. Tax rate		0.001				0.001***		
		[0.001]				[0.000]		
L2. Sector targeted			**0.169****				0.166	
			[0.073]				[0.109]	
L2. Sector targeted*tax rate			-0.002				-0.003	
			[0.002]				[0.003]	
L2. Tax rate			0.002***				0.001*	
			[0.001]				[0.000]	
L3. Sector targeted				**0.157****				0.180
				[0.072]				[0.127]
L3. Sector targeted*tax rate				-0.002				-0.004
				[0.002]				[0.004]
L3. Tax rate				0.001**				0.001
				[0.001]				[0.000]
L. Export value product	0.018	0.022	0.002	0.003	0.178***	0.179***	0.179***	0.187***
	[0.041]	[0.041]	[0.041]	[0.042]	[0.017]	[0.017]	[0.017]	[0.017]
L. GDP per capita	0.215***	0.218***	0.227***	0.214***	0.242***	0.236***	0.224***	0.214***
	[0.017]	[0.017]	[0.017]	[0.017]	[0.020]	[0.020]	[0.020]	[0.019]
Population	-0.177	0.011	0.179	0.085	-0.290***	-0.297***	-0.309***	-0.292***
	[0.117]	[0.126]	[0.134]	[0.146]	[0.068]	[0.069]	[0.068]	[0.068]
Inflation	0.000	0.000	-0.001	-0.001	0.010	0.010	0.012	0.008
	[0.001]	[0.001]	[0.000]	[0.001]	[0.015]	[0.015]	[0.015]	[0.014]
Observations	123343	120861	105402	97404	149963	149912	142746	139671
R-squared	0.77	0.77	0.80	0.80	0.83	0.83	0.84	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 10: Controlling for value added per worker

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.139*** **				**0.038** **			
	[0.022]				[0.019]			
L. Sector targeted		**0.095*** **				**0.052*** **		
		[0.024]				[0.019]		
L2. Sector targeted			**0.069*** **				**0.061*** **	
			[0.021]				[0.022]	
L3. Sector targeted				**0.057** **				**0.074*** **
				[0.023]				[0.028]
L. Value added per worker	-0.018*	-0.017*	-0.023**	-0.024**	0.042***	0.041***	0.033***	0.027***
	[0.009]	[0.009]	[0.009]	[0.009]	[0.009]	[0.009]	[0.009]	[0.008]
L. Export value product	-0.014	-0.014	-0.032	-0.030	0.135***	0.135***	0.138***	0.143***
	[0.051]	[0.051]	[0.047]	[0.050]	[0.018]	[0.018]	[0.017]	[0.017]
L. GDP per capita	0.163***	0.160***	0.159***	0.148***	0.235***	0.235***	0.229***	0.218***
	[0.019]	[0.019]	[0.018]	[0.018]	[0.020]	[0.020]	[0.020]	[0.019]
Population	-0.646***	-0.592***	-0.557***	-0.616***	-0.415***	-0.424***	-0.444***	-0.404***
	[0.091]	[0.092]	[0.091]	[0.094]	[0.075]	[0.075]	[0.074]	[0.074]
Inflation	-0.001	-0.001	-0.001	-0.002***	-0.008	-0.009	-0.006	-0.008
	[0.001]	[0.001]	[0.001]	[0.001]	[0.015]	[0.015]	[0.015]	[0.015]
Observations	97246	97246	86924	82475	128544	128544	122726	120132
R-squared	0.79	0.79	0.81	0.82	0.84	0.84	0.85	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita , population and value added per worker all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table 11: Instrumental variable regressions

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Second stage								
FDI flow	**0.043***				0.016			
	[0.025]				[0.033]			
Assets		**0.635****				-0.013		
		[0.269]				[0.094]		
Sales			**0.562****				-0.016	
			[0.220]				[0.098]	
Employment				**0.456*****				0.027
				[0.156]				[0.187]
L. Export value	-0.045	-0.202**	-0.159**	-0.195***	0.154***	0.123***	0.125***	0.130***
	[0.047]	[0.084]	[0.069]	[0.068]	[0.018]	[0.016]	[0.016]	[0.018]
L. GDP per capita	0.144***	-0.593*	-0.620*	-0.140	0.254	0.105	0.107	0.077***
	[0.038]	[0.331]	[0.319]	[0.120]	[0.271]	[0.122]	[0.103]	[0.018]
Population	-0.214	-1.579***	-1.051***	0.325	-0.360	-0.424	-0.447*	-0.438*
	[0.176]	[0.529]	[0.284]	[0.329]	[0.619]	[0.312]	[0.267]	[0.250]
Inflation	0.002	-0.003*	-0.001	-0.004***	0.232	0.007	0.003	0.021
	[0.002]	[0.002]	[0.001]	[0.001]	[0.191]	[0.023]	[0.030]	[0.026]
First stage								
Sector targeted	**1.246****	**0.265****	**0.297****	**0.364*****	0.932	**0.195****	**0.171****	0.088
	(0.614)	(0.133)	(0.136)	(0.066)	(1.406)	(0.096)	(0.074)	(0.054)
L. Export value	0.747**	0.263***	0.241***	0.356***	-0.071	-0.023**	-0.038***	-0.053***
	(0.352)	(0.037)	(0.042)	(0.042)	(0.145)	(0.011)	(0.011)	(0.009)
L. GDP per capita	0.126	1.271***	1.482***	0.786***	-8.151***	1.283***	1.035***	0.084***
	(0.808)	(0.074)	(0.069)	(0.057)	(1.615)	(0.039)	(0.040)	(0.026)
Population	-2.920	1.429***	0.693**	-2.205***	18.723***	3.208***	2.614***	1.279***
	(3.460)	(0.325)	(0.286)	(0.191)	(6.100)	(0.245)	(0.243)	(0.165)
Inflation	-0.040	0.003	0.001	0.008***	1.432	-0.186**	-0.260***	-0.108***
	(0.031)	(0.002)	(0.002)	(0.001)	(9.033)	(0.093)	(0.092)	(0.027)
Observations	94098	72012	73724	76712	96093	137838	138070	142586
Anderson test	64.87	81.82	112.04	339.02	26.15	204.23	205.75	134.20
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable in the first stage is the log of FDI flow (columns 1 and 5), log of foreign affiliates' assets (columns 2 and 6), log of foreign affiliates' sales (columns 3 and 7), and log of foreign affiliates' employment (columns 4 and 8). The dependent variable in the second stage is the unit value of exports of the 4-digit SITC product p from country c in year t normalized by the average unit value of exports of product p at time t across all countries. The variable is expressed in a log form. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita , population and value added per worker all enter in natural logs. LX means lagged X periods. All regressions include country-sector fixed effects.

Appendix: Additional summary statistics and robustness checks

Table A1: Sectors with non-missing unit values

NAICS97	NAICS97 description	No. of observations	Percent
221	Electric current*	158	0.04
311	Food Manufacturing	51,136	12.79
312	Beverage and Tobacco Product Manufacturing	5,011	1.25
313	Textile Mills	20,324	5.08
314	Textile Product Mills	10,322	2.58
315	Apparel Manufacturing	24,430	6.11
316	Leather and Allied Product Manufacturing	8,900	2.23
321	Wood Product Manufacturing	9,988	2.5
322	Paper Manufacturing	10,683	2.67
323	Printing and Related Support Activities	4,169	1.04
324	Petroleum and Coal Products Manufacturing	6,340	1.59
325	Chemical Manufacturing	63,218	15.81
326	Plastics and Rubber Products Manufacturing	9,891	2.47
327	Nonmetallic Mineral Product Manufacturing	17,375	4.35
331	Primary Metal Manufacturing	26,525	6.63
332	Fabricated Metal Product Manufacturing	19,813	4.96
333	Machinery Manufacturing	48,989	12.25
334	Computer and Electronic Product Manufacturing	26,135	6.54
335	Electrical Equipment, Appliance, and Component Manufacturing	12,282	3.07
336	Transportation Equipment Manufacturing	21,249	5.32
337	Furniture and Related Product Manufacturing	2,014	0.5
483	Ships and boats and other vessels for breaking up**	429	0.11
512	Motion Picture and Sound Recording Industries	411	0.1
Total		399,792	100

* NAICS sector 221 covers utilities; in the study we use only one product from this sector SITC 3510 (Electric current)
** NAICS sector 483 covers Water transport; in the study we use only one product from this sector SITC 7933 (Ships, boats and other vessels for breaking up)

Table A2: Number of products by sector

NAICS97	NAICS97desc	Mean	Standard deviation	Min	Max	No. of observations	
						Developing countries	High income countries
311	Food Manufacturing	71.7	21.5	10	101	18604	16196
312	Beverage and Tobacco Product Manufacturing	7.2	1.9	1	10	1644	1763
325	Chemical Manufacturing	93.3	33.0	11	134	20630	23351
321	Wood Product Manufacturing	15.2	3.9	1	20	4124	3842
322	Paper Manufacturing	14.4	4.2	1	20	3865	4819
313	Textile Mills	31.2	10.5	2	43	7685	8019
331	Primary Metal Manufacturing	40.2	13.0	6	59	9284	9628
327	Nonmetallic Mineral Product Manufacturing	27.4	8.8	1	38	5684	7227
332	Fabricated Metal Product Manufacturing	27.4	7.4	5	35	6968	7620
324	Petroleum and Coal Products Manufacturing	8.0	1.9	1	11	2289	2376
221	Utilities	1.0	0.0	1	1	16	94
326	Plastics and Rubber Products Manufacturing	14.6	4.6	1	19	3224	3925
316	Leather and Allied Product Manufacturing	11.5	3.0	2	15	3633	3243
323	Printing and Related Support Activities	6.1	1.4	1	7	1549	1877
314	Textile Product Mills	13.9	4.2	1	18	3931	4057
335	Electrical Equipment, Appliance, and Component Manufacturing	16.4	5.0	2	23	3826	4222
336	Transportation Equipment Manufacturing	31.2	8.9	6	45	6252	8356
333	Machinery Manufacturing	73.7	22.5	10	97	13720	21226
334	Computer and Electronic Product Manufacturing	40.4	11.8	7	53	7124	9433
483	Water Transportation	1.0	0.0	1	1	52	182
337	Furniture and Related Product Manufacturing	2.7	0.6	1	3	748	632
315	Apparel Manufacturing	26.5	6.8	2	34	10537	7995
512	Motion Picture and Sound Recording Industries	1.0	0.0	1	1	100	219
Total					788	135489	150302

Note: The mean, standard deviaton, minimum and maximum are measured across country-sectors and years

Table A3: Number of observations by country

	Country	First year	Last year	Min no. of sectors#	Max no. of sectors#	Min no. of prod.#	Max no. of prod.#	No of non-missing unit values	No of obs in reg.	No. of targeted obs.
1	Albania	1984	2000	11	23	40	106	1090	1090	0
2	Algeria	1984	2000	16	22	57	130	1796	1796	0
3	Argentina	1984	2000	20	24	320	518	7719	7719	0
4	Armenia	1992	2000	2	16	2	81	338	338	0
5	Australia	1984	2000	21	23	482	585	9295	9295	1850
6	Bangladesh	1984	2000	12	22	48	119	1433	204	0
7	Belize	1984	2000	5	22	11	39	472	472	0
8	Benin	1984	2000	1	21	8	29	225	225	0
9	Bosnia and Herzegovina	1992	2000	14	20	40	139	843	843	183
10	Brazil	1984	2000	20	23	548	582	9634	9634	0
11	Bulgaria	1984	2000	20	23	259	438	5863	5863	0
12	Burkina Faso	1989	2000	1	2	1	4	16	16	0
13	Cambodia	1984	2000	1	20	1	63	419	418	330
14	Cameroon	1984	2000	11	22	30	63	735	735	0
15	Canada	1984	2000	22	23	542	594	9889	9889	190
16	Central African Republic	1984	2000	4	18	6	15	175	175	0
17	Chad	1984	2000	2	17	3	11	108	108	0
18	Chile	1984	2000	19	23	130	412	5239	5239	187
19	China	1984	2000	20	23	493	609	9873	9873	0
20	Colombia	1984	2000	19	23	202	401	5436	3149	0
21	Congo, Dem. Rep.	1984	2000	6	22	15	41	498	498	0
22	Congo, Rep.	1984	2000	5	21	11	32	311	311	0
23	Costa Rica	1984	2000	15	22	59	190	2220	2220	203
24	Cuba	1984	2000	13	23	42	104	972	972	0
25	Cyprus	1984	2000	20	23	121	216	2944	2944	0
26	Czech Republic	1993	2000	20	21	555	569	4481	3600	168
27	C“te d'Ivoire	1984	2000	13	22	54	112	1432	1431	578
28	Denmark	1984	2000	21	24	555	582	9604	6644	0
29	Djibouti	1984	2000	1	22	3	18	146	146	0
30	Ecuador	1984	2000	16	22	61	213	2338	2338	0
31	Egypt, Arab Rep.	1984	2000	17	22	111	317	4079	4079	0
32	El Salvador	1984	2000	11	22	25	87	963	963	52
33	Equatorial Guinea	1984	2000	1	16	2	8	76	76	0
34	Ethiopia	1984	2000	6	22	23	42	573	573	0
35	Fiji	1984	2000	6	22	21	71	754	754	225
36	Finland	1984	2000	20	24	485	548	8704	8704	0
37	France	1984	2000	22	24	618	670	10846	4994	0
38	Gabon	1984	2000	6	20	13	35	379	379	0
39	Gambia, The	1984	2000	1	19	4	12	122	122	0
40	Georgia	1992	2000	6	19	25	144	639	639	0
41	Ghana	1984	2000	8	22	18	72	715	714	99
42	Greece	1984	2000	21	23	348	489	7319	7318	1436
43	Guatemala	1984	2000	9	22	46	126	1602	1602	0
44	Guinea	1984	2000	4	21	7	24	223	179	19
45	Guinea-Bissau	1984	2000	3	20	3	33	213	213	0
46	Guyana	1984	2000	8	21	16	40	447	49	0
47	Haiti	1984	2000	10	22	21	85	752	752	0
48	Hungary	1984	2000	20	24	426	537	8309	5881	0
49	Iceland	1984	2000	16	22	63	139	1619	1619	309
50	Iran, Islamic Rep.	1984	2000	11	22	37	327	2733	2733	0
51	Iraq	1984	2000	5	22	6	83	554	554	0
52	Ireland	1984	2000	20	23	517	543	9005	4332	0
53	Israel	1984	2000	20	23	313	452	6963	4692	0
54	Italy	1984	2000	22	24	610	658	10684	10684	0
55	Jamaica	1984	2000	10	22	50	115	1445	265	0
56	Japan	1984	2000	22	23	590	618	10224	10224	0
57	Jordan	1984	2000	17	22	73	161	1887	1887	692
58	Kazakhstan	1992	2000	13	20	63	341	1785	1785	442
59	Kenya	1984	2000	13	23	54	107	1492	1492	0
60	Korea, Rep.	1984	2000	20	23	467	569	9216	9216	0
61	Kuwait	1984	2000	16	23	75	257	2711	2711	0
62	Kyrgyz Republic	1992	2000	7	20	18	129	697	697	0

Note: #: given non-missing unit values

Count	Country	First year	Last year	Min no. of sectors#	Max no. of sectors#	Min no. of prod.#	Max no. of prod.#	No of non-missing unit values	No of obs in reg.	No. of targeted obs.
63	Lao PDR	1984	2000	1	19	1	63	401	44	0
64	Latvia	1992	2000	17	22	112	269	1927	1312	0
65	Lebanon	1984	2000	18	23	68	162	2179	2179	215
66	Libya	1984	2000	7	21	29	74	894	894	0
67	Lithuania	1992	2000	19	22	141	335	2354	2354	1079
68	Macedonia, FYR	1993	2000	18	21	149	223	1467	1467	0
69	Madagascar	1984	2000	7	22	18	79	782	782	0
70	Mali	1984	2000	4	20	9	44	347	347	0
71	Malta	1984	2000	19	23	102	184	2506	2504	0
72	Mauritania	1984	2000	4	20	7	19	224	206	111
73	Mauritius	1984	2000	9	22	27	101	1237	1237	0
74	Mexico	1984	2000	20	22	314	551	8241	8241	0
75	Moldova	1992	2000	19	20	84	186	1243	357	0
76	Mongolia	1984	2000	6	19	13	53	495	491	256
77	Mozambique	1984	2000	10	22	30	62	771	646	56
78	Netherlands	1984	2000	22	24	609	648	10616	8651	0
79	New Zealand	1984	2000	19	23	239	433	5921	5921	0
80	Nicaragua	1984	2000	5	22	10	52	528	528	0
81	Norway	1984	2000	21	24	436	523	8249	8249	0
82	Oman	1984	2000	11	22	43	186	1877	1877	318
83	Pakistan	1984	2000	20	22	153	244	3385	3385	706
84	Panama	1984	2000	19	23	160	239	3529	1908	0
85	Peru	1984	2000	18	22	163	274	3616	3613	0
86	Poland	1984	2000	21	24	424	565	8610	1799	0
87	Portugal	1984	2000	20	23	415	542	8490	8490	0
88	Romania	1984	2000	20	23	303	448	6326	6326	0
89	Samoa	1984	2000	1	21	1	13	100	96	4
90	Saudi Arabia	1984	2000	20	23	134	415	4925	4925	0
91	Senegal	1984	2000	7	22	24	41	603	590	27
92	Serbia and Montenegro	1992	2000	17	22	94	495	2226	1862	0
93	Singapore	1984	2000	21	23	494	572	9269	9269	0
94	Slovak Republic	1993	2000	20	22	476	502	3917	3917	0
95	Slovenia	1992	2000	20	21	451	482	4192	4192	1475
96	Somalia	1984	2000	3	19	7	17	201	201	0
97	South Africa	1984	2000	20	23	309	566	7471	7471	0
98	Sri Lanka	1984	2000	16	22	89	185	2403	1	0
99	Sudan	1984	2000	7	22	26	42	541	541	0
100	Suriname	1984	2000	3	22	9	26	301	301	0
101	Sweden	1984	2000	22	24	572	603	9924	9924	1344
102	Switzerland	1984	2000	21	24	566	624	10026	10026	0
103	Taiwan	1984	2000	20	23	516	574	9527	4035	0
104	Tajikistan	1992	2000	4	16	6	61	348	348	0
105	Thailand	1984	2000	20	22	293	544	7801	2322	0
106	Togo	1984	2000	4	22	7	32	261	261	0
107	Tunisia	1984	2000	20	23	151	340	4584	4067	1018
108	Turkey	1984	2000	20	23	285	540	7999	7999	0
109	Turkmenistan	1992	2000	8	16	18	54	352	352	0
110	Uganda	1984	2000	2	20	6	25	231	226	22
111	United Kingdom	1984	2000	22	24	618	668	10848	10848	0
112	Uruguay	1984	2000	18	22	183	314	4227	4227	0
113	Uzbekistan	1992	2000	10	21	21	169	949	949	0
114	Venezuela, RB	1984	2000	17	23	146	341	4713	4713	1579
115	Zambia	1984	2000	5	22	15	40	481	481	0
116	Zimbabwe	1984	2000	12	22	46	201	1883	585	0

Note: #: given non-missing unit values

Table A4: Unit values and sector targeting, excluding lagged export value as control variable

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.103*** **				0.017			
	[0.017]				[0.017]			
L. Sector targeted		**0.084*** **				**0.033** **		
		[0.018]				[0.017]		
L2. Sector targeted			**0.069*** **				**0.040** **	
			[0.021]				[0.020]	
L3. Sector targeted				**0.048** **				**0.047** *
				[0.021]				[0.025]
L. GDP per capita	0.143***	0.142***	0.141***	0.138***	0.239***	0.239***	0.229***	0.218***
	[0.012]	[0.012]	[0.011]	[0.012]	[0.020]	[0.020]	[0.020]	[0.019]
Population	-0.655***	-0.637***	-0.607***	-0.626***	-0.321***	-0.327***	-0.337***	-0.317***
	[0.068]	[0.068]	[0.067]	[0.070]	[0.068]	[0.068]	[0.068]	[0.068]
Inflation	0.000	0.000	0.000	-0.001	0.010	0.010	0.012	0.008
	[0.001]	[0.001]	[0.000]	[0.001]	[0.015]	[0.015]	[0.015]	[0.014]
Observations	135489	135489	119526	112255	150302	150302	143094	140047
R-squared	0.78	0.78	0.80	0.81	0.83	0.83	0.84	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector cs was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table A5: Clustering standard errors on sectors

	Developing countries				High income countries			
	1	2	3	4	5	6	7	8
Sector targeted	**0.103*** **				0.020			
	[0.026]				[0.025]			
L. Sector targeted		**0.084*** **				0.035		
		[0.025]				[0.026]		
L2. Sector targeted			**0.069** **				0.042	
			[0.029]				[0.029]	
L3. Sector targeted				**0.048***				0.049
				[0.026]				[0.031]
L. Export value product	0.018	0.017	-0.004	0.000	0.178***	0.179***	0.179***	0.186***
	[0.090]	[0.090]	[0.087]	[0.087]	[0.044]	[0.044]	[0.043]	[0.043]
L. GDP per capita	0.142***	0.141***	0.141***	0.138***	0.236***	0.235***	0.225***	0.214***
	[0.019]	[0.019]	[0.019]	[0.019]	[0.036]	[0.036]	[0.037]	[0.035]
Population	-0.655***	-0.636***	-0.608***	-0.626***	-0.301***	-0.307***	-0.317***	-0.297**
	[0.115]	[0.116]	[0.116]	[0.116]	[0.116]	[0.116]	[0.120]	[0.115]
Inflation	0.000	0.000	0.000	-0.001	0.009	0.009	0.011	0.006
	[0.001]	[0.001]	[0.001]	[0.001]	[0.019]	[0.019]	[0.020]	[0.018]
Observations	135489	135489	119526	112255	150302	150302	143094	140047
R-squared	0.78	0.78	0.80	0.81	0.83	0.83	0.84	0.85

Note: Robust standard errors are reported in brackets. ***, **, * denotes significance at the 1, 5 and 10% level, respectively. The dependent variable is the log of the unit value of exports of the 4-digit SITC product p from country c in year t. The sample covers the years 1984-2000. Sector targeted is a dummy taking one if the country-sector cs was targeted by the country's IPA in year t, and zero if the sector was not targeted in year t or if the country did not have an IPA in year t. The targeting information is available at the 3-digit NAICS 1997-level. Standard errors are clustered at the country-sector-year level. Export value is at the 4-digit SITC level and is measured in current USD. GDP per capita is measured in current US dollars and inflation in percent. Export value, GDP per capita and population all enter in natural logs. LX means lagged X periods. All regressions include product-year and country-sector fixed effects.

Table A6: Regression on collapsed residuals

	Developing countries	High income countries
	1	2
Sector targeted	0.195*	0.038
	[0.117]	[0.244]
Observations	378	73
R-squared	0.01	0.00

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