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# Export Performance and Poverty Reduction

*Volume II*

*Assessment of economic benefits generated by  
the EU Trade Regimes towards developing countries*

Directorate-General for International Cooperation and  
Development, EU Development Policy and International  
Cooperation, Policy and Coherence, Economic Analysis Team.

**June 2015**



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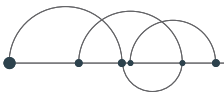
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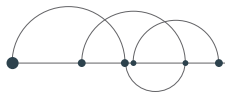
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# Executive summary

**In volume I of this report, we found that GSP preferences have a positive and causal impact on the growth and diversification of exports from developing countries to the EU. As the ultimate objective of schemes such as the GSP is to stimulate economic development in the beneficiary countries, a logical next question is to ask whether an increased export performance actually does translate into lower rates of poverty.**



This is therefore the question which we focus on in this part of the report. However, contrary to the first three parts of the report we do not focus exclusively on exports to the EU, but take a broader approach and discuss the specific channels through which an increased engagement in export activities can impact directly and indirectly on poverty levels in developing countries. We do this via a review of the existing literature and supplement this by an empirical study of our own, in which we directly test the impact of a developing country's export intensity on poverty outcomes at the country level.

This latter work consists of a dynamic econometric analysis conducted on a dataset covering 78 developing countries over the period 1996 – 2010, during which we have data for every three years for the majority of countries included. Poverty rates are measured using the poverty head count and poverty gap concepts. The former measures the share of a country's population living below the international poverty line of \$1.25 a day and the latter measures the mean shortfall of the poor from the poverty line, i.e. the depth of poverty.

The analysis controls for a list of factors other than exports, which may impact poverty rates including previous poverty rates, education, legal environment, access to financial credit, macroeconomic stability, country size and the openness of a country's own market towards foreign goods and services. In order to control for other time-invariant factors, which we cannot observe in the data, we exploit the time dimension of the data and include country fixed effects.

In order to take account of the fact that the direction of causality between exports and poverty may run both ways, i.e. exporting may reduce poverty but reduced poverty levels may also spur exports, we use an econometric methodology (System GMM estimator) which explicitly addresses this issue.

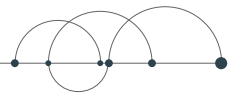
Based on our review of the recent literature on this topic, we find that there is strong empirical evidence in favour of the growth enhancing effects of exports and trade in general. Furthermore, a number of detailed micro-economic studies using company-level and household data show that exporting can lead to productivity growth and directly reduce poverty through wage and employment effects.

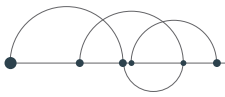
Key findings from the empirical exercise point towards a poverty reducing impact of exports, if combined with a better access to credit, which ensures that businesses can enter the market and profit from the opportunities offered by the export market. This finding therefore suggests that in the right policy environment trade has a poverty reducing impact.

### **Key findings from Part IV**

- *The review of the economic literature clearly indicates that exports generate growth. Especially for developing countries where domestic markets are small, exports are an important engine of growth and allows domestic producers to benefit from economies of scale.*
- *Exports can increase productivity for individual firms active on the export market via learning effects and the ability to exploit economies of scale. For economic growth to be sustained in the long run productivity increases are required.*
- *In the long run economic growth is key to poverty alleviation but impacts will be felt faster when combined with less inequality.*
- *Exports might directly increase the incomes of the poor via wage and employment effects.*
- *The econometric analysis suggests that exports, on average, do not in themselves have a significant impact on poverty outcomes. However, when combined with better access to credit for domestic producers, we do find a poverty reducing impact of exports. This therefore suggests that participation on the world market may be an engine for poverty reduction if combined with the right domestic policies.*

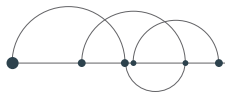








# Export Performance and Poverty reduction



A defining feature of developing countries is the relatively small size of their domestic markets. When demand on the home market is limited, a strong export performance is vital for economic growth. However, the recent slow growth in developed countries due to the financial crisis has caused some worry about development strategies which depend too heavily on exports and have led to calls for more balanced growth strategies.<sup>1</sup>

In this chapter, we look closer at the poverty reducing impacts of export participation and conclude that a strong performance on the international market can help reduce domestic poverty in developing countries. Via a review of the recent literature on this topic, we find that there is strong empirical evidence in favour of the growth enhancing effects of exports and trade in general. Furthermore, a number of detailed micro-economic studies using firm-level and household data show that exporting can lead to productivity growth and directly reduce poverty through wage and employment effects.

In addition to the literature review, we also conduct an empirical study of our own, in which we directly test the impact of a country's export intensity on poverty outcomes. The key finding from this exercise point to a poverty reducing impact if combined with a better access to credit, which ensures that businesses can enter the market and profit from the opportunities offered on the export market. This finding therefore suggests that in the right policy environment trade has a poverty reducing impact.

The chapter starts with a review of the newer literature on this topic, followed by the empirical analysis.

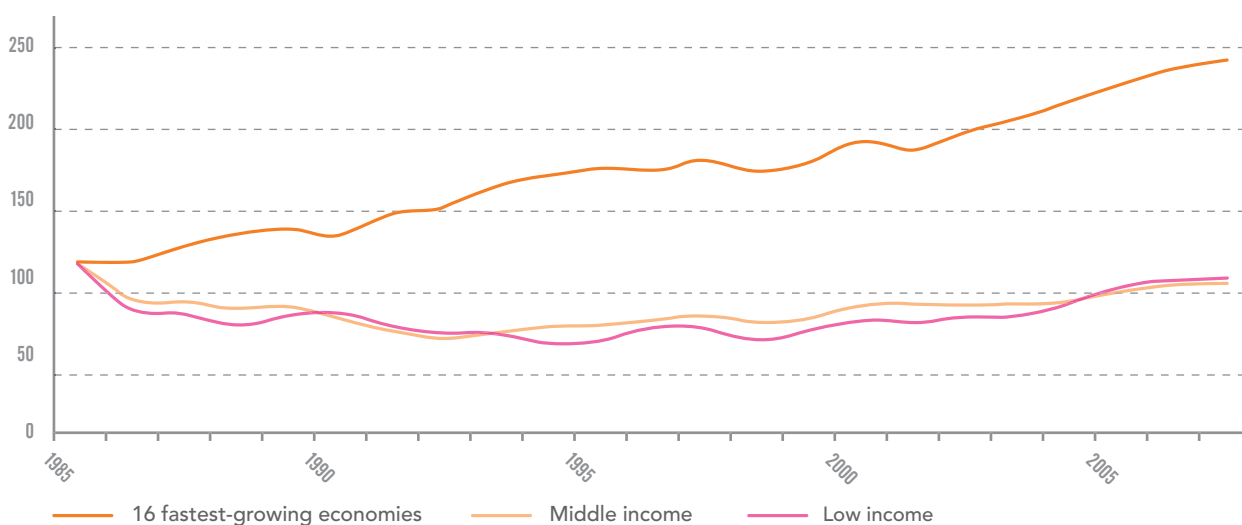
## 1.1 Literature Review

### Exporting generates growth

In the long run, the key to the alleviation of poverty is economic growth. As noted by Winters et al. (2004) in their review of trade liberalisation and poverty, economic growth 'creates the resources to raise incomes, and even if "trickle-down" is insufficient to bring the benefits to the poor, governments will have scope for stronger redistributive measures when income is higher and growing faster'.<sup>1</sup>

Exporting is an important engine for growth. As noted by Shepherd and Haddad (2011) no countries in the past 50 years have managed to sustain high levels of growth and significant increases in per capita incomes without greatly expanding imports and exports. Indeed, as illustrated in a study from the World Bank (2009) the fastest growing countries are those that have expanded their shares of global exports in goods.

**Figure 1 Share of merchandise exports in world merchandise exports**



Source: World Bank (2009)

<sup>1</sup>— UNCTAD discusses this in their *Trade and Development Report* from 2013.

<sup>2</sup>— Winters et al. 2004, page 76

Economic theory offers many reasons as to why we would expect exporting to have a positive impact on long-term growth rates. In the absence of exports, the growth of an economy is constrained by domestic demand. Especially for developing countries where domestic markets are small, foreign markets provide demand for production levels not sustained by the domestic economy. Access to larger markets allows individual producers to benefit from economies of scale, reducing unit-cost of production and increasing productivity, necessary for sustained economic growth.

The discussion of the impact of exports on growth is also closely related to the broader empirical literature on trade openness and growth. This was reviewed by Berg and Krueger (2003). The focus within this literature is mainly on the impacts of trade liberalisation (i.e. in the developing countries themselves), and not exclusively on export-led growth. However, as the empirical measure most commonly used for trade openness is a country's combined value of exports and imports relative to GDP, the findings are similarly related.

The review by Berg and Krueger (2003) focuses on econometric studies using cross-country or panel data and clearly find that openness is a fairly robust cause of growth. The authors list 16 individual studies, from the 1990s and early 2000s, as examples of papers finding trade openness to be a significant determinant of the level or growth rate of real GDP. As Berg and Krueger

(2003) writes, there are significant challenges associated with identifying the impact of trade openness on growth, including the measures of openness, the possibility of reverse causation (i.e. from growth to openness) and the ability to control for factors correlated with both growth and openness (e.g. macro-economic stability and institutional changes). However, the authors point to a number of studies that manage to get around these difficulties through the use of advanced econometric techniques, including the use of instrumental variables. For example, Frankel and Romer (1999) use geographical factors as instrumental variables for trade shares in GDP. Their results convincingly show trade openness to be a determinant of income levels. A third study pointed to by Berg and Krueger (2003) is Dollar and Kraay (2001), who examine the impact of changes in the participation of developing countries in trade over time on growth rates using data for 100 developing countries over the 1980's and 1990s. The empirical methodology they use allows them to control for both reverse causality and confounding factors, such as the initial growth and time-invariant country characteristics. The results strongly indicate 'that greater involvement in trade is related to faster growth in developing countries' (Dollar and Kraay, 2001).

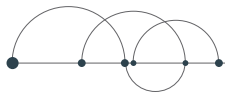
Overall, then, while there is a number of methodological challenges involved in identifying a causal effect, the findings strongly indicate that trade is indeed an important driver of growth.

### Exporting can increase productivity

For growth to be sustained in the long run, productivity increases are required. In the last decade, a vast new literature using firm-level data to directly test the impact of exporting on productivity and vice versa has emerged. A more or less stylised factor to have arisen from this literature is that firms engaged in exporting are more productive than non-exporting firms. These findings hold for developed as well as for developing countries.<sup>2</sup> A majority of studies find that this is due to a self-selection of firms into exporting, where only the more productive firms are able to overcome costs associated with entry into foreign markets. In comparison, there seems to be relatively little evidence that firms become more productive as a result of exporting (Wagner, 2005 and 2011).

However, there are important exceptions found among developing countries. Using data on manufacturing firms in nine African countries (Burundi, Cameroon, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Tanzania, Zambia and Zimbabwe), Van Biesebroeck (2005) finds compelling causal evidence in favour of both self-selection and learning effects from exporting. He finds that entering the export market subsequently enjoy significant increases in both the level and growth rate of productivity. In terms of magnitude, the estimates suggest an average impact of exporting on productivity of around 25%. The study further finds that half of the productivity gap between exporters and non-exporters is attributable to the ability of exporters to exploit economies of scale. Domestic firms are found to be constrained by the small size of local markets and the poor quality of contract enforcement, which makes expansion through trade credit to domestic customers risky (Van Biesebroeck, 2005).

3— Wagner (2011) and (2007) provide comprehensive reviews of the empirical literature on this topic.



Bigsten (2004) also used firm-level data from Africa (Cameroon, Ghana, Kenya and Zimbabwe) and find similar evidence suggesting that exporting increases productivity, while Kraay (1999) and Blalock and Gertler (2004) also find a positive impact of exporting on productivities for China and Indonesia, respectively.

Finally, Mengistae and Pattillo (2002) focus on exports and productivity in Africa (Ethiopia, Ghana and Kenya) and find that firms which export directly to foreign market are significantly more productive than firms which do so via a domestic trade intermediary. In addition, firms exporting to markets outside of Africa are found to be more productive than firms exporting to other African markets. As learning effects from exporting are thought to arise partly via knowledge obtained from contacts with foreign clients and exposure to foreign competitors, the authors argue that these findings are consistent with the learning hypothesis.

These studies thus indicate that exporting can be an engine of productivity growth, which in turn is required to sustain growth in the long run. However, the extent to which poverty responds to economic growth depends on how income is distributed and whether this distribution changes as the economy grows.

### Exporting, wages and poverty outcomes

As noted by Winters et al. (2004) one of the most direct ways in which trade can impact on poverty is via the impact it has on wages, employment and profits from production (e.g. farmers). According to traditional trade theory, exporting will especially benefit the poor in developing countries. The Heckscher-Ohlin model, a cornerstone in traditional trade theory, implies that countries, which are relatively abundant in unskilled labour will have a comparative advantage in labour intensive products. Increased demand for unskilled labour will in turn result in increased employment opportunities and/or wage increases for this group of workers (McCulloch, 2001). Assuming that most of the poor are unskilled, the scope for direct poverty reduction via exporting should therefore, in theory, be substantial.

However, in reality unskilled workers may not be the direct beneficiaries if trade is accompanied by skill-biased technical change (i.e. the adoption of more advanced technology as a result of increased foreign competition on the home or export market), which increases demand for skilled labour instead, or if strong endowments of mineral and agricultural resources leads to a stimulation

To illustrate this, Bourguignon (2004) calibrates the reduction in absolute poverty under different income distributions using Mexican data. With an initial 20% of the population living in poverty and an assumed growth rate in real income per capita of 3% annually, the author shows that if the income distribution is held constant, with high levels of inequality, absolute poverty would only be reduced by a little less than seven percentage points over 10 years. Reducing inequality from a high to a middle level, while keeping the assumed annual growth rate the same, would in comparison reduce poverty by 15 percentage points over the same period.<sup>3</sup> Further calculations by the author show that the same poverty reduction resulting from a decrease in inequality from 'high' to 'middle' level would take 30 years to reach if the initial income distribution were held constant.

In addition to the impact of exporting on growth rates, a central question is therefore how exports affect the distribution of income. Below we look more closely at how exporting may impact employment and wages for poor people.

of non-labour-intensive sectors (Winters et al. 2004).

A study that directly and very convincingly tests the impact of increased market access to developed countries on poverty rates and wages is McCaig (2011) who examines the impact of the US- Vietnam bilateral trade agreement implemented in 2001. As the author explains, the key change on the US side was to grant Vietnam Most Favoured Nation (MFN) access to the US market immediately upon implementation of the agreement. In contrast the bulk of tariff cuts in Vietnam on US imports were phased over time, with the majority taking place three to four years after implementation. Hence, while the agreement was in fact bilateral, the asymmetric timing of the tariff reductions allowed for a study of the impact of US tariff reductions alone. As McCaig (2011) explains, the tariff cut granted by the US on imports from Vietnam caused average ad valorem tariffs to fall from 31.5% to 3.3% for manufacturing products and from an average of 10.6% to 3.2% on products in agriculture, hunting and fisheries. The large tariff cuts resulted in a rapid and large increase in exports from Vietnam to the US, with exports growing by 128% in the first year alone,

4— Inequality is measured as the Gini coefficient, which measures the inequality of income and ranges between zero and one. Zero is perfect equality while one is perfect inequality with one person holding all income. In this example the initial Gini-coefficient is 0.55 and is subsequently assumed to be reduced to 0.45.

followed by an additional increase of 90% in 2003 – 2004. By that year, the US accounted for 20% of Vietnam’s total exports, compared to 5% in 2001 when the agreement was implemented (McCaig, 2011). Over the period 2002 – 2004, the author notes a fall in national poverty rates from 28.9% to 19.5%. As shown in the study, increases in exports were centred on labour-intensive products, with exports of apparel and clothing exhibiting annual growth rates of 276% from 2001 – 2004.

In order to test the causal impact of increased market access to the US on poverty in Vietnam, the author exploits provincial variation in Vietnam by constructing provincial measures of US tariffs by weighting tariffs at the industry level by the share of employment prior to the agreement’s implementation in each industry across provinces. Combining this data with information on provincial poverty rates, computed from household surveys, the author uses regression analysis to examine the change in provincial poverty rates as a function of the change in provincial tariffs, controlling for a range of factors including time invariant provincial factors. The results of the analysis indicate clearly that poverty rates fell significantly more in provinces that experienced higher cuts in US tariffs. Looking further into the mechanism behind this relation, the author also looks at the impact of the change in US tariffs on the wages for different groups of workers. These results show that

wages rose faster in provinces with larger tariff cuts, but only for low-skilled workers (i.e. with at most a primary education) while no significant results were found for wages of highly educated workers.

The study by McCaig (2011) is, to best of our knowledge, the only study to directly examine the impact of developed country access on poverty rates in developing countries. A study by Brambilla et al. (2012), takes a different approach and looks instead on the microeconomic impacts of US anti-dumping duties imposed on imports of Vietnamese catfish in 2003, which as the authors note is an important source of income for households in the Mekong delta in Southern Vietnam. The duties imposed by the US ranged between 37% and 64% and caused exports of this product from Vietnam to fall sharply (Brambilla et al. 2012) Using data from household surveys, the authors examine the impact of this policy change on incomes, finding that in areas where catfish production was concentrated, there was a slower income growth rate among fishers, stemming not only from the direct loss of income from the policy itself but also from other farm activities via negative spill overs on the local market arising from the reduction in catfish production.

Together the two studies above show that market access to developed countries can impact directly on the poor in developing countries by wage and employment linkages.

## 1.2 Empirical analysis

In this section we conduct an empirical analysis of the impact of trade on poverty rates at the country-level. To do so, we follow a recent study by Le Goff and Singh (2013) that examines the impact of trade liberalisation on poverty reduction in Africa.

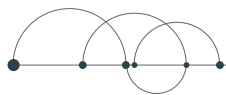
Compared to the more detailed studies by McCaig (2011) and Brambilla et al. (2012) discussed above, Le Goff and Singh (2013) take a broader approach and use country-level data on trade and poverty rates from 30 different African countries over the period 1981 – 2010. The purpose of the study is to analyse the impact of the openness of the countries’ own trade regimes on the extent and depth of poverty and the degree to which this depends on complementary country policies including the quality of governance and the functioning of a country’s educational and financial systems.

The results of the study suggests that while trade openness is associated with higher levels of poverty in some countries, the effects are reversed in countries with higher levels of education, better institutional environments and a more developed financial sector. As the authors note, these complementary policies not only have a direct poverty reducing impact, but also allow poor people to benefit from trade. Education helps people

to acquire the necessary skills demanded in expanding sectors, while access to credit via a functioning financial system ensures that business can enter the market and expand to take availability of the opportunities offered on the export market. The findings of that study therefore suggest that in the right policy environment trade has a poverty reducing impact.

As the main focus of this report is on the impacts of increased market access to the EU and not on developing countries’ own trade policies, our analysis differs slightly from that of Le Goff and Singh (2013) as we specifically examine how poverty rates are impacted by changes in countries’ export performance. Furthermore, we make use of a larger dataset covering 78 developing countries over the period 1996 – 2010, during which we have data for every three years for the majority of countries included resulting in 431 observations. This may be seen as a slight improvement from the original study by Le Goff and Singh (2013), who average all data over five year periods and have a total dataset of only 64 observations covering 30 countries. A final contribution of our analysis is that we estimate a dynamic model in which we control for the persistence of poverty. Before detailing the methodology used, we comment on the measures of poverty used below.





## Measuring poverty rates

In order to measure both the extent and depth of poverty, we follow Le Goff and Singh (2013) and use the poverty head count and the poverty gap. The first of these is defined as the share of a country's population living below the international poverty line of \$1.25 a day, while the second is defined as the mean shortfall from the poverty line (where the non-poor have a zero poverty gap) expressed as a percentage of the poverty line.

As household surveys from which poverty measures are generated are, in many countries, undertaken only

for a few years, we use data from the World Bank's PovcalNet<sup>4</sup> tool, from which it is possible to obtain frequent country specific estimates of both poverty measures for every three years from 1981 to 2010 from the regional aggregates computed by the World Bank. While this database allows us to obtain frequent measures of poverty, it should be noted that for country-year combinations where no household survey has been undertaken poverty outcomes are interpolated by the World Bank.

## Methodology

In order to isolate the impact of exporting on poverty rates from other factors which may be directly related to poverty outcomes, but also affect exports, we control for a number of additional factors including the openness of a country's own market towards foreign goods and services. This can directly impact the international competitiveness of the country's exports via the cost of imported intermediates. As production is becoming increasingly globalised a country's own trade policies become increasingly important and may thus impact directly on the export performance of local businesses. While an open trade policy may therefore help facilitate exports, the increased competition on the domestic market arising from imported goods may also crowd out local production in some sectors. If these are goods produced mainly by the poor, import competition could increase poverty rates, at least in the short run. In order to control for this, we include total imports of goods and services as a share of GDP in a given country and year as a control variable in our model.

Furthermore we follow Le Goff and Singh (2013) and include controls for education, the legal environment, access to financial credit, and for macroeconomic stability. Education is measured as the share of the population aged 15 or over with no education, while access to credit is measured as domestic credit to the private sector as a percentage of GDP, and macroeconomic stability is controlled for via the inclusion of the consumer price index.<sup>5</sup>

The strength of the legal system is measured using the Rule of Law index, from the World Bank Governance indicators. This is defined as: The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. The measure range from -2.5 to 2.5 with higher figures relating to better perceptions. The earliest year for which this data is available is 1996, constraining the time dimension of the analysis from 1996 to 2010 (with three year intervals).

Finally, in order to control for differences in the economic size of the countries, we further include GDP as a control variable.<sup>6</sup>

Despite controlling for a wide range of factors which may impact poverty directly and also affect the ability of suppliers in developing countries to engage in exports, the estimated impact of exports on poverty outcomes may still be biased by other unobserved country specific factors, which we either cannot measure or have failed to include. In order to correct for this as best as possible, we estimate the model using fixed effects which control for any time-invariant factors at the country-level (e.g. geography or natural resource endowments).

Furthermore, there is a strong possibility of reverse causality between poverty outcomes and export performance, as well as between poverty outcomes and a number of the other control variables. This means that we cannot be assured of the direction of a potential

5— 'PovcalNet: the on-line tool for poverty measurement developed by the Development Research Group of the World Bank' <http://iresearch.worldbank.org/PovcalNet>

6— Access to credit and CPI is obtained from the World Bank Development Indicators. Data on the share of the population with no education is obtained from the Barro-Lee educational data available through the World Bank Education Statistics. It should be noted that this data is available only in five year intervals. In order to match this with the poverty data, we therefore use the average of the nearest two years on either side of a given year included in the analysis, if data is unavailable for the specific year.

7— This is measured in constant 2005 US\$ and obtained from the World Bank Development Indicators.



impact between, for example, export performance and poverty outcomes. A positive effect of exports on poverty reduction could thus indeed be due to a poverty reducing effect of a high export intensity, but the causality could also be the other way around as exports may increase in response to a reduction in poverty levels. In order to control for this as best as possible we follow Le Goff and Singh (2013) and estimate the model using a system GMM estimator (Blundell and Bond, 1998). The estimator basically estimates the model in a system of equations, including one in levels and one in first differences, where the lagged levels of the endogenous variables are used as instruments in the first-differences equations and vice versa. The estimator thus controls for both fixed effects and also addresses reverse causality.

The advantage of the method is that it is intended for the estimation of dynamic models in which the outcome in one period affects the outcome in the next. As it is highly likely that poverty is persistent over time, we therefore also include the lagged value of poverty in our model. In order to compare the results to a static model, we further estimate a simple fixed effects model in which we instrument the endogenous variables by their own lagged value.

In particular for the system GMM estimation, the number of instruments can easily become large, which in turn can bias the estimates of the endogenous variables towards those that would be obtained if no instruments were

used (Roodman, 2008). In order to avoid the number of instruments becoming too large for us to obtain valid estimates, we deviate slightly from Le Goff and Singh (2013) and instrument only the trade measures as well as education and access to credit.

The baseline model we use to estimate is the following:

$$\text{Poverty}_{i,t} = \beta_1 \text{Poverty}_{i,t-1} + \beta_2 \text{Exports} / \text{GDP}_{i,t} + \beta_3 \text{Imports} / \text{GDP}_{i,t} + \beta_4 X_{it} / \text{GDP}_{i,t} + \gamma_i + \theta_t + \varepsilon_{it}$$

Where poverty in country  $i$  in year  $t$  is a linear function of lagged poverty rates, the export and import intensity and a vector of other control variables including education, inflation, access to credit, the Rule of law and GDP. All variables, with the exception of Rule of law are in logs, allowing the coefficients to be interpreted as elasticities.<sup>7</sup>

The baseline model described above provides us with estimates of the average impact of export performance on poverty outcomes. In order to examine whether impacts are conditional on complementary policies, similar to the finding by Le Goff and Singh (2013), extensions to the baseline model include interaction terms between export performance and education, access to credit and the quality of governance respectively.

## Data and summary statistics

In total, the sample covers 78 countries over the period 1996–2010, with data available every three years for the majority of the countries included (see Table A.1 in the appendix for a full list of countries included).

In Table 1 we show the summary statistics for the whole sample. From this table we see that the average headcount of poverty, i.e. the average share of a population living below the international poverty line of \$1.25 a day, is 28%. However, this varies significantly across both time and individual countries cf. Table 1. Thus, in 1996 the average headcount was 32% compared to 22% in 2010. Among individual countries, the percentage of the population living below the poverty line in 2010 range from 0.02% in Ukraine in 2010, where the headcount in 1996 was close to 2%. The

other extreme is the Democratic Republic of Congo, in which 90% of the population lived below the poverty line in 2002.

The mean value of our second poverty measure, the poverty gap, is 11%, meaning that the average gap between the income of those living below the poverty line and the poverty line is on average 11%. Again, we see significant variation across both time and individual countries, with an average poverty gap of 14% in 1996 compared to 8% in 2010.

Across the sample there is also wide variation in the intensity with which individual countries export. While the average share of exports in GDP is 36% (cf. Table 1), this ranges from 5% in Burundi in 2002 to over 120% in Malaysia in 1999.

<sup>8</sup>— Rule of law is not in logs as the range of the variable includes negative numbers.

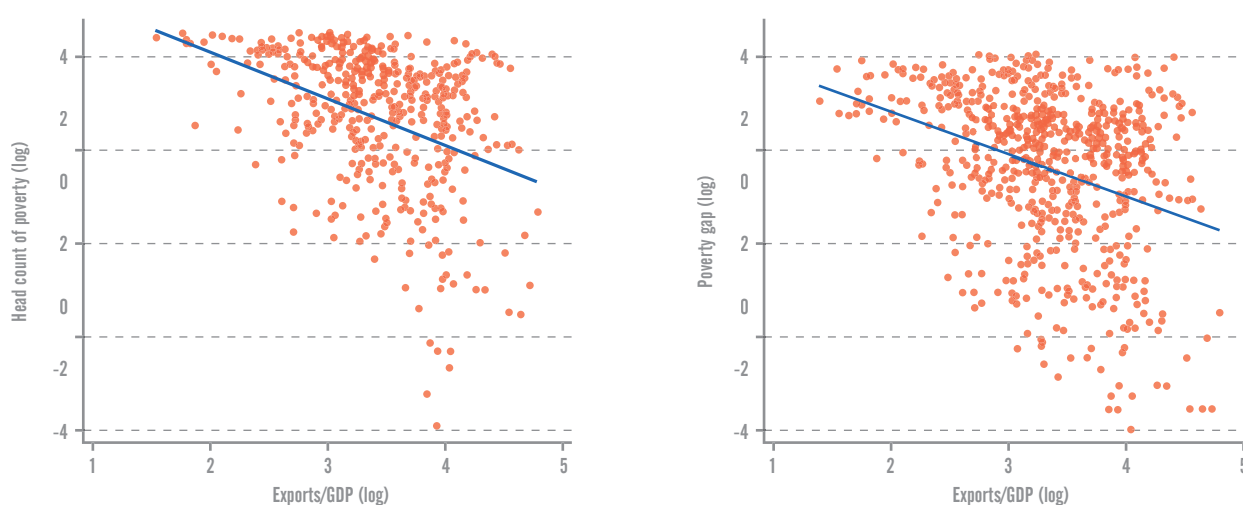

**Table 1 - Summary statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max
Head count of poverty	431	27.8	24.33	0.02	90.12
Poverty gap	431	10.96	12.06	0.01	56.68
Exports / GDP	431	36.24	20.06	4.69	121.31
Imports / GDP	431	43.57	22.42	8.37	144.71
GDP	431	9.81E+10	3.28E+11	4.42E+08	3.84E+12
Share of population 15+ with no education	431	26.15	20.57	0.5	81.19
Rule of law	431	-0.57	0.54	-1.91	0.67
Access to credit	431	30.83	29.22	0.49	153.12
CPI	431	69.83	23.84	6.92	100

Note: GDP is in constant 2005 US dollars

Source: Copenhagen Economics based on data described above

In order to give a first indication of the relation between export intensity and the occurrence of poverty, Figure 2 shows the linear prediction of the relationship between both poverty measures and export intensity across the whole sample. In both plots there is a strong downwards trend, indicating that poverty falls as export intensities increase. In order to test this further by accounting for other factors and taking into consideration the possibility of reverse causation, we turn to the regression estimates obtained.

**Figure 2 Poverty and Export intensity**


Note: Linear prediction imposed.

Source: UNCTAD data.

## Results

Table 2 shows the baseline results using both the poverty headcount and poverty gap as our measure of poverty. The results of the static fixed effects model are displayed in (columns (2) and (4)), followed by the results from the dynamic model obtained using the System GMM estimator in columns (3) and (5). For comparison purposes, we have also included the results of a simple OLS regression, which does not control for any time-

invariant factors at the country-level or take account of reversed causality issues.

The estimates obtained using this simple technique indicates that a higher export intensity is associated with a lower poverty count. However, once we take account of unobserved country specific factors in the remaining columns we no longer see a significant relationship between these variables. Thus, on average we find

no statistically significant relation between export intensities and poverty outcomes, whether measured as the head count or poverty gap.

Further, the results in columns (3) and (5) show a strong correlation between current and past poverty rates, which indicates that at least in the short run poverty rates are highly persistent and should therefore be included in the model. On this basis we therefore choose the dynamic GMM System estimator as our preferred model.

Aside from past poverty rates, the only other significant determinant of poverty in columns (3) and (5) is the share of the population with no education. The impact of this variable is positive and highly significant, indicating that poverty increases with the share of people with no education. In terms of magnitude, the results suggest that a 1% increase in the share of people with no education is associated with an approximate increase of 0.2% in both measures of poverty.

**Table 2 - Base line results**

Dependent variable	Head count (log)			Poverty gap (log)	
	(1)	(2)	(3)	(4)	(5)
Exports / GDP (log)	-0.783*** (0.256)	0.336 (0.406)	0.0214 (0.200)	0.661 (0.406)	0.0285 (0.236)
Imports / GDP (log)	0.281 (0.404)	0.318 (0.751)	-0.0984 (0.212)	-0.0743 (0.714)	0.0382 (0.267)
Share with no education (log)	0.378*** (0.118)	2.956*** (0.728)	0.159*** (0.0574)	2.687*** (0.750)	0.218*** (0.0739)
Access to credit (log)	-0.211 (0.148)	-0.680*** (0.256)	-0.104 (0.202)	-0.501*** (0.193)	0.00224 (0.220)
Rule of law	-0.166 (0.230)	0.204 (0.224)	0.0731 (0.158)	0.202 (0.204)	-0.0722 (0.180)
CPI (log)	0.0311 (0.265)	0.353 (0.236)	0.00286 (0.149)	0.471** (0.227)	-0.105 (0.167)
GDP(log)	-0.202** (0.0996)	-0.708 (0.552)	-0.00627 (0.0360)	-0.958** (0.485)	-0.0139 (0.0455)
Poverty in last period			0.987*** (0.0608)		0.921*** (0.0686)
Constant	8.504** (3.227)		0.358 (1.247)		-0.000943 (1.521)
Observations	431	353	353	353	353
R-squared	0.428	0.523		0.580	
Number of id		78	78	78	78
Number of Instruments			37		37
AR1 Test (p-value)			0.0357		0.00497
AR2 Test (p-value)			0.322		0.840
Hansen Test (p-value)			0.189		0.207

Note: Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively. The dependent variable in column (1) – (3) is the headcount of poverty (log). In columns (4) and (5) the poverty gap is used. Results in column (1) are estimated using simple OLS, while results in column (2) and (4) are estimated using a fixed effects regression where imports and export intensity as well as education and access to credit are instrumented by their lagged values. Results in Column (3) and (5) are obtain using System GMM.

Source: Copenhagen Economics using data from UNCOM Trade.



In Table 3, we introduce interactions between a country's export intensity and credit availability, education attainment and the Rule of law. The results in column (2) show that the impact of a country's export intensity on the head count of poverty depends on the availability of credit. The results thus suggest that a strong export performance can reduce poverty when combined with a greater access to financing. This is also found to be the case when we measure poverty using the poverty gap, cf. Table A.2 in the Appendix. Contrary to the findings by Le Goff and Singh (2013), we do find a significant impact for interactions terms involving educational attainment or the Rule of law.

**Table 3 Extensions: Headcount of Poverty**

Headcount of poverty (log)	(1)	(2)	(3)
Exports / GDP (log)	-0.334 (0.372)	1.372** (0.633)	0.0440 (0.346)
Exports/GDP (log) * No Education (log)	0.150 (0.157)		
Exports/GDP (log) * access to credit (log)		-0.443** (0.196)	
Exports/ GDP (log)* Rule of law			-0.120 (0.372)
Imports / GDP (log)	-0.0630 (0.218)	0.0450 (0.249)	-0.129 (0.209)
Share with no education (log)	-0.340 (0.541)	0.261*** (0.0782)	0.169** (0.0678)
Access to credit (log)	-0.0896 (0.155)	1.408** (0.660)	0.106 (0.0974)
Rule of law	0.0202 (0.129)	0.0964 (0.131)	0.340 (1.309)
CPI (log)	-0.0803 (0.171)	0.0500 (0.179)	-0.115 (0.117)
GDP(log)	-0.0106 (0.0361)	-0.0230 (0.0465)	-0.0365 (0.0323)
Headcount poverty last period	0.966*** (0.0525)	0.881*** (0.0836)	1.009*** (0.0608)
Constant	1.845 (2.275)	-4.455* (2.444)	0.793 (1.737)
Observations	353	353	353
Number of id	78	78	78
Number of Instruments	43	43	43
AR1 Test (p-value)	0.0340	0.0431	0.0431
AR2 Test (p-value)	0.368	0.262	0.492
Hansen Test (p-value)	0.229	0.115	0.251

Note: Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively.

The dependent variable is the headcount of poverty (log). Results are obtained using System GMM.

Source: Copenhagen Economics using data from UNCOM Trade.

Compared to the results by Le Goff and Singh (2013) our results differ slightly. As mentioned above, they find that countries' own trade openness is associated with lower levels of poverty in countries with higher levels of education attainment, better institutional environments and greater access to credit. While we only find that exporting has a poverty reducing impact when combined with greater access to credit, it should be noted that there are a number of differences between the two analyses. Firstly, our focus is not on countries' own trade policies but merely on their export performance, which may explain the differences found. For example, while education may indeed improve the likelihood of poor people being employed in the export sector, it may also help protect workers from import competition. Furthermore, there are significant differences in the data used both in terms of sample size and country coverage.

In order to check the robustness of this finding we have undertaken a number of additional checks. These involve including GDP per capita in the model, as done by Le Goff and Singh (2013)<sup>9</sup>, removing outliers from the

sample and excluding China. Finally, we have run the model excluding the Rule of law, as this variable limits the time dimension of the sample to 1996-2010. When Rule of law is excluded, the time dimension spans 1981-2010 and the sample size increase significantly. While the magnitude and significance level of the interaction terms between exports and access to credit change slightly across the various specifications, the key result holds across all. However, it should be mentioned that despite controlling for a range of country factors, including time-invariant observables and taking account of the potential reverse causality between exports and poverty outcomes, we cannot be fully assured that our results are indeed causal. Furthermore, it should be noted that the measures of poverty we use are country-wide averages. As poverty impacts arising from increased exports may be limited to specific local areas or be concentrated in mainly urban areas, our results may not capture this. In order to capture local effects and identify specific channels through which exports can reduce poverty, micro-econometric studies, such as the one undertaken by McCaig (2011) is highly useful.

### 1.3 Conclusion

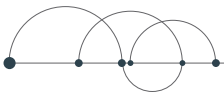
The findings of this chapter indicate that a strong export performance can help reduce domestic poverty in developing countries. The existing empirical literature finds strong evidence in favour of the growth enhancing effects of exports and trade in general. Furthermore, a number of detailed micro-economic studies using firm-level and household data show that exporting can lead to productivity increases and directly reduce poverty via wage and employment effects.

Testing the relationship directly using data on the export intensity and poverty outcomes across 78 developing countries, we did not find an overall average impact of exporting on poverty outcomes, but did find an effect when combined with a better access to credit. This result therefore suggests that participation on the world market may be an engine for poverty reduction if combined with the right domestic policies.

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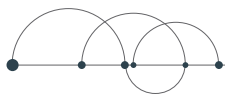
<sup>9</sup>— As increasing incomes are a key channel through which we expect exports to impact on poverty, we do not include this variable in our preferred specification.

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# References

- Berg, Andrew and Anne Krueger. 2003. "Trade, Growth and Poverty: A Selective Survey". IMF Working paper, WP/03/30.
- Bigsten, Arne et al. 2000. "Exports and Firm-level efficiency in African manufacturing". Centre for the Study of African Economies, Oxford University, WPS/2000.
- Blalock, Garrick & Gertler, Paul J., 2004. "Learning from exporting revisited in a less developed setting, "Journal of Development Economics, vol. 75(2), pages 397-416.
- Brambilla, Irene & Guido Porto & Alessandro Tarozzi, 2012. "Adjusting to Trade Policy: Evidence from U.S. Antidumping Duties on Vietnamese Catfish", The Review of Economics and Statistics, vol. 94(1), pages 304-319.
- Bourguignon, Francois. 2004. "The Poverty-Growth-Inequality Triangle". Paper presented at the Indian Council for Research on International Economic Relations in New Delhi, February 4th 2004.
- Dollar, David and Aart Kraay. 2004. "Trade, Growth and Poverty". The Economic Journal, Vol. 115 No. 493.
- Frankel, Jeffrey A. and David Romer. 1999. "Does Trade cause Growth?". American Economic Review, vol. 89 pp. 379-99.
- Kraay, Aart. 2002. "Exports and Economic Performance: Evidence from a panel of Chinese Enterprises". In Mary-Francoise Renard (ed.), China and its Regions. Economic Growth and Reform in Chinese Provinces. Cheltenham. (Originally published in Revue d'Economie du Développement, 1999).
- Le Goff, Maëlan and Raju Jan Singh. 2013. "Does Trade Reduce Poverty? A View from Africa". Policy Research Working Paper 6327.
- McCaig, Brian. 2011. "Exporting out of poverty: Provincial poverty in Vietnam and U.S. Market access". Journal of International Economics, vol 85 pages 102- 113.
- McCulloch, Neil, Alan L. Winters and Xavier Cirera. 2001. "Trade Liberalisation and Poverty: A Handbook". CEPR, London.
- Mengistae, Taye and Catherine Pattillo, 2002. "Export Orientation and Productivity in Sub-Saharan Africa". IMF Working paper WP02/89.
- Roodman, David. 2009. "Practitioner's Corner: A note on the theme of too many instruments". Oxford Bulletin of Economics and statistics, 71, 1.
- Sheperd, Ben and Mona Haddad. "Export-led growth: Still a viable strategy after the crisis?" 12 April 2011 VOX.EU
- Van Biesebroeck, Johannes. 2005. "Exporting raises productivity in sub-Saharan African manufacturing firms" Journal of International Economics vol. 67(2), pages 373-391.
- Wagner, Joachim. 2007. "Exports and Productivity: A Survey of the Evidence from Firm-level Data" The World Economy, vol. 30(1), pages 60-82
- Wagner, Joachim Wiley Blackwell, vol. 30(1), pages 60-82, 01. 2012. "International trade and firm performance: a survey of empirical studies since 2006". Review of World Economics, vol. 148(2), pages 235-267, June.
- Winters, Alan L., Neil McCulloch and Andrew McKay. 2004. "Trade Liberalization and Poverty: The Evidence So Far". Journal of Economic Literature.

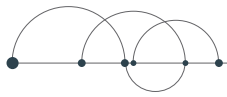


# Appendix A



**Table A.1 - Countries included in empirical analysis**

Algeria	Egypt, Arab Rep.	Liberia	Rwanda
Armenia	El Salvador	Malawi	Senegal
Bangladesh	Fiji	Malaysia	South Africa
Belize	Gabon	Maldives	Sri Lanka
Benin	Gambia, The	Mali	Sudan
Bolivia	Ghana	Mauritania	Swaziland
Botswana	Guatemala	Mexico	Syrian Arab Republic
Brazil	Guyana	Moldova	Tajikistan
Burundi	Haiti	Morocco	Tanzania
Cambodia	Honduras	Mozambique	Thailand
Cameroon	India	Namibia	Togo
Central African Republic	Indonesia	Nepal	Trinidad and Tobago
China	Iran, Islamic Rep.	Nicaragua	Tunisia
Colombia	Iraq	Niger	Uganda
Congo, Dem. Rep.	Jordan	Pakistan	Ukraine
Congo, Rep.	Kazakhstan	Panama	Vietnam
Costa Rica	Kenya	Papua New Guinea	Yemen, Rep.
Cote d'Ivoire	Kyrgyz Republic	Paraguay	Zambia
Dominican Republic	Lao PDR	Peru	
Ecuador	Lesotho	Philippines	


**Table A.2 Extensions Poverty gap: Dynamic Model**

Dependent variable Poverty gap (log)	1	2	3
Exports / GDP (log)	-0.147 (0.368)	1.375* (0.705)	-0.0713 (0.401)
Exports/GDP (log) * No Education (log)	0.0606 (0.164)		
Exports/GDP (log) * access to credit (log)		-0.472** (0.209)	
Exports/ GDP (log)* Rule of law			-0.188 (0.415)
Imports / GDP (log)	0.0706 (0.271)	0.222 (0.319)	0.0396 (0.282)
Share with no education (log)	0.0204 (0.557)	0.322*** (0.0962)	0.238*** (0.0829)
Access to credit (log)	-0.0537 (0.179)	1.531** (0.723)	0.122 (0.131)
Rule of law	-0.0504 (0.151)	0.0107 (0.155)	0.505 (1.463)
CPI (log)	-0.110 (0.208)	-0.0134 (0.210)	-0.176 (0.155)
GDP(log)	-0.00905 (0.0454)	-0.0321 (0.0584)	-0.0371 (0.0406)
Poverty gap, poverty last period	0.900*** (0.0657)	0.792*** (0.0953)	0.918*** (0.0709)
Constant	0.520 (2.455)	-5.099 (3.115)	0.745 (1.980)
Observations	353	353	353
Number of id	78	78	78
Number of Instruments	43	43	43
AR1 Test (p-value)	0.00522	0.00817	0.00557
AR2 Test (p-value)	0.817	0.637	0.998
Hansen Test (p-value)	0.0947	0.131	0.314

Note: This shows the results from the extended regression in which interactions are included, using the poverty gap as the dependent variable. Robust standard errors \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively.

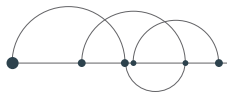
Source: Copenhagen Economics using data from UN Comtrade.

**Table A.3 Robustness check Headcount: Static Model**

Headcount	1	2	3
Exports / GDP (log)	-0.426 (1.049)	1.561** (0.794)	1.632 (2.401)
Exports/GDP (log) * No Education (log)	0.274 (0.339)		
Exports/GDP (log) * access to credit (log)		-0.459* (0.272)	
Exports/ GDP (log)* Rule of law			1.423 (2.630)
Imports / GDP (log)	0.246 (0.811)	0.557 (0.732)	0.536 (0.832)
Share with no education (log)	1.733 (1.766)	2.276** (0.919)	2.933*** (0.769)
Access to credit (log)	-0.688*** (0.257)	0.870 (0.876)	-0.730** (0.310)
Rule of law	0.137 (0.204)	0.124 (0.198)	-4.635 (8.846)
CPI (log)	0.294 (0.247)	0.320 (0.236)	0.568 (0.446)
GDP(log)	-0.763 (0.572)	-0.662 (0.551)	-1.092 (0.868)
Observations	353	353	353
R-squared	0.519	0.530	0.378
Number of id	78	78	78

Note: This shows the results from a fixed effects model, in which the trade measures, education and credit are instrumented by their lags. Robust standard errors \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively.

Source: Copenhagen Economics using data from UN Comtrade.


**Table A.4 Robustness check Headcount: Including GDP per capita**

Dependent variable	Headcount of poverty (log)			
	1	2	3	4
Exports / GDP (log)	-0.00154 (0.181)	-0.156 (0.299)	1.024** (0.509)	0.0199 (0.358)
Exports/GDP (log) * No Education (log)		0.0940 (0.125)		
Exports/GDP (log) * access to credit (log)			-0.317** (0.150)	
Exports/ GDP (log)* Rule of law				-0.109 (0.388)
Imports / GDP (log)	-0.146 (0.252)	-0.128 (0.227)	-0.0920 (0.213)	-0.0439 (0.225)
Share with no education (log)	0.141** (0.0691)	-0.180 (0.438)	0.189** (0.0757)	0.149* (0.0778)
Access to credit (log)	-0.0661 (0.175)	-0.0325 (0.154)	1.060** (0.505)	0.110 (0.113)
Rule of law	0.0575 (0.125)	0.0162 (0.110)	0.0728 (0.109)	0.303 (1.347)
CPI (log)	-0.00778 (0.123)	-0.0690 (0.134)	0.0273 (0.142)	-0.0998 (0.106)
GDP per capita (log)	0.00230 (0.105)	-0.0611 (0.107)	-0.0901 (0.117)	-0.0552 (0.0899)
Poverty in last period	1.005*** (0.0538)	0.985*** (0.0500)	0.930*** (0.0720)	1.020*** (0.0595)
Constant	0.352 (1.439)	1.520 (2.014)	-2.825 (2.045)	0.0633 (1.719)
Observations	350	350	350	350
Number of id	77	77	77	77
Number of Instruments	37	43	43	43
AR1 Test (p-value)	0.0366	0.0357	0.0388	0.0440
AR2 Test (p-value)	0.336	0.378	0.313	0.490
Hansen Test (p-value)	0.237	0.368	0.172	0.261

Note: Robust standard errors \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively.

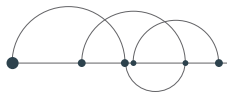
Source: Copenhagen Economics using data from UN Comtrade.

**Table A.5 Robustness check: Increased sample size**

Dependent variable	Headcount of poverty (log)		
	1	2	3
Exports / GDP (log)	0.121 (0.133)	-0.301 (0.310)	1.042** (0.409)
Exports/GDP (log) * No Education (log)		0.155 (0.105)	
Exports/GDP (log) * access to credit (log)			-0.339** (0.135)
Imports / GDP (log)	-0.270* (0.157)	-0.207 (0.159)	-0.125 (0.168)
Share with no education (log)	0.179*** (0.0558)	-0.321 (0.358)	0.257*** (0.0766)
Access to credit (log)	-0.0226 (0.137)	-0.00993 (0.110)	1.079** (0.426)
CPI (log)	0.00323 (0.0142)	-0.00173 (0.0109)	0.00248 (0.0104)
GDP(log)	-0.0504* (0.0284)	-0.0535* (0.0314)	-0.0589* (0.0339)
Poverty in past period	0.949*** (0.0512)	0.913*** (0.0541)	0.848*** (0.0721)
Constant	1.350 (0.989)	2.677* (1.452)	-1.845 (1.724)
Observations	499	499	499
Number of id	79	79	79
Number of Instruments	64	75	75
AR1 Test (p-value)	0.00867	0.00901	0.0145
AR2 Test (p-value)	0.371	0.389	0.317
Hansen Test (p-value)	0.427	0.602	0.429

Note: This shows the results from GMM System Estimation. In order to include more time periods, we exclude Rule of law from the specifications presented. Robust standard errors \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively.

Source: Copenhagen Economics using data from UN Comtrade.


**Table A.6 Robustness check: Excluding China**

Dependent variable	Head count of poverty (log)			
	1	2	3	4
Exports / GDP (log)	0.0311 (0.197)	-0.339 (0.372)	1.508** (0.690)	0.0222 (0.345)
Exports/GDP (log) * No Education (log)		0.155 (0.157)		
Exports/GDP (log) * access to credit (log)			-0.484** (0.216)	
Exports/ GDP (log)* Rule of law				-0.141 (0.376)
Imports / GDP (log)	-0.115 (0.209)	-0.0817 (0.218)	0.00750 (0.248)	-0.129 (0.206)
Share with no education (log)	0.164*** (0.0599)	-0.352 (0.541)	0.271*** (0.0825)	0.172** (0.0705)
Access to credit (log)	-0.0784 (0.199)	-0.0683 (0.150)	1.578** (0.739)	0.116 (0.0965)
Rule of law	0.0594 (0.161)	0.00953 (0.127)	0.0905 (0.137)	0.407 (1.325)
CPI (log)	-0.0224 (0.138)	-0.109 (0.168)	0.0255 (0.181)	-0.119 (0.120)
GDP(log)	-0.0167 (0.0327)	-0.0219 (0.0345)	-0.0446 (0.0471)	-0.0405 (0.0340)
Poverty in past period	0.987*** (0.0622)	0.964*** (0.0533)	0.873*** (0.0877)	1.007*** (0.0614)
Constant	0.596 (1.411)	2.238 (2.312)	-4.429* (2.596)	0.938 (1.860)
Observations	348	348	348	348
Number of id	77	77	77	77
Number of Instruments	37	43	43	43
AR1 Test (p-value)	0.0375	0.0360	0.0468	0.0447
AR2 Test (p-value)	0.331	0.377	0.265	0.500
Hansen Test (p-value)	0.209	0.258	0.162	0.291

Note: This shows the results from GMM System Estimation, where China is excluded from the sample. Robust standard errors \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively.

Source: Copenhagen Economics using data from UNCOM Trade

**Table A.7 Robustness check: Excluding outliers**

Dependent variable	Head Count of poverty (log)			
	1	2	3	4
Exports / GDP (log)	0.201 (0.201)	-0.171 (0.368)	1.513** (0.645)	0.174 (0.323)
Exports/GDP (log) * No Education (log)		0.122 (0.142)		
Exports/GDP (log) * access to credit (log)			-0.444* (0.228)	
Exports/ GDP (log)* Rule of law				-0.164 (0.349)
Imports / GDP (log)	-0.228 (0.202)	-0.201 (0.211)	-0.0258 (0.241)	-0.250 (0.208)
Share with no education (log)	0.175*** (0.0660)	-0.239 (0.497)	0.285*** (0.0819)	0.190** (0.0764)
Access to credit (log)	-0.0992 (0.178)	-0.191 (0.170)	1.482* (0.758)	0.0973 (0.0877)
Rule of law	0.0769 (0.137)	0.126 (0.130)	0.0301 (0.128)	0.513 (1.220)
CPI (log)	-0.0625 (0.137)	-0.0687 (0.174)	-0.0711 (0.170)	-0.176 (0.123)
GDP(log)	-0.0197 (0.0341)	-0.0147 (0.0382)	-0.0425 (0.0469)	-0.0505 (0.0331)
Poverty in past period	0.995*** (0.0515)	0.966*** (0.0494)	0.883*** (0.0866)	1.012*** (0.0581)
Constant	0.685 (1.292)	2.222 (2.320)	-4.161 (2.618)	1.345 (1.763)
Observations	347	347	347	347
Number of id	77	77	77	77
Number of Instruments	37	43	43	43
AR1 Test (p-value)	0.0304	0.0254	0.0423	0.0416
AR2 Test (p-value)	0.345	0.311	0.331	0.518
Hansen Test (p-value)	0.191	0.261	0.154	0.306

Note: This shows the results from GMM System Estimation. Outliers, defined as countries with an export intensity equal to or less than the first percentile or equal to or less than the 99th percentile, is removed from the sample. Robust standard errors \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  respectively.

Source: Copenhagen Economics using data from UNCOM Trade

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