

## ¿Contribuyen las exportaciones a la reducción de la pobreza? Un estudio comparativo de América Latina y Asia

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### Resumen

El documento tiene como objetivo determinar el efecto de las exportaciones sobre la pobreza para un grupo de 68 países en el período 2009-2021. La muestra total se divide según la participación de cada país en las cadenas globales de valor como medida de integración en la economía internacional. El análisis se extiende a los casos de América Latina y Asia. Se utiliza una metodología econométrica de datos de panel dinámico (sys-GMM). Los resultados sugieren que las exportaciones contribuyen a reducir la pobreza media, extrema y moderada. El impacto es mayor en los países con menor integración comercial. Las exportaciones tienden a reducir la pobreza junto con niveles más altos de gasto público, educación y remesas. Finalmente, el efecto exportador es mayor para los países asiáticos. La agenda de desarrollo debe complementarse con políticas comerciales que promuevan las exportaciones y la integración comercial, incorporando medidas que reduzcan la vulnerabilidad externa.

*Palabras clave:* exportaciones, pobreza, cadenas globales de valor, América Latina, Asia.

*Clasificación JEL:* F14, F15, F63.

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# **Do exports contribute to poverty reduction? A comparative study of Latin America and Asia**

## **Abstract**

The document aims to determine the effect of exports on poverty for a group of 68 countries in 2009-2021. The total sample is divided according to the participation of each country in global value chains as a measure of integration in the international economy. The analysis is extended to the cases of Latin America and Asia. A dynamic panel data econometric methodology (sys-GMM) is used. The results suggest that exports contribute to reduce medium, extreme and moderate poverty. The impact is greater in countries with less trade integration. Exports tend to reduce poverty together with higher levels of public expenditure, education and remittances. Finally, the export effect is greater for Asian countries. The development agenda must be complemented with trade policies that promote exports and trade integration, incorporating measures that reduce external vulnerability.

*Keywords:* exports, poverty, global value Chains, Latin America, Asia.

*JEL classification:* F14, F15, F63.

## **1. Introduction**

With globalization, economies have intensified their trade relations. International trade and trade liberalization have positioned themselves as key elements of this process, contributing to economic growth and development (Raghutla, 2022; Singh, 2010). The economies are increasingly open, which is reflected in the participation of international trade in GDP. In the last ten years, total international trade accounted for more than half of world GDP. Only the value of global exports in 2009-2021 was equivalent to the GDP of the 38 smallest economies. The average weight of exports in GDP was 33.7% on world average in 2021, compared to 1990 when it reached 24.2%.

Specifically, empirical studies identify a positive effect of exports on economic growth through different factors such as the generation of economies of scale, adoption of advanced technologies and greater use of capacity and resources (Kalaitzi & Chamberlain, 2020). In addition, the literature finds

that economic growth tends to be associated with trade integration processes (Anderson *et al.*, 2019; Gammadigbe, 2021). Ma (2022) argues that regional and global economic integration, understood as a process of promoting investment and trade through the reduction of tariff/non-tariff barriers, is a mechanism to influence economic growth and, linked to this, in development processes.

Since the reintegration of China into the global economy, world trade has been restructured through Global Value Chains (GVC) (Selwyn, 2023), defined as a process in which the different stages of production are located in different countries. In this regard, the trade of global value chains amounts to about 10 billion dollars, while the production of GVCs amounts to about 20 billion dollars (Borin *et al.*, 2021).

Thus, as trade costs fall, GVC trade expands between countries, particularly in the fastest growing countries (Sposi *et al.*, 2021). Through integration into regional and global value chains, countries can attract new investments, technologies, encourage their exports and unlock their potential (Were, 2015), also influencing development processes. In particular, according to the World Bank (2020), GVCs can increase income, create better jobs, and reduce poverty.

However, the cumulative benefits derived from exports in general, and those linked to GVCs, do not necessarily translate into improvements in the quality of life. In particular, it is observed that the number of people in poverty, understood as the condition in which people have insufficient income to cover the minimum needs for a healthy and productive life, although it decreased in all poverty measurements from 2008 to 2021 (growth rate of -1.5%), this reduction has been less than the increase in exports (growth rate of 59%).

In the case of LA, this trend continues. Hernández *et al.* (2014) point out that the global reorganization of production in different segments of the value chain has profound implications for Latin America. Therefore, there seems to be a relationship where exports affect poverty levels. Hyidt *et al.* (2015) point out that in the last 50 years there is no evidence that a country maintains high levels of growth without an expansion of exports. They establish that the growth of trade allows access to larger markets and generates economies of scale in production and distribution. Furthermore, they conclude that poverty registers a reduction through wages and new employment options because of export processes in combination with adequate domestic policy. This argument is strengthened by Hayashikawa (2009) for whom there is a strong correlation between the opening of the market and the economic growth that contributes to the reduction of poverty in the countries.

In addition, in recent years, favorable evidence of exports has been found through the integration of companies into global value chains or through backward and forward vertical integration processes in different sectors (Patlán & Navarrete, 2009). According to Pangestu (2022) GVCs have been at the center of poverty reduction via international trade in low- and middle-income countries. Kimm (2019) notes that poverty can be reduced through commercial freedom, particularly in developed countries. Specifically, it states that an one point increase in the multilateral trade liberalization index leads to a 6% decrease in the poverty index.

However, there is still value in challenging the neoliberal argument about reducing poverty and inequality linked to global trade and integration (Wade, 2004). Thus, the objective of the document is to determine the effect of exports on poverty reduction for a group of 68 countries, developed and developing during 2009-2021. To find out this effect based on the degree of integration in the international economy, the total sample of countries is divided considering the participation of each country in the GVC. The analysis extends considering the cases of Latin America and Asia.

It is hypothesized that exports contribute to poverty reduction and that this contribution is greater to the extent that trade integration is higher. The effect of exports is expected to be greater in Asia than in Latin American countries. A panel data econometric methodology is used that incorporates both cross-country heterogeneity and possible endogeneity in the model. That is, a dynamic perspective (sys-GMM) is followed.

In addition to this introduction, the empirical literature is reviewed; the variables and the econometric methodology are defined to test the hypothesis, the results are presented and discussed. Finally, some reflections are made. The document is valuable because it presents quantitative evidence of the export-poverty relationship worldwide, contributing to the limited literature on the subject.

## **2. Literature review**

The effect of exports on poverty has been studied in a comparatively limited way from a quantitative perspective. The discussion focuses on the meaning and magnitude of the social benefits of international trade in terms of job creation, inequality and poverty reduction, mainly considering trade liberalization or total trade. Furthermore, the studies do not show a consensus regarding the effect, even pointing out that poverty can increase with exports.

In this sense, Dollar & Kraay (2004) show that trade liberalization contributes to improving economic growth, which leads to an increase in the income of the poor population. Osemenshan *et al.* (2020) also estimates a positive and significant impact of international trade on poverty reduction, particularly in lower-income countries.

Maertens & Swinnen (2006) estimate a strong effect of agricultural exports on the income of poor households in Senegal. Foreign sales make it possible to reduce poverty by 12 percentage points and extreme poverty by half. They consider that the main mechanism in which exports act is the labor market, where companies achieve economies of scale derived from international markets.

Biswas & Sindzingre (2006) examine the relationship between export promotion, import substitution and poverty management at the regional level in India. They establish that the combination of the first two in a trade policy contributes to more efficient poverty management, that is, it makes it possible to reduce or contain poverty rates.

In a series of studies for 13 developing countries in Asia and Africa, CUTS International (2008) finds a positive relationship between export growth and poverty reduction. However, he also finds evidence that some countries simultaneously experienced high export rates and only a modest reduction in poverty.

Justino *et al.* (2008) analyze the effect of the export sector on poverty. They take per capita income as the indicator of well-being and the food poverty index and consider four groups of poor (poor in both periods, not poor in the first period, but poor in the second, poor in the first period, but not in the second and not poor in both periods). They estimate that the most significant variable to explain poverty is the workers employed in the export sectors, which allowed them to escape poverty. Chen & Tsai (2012), in a study for countries in Asia, Europe and America, highlight that the expansion of exports has a negative effect for poor countries with wide income inequality, while in developed countries with low inequality, the effect is positive, attributing it both to inequality and to the implemented foreign trade policies. This evidence of the effect in both directions is also argued by Hayashikawa (2009) for whom trade does not give results, nor is it a sufficient condition for the poorest countries, even globally integrated ones, since they face obstacles to growth and diversification of their exports, in contrast to the richer countries.

Considering the export specialization Babatunde *et al.* (2012) find that oil exports, responsible for part of economic growth, do not generate the employment necessary to reduce poverty. In contrast, they establish that agricultural

exports are capable of reducing poverty and inequality through employment and productivity. In the case of developing countries, Santos (2017) estimates that manufacturing exports contribute to reducing poverty.

Oyedele & Eddy (2013) estimate a central role of trade openness in poverty reduction in Nigeria. In particular, they highlight that the export dynamics (growth rate of the value of exports or export earnings) significantly explain the changes in GDP per capita, poverty proxy; although they recognize that the export volume is not significant.

Additionally, Santos & Thornquist (2015) estimate the effect of trade specialization, exports of raw materials, commodities and manufactures, the real growth rate of GDP and tariffs on manufacturing and agriculture (proxy of trade policy). in the proportion of the population living below the poverty line for a set of 110 developed countries during 1999-2014. The results indicate a significance of manufacturing exports, which when increasing by one percentage point tends to reduce poverty by 0.011 percentage points.

Likewise, Hvidt *et al.* (2015) acknowledge that strong export performance can help reduce poverty in developing economies. Furthermore, using data on export intensity for 78 developing countries during 1996-2010, they find a statistically significant effect on poverty when combined with better conditions of access to credit. Therefore, it is recognized that participation in international markets is an engine for poverty reduction.

UNCTAD (2016) affirms that integration into the world economy and trade are essential for development, job creation and poverty alleviation; However, the effect is not generated at the aggregate level, but rather at the sectoral level, contributing to increasing inequality within countries. Islam *et al.* (2017), for a group of 45 emerging countries in the period 1994-2014, suggest a positive effect of exports, either at the aggregate or sectoral level, in reducing poverty greater than that of imports. Oh & Hyeon (2017) also establish that the increase in the share of exports is differentiated at the regional level. For urban areas, they find a significant and positive effect in a group of 20 Asian and Latin American countries between 1990 and 2015, but not significant in rural areas.

Santos *et al.* (2019) estimate the macroeconomic factors with a positive effect on poverty reduction in countries with higher levels of exports, participation of industry and services, and control of corruption. Specifically, they estimate a significant contribution of exports in reducing general levels of poverty.

Lwesya (2018) argues that exports favor poverty reduction when they are complemented with packages of policies and strategies that favor the diversification of horizontal and vertical exports. In this same context, Kimm (2023) finds that

the concentration of export products tends to induce greater volatility of poverty in low-income countries but reduces the volatility of poverty in more developed countries characterized by better performance of its manufacturing exports.

In the case of Latin America, the literature that studies the export-poverty relationship is limited and focuses on the effect of trade liberalization or export promotion policies on poverty, or the effect of exports on economic growth. Porto (2010) concludes, with data from the period 1992-1999, that access to the market would allow a decrease in poverty from 46 to 98 decimals due to the export of agro-manufactures. Berg & Krueger (2003) find positive evidence of the contribution of trade policy, in conjunction with other economic reforms, on poverty reduction at the aggregate, sectoral, and firm levels. In line with the above, Alarco (2017) argues, in the case of Chile, Mexico and Peru in the period 1990-2013, that the public provision of social capital goods is complementary to the policies that promote commercial openness.

Therefore, the benefits of exports depend strongly on the magnitude of social spending. Morley & Díaz (2006) estimate that the commercial liberalization in Mexico translated into higher income, although at the same time it deteriorated the distribution of income. Therefore, moderate poverty decreased while extreme poverty tended to increase. de Hoyos & Lusting (2009) review the relationship between trade policy, poverty and inequality during 1980-2005, finding that poor households hardly have the capacity to take advantage of job opportunities derived from trade liberalization.

For its part, the evidence for China tends to focus on the effects of trade integration and foreign trade policy on growth and economic transformation. In this regard, Zhang *et al.* (2020) indicates that this economy adopted an expo-oriented development strategy, which allowed accelerated processes of industrialization and urbanization, as well as deep global integration. In particular, these processes explain the comparatively better performance in poverty reduction in that country. In line with this, Yu (2019) argues that structural transformation and industrial modernization, linked to exports, have significant effects on job creation and poverty reduction in China.

For Rodrik (2006), the great economic miracle of the last quarter of a century in China, where trade plays a central role in the transformation, lifted hundreds of millions of people out of extreme poverty, improving health, education and other social standards. Wei (2016) estimates that manufacturing exports, particularly those that are integrated into vertical specialization chains, are associated with higher income levels and lower rural poverty and economic disparity in China.

Briefly, according to specialized literature, the main mechanisms through which exports can contribute to poverty reduction are: *i*) increased economic growth and employment opportunities; *ii*) diversification of production and exports; *iii*) increased foreign exchange earnings; *iv*) spillover effects on the domestic economy (technology transfer, skill development, and creation of supporting industries); *v*) increased incomes and purchasing power for individuals and households; *vi*) improved access to global markets and value chains particularly for small producers and businesses; and *vii*) policy coordination and feedback among several social and productive areas.

### 3. Materials and methods

Considering the structure of the data, a balanced panel model is used for 68 high-income and upper-middle-income countries for which information is available for the 2009-2021 period (see Table A in the annex). It is considered a short panel. This methodology is appropriate when the time dimension is less than the cross-sectional dimension ( $T < N$ ), as in this case (Roodman, 2006).

Although other factors external to the model may influence the determination of poverty, it is considered that they evolve with small temporal variations. Thus, a dynamic model is proposed with effects specific to each country and invariable over time. Dummy variables are incorporated to account for this heterogeneity between countries. Specifically, the sys-GMM model by Blundell & Bond (1998) is used, with equations in first differences and in levels, the lagged dependent variable, and a set of instrumental variables for each regression (Bun & Windmeijer, 2007). This methodology improves precision and reduces small sample bias (Blundell et al., 2000).

The sys-GMM model is estimated using a two-stage methodology with Windmeijer correction, as it is asymptotically more efficient than the sys-GMM (Windmeijer, 2005). The downward bias in the standard errors in finite samples that it generates is corrected under the proposal of Windmeijer (2005). Three specification tests are used to assess the consistency of the estimator: *i*) Hansen's test for overidentification of restrictions (joint validity of the instruments); *ii*) difference-in-Hansen, to assess the validity of additional instruments in the sys-GMM versus the GMM; and, *iii*) Arellano-Bond autocorrelation to determine the existence of first and second order autocorrelation.

Formally, the equation to be estimated is:

$$povit = \alpha + \beta_1 pov_{it-1} + \beta_2 exp_{it-1} + \beta_3 X_{it-1} + \varepsilon_{it} \quad (1)$$

The subscript  $i$  represents the exporting country and  $t$  the year. The dependent variable is  $pov$ ;  $exp$  are exports;  $X$  is a matrix of covariates;  $\varepsilon$  is the error term, and  $\alpha$ ,  $\beta_1$  to  $\beta_3$  parameters to be estimated.

Three measures of poverty are used to contextualize the effect of exports given different levels of income. These measures refer to the percentage of the population living in households with an income per person per day below a certain amount, that is, with less than 2.15, 3.65 and 6.85 dollars (at 2017 prices). To simplify the analysis, these measures are considered as medium, extreme and moderate poverty, respectively. Poverty lagged one period is included as a regressor to consider the persistence of poverty (Isidro, 2016; Fabrizi & Mussida 2020). Exports ( $exp$ ) are measured as the value of goods and services sold abroad as a proportion of GDP.

CUTS International (2008) indicates the need to consider other significant factors to analyze the effect of exports on poverty reduction. In this sense, the variables in matrix  $X$  were selected from the review of the empirical literature and include:

*i*) public social spending ( $ps$ ) (education and health), since higher public spending increases the endowment of human capital of the poor and, therefore, affects their empowerment (Jamal, 2006), in addition, public spending boosts aggregate demand, stimulates economic growth and reduces the unemployment rate (Yusri, 2022). Anderson *et al.* (2018) point out that this public spending has the highest probability of reducing poverty. It is defined as the value of public spending on education and health as a proportion of GDP. Includes current spending, capital investments and transfers from all levels of government in each country (central, regional and local), spending on health goods and services consumed, and excludes health capital spending.

*ii*) income inequality ( $ii$ ), as a measure of the potential of an economy, since these depend on the initial level of inequality in a country, since they directly affect economic growth (Bergstrom, 2022; Jamal, 2006). In addition, poverty and inequality are common characteristics of the developing world, although the most advanced economies are not exempt from this situation) (Alvaredo & Gasparini, 2015). Lakener *et al.* (2022) indicate that a 1% annual decrease in the Gini Index in all countries leads to a similar reduction in global poverty. The Gini Index is used as a proxy variable, which reflects the deviation of income distribution in a country with a perfectly equal distribution.

*iii*) infrastructure ( $itc$ ), by representing conditions of access to roads, electricity, mobile phones and the Internet to participate in the labor market

or undertake, also favoring their productivity (Xiao *et al.*, 2022; Desalegn & Solomon, 2020; Ayoo, 2022). The variable used is *itc*, defined as mobile cell phone subscriptions (per 100 people) plus fixed broadband subscriptions (per 100 people), which tends to measure the access to digital technology that supports economy activities.

*iv*) financial depth (*fd*), as a measure of effective access to financing for investment and/or consumption (Neaime & Gaysset, 2018). According to Demirgüç *et al.* (2018) financial inclusion is a main tool to alleviate poverty. Financial inclusion and effective access mean economic opportunities for people and affects economic prosperity (Blau, 2018). In general, it establishes that the financial system can break the perverse circle of scarcity of capital, investment, productivity, income, savings, consumption and poverty (Florennica & Febriani, 2022). Erlando *et al.* (2020) approximates financial inclusion through three variables; in particular, it uses the ratio of loans and deposits to GDP. This dimension is measured through bank credit to the private sector as a percentage of GDP.

*v*) education (*edu*), as a meritocratic determinant of access to monetary resources and social recognition (Teichler, 2015). Bird *et al.* (2022) argue that households headed by high school graduates or higher practically eliminate the risk of poverty, compared to those with lower educational levels. For the low level of education implies limited human capital which, in turn, translates into poverty (Zhou & Huang, 2023). In particular, the net secondary enrollment rate is included.

*vi*) unemployment (*unem*), as a determinant of income and economic progress with implications for living standards (Rehman, 2022). Unemployment as a limiting income leads to reduced consumption -or indebtedness-, with negative implications for well-being, which creates the problem of poverty (Florennica & Febriani, 2022). Aderounmu *et al.* (2021) state that unemployment is one of the main factors with the greatest risk of falling into poverty. It is measured as the percentage of the total labor force that is unemployed.

*vii*) international remittances (*rem*), given their potential effect on consumption, savings and investment (Yoshino *et al.*, 2017). It represents a central source of income for households in the migrants' country of origin (Lawal *et al.*, 2022). According to, it is a strategic source of financing and poverty reduction (Imai *et al.*, 2014). The variable includes personal remittances transferred from abroad (in cash or in kind) to residents of a country. It is measured as the value of these remittances as a proportion of GDP.

The data source for all variables is the World Bank's World Development Indicators and, for poverty, in particular the Poverty and Inequality Platform module of the same organization. Negative signs are expected for the coefficients of all the variables, except for inequality and unemployment.

In addition, the total sample of countries is divided into two groups based on their degree of integration into global value chains. This makes it possible to obtain more homogeneous samples and assess more precisely how exports impact poverty among different groups. As usual, the weight of foreign value added in national GDP is considered to measure participation in GVCs. A country is classified in the most highly integrated group if this value is equal to or greater than 0.25. Otherwise, it is classified in the least integrated group.

Similarly, extensions to the model are considered that serve to verify the robustness of the results and estimate the effect of the interaction between exports and relevant variables. Alternatively, a dummy variable is incorporated to capture differences between groups of countries. In particular, it seeks to determine if the effect of exports varies between the Latin American and Asian economies. Therefore, equation (1) is also specified with interactive dummies by country group for the export variable. Thus, we have  $d_{it} = -d_{it} * exp_{it}$ ; where  $i$  is the group of countries ( $i=1$ : Latin America, 2: Asia and 3: the rest of the countries (Europe, Japan, Korea, the United States, Canada, Israel and South Africa) at time  $t$ . This also allows maintaining the effects individuals between countries. Lastly, as is usual in the literature, all variables are logarithmically transformed. This allows for a homogenized scale, and, since a proportional relationship between the dependent and independent variables can be expected, the results can be interpreted in terms of elasticities.

#### 4. Results and discussion

The results for the different poverty measures are presented in table 1, for the total sample, for the group of countries with the highest integration and for the countries with the least integration. The estimates satisfy the proposed tests, validating the results. Given the specification and interest of the paper, the coefficients  $\beta_1$  and  $\beta_2$  are particularly examined to identify the effect of exports on poverty. Column (1) estimates the effect on extreme poverty (income less than 2.15 dollars per day), in column (2) the effect on poverty measured as income less than 3.65 dollars per day, and in (3) the effect on poverty defined as an income less than 6.85 dollars a day.

Table 1  
Effect of exports on poverty: sys-GMM estimates

Variables	Total sample						Countries with greater integration						Countries with less integration					
	[1]		[2]		[3]		[1]		[2]		[3]		[1]		[2]		[3]	
	Extreme poverty (<2.15 usd)	Medium poverty (<3.65 usd)	Moderate poverty (<6.85 usd)	Extreme poverty (<2.15 usd)	Medium poverty (<3.65 usd)	Moderate poverty (<6.85 usd)	Extreme poverty (<2.15 usd)	Medium poverty (<3.65 usd)	Moderate poverty (<6.85 usd)	Extreme poverty (<2.15 usd)	Medium poverty (<3.65 usd)	Moderate poverty (<6.85 usd)	Extreme poverty (<2.15 usd)	Medium poverty (<3.65 usd)	Moderate poverty (<6.85 usd)	Extreme poverty (<2.15 usd)	Medium poverty (<3.65 usd)	Moderate poverty (<6.85 usd)
<i>ln(pop)1-1</i>	0.5361 **	[0.056]	0.3676 *	[0.086]	0.2349 *	[0.031]	0.1765 *	[0.043]	0.1657 *	[0.035]	0.1421 **	[0.043]	-0.1929 *	[0.031]	0.2083 *	[0.047]	0.2190 *	[0.038]
<i>ln(exp)</i>	-0.4521 *	[0.049]	-0.8759 *	[0.034]	-0.2042 *	[0.024]	-0.2744 **	[0.057]	-0.3807 **	[0.051]	-0.1554 **	[0.056]	-0.3671 *	[0.047]	-0.4098 **	[0.055]	-0.1826 *	[0.035]
<i>ln(tl)</i>	0.8221 *	[0.036]	0.8916 *	[0.038]	0.5089 *	[0.044]	0.1049 **	[0.076]	0.5677 **	[0.051]	0.2109 **	[0.054]	0.1325 **	[0.062]	0.6456 **	[0.052]	0.2767 **	[0.052]
<i>ln(ss)</i>	-0.4709 *	[0.048]	-0.1599 *	[0.043]	-0.0519 *	[0.041]	-0.3921 **	[0.045]	-0.1209 **	[0.058]	-0.0302 **	[0.053]	-0.4304 *	[0.042]	-0.4134 **	[0.067]	-0.0496 *	[0.049]
<i>ln(tic)</i>	-0.7692 **	[0.072]	-0.3374 **	[0.073]	-0.8311 **	[0.077]	0.4935 **	[0.074]	-0.1308 **	[0.076]	-0.5791 **	[0.085]	-0.5415 **	[0.075]	-0.1677 **	[0.097]	-0.6402 ***	[0.097]
<i>ln(fll)</i>	-0.9736 ***	[0.095]	-1.3259 **	[0.060]	-1.3639 **	[0.058]	-0.2926 [0.131]		-0.4354 [0.164]		-0.5414 **	[0.071]	-0.3524 [0.179]		-0.4773 [0.195]		-0.6457 **	[0.066]
<i>ln(edu)</i>	-0.7198 **	[0.066]	-0.9751 **	[0.052]	-1.2338 **	[0.062]	-0.5187 **	[0.078]	-0.6247 **	[0.079]	-0.7230 **	[0.078]	-0.5538 **	[0.087]	-0.6758 **	[0.055]	-0.7668 **	[0.065]
<i>ln(ancm)</i>	0.3773 *	[0.047]	0.1868 *	[0.018]	0.1481 *	[0.035]	0.1957 **	[0.055]	0.1347 *	[0.047]	0.1046 *	[0.042]	0.2659 **	[0.080]	0.1442 *	[0.047]	0.1127 *	[0.039]
<i>ln(rem)</i>	-0.0367 *	[0.045]	-0.0405 *	[0.042]	-0.0381 *	[0.039]	-0.0194 **	[0.074]	-0.0256 **	[0.063]	-0.0224 **	[0.062]	-0.0285 **	[0.085]	-0.0383 **	[0.057]	-0.0314 **	[0.060]
<i>c</i>	3.7691 *	[0.044]	4.9855 *	[0.046]	5.1068 *	[0.041]	2.3536 **	[0.057]	3.2640 **	[0.053]	2.1230 *	[0.048]	2.4167 **	[0.051]	4.4097 *	[0.049]	3.1191 *	[0.047]
AB AR(1)	0.182		0.034		0.24		0.041		0.196		0.055		0.248		0.033		0.045	
AB AR(2)	0.414		0.542		0.191		0.211		0.248		0.483		0.348		0.416		0.262	
Hansen Test	0.418		0.178		0.374		0.278		0.295		0.397		0.434		0.413		0.488	
Diff-in-Hansen Test	0.535		0.266		0.464		0.371		0.433		0.424		0.464		0.533		0.548	
No. of observations	470		515		537		138		146		146		332		369		391	

P-values in ( ), \*\*, and \*\*\* significant at 1, 5 and 10 percent, respectively.  
 The null hypothesis of the Sargan/Hansen test states that the overidentifications restrictions are valid.  
 The difference-in-Hansen test establishes the null hypothesis of joint validity of a subset of instruments.  
 The Arellano-Bond autocorrelation test establishes no autocorrelation in errors as a null hypothesis.  
 Source: own elaboration.

In general, total exports, as a proportion of GDP, serve to reduce the three considered types of poverty. Furthermore, exports contribute to reducing medium, extreme and moderate poverty, in that order. In terms of magnitudes, the results indicate that a 1% increase in the share of exports in GDP is associated with approximately an average contraction of 0.37% in poverty. From this perspective, an “export effect” on poverty is estimated, characterized by a potential reduction in poverty, a contribution that tends to dissipate when poverty levels are lower.

This same effect is found when the groups of countries are examined distinguishing by their level of trade integration, despite the reduction in the number of observations. Although it is estimated that exports tend to reduce poverty to a greater extent when countries are in less deep integration processes, compared to countries with greater integration, which can be related to the levels of uncertainty generated by greater exposure to international competition. This finding is partially contrary to what is hypothesized.

Furthermore, this result can be explained by Lee *et al.* (2011) who argue that the benefits of trade integration via GVCs depend on the capture of added value from the domestic economy. In other words, countries with a lower degree of integration are at the same time more efficient in retaining added value generated by foreign companies.

Moreover, since less integration implies greater generation of added value by domestic agents, compared to foreigners, this group could tend toward specialization based on comparative advantage, leading to greater efficiency and productivity mainly in sectors intensive in domestic labor and capital. In other words, higher domestic value-added reduces the vulnerability of the economy to external shocks and the decisions of foreign companies. This creates a more stable economic base, with positive impact (incomes and employment opportunities) in the population and particularly in the most vulnerable.

Similarly, the lower integration may be related to the participation of these countries in regional trade agreements which offers a lower exposure to fluctuations in global trade. Following Sala-i-Martin (2007) the benefits of these agreements in terms of poverty reduction outweigh the potential increase in inequality in the short term. In consequence, less global integration leads to stronger economies to export and able to internalize their benefits in poverty reduction. In line with this, the ability of economic integration to boost growth depends on the implementation of regional rules (Guerineau, 2016).

This suggests that countries with a higher level of exports and, probably, with a trade surplus, tend to perform better in the fight against poverty than those with lower foreign sales. In any case, the contribution to poverty reduction of an additional dollar of exports is less than that of an additional dollar of public social spending or education, although greater than the effect of remittances (for extreme and medium poverty).

The findings are consistent with the reported literature. In particular, they are aligned with OXFAM (2002), which establishes a reduction in poverty for each increase of one percentage unit in exports from developing countries. Although they are opposed to Van den Broeck *et al.* (2017) who indicate that in less developed countries the positive impact of employment in highly exporting sectors is limited due to inferior working conditions, low wages and temporary employment contracts.

Islam *et al.* (2017) summarize the potential mechanisms through which the export effect materializes. In general, they identify economic growth (mainly in the long term), job creation (direct and indirect) associated with higher incomes, development of local companies, changes in the prices of factors and goods, movement of factors (including cross-border factors of human capital), technological progress and diffusion processes, institutional development, increased provision of public goods and services derived from higher tax collection, among others. In addition, they argue that these factors favor productivity and capital accumulation, which, in turn, increase the average income of the poor and reduce poverty.

Likewise, the results offer positive evidence of the trade integration processes. In particular, it is possible to argue that exports tend to reduce poverty, which is why they can be considered as part of a commercial-social policy with a comprehensive approach. In other words, exports can drive economies and governments to improve the poverty conditions they face, including the most vulnerable population groups. Simultaneously, the estimated contribution of exports translates into a reduction in pressure on public policies aimed at combating poverty, becoming a complementary mechanism thereof. As a corollary, exports must be considered as a general public good.

However, the main interest of exports is related to business objectives (obtaining income or providing a route of access to markets). In any case, within this framework, a positive effect of exports in the fight against poverty is estimated, further highlighting its role as a mechanism in favor of the poor.

On the other hand, there is evidence of the persistence of poverty and autonomous poverty, both for the total sample and for the subsamples. That is, it starts from positive levels of poverty that worsen in each period, leading to chronic poverty that justifies government intervention and other economic agents. However, chronic poverty appears to be higher in countries with less trade integration for all measures of poverty.

Likewise, a statistically significant effect of the rest of the variables within equation (1) is estimated, except those related to financial depth (when the sample is split off). In short, public spending, educational level and remittances constitute alternatives for poverty reduction. In contrast, unemployment and inequality increase poverty, particularly in countries with less trade integration.

Apart, table 2 introduces different specifications of equation (1), excluding the control variables, lagging explanatory variables and introducing interaction terms between exports, on the one hand, and public spending, education and remittances, on the other. The results show that practically all the variables continue to be significant, considering the three different poverty measurements. In particular, exports maintain their positive effect on poverty reduction (negative sign). Furthermore, the magnitude of the coefficients is maintained. This reinforces the idea of the “export effect”. International trade, and particularly exports due to their progressive contribution to economic growth, are central to poverty reduction (Hayashikawa, 2009).

Tabla 2  
Effect of exports on poverty: sys-GMM estimates (total simple). Extensions

Variables	extreme poverty			medium poverty			moderate poverty		
	Interaction terms			Interaction terms			Interaction terms		
	Without control variables	Lagged explanatory variables	Without control variables	Lagged explanatory variables	Without control variables	Lagged explanatory variables	Without control variables	Lagged explanatory variables	
	[1]	[2]	[3]	[1]	[2]	[3]	[1]	[2]	[3]
$\ln(poverty)_{t-1}$	0.2538* (0.034)	0.1961* (0.046)	0.2119* (0.044)	0.1935* (0.049)	0.1935* (0.049)	0.1702* (0.052)	0.2072* (0.000)	0.1424* (0.041)	0.1295* (0.018)
$\ln(exp)$	-0.5769** (0.058)	-0.7217** (0.051)	-0.6596* (0.049)	-0.7037** (0.088)	-0.7092** (0.072)	-0.4098** (0.057)	-0.4638** (0.062)	-0.1356** (0.033)	-0.6428** (0.056)
$\ln(i)$	-	0.7767* (0.081)	0.6109* (0.065)	0.8483** (0.088)	0.9314** (0.072)	0.4806** (0.077)	-	-0.7128** (0.084)	0.5194** (0.069)
$\ln(pss)$	-	-0.8055** (0.061)	-0.8225** (0.037)	-0.5580** (0.056)	-1.1567** (0.041)	-1.0101** (0.036)	-	-0.4217** (0.054)	-0.8254** (0.037)
$\ln(icc)$	-	-0.4235** (0.076)	-0.7146** (0.062)	-0.8899** (0.036)	-0.1610** (0.046)	-0.5352** (0.046)	-	-0.2819** (0.089)	-0.6918** (0.041)
$\ln(f)$	-	-0.0238 (0.192)	-0.3508** (0.070)	-0.7929** (0.064)	-0.1230 (0.185)	-0.8722** (0.055)	-	-0.3526** (0.195)	-0.9262** (0.048)
$\ln(edu)$	-	-0.5595** (0.069)	-1.4002** (0.047)	-0.7236** (0.077)	-0.8781** (0.071)	-1.6223** (0.029)	-	-0.7265** (0.041)	-0.8341** (0.051)
$\ln(unem)$	-	0.3066** (0.053)	0.5309 (0.037)	0.7989 (0.042)	0.2937** (0.055)	0.3163** (0.049)	-	0.2342** (0.041)	0.5034 (0.047)
$\ln(rem)$	-	-0.0489** (0.074)	-0.5023* (0.030)	-0.6749** (0.073)	-0.0964** (0.079)	-0.8049** (0.025)	-	-0.0729** (0.085)	-0.6847** (0.058)
$\ln(exp*pass)$	-	-1.3493* (0.039)	-	-	-1.2341** (0.059)	-	-	-1.1085** (0.050)	-
$\ln(exp*edu)$	-	-	-1.3492* (0.040)	-	-1.5341* (0.039)	-	-	-1.4844** (0.050)	-
$\ln(exp*rem)$	-	-	-0.6749** (0.073)	-	-	-0.8391** (0.067)	-	-	-0.7427** (0.081)
c	-	1.8548* (0.039)	-2.0783* (0.018)	-2.2535* (0.021)	2.6797* (0.041)	-2.2420* (0.036)	-	3.7189* (0.049)	-2.9362* (0.041)
AB AR(1)	0.031	0.201	0.181	0.012	0.025	0.161	0.008	0.031	0.023
AB AR(2)	0.194	0.842	0.446	0.299	0.426	0.397	0.178	0.449	0.221
Hansen Test	0.180	0.221	0.407	0.238	0.209	0.378	0.164	0.449	0.393
Diff-in-Hansen Test	0.260	0.335	0.508	0.329	0.300	0.418	0.216	0.485	0.467
Ns. of observations	470	470	470	516	514	515	538	536	537

P-values in ( ). \*, \*\*, and\*\*\* significant at 1,5 and 10 percent, respectively.  
 The null hypothesis of the Sargan/Hansen test states that the overidentification restrictions are valid.  
 The difference-in-Hansen test establishes the null hypothesis of joint validity of a subset of instruments.  
 The Arellano-Bond autocorrelation test establishes no autocorrelation in errors as a null hypothesis.  
 Source: own elaboration

When considering the lagged explanatory variables, the effect of exports on poverty is maintained one period later. Over time, exports contribute to the generation of domestic conditions and capacities (indirect jobs, human capital, technological and knowledge spillover, etc.) that favor quality of life. In addition, the integration of countries in global value chains makes them dependent on foreign countries, leading to a continuous export process and, therefore, the export effect is maintained in time. This suggests the hypothesis that imports from foreign countries promote poverty reduction in the domestic country, due its role within GVCs.

Regarding the interaction terms, it is observed that the contribution of exports is enhanced when considered together with three other variables. The results suggest that high export levels can reduce poverty when combined with higher levels of public spending, education and remittances. This is in line with Rodríguez *et al.* (2020), for whom the positive effect of exports on development could be complemented with social, labor and productive policy measures that made it possible to take advantage of trade opening.

In other words, implementing policies that promote exports and simultaneously boost public spending on education and health as a proportion of GDP, the net secondary enrollment rate, and the amount of transfers from abroad, favor the fight against poverty. The results are similar to Hvidt *et al.* (2015) in the case of education, Alarco (2017) for public spending and Chiat-choua *et al.* (2022) for remittances.

Finally, regarding the dummy variables created to differentiate groups of countries, both tend to be systematically significant for the different measures of poverty (table 3). It can be seen that the effects of exports are different among the groups of countries, although all show negative signs. This confirms the central role of exports in the fight against poverty. The magnitude of the coefficients is small compared to the case of undifferentiated coefficient estimates. In short, it is observed, as expected, that the export effect is greater in the case of Asian countries than for Latin American economies. In this way, the proposed hypothesis is verified.

Table 3  
Effect of exports on poverty. Differentiated coefficients.  
Sys-GMM estimate (total simple)

Variables	[1]	[2]	[3]
	<i>Extreme poverty</i> (<2.15 usd)	<i>Medium poverty</i> (<3.65 usd)	<i>Moderate poverty</i> (<6.85 usd)
$\ln(pov)_{t-1}$	0.1684 * [0.049]	0.1562 * [0.033]	0.1284 ** [0.058]
$\ln(exp)$	-0.2176 ** [0.072]	-0.1047 ** [0.062]	-0.7724 * [0.048]
$\ln(ii)$	0.5170 ** [0.068]	0.6011 * [0.037]	0.5571 * [0.048]
$\ln(pss)$	-1.7132 * [0.042]	-1.8112 * [0.036]	-1.9450 * [0.037]
$\ln(itc)$	-0.6393 * [0.038]	-0.7227 ** [0.079]	-0.7529 * [0.035]
$\ln(fid)$	-1.1322 * [0.038]	-1.2827 * [0.033]	-1.3111 ** [0.055]
$\ln(educ)$	-1.6426 * [0.050]	-1.8750 * [0.046]	-1.9151 ** [0.064]
$\ln(unem)$	0.3456 ** [0.054]	0.2599 ** [0.053]	0.1987 * [0.033]
$\ln(rem)$	-0.5914 * [0.048]	-0.7915 ** [0.061]	-0.6085 ** [0.051]
<i>c</i>	2.5308 * [0.038]	2.7928 * [0.039]	1.9041 * [0.041]
<i>Latinoamerica</i>	-1.0266 ** [0.078]	-1.5753 * [0.039]	-1.3370 ** [0.054]
<i>Asia</i>	-3.2405 ** [0.053]	-3.3679 ** [0.063]	-3.1354 ** [0.052]
AB AR(1)	0.059	0.039	0.039
AB AR(2)	0.306	0.313	0.235
Hansen Test	0.312	0.237	0.260
Diff-in-Hansen Test	0.440	0.360	0.345
No. de observaciones	470	515	537

P-values in [,\*,\*\*,and\*\*\* significant at 1,5 and 10 percent, respectively.

The null hypothesis of the Sargan/Hansen test states that the overidentification restrictions are valid.

The difference-in-Hansen test establishes the null hypothesis of joint validity of a subset of instruments.

The F-test establishes the null hypothesis that the additional coefficients are equal to zero ( $H_0: \beta_{0i} = \beta_0$ ).  $\chi^2=1046.70$  and p-value =0.000.

The Arellano-Bond autocorrelation test establishes no autocorrelation in errors as a null hypothesis.

Source: own elaboration.

This result is in line with Deb *et al.* (2021) who establish that trade, including exports, has been a powerful driver of economic growth and poverty alleviation in Asia. They acknowledge that tariff barriers to trade in Asia are low, but non-tariff barriers, which incorporate policies associated with licensing requirements, and restrictions on trade, payments, or currency exchange, remain high. In this sense, these barriers can favor the contribution of exports in reducing poverty by mitigating potential negative effects derived

from globalization (for instance, damage to national industry due to unfair or excessive imports).

Likewise, following Menon & Melendez (2020), complementary policies, such as investments in infrastructure and in research and development, reforms in factor markets, strengthening of institutions and governance, higher quality of human capital, international development cooperation, among others, tend to maximize the potential impact of trade in reducing poverty. These types of policies have been present in different economies in Asia. In any case, the evidence suggests that the impact of exports on poverty is context-dependent, so a more in-depth analysis is required in this direction.

## 5. Conclusions

The results allow us to accept the hypothesis that exports contribute to poverty reduction. However, contrary to what was expected, it is found that this impact is greater in the group of countries with less trade integration (less weight of foreign added value). This is probably related to an integration process in which exposure to international competition is limited and greater added value is captured by the domestic economy.

Likewise, evidence shows the existence of an export effect, which is consistent among the samples. In this regard, it is estimated that exports tend to reduce the levels of medium, extreme and moderate poverty, in that order. The positive effect seems to focus mainly on intermediate poverty lines; given that the contribution of exports in reducing poverty decreases when income is less than 2.15 or 6.85 dollars per day.

Also, significant interaction terms between exports and other variables are estimated. In particular, it is observed that exports tend to reduce poverty together with higher levels of public spending, education and remittances. Similarly, although the value of the coefficients is similar, a greater export effect is found for Asian countries compared to Latin American countries. This may be associated with the implementation of complementary measures aimed directly or not to poverty fight, for example, public investment, market reforms, development of institutions, promotion of education or non-tariff barriers that contain the pressures of competition global.

In this way, enhancing the export effect on poverty implies that it is not enough to export and participate in GVCs, it is necessary to implement measures aimed at increasing and retaining added value within the domestic

economy. An alternative is the attraction of foreign capital with quality employment that generates long-term production chains with domestic companies.

The phenomenon of poverty occurs under different dimensions that require State intervention through specific actions linked to public programs and spending, but also that promote the number of people with secondary levels of education and the capture of a greater value of the remittances. This development agenda must be complemented with an industrial-trade policy that favors the value and volume of exports, the quality and degree of specialization, as well as integration into GVCs, considering measures that reduce external vulnerability (limit risks and excessive competition) and thus contain the potential detrimental effects of international trade for the poor.

Economic policies should focus on improving the competitiveness of exporting sectors and firms, including measures to increase productivity, reduce production costs, improve product quality, facilitate access to financing, mainly for small and medium-sized enterprises, and to negotiate better market access with trading partners. All these aspects allow participating in international trade and contribute to poverty reduction through job creation via the increase in the domestic value added. Specifically, a combination of policies to combat poverty, economic growth and trade integration is required under a comprehensive approach.

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Annex

Table A  
Selected countries

Countries with greater integration		Countries with less integration
Argentina	Japan	Austria
Armenia	Kazakhstan	Belgium
Australia	Kyrgyzstan	Canada
Belarus	Latvia	Czechia
Bolivia	Mexico	Denmark
Brazil	Montenegro	Estonia
Bulgaria	Norway	Finland
Chile	Pakistan	Germany
China	Panama	Hungary
Colombia	Paraguay	Ireland
Costa Rica	Peru	Lithuania
Croatia	Poland	Luxembourg
Ecuador	Portugal	Malaysia
El Salvador	Russia	Netherlands
France	Serbia	Philippines
Georgia	South Africa	Romania
Greece	Turkey	Slovakia
Honduras	Ukraine	Slovenia
Iceland	United Kingdom	South Korea
India	United States	Spain
Indonesia	Uruguay	Sweden
Israel	Vietnam	Switzerland
Italy		Thailand

A country is classified in the greater integration group if the share of foreign value added in national GDP is equal to or greater than 0.25.

Otherwise, it is classified in the less integration group.

Source: own elaboration.