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Effect of the Institutional Environment on Exports: A Comparative Analysis between Colombia, Ecuador and Peru

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I dedicate this work, the result of years of effort, perseverance and dedication, to the most important people in my life. To my mother, Marly Pereira, for being the heart that guides my path and the strength that sustains me at every step. To my father, Paul Freire, for teaching me by example the value of work, discipline and perseverance, always encouraging me not to give up in the face of life's challenges. Everything I am today carries its essence; On every page written, their efforts, their unconditional support and the infinite trust they have placed in me are reflected.

This achievement is not mine alone. I also dedicate this work to the value of knowledge and to the hope that this effort transcends beyond these pages, becoming a contribution that inspires future research and a motivation to continue building ideas that contribute to academic development, critical thinking and the future of our country.

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ABSTRACT

Effect of the Institutional Environment on Exports: A Comparative Analysis between Colombia, Ecuador and Peru

This research analyzes the relationship between the institutional environment and export intensity in Colombia, Ecuador, and Peru during the period 2013–2023. This study is based on institutional theory, which states that institutional quality has a significant impact on export performance and the international competitiveness of countries. Methodologically, a quantitative approach was applied, using a descriptive-correlational and comparative design, with a panel data model under Pooled Ordinary Least Squares (Pooled OLS) estimation, where export intensity is the dependent variable, and institutional indicators such as Control of corruption (CC), Political stability and absence of violence/terrorism (PV), and Regulatory quality (RQ) act as independent variables. These findings show a positive and statistically significant relationship between the institutional indicators and export intensity, highlighting political stability as the determining factor. However, the study points out that this relationship is not simple or automatic, given that export success is influenced by the production structure and the type of products each country exports. Therefore, it is concluded that strengthening institutions is essential to improving international trade, but this must be accompanied by public policies that promote productive diversification to achieve sustainable export growth.

Keywords: institutional environment, foreign trade, international competitiveness, exports, institutional indicators, export intensity.

RESUMEN

Efecto del Ambiente Institucional en las Exportaciones: Análisis Comparativo entre Colombia, Ecuador y Perú

La presente investigación analiza la relación entre el ambiente institucional y la intensidad exportadora en Colombia, Ecuador y Perú durante el periodo 2013–2023. Este estudio se basa en la teoría institucional, la cual afirma que la calidad institucional tiene un impacto significativo en el desempeño exportador y la competitividad internacional de los países. En términos metodológicos, se aplicó un enfoque cuantitativo, aplicando un diseño descriptivo-correlacional y comparativo, utilizando un modelo de datos de panel bajo estimación Pooled Ordinary Least Squares (Pooled OLS), donde la intensidad exportadora es la variable dependiente, y los indicadores institucionales como Control de la corrupción (CC), Estabilidad política y ausencia de violencia/terrorismo (PV), y Calidad regulatoria (RQ) actúan como variables independientes. Estos hallazgos muestran una relación positiva y significativa estadísticamente entre los indicadores institucionales y la intensidad exportadora, destacando la estabilidad política como el factor determinante, sin embargo, el estudio señala que esta relación no es simple o automática, dado que el éxito de exportaciones está influenciado por la estructura de la producción y el tipo de productos que cada país exporta. Por lo cual se concluye que el fortalecimiento de las instituciones es primordial para mejorar el comercio internacional, pero este debe ir acompañado de políticas públicas que fomenten la diversificación productiva para alcanzar un crecimiento sostenible en las exportaciones.

Palabras clave: ambiente institucional, comercio exterior, competitividad internacional, exportaciones, indicadores institucionales, intensidad exportadora.

1. Introduction

In recent years, foreign trade has remained of great importance for the Andean countries, not only because of the income it brings, but also because of the influence it has on competitiveness, production and the way in which each economy relates to the international market. However, although Colombia, Ecuador and Peru are part of the Andean Community and share certain historical, geographical and cultural characteristics, their export results have been different.

One of the reasons that can explain these differences is found in the institutional environment, that is, in aspects such as political stability, the quality of regulations, the capacity of the State and the trust generated by institutions within economic activity. In this sense, the Economic Commission for Latin America and the Caribbean [ECLAC] (2025b) demonstrated that the region not only faces the challenge of exporting more, but also of doing so with greater diversification, with value-added products and with a capacity to adapt to an increasingly uncertain international scenario.

From this point of view, the institutional environment becomes fundamental to understanding the behavior of foreign trade. It is not just that there are laws or regulations, but how well the institutions work to apply them, how stable the political system is, and how all of this influences investment, production, and export decisions. In real life, when a country has problems in functions such as transparency, regulation, public coordination or legal certainty, companies have more obstacles to enter international markets.

In this regard, the Inter-American Development Bank (IDB) in Beverinotti et al. (2023) has pointed out that in Colombia, Ecuador and Peru there are still limitations related to certifications, logistics, institutional coordination and trade support, which reduces the possibilities of moving towards more complex and sustainable activities.

Therefore, foreign trade is not understood solely from figures such as how much is exported or how much the economy grows from the Gross Domestic Product (GDP). It is also necessary to consider how the institutions that influence those outcomes work. In this sense, recent studies on the Andean Community, such as Pérez et al. (2023) , indicate that the export performance of the Andean countries does not depend only on external factors, but also on the internal conditions of each economy.

The motivation for this research stems from the need to understand how the institutional environment relates to foreign trade in the Andean Community, especially in Colombia, Ecuador and Peru. Although these countries are part of the same bloc, they have differences in aspects such as political stability, quality of rules, effectiveness of government, and institutional control. In this way, comparing them is important, as it allows us to see their similarities, differences and some patterns within the region.

Bolivia was not considered in this study, despite the fact that it is part of the Andean Community, because it presents an economic model and a level of trade openness different from those of the other countries analyzed. In addition, there are difficulties in comparing their information within the period studied. For this reason, the research focuses on Colombia, Ecuador and Peru, since these countries have more comparable data and a more adequate commercial participation for the analysis.

Within this framework, the research focuses on the following objectives:

1.1 General Objective

To analyze the relationship between the institutional and political stability of a country's government and its effects on the foreign trade of the Andean Community, with a main focus on Colombia, Ecuador and Peru.

1.2 Specific Objectives

- To review the existing theoretical basis on the institutional environment and its effects on foreign trade.
- To identify, through objective indicators, the factors that explain the political and institutional stability of Colombia, Ecuador and Peru during the period of analysis within the context of the Andean Community.
- Examine the evolution of foreign trade flows in these countries using economic indicators, considering export intensity and its behavior during the analysis period.
- Assess the relationship between government consistency and changes in exports, recognizing important patterns.

2. Theoretical Framework

2.1 Institutional Environment

The institutional environment is an important aspect to understand the capacity of countries to grow and perform better in international markets, especially in emerging economies in Latin America. In this sense Brown del Rivero et al. (2020), they point out that institutional quality influences competitiveness, since it is related to the proper functioning of public systems, compliance with the law and the stability of regulations. This is because companies tend to do better in clear, regulated, and predictable environments.

From the microeconomic point of view, the institutional environment also directly influences the decisions of Small and Medium-sized Enterprises (SMEs) that seek to grow in international markets. In this sense Vitrenko et al. (2020), he said that institutions define incentives, limitations and opportunities for SMEs, especially in contexts where public policies do not advance at the same pace as the demands of the international market.

Similarly, the studies of Stocker (2018) and Enriquez-Perales et al. (2023) present a more practical vision, showing that the institutional environment plays a mediating role between business planning and financial results, since it influences confidence to invest and the strength of expansion plans towards international markets.

2.2 Factors of the Institutional Environment

2.2.1 Economic and Social Stability of the Country

The economic and social stability of the country is an important factor for the development of exports, as it helps to reduce the perception of risk and allows companies to plan their activities with a long-term vision. In this way, ECLAC (2024a) points out that countries with greater macroeconomic stability have better conditions to participate in international trade, because they transmit greater confidence abroad and favor the continuity of trade relations.

2.2.2 Effects of Corruption

Corruption is one of the institutional problems that most affects foreign trade in Latin America. According to Transparency International (2024), high levels of corruption increase operating costs, alter competition and weaken the credibility of public institutions, which ends up negatively affecting export performance. In countries such as Colombia, Ecuador, and Peru, the presence of acts of corruption in customs, regulatory, or contractual

processes limits the efficiency of trade and reduces the ability of companies to compete in international markets.

2.2.3 Political stability

Political stability is an important factor in maintaining the continuity of trade policies and providing legal certainty. Gisselquist (2014) it highlights that countries with greater political stability tend to offer a more predictable environment for investment and trade, which is conducive to export development.

2.2.4 State Governance and Institutional Quality

State governance and institutional quality have a direct influence on export performance. According to Kaufmann et al. (2000), strong governance is related to higher levels of transparency, accountability, and institutional efficiency. These elements facilitate access to international markets and strengthen the competitiveness of companies.

2.2.5 Trade Openness

Trade openness is an important component of the institutional environment, as it shows the level of integration of an economy with international trade. According to the Corporación de Estudios para el Desarrollo [CORDES] (2022), the reduction of tariff barriers, the signing of trade agreements and the facilitation of trade allow countries with institutional frameworks more oriented towards trade liberalization to achieve higher levels of export diversification.

2.2.6 Legal Framework

The legal framework plays a central role in the protection of property rights and the enforcement of contracts. The Organisation for Economic Co-operation and Development [OECD] (2020), points out that legal certainty is a key factor for the development of foreign trade, as it guarantees more equitable and predictable conditions for international transactions. Consequently, having a solid legal framework contributes to improving export competitiveness and strengthening the sustainability of trade relations.

2.3 Expansion of Companies into International Markets

The internationalization of companies has become an important topic of study, due to the relationship between the role of institutions and the way in which they influence incentives

and limitations when operating. At the institutional level, Henisz (2000) and Peng et al. (2008) they propose an approach focused on resources and transaction costs, in order to understand the "rules of the game" and how these affect key decisions for international expansion.

Similarly, theoretical models on internationalization have incorporated approaches that highlight the importance of institutions in the strategic decision-making of companies. For example, Meyer et al. (2009) and Heredia Pérez et al. (2023) they point out that companies do not respond only to economic incentives, but also to institutional factors. This helps to understand why, even in similar contexts, companies can opt for different internationalization strategies.

2.4 Importance of Exports in Business Expansion and Economic Development

Exports are a key element for the expansion of companies and for economic development, as they allow organizations to enter international markets and strengthen their competitiveness. ECLAC (2021), points out that export growth is important because it allows the volume of production to be increased, economies of scale to be taken advantage of and the productive efficiency of companies to be improved. At the macroeconomic level, exports also play a strategic role, since they generate foreign exchange, reduce dependence on the domestic market and favor productive diversification.

In Latin American countries such as Colombia, Ecuador, and Peru, export performance is closely related to the quality of the institutional environment. According to Giordano (2022), stable regulatory frameworks, trade facilitation policies, and efficient administrative systems help reduce transaction costs and uncertainty. On the contrary, the lack of clarity in the rules, the excess of bureaucratic procedures and the lack of coordination between public institutions tend to limit export potential and raise operating costs.

2.5 Institutional Distance and Business Heterogeneity in Internationalization

According to Correa da Cunha et al. (2022) y Beugelsdijk et al. (2018), institutional distance can be divided into two main types. The first is the formal one, which is related to laws, regulations and the political system. The second is informal, which is linked to values, customs and social dynamics. This difference is important in Latin America, where

in many cases legal systems are inconsistent and coexist with high levels of economic informality. For this reason, companies seeking to internationalize must not only adapt to formal standards, but also strengthen their social capital, create relationships of trust, and gain a better understanding of the environment in which they will operate.

They also Kostova et al. (2020), they point out that institutional distance should not only be understood as a barrier, but also as an opportunity to promote innovation. That is, this kind of distance influences not only how companies enter new markets, but also their internal structure and long-term performance.

On the other hand, the focus on business heterogeneity has been fundamental to understanding the emergence of new exporters. Bernard et al. (2007) indicate that differences in productivity between exporting and non-exporting firms directly influence the dynamics of international trade.

2.6 Business Networks and International Cooperation

Johanson & Vahlne (2009) they argue that connections within global networks are a fundamental resource to reduce doubts in complex institutional environments. In this sense, networks become a key support for companies, since their growth does not depend only on their material assets, but also on their ability to build relationships that allow them to access information, legitimacy and resources in international markets.

Furthermore, the relationship between institutions, culture and financial performance has taken on greater importance in studies on business internationalization. According to Correa da Cunha et al. (2023), the performance of companies in Latin America is also influenced by the interaction between those of institutional and cultural distances. This means that companies that operate in culturally diverse contexts must not only adjust their market strategies, but also their institutional communication and internal business organization.

2.7 Comparative Analysis of the Institutional Environment and Export Performance in Colombia, Ecuador and Peru

The comparative analysis of the institutional environment and export performance in Colombia, Ecuador and Peru allows us to observe that the quality of institutions is an important factor in understanding the differences in the results of international integration.

Colombia shows an intermediate performance, as a result of institutional advances that have not been entirely homogeneous. Although the country has strengthened its promotion agencies and expanded its network of trade agreements, there are still barriers related to regulatory complexity and limited institutional coordination between institutions, which hinders a more constant participation of small and medium-sized enterprises in international markets (Giordano, 2022).

In contrast, Ecuador has greater institutional constraints that are reflected in regulatory instability and weaknesses within trade facilitation systems. These conditions increase uncertainty and compliance costs, affecting export diversification and maintaining a strong dependence on primary products. Despite this, evidence shows that targeted institutional improvements can generate positive impacts on production and employment (World Trade Organization [WTO], 2019).

For its part, in the case of Peru, ECLAC (2025b), points out that it presents a more favorable institutional environment for foreign trade, due to the continuity of trade liberalization policies and advances in trade facilitation. The reduction of customs procedures and greater regulatory stability have made it possible to reduce transaction costs, which has especially boosted sectors such as agro-exports and has generated positive effects on employment and the internal productive chain.

2.8 Main Characteristics of Colombia, Ecuador and Peru

In Colombia, according to the Departamento Administrativo Nacional de Estadística [DANE] (2024), the country registered a negative trade balance, influenced by the fall in oil and coal exports, as well as institutional limitations related to logistics infrastructure and foreign trade costs.

In the case of Ecuador, according to the Ministerio de Producción (2024), the country registered a significant trade surplus, as a result of policies aimed at trade facilitation and the strengthening of regional trade agreements. However, the high dependence on commodities continues to be a structural risk in the face of the volatility of international prices.

On the other hand, the Secretaría General Comunidad Andina report indicates that Peru led exports within the Andean bloc in 2024, driven by the mining, agro-export and manufacturing sectors, in a context of institutional policies favorable to investment and trade liberalization. This institutional environment has contributed to more competitive participation in international markets (Secretaría General Comunidad Andina, 2025).

Table 1

Comparison of the Trade Balance of Colombia, Ecuador and Peru

Country	Trade balance result	Distinctive Feature
Colombia	Persistent deficit	Mining-energy dependence
Ecuador	Moderate surplus	Oil and non-oil exports
Perú	High surplus	Greater export diversification

Note: Information based on DANE (2024), Ministerio de Producción (2024), Secretaría General Comunidad Andina (2025).

3. State of the Art

3.1 Institutional Environment and Exporter Performance

Currently, in studies on foreign trade, the institutional environment appears as an important factor in explaining why some countries manage to maintain their export performance better than others. According to ECLAC (2024b), this relationship is explained by the fact that exports do not depend only on productive capacity or international demand, but also on the internal conditions that facilitate or hinder economic activity. Among these conditions are regulatory stability, administrative efficiency, coordination between public entities, legal certainty, and the state's capacity to support the productive sector. In this line, ECLAC (2025a) noted that Latin America and the Caribbean not only face the challenge of exporting more, but also doing so with greater diversification, greater technological content and greater capacity to adapt to an increasingly unstable international environment.

From this point, talking about institutional quality does not refer only to the existence of laws or public programs, but to how well they work in practice. In other words, that the

rules are applied in a coherent, continuous and coordinated manner. When rules change frequently, procedures are slow and institutions do not work in an articulated manner, they increase transaction costs and hinder the ability of companies to respond to international markets. On the other hand, it warns that ECLAC (2024b) , in the current situation, marked by geopolitical tensions, logistical problems and greater protectionist tendencies, having solid institutions is even more important, since it allows trade strategies to be sustained even in unstable scenarios.

In the countries of the Andean Region, this issue is important, since Colombia, Ecuador and Peru participate in international trade mainly through agricultural products and manufactures based on natural resources. However, they have similar export structures, this does not mean that they face the same circumstances to compete. The IDB, through research on Abuelafia et al. (2023), points out that one of the main challenges in the region is to move towards a productive transformation with better coordination between institutions, greater continuity in policies, and better connections between actors. This is because the separation of public programs and agencies reduces the effectiveness of state support for productive capacity.

In this sense, the institutional environment fulfills at least two important functions. On the one hand, it helps to reduce internal barriers, such as excessive management times or lack of information for those who export. On the other hand, it creates conditions to move towards higher value-added activities. For this reason, the current literature such as Beverinotti et al. (2023) and Abuelafia et al. (2023), no longer analyzes exports only from traditional variables, but also from factors such as governance, technical support, trade facilitation, and public-private articulation.

Therefore, the institutional environment is made up of several aspects that directly influence how a country export. According to ECLAC (2025b), and Abuelafia et al. (2023) among the most important are: regulatory stability, administrative efficiency, inter-institutional coordination, the technical capacity of the state and the continuity of public policies. Each one fulfills an important function. For example, when regulatory stability is stable, there is more security for producing, investing and exporting. Likewise, efficient management allows procedures to be carried out faster and at a lower cost. The authors explain how institutions must work in a coordinated manner, connecting areas such as

customs, financing and trade promotion, to better support exporters. Added to this is the technical capacity of the State, which makes it easier to meet requirements and access more demanding markets.

3.2 Recent Evidence on the Institutional Environment and its Influence on Exports in Colombia, Ecuador and Peru

When reviewing the evidence for Colombia, Ecuador and Peru, it is observed that the institutional environment influences exports through very specific aspects. Among the most important are: trade facilitation, obtaining certificates, logistics efficiency, collaboration between the public and private sectors, accessibility to financing and technical support to companies. The IDB in the study of Abuelafia et al. (2023), points out that in these three countries there are still problems such as low knowledge of international standards, difficulties in obtaining certifications, high costs and times in customs procedures and logistical limitations at international connection points.

In the case of Colombia, recent studies highlight advances in trade promotion and collaboration between institutions. The IDB indicates that export and investment development agencies have had positive effects on countries, contributing to growth and export diversification (Abuelafia et al., 2023). However, according to Beverinotti et al. (2023) these advances, they do not completely eliminate the problems, since there are still logistical, regulatory and coordination barriers that limit the development of more complex activities, so that institutional progress has been important, but it is still incomplete.

In contrast, in Ecuador, institutional constraints have a greater impact on export competitiveness. According to research, Guerrero et al. (2024), the institutional environment continues to be key to attracting investment, generating productive opportunities and strengthening exports, especially in manufacturing and higher value-added activities. In addition, in Ecuador, according to studies by Calle-Berrezueta et al. (2024), SMEs face difficulties such as lack of information, little access to financing, distance from ports and little orientation to international markets, which weakens their expansion abroad. In other words, Ecuador has a good productive potential, especially in manufacturing and small and medium-sized enterprises. But it faces more difficulties in coordination between institutions, access to financing and the internationalization process, which makes its exports more vulnerable and less diversified.

In Peru, evidence shows positive results in some elements of the institutional environment, related to trade openness and the stability of export policies. Even so, its export potential continues to face limitations, especially in sectors that require greater technology, adaptation and standards. According to the IDB, Beverinotti et al. (2023), entering more demanding markets depends on having better business capabilities, greater technical support and financing. Therefore, although there is progress, it is still not enough to close all the gaps.

These differences should not be interpreted rigidly, as if there were a completely successful country and a totally backward one. Rather, they reflect different levels of institutional capacities. Colombia and Peru have better conditions in aspects such as promotion and coordination, while Ecuador faces greater difficulties in sustaining productive transformation processes. However, these three countries share common challenges, according to Pérez et al. (2023), such as dependence on primary products, the need to strengthen technical support for exporters, and improved coordination between productive and trade policies.

3.3 Contribution of the Comparative Study in the Relationship of the Institutional Environment and Export Intensity

The review that has been carried out allows us to affirm that the institutional environment does influence exports, but its effect is not linear or uniform. In some cases, according to Beverinotti et al. (2023), institutions have an impact mainly by reducing transaction costs and streamlining processes. While, in others, their role is more noticeable in the possibility of accessing certifications, meeting standards or sustaining productive transformation policies. Therefore, for Abuelafia et al. (2023), the institutional environment should not be treated as a single homogeneous variable, but as a set of dimensions that interact with each other and that can strengthen or limit export performance depending on the economic structure and state capacity of each country.

One of the main contributions of the review is that it allows us to go beyond just looking at the data. It is not only a matter of checking whether one country exports more than another, but also of understanding under what conditions it does so and how sustainable that

performance is over time. This clarification is important for Colombia, Ecuador, and Peru, as their exports are still largely based on primary products.

In other words, the fact that exports increase for a while does not necessarily imply improvements in institutions or a true transformation of the export profile. They Pérez et al. (2023) point out that the export performance of the Andean countries is influenced by both internal and external aspects, which makes a broader analysis necessary.

Another important aspect is the need to analyze how institutions are coordinated. A country may have agencies, programs, and rules for foreign trade, but if they do not work together, their impact on exports will be limited. According to the IDB, it warns Abuelafia et al. (2023), that in the Andean Region the dispersion of initiatives and the lack of coordination in public support reduce the effectiveness of productive and trade policies. In this sense, the problem is not only to have institutions, but that they work in a coordinated, continuous and coherent way. This idea is important for this study, since it allows us to analyze Colombia, Ecuador and Peru not only for what they export, but also for the way in which they structure the support to their companies.

Currently, the literature links the institutional environment with sustainability. Accessing international markets no longer depends only on the price or quantity exported, but also on compliance with environmental, health and traceability standards. According to the IDB, expressed in Abuelafia et al. (2023) on sustainable value chains in Colombia, Ecuador and Peru, facing these new requirements according to Beverinotti et al. (2023), requires strengthening public capacities, implementing support programs and improving coordination between the State and companies. This means that traditional advantages are no longer enough, but institutional capacity to facilitate changes in production is also important. Finally, based on the above, this study helps explain why some countries are able to sustain their exports better in a more demanding international environment.

4. Methodology

This research work is framed in a quantitative approach, in order to analyze the relationship between the quality of the institutional environment and the total exports of the countries of the Andean Community: Colombia, Ecuador and Peru. Although Bolivia is part of the regional bloc, it was not included in this study due to limitations in the

availability and consistency of data for the study period, which makes it difficult to compare homogeneously with the other selected countries. This methodological integration allows the phenomenon to be covered from a 10-year perspective, during the period 2013–2023.

The design of the research was descriptive-correlational and comparative, since its main objective is to know the behavior of institutional and institutional indicators in the three chosen countries, and, secondly, the statistical relationship between the variables and foreign trade was analyzed. This type of design is appropriate for recognizing the relationship between variables without experimental manipulation, which is an essential feature of non-experimental studies (Hernández Sampieri & Mendoza Torres, 2018).

Similarly, the research adopts a panel data approach, a method used in comparative research between countries when cross-sectional and temporal dimensions intersect (Baltagi, 2021; Wooldridge, 2010). This method makes it possible to analyze dynamics over time and monitor unobservable heterogeneity between countries.

4.1 Study Variables

4.1.1 Dependent variable: Export Intensity

As a dependent variable, export intensity was established, which is the ratio between Total Exports and nominal GDP. As can be seen in Equation (1), export intensity is calculated as the ratio between total exports and nominal GDP, which allows us to evaluate the level of economic insertion in international trade.

$$Export\ Intensity = \left(\frac{Total\ Exports}{GDP}\right) \times\ 100 \quad (1)$$

This metric is regularly used to study the degree of trade openness and integration at the global level (Lima & Alvarez, 2008). The following macroeconomic variables were used to calculate the Export Intensity:

4.1.1.1 Total Exports

Total exports, measured in U.S. dollars (USD) at current prices, are considered the main variable of the investigation. According to the report, International Monetary Fund [IMF] (2010) exports include all the goods and services that a country sells abroad, that is, to

people or companies that do not reside in it, which implies a change of economic ownership.

From this perspective of global trade, exports show how competitive an economy is at the international level and what productive capacity it has to compete in global markets (Paul R. Krugman et al., 2018).

4.1.1.2 Nominal Gross Domestic Product (GDP)

Nominal GDP, calculated in U.S. dollars (USD) at current prices, is part of the study as a control variable. European Commission et al. (2016) it defines GDP as the monetary value of all the services and final goods generated in an economic area, calculating in such a way the market prices that are in force during the production cycle (current prices).

The inclusion of GDP as a control variable makes it possible to isolate the impact that the size of the economy has in relation to exports, since larger economies tend to have higher trade volumes (Damodar N. Gujarati & Dawn C. Porter, 2013).

4.1.2 Independent Variables: Institutional Indicators

The institutional indicators that will be analyzed from a quantitative perspective are the following:

- Control of corruption (CC)
- Government effectiveness (GE)
- Political stability and absence of violence/terrorism (PV)
- Regulatory quality (RQ)
- Rule of law (RL)

These variables are derived from the World Bank's Worldwide Governance Indicators (WGI), a mechanism on institutional economics and international trade (Gisselquist, 2014; Kaufmann et al., 2010).

Through a statistical model of unobserved components, WGIs calculate institutional quality by combining a variety of global data sources and objective insights that estimate governance on a standardized scale ranging from -2.5 to +2.5 (Kaufmann et al., 2010).

Research examining the relationship between institutions and economic performance has validated the use of these indicators (Acemoglu & Robinson, 2012).

For the purpose of carrying out the analysis, the original values that were published by the World Bank were used directly. In addition, an institutional quality index was developed, based on the average of the five indicators of the Worldwide Governance Indicators (WGI). As can be seen in Equation (2), institutional quality is calculated as the simple average of the five indicators, which allows us to obtain an aggregate measure of the institutional environment of the countries studied.

$$Institutional\ Quality = \frac{CC+GE+PV+RQ+RL}{5} \quad (2)$$

This process allows several institutional dimensions to be summarized in a single measure, which facilitates comparison between countries and helps to better understand their level of institutional quality (Kaufmann et al., 2010).

4.2 Techniques and Instruments

The research was based only on secondary data from official sources, so no interviews or surveys were required to support the study. The sources used are:

- Banco de la República de Colombia
- Banco Central del Ecuador
- Banco Central de Reserva del Perú
- World Bank
- Worldwide Governance Indicators (World Bank).

According Damodar N. Gujarati & Dawn C. Porter (2013) to comparative macroeconomics studies, the use of official data is recommended for their greater reliability and consistency in methodological terms.

The methodology followed approaches used in studies that use institutional indicators to analyze economic performance, particularly those that use panel data to study the relationship between the institutional environment and macroeconomic performance (Baltagi, 2021; Kaufmann et al., 2010).

4.3 Data Processing and Analysis

The data processing was developed in four steps duly organized sequentially to execute the statistical relationship process.

4.3.1 Organization and Standardization of Information

The information was downloaded in Excel format through official sources such as the Bank of the Republic of Colombia, Central Bank of Ecuador, Central Reserve Bank of Peru, World Bank and the World Governance Indicators belonging to the World Bank.

Subsequently, the following were carried out:

- Organize the information into comparative matrices according to the country and years of study.
- Define the analysis interval corresponding to the years 2013–2023, due to the total availability of institutional data.
- Ensure that comparability existed over time between the three countries studied.

4.3.2 Elaboration of Metrics

The following metrics were calculated in the research:

- Export Intensity (Exports/GDP)
- Institutional Quality Index (Average of the five institutional indicators of the WGI)

The percentage of export intensity was calculated in Excel, dividing total exports by nominal GDP. In contrast, institutional quality was derived from the average of the sum of the results of the five institutional indicators published by the World Bank.

4.3.3 Descriptive and Graphical Analysis

Descriptive research was carried out based on the elaboration of comparative tables for each country, which have been organized in a period of ten years corresponding to 2013–2023:

- Year
- Total exports
- Gross Domestic Product (GDP)
- Export Intensity (Exports/GDP)

- Control of corruption (CC)
- Government effectiveness (GE)
- Political stability and absence of violence/terrorism (PV)
- Regulatory quality (RQ)
- Rule of law (RL)
- Institutional Quality (Average of the five institutional variables)

Through this analysis process, each table was able to determine the constant evolution of macroeconomic variables and institutional indicators in Colombia, Ecuador, and Peru.

To reinforce the analysis of this research, Excel graphs were prepared to visualize the trends and facilitate the comparative study. In particular:

- In order to analyze the evolution of exports and changes in the level of trade integration of each country, graphs were prepared that show the export intensity of each country.
- For the comparison of the five institutional indicators, individual graphs were prepared for each indicator, which jointly showed the values of the three countries, thus allowing the observation of institutional differences and trends during the period analyzed.

4.3.4 Regression Analysis

Through the application of Excel data analysis, the regression model under Pooled OLS estimation was calculated, in which the dependent variable of the model was: Export Intensity, and the independent variables: Control of corruption (CC), Political stability and absence of violence/terrorism (PV) and Regulatory quality (RQ), which were chosen for their greater representation and comparative relevance.

4.3.4.1 Justification of the Pooled OLS Model

The estimation was carried out under the Pooled OLS methodology, a statistical software that incorporated robust HC0-type standard errors grouped by panel, which allowed obtaining the estimated coefficients, robust standard errors, p-values and fit measures of the model. The selection of this model is based on the particularities of the database and the focus of the study. First, the analysis has an limited number of research units

(Colombia, Ecuador, and Peru) and a restricted time frame (2013–2023), which limits the effectiveness of more complex models such as Fixed Effects (FE) and Random Effects (RE).

The Pooled OLS model assumed that there is no heterogeneity between countries and over time, it is based on the assumption of homogeneity, that is, it considers that a similar behavior is maintained in the countries studied in relation to institutional variables and export intensity during the period of analysis. The use of the fixed effect (FE) model is not appropriate for this analysis, since structural variations in heterogeneity between countries are discarded by focusing on the internal variations of each unit over time.

The present study focused on analyzing the homogeneous and comparative behavior of the institutional variables of the Andean bloc. In such a case, the econometric literature recommends that the Pooled OLS model offers more stable estimates (Baltagi, 2021). This model appears as a more appropriate option to know the general relationship between the variables, since it allows a joint variability of data over time and the difference between countries, which is essential for comparative analysis.

4.3.4.2 Data Processing and Analysis Matrix

In order to systematize the information collected, a data processing and analysis matrix was developed, which allowed the sequential structuring of the activities developed in the research. This matrix synthesizes the treatment applied to the economic and institutional variables of Colombia, Ecuador and Peru during the period 2013–2023, incorporating the stages of collection, standardization of information, construction of indicators, descriptive analysis and econometric estimation.

The usefulness of this tool lies in the fact that it facilitates the understanding of the analytical process, by allowing us to understand how information from official sources is transformed into comparable and consistent results. It also makes it possible to accurately identify the variables used, their respective sources, the techniques applied in each phase and the products obtained throughout the analysis.

Table 2

Data Processing and Analysis Matrix for Regression Model Development

Stage	Activity carried out	Variables and indicators	Data Source	Applied technique	Product obtained
Organization and standardization of information	Downloading, reviewing, filtering and organizing the data for the three countries analyzed	Total exports, nominal GDP, CC, GE, PV, RQ, and RL	Banco de la República de Colombia, Banco Central del Ecuador, Banco Central de Reserva del Perú, World Bank and Worldwide Governance Indicators	Download in Excel format, data filtering, classification by country and year, and homologation of formats	Consolidated comparative database for Colombia, Ecuador and Peru.
Temporal delimitation	Definition of the analysis period according to the availability of complete information	Study period: 2013–2023	Official Database	Selecting a time range with complete data for economic and institutional variables	Homogeneous and comparable time series between countries
Elaboration of economic metrics	Calculation of export intensity	Total exports and nominal GDP	Official macroeconomic bases for each country	Application of the ratio of total exports to nominal GDP	Indicator of export intensity by country and year
Elaboration of institutional metrics	Construction of the average institutional quality index	Variables: CC, GE, PV, RQ and RL	Source: World Bank Worldwide Governance Indicators	Calculation of the simple average of the five institutional indicators	Institutional Quality Index by Country and Year
Descriptive analysis	Preparation of comparative tables to analyse the evolution of the variables	All study variables	Consolidated database	Application of descriptive statistics and temporal comparison	Comparison tables
Graphical analysis	Visual representation of trends and differences between countries	Variables: export intensity, CC, GE, PV, RQ, RL and institutional quality index	Consolidated database	Drawing Line Charts in Excel	Trend visualization and support for comparative interpretation
Econometric analysis	Estimation of the relationship between the institutional environment and export intensity	Variables: export intensity, CC, PV and RQ	Consolidated dashboard database	Estimation of a Pooled OLS Regression Model with Robust HC0 Type Standard Errors Grouped by Panel	Estimated coefficients, standard errors, p-values and fit measures
Model validation	Verification of econometric assumptions and model consistency	Elements analyzed: model errors and statistical adjustment	Regression results	Breusch-Godfrey/Wooldridge and Breusch-Pagan Test Application	Econometric diagnosis and justification for the use of robust errors

Note: Information based on data from the Banco de la República de Colombia, Banco Central del Ecuador, Banco Central de Reserva del Perú and World Bank.

With this organization, it was possible to maintain a logical sequence in the processing of information and guarantee comparability between Colombia, Ecuador and Peru. In this sense, Table 2 not only fulfills an ordering function, but also strengthens the clarity of the research design, by accurately evidencing the process by which the collection of information was passed to the obtaining of results.

5. Results

This chapter presents the results of the comparative analysis between Colombia, Ecuador, and Peru during the period 2013–2023. To facilitate its understanding, the research is organized into three sections, in order to observe the level of commercial insertion of each country in relation to the size of its economy.

Second, the behavior of the selected institutional indicators is examined, which allows identifying differences in the quality of the institutional environment between countries. Finally, the results of the panel data regression model under Pooled OLS estimation are presented, through which the relationship between certain institutional variables and export intensity is evaluated.

To better organize the research findings, a matrix was developed that relates the specific objectives to the results obtained. In this way, the matrix not only helps to organize information, but also facilitates a more complete understanding of the work and the relationship between the objectives set and the evidence found.

Table 3

Interpretative Matrix of Study Results

Axis of analysis	Colombia	Ecuador	Peru	General interpretation
Export intensity	Lowest level for most of the period	Higher level and greater dependence on foreign trade	Intermediate level with magnification at the end	Each country has a different level of commercial insertion
Control of corruption	It remains stable, but at low levels	Has worsened over time	Biggest drop in recent years	Corruption reduces trust in institutions
Government effectiveness	Better situation compared to the others	Delay in institutional development	Progressive worsening from a more favorable onset	The State did not improve equally in all cases
Political stability	Historical weakness due to internal conflicts	Moments of social and political tension	Institutional crisis in recent years	Political stability has been a key point in the three countries
Regulatory quality	Medium and stable level	Lowest level compared to others	Better performance in comparison	Not all institutional aspects evolve in the same way
Rule of law	A better situation compared to the others, but still low	Constant weakness	More changes in recent years	Legal certainty remains a problem in the region
Relationship between institutional and exports	It is positive	It is positive	It is positive	The model confirms that a better institutional environment favors export intensity

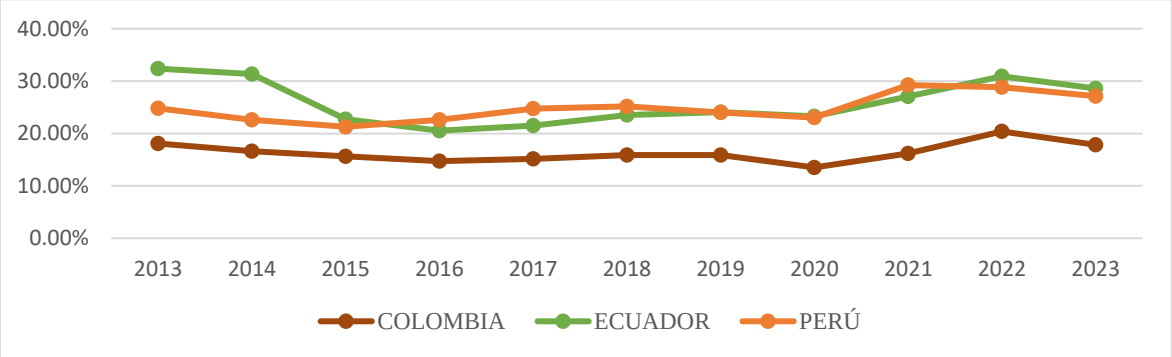
Note: Synthesis and interpretation of results based on the descriptive and econometric analysis of the study, based on data from the Worldwide Governance Indicators and central banks of Colombia, Ecuador and Peru.

5.1 Evolution of Export Intensity in the Period 2013–2023

Export intensity allows us to analyze the importance of exports within a country's economy, by relating total exports to nominal GDP. This indicator is useful because it not only shows how much a country exports in absolute terms, but also the degree of integration of its economy into foreign trade. From this relationship, it is possible to compare Colombia, Ecuador and Peru from a more balanced perspective, since it is not only the value exported that is considered, but also its proportion in relation to the size of each economy.

Figure 1

Export Intensity in Colombia, Ecuador and Peru expressed as Percentage of GDP in the period 2013–2023



Note: Data collected from the Banco Central del Ecuador, Banco de la República de Colombia, Banco Central de Reserva del Perú and World Bank.

The results in Figure 1 show that, during the period 2013–2023, the three countries presented different behaviors in their export intensity. This shows that the commercial insertion of Colombia, Ecuador and Peru did not follow a homogeneous trajectory, despite belonging to the same region. In this sense, Ecuador registered a greater relative dependence on exports, Colombia maintained the lowest levels, while Peru was in an intermediate position, although with an upward trend in the last years of the period analyzed.

In the case of Colombia, export intensity remained at lower levels compared to Ecuador and Peru. In 2013, its percentage was 18%, which demonstrated a lower dependence on exports in the economic system. Throughout the period, the trend showed downward fluctuations, its percentage gradually decreased until it reached 15% relatively. From this point of view, an economic system more oriented towards domestic services or domestic

consumption was shown, with an export intensity of less than almost ten percentage points compared to its neighboring countries.

In Ecuador, the behavior was different. For much of the period, the country maintained the highest levels of export intensity. In 2013, where a percentage of 32% was reflected, which showed that exports had a strong participation compared to the size of its economy, in contrast, in the following years 2014 to 2016, a gradual reduction was observed related to the decrease in the international price of oil and changes in the country's foreign trade. In 2020, after the shock of the COVID-19 pandemic, the country showed a progressive recovery, positively reaching a level of more than 30% in 2022, which reaffirmed its model dependent on global demand.

For its part, Peru occupied an intermediate position, the percentage was close to 25% in 2013 and remained between 21% and 22% for most of the following ten years, which indicated a stability in export intensity. In contrast to the other countries, Peru occupies an intermediate position between Colombia and Ecuador, its level of commercial insertion is moderate compared to its economy. The country´s exports performance become more significant during in the years 2021 to 2023 it reached Ecuador with a percentage close to 30%, surpassing its historical measure.

5.2 Evolution of Institutional Indicators

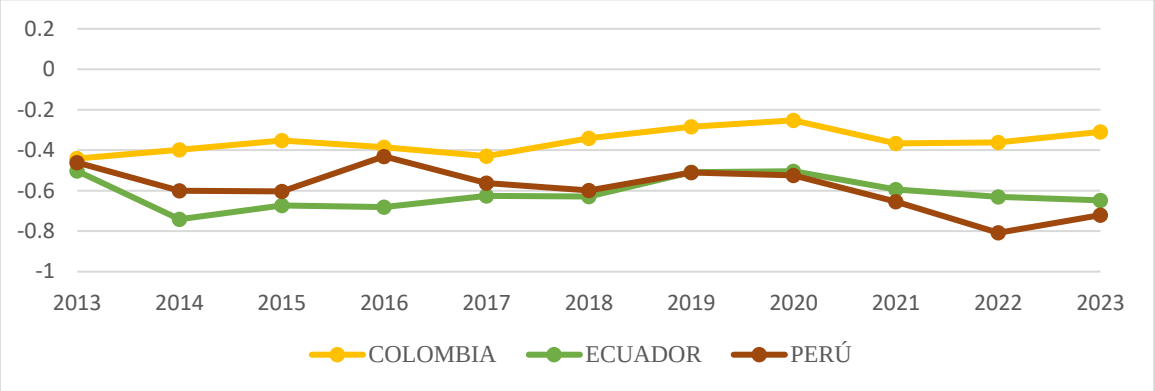
To facilitate interpretation, the results are presented for each institutional indicator. In this way, it is possible to observe more clearly the performance of each country, as well as to identify similarities, differences and trends throughout the period 2013–2023.

5.2.1 Control of Corruption (CC)

The corruption control indicator showed unfavorable results in the three countries throughout the period analyzed.

Figure 2

Control of Corruption in Colombia, Ecuador and Peru, measured through the Worldwide Governance Indicators Index, with a Scale of -2.5 to +2.5, in the period 2013–2023



Note: Data from the Worldwide Governance Indicators (World Bank), according to the Control of Corruption (CC) index.

In Figure 2, these results suggest that Colombia, Ecuador, and Peru faced limitations in preventing the misuse of public power and strengthening transparency mechanisms. Although there are differences between countries, the general behavior of the indicator shows persistent weaknesses in this component of the institutional environment.

In Colombia, values remained stable, although always at negative levels. This shows that, despite some changes, the country failed to sufficiently improve the control of corruption, especially in issues such as public procurement and territorial management.

On the other hand, Ecuador presented one of the most unfavorable figures with slight variations, the highest value is in 2013, in the following years a deterioration was reflected in the years 2017-2018, which indicated that in the country's structural system it presented difficulties related to its transparency and institutional supervision linked to the control of the public sector. and the lack of accountability on the part of the government.

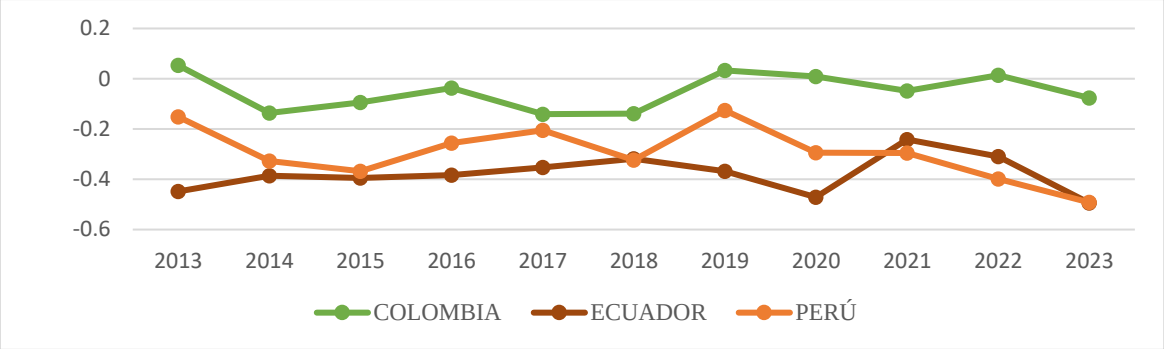
Meanwhile, Peru's performance is more negative compared to Colombia and Ecuador. However, they showed downward variations from 2018, showing their lowest point in 2022, which coincided with the political and institutional instability that the country is going through, caused by constant presidential changes, judicial conflicts presented by senior officials and conflicts between branches of government.

5.2.2 Government Effectiveness (GE)

Government effectiveness shows how capable the state is to create and implement public policies, as well as to maintain good management.

Figure 3

Government effectiveness in Colombia, Ecuador and Peru, measured through the Worldwide Governance Indicators Index, with a Scale of -2.5 to +2.5, in the period 2013–2023



Note: Prepared by the authors with data from the Worldwide Governance Indicators (World Bank), according to the Government Effectiveness Index (GE).

In this sense, the indicator in Figure 3 allows us to see how prepared a country is to respond in an organized and stable way to its economic and institutional needs. In Colombia, government effectiveness represents higher levels of comparison in relation to Ecuador and Peru, which represents a better institutional capacity linked to public management and the application of government policies that improve the country's governmental effectiveness.

On the other hand, in Ecuador, its values are considerably lower during the period analyzed. In contrast, in 2017 and 2019, an improvement can be observed related to possible modifications in the government's public administrations, however, the value continues to be negative, so the lack of implementation of public policies is relevant for the improvement of institutional effectiveness.

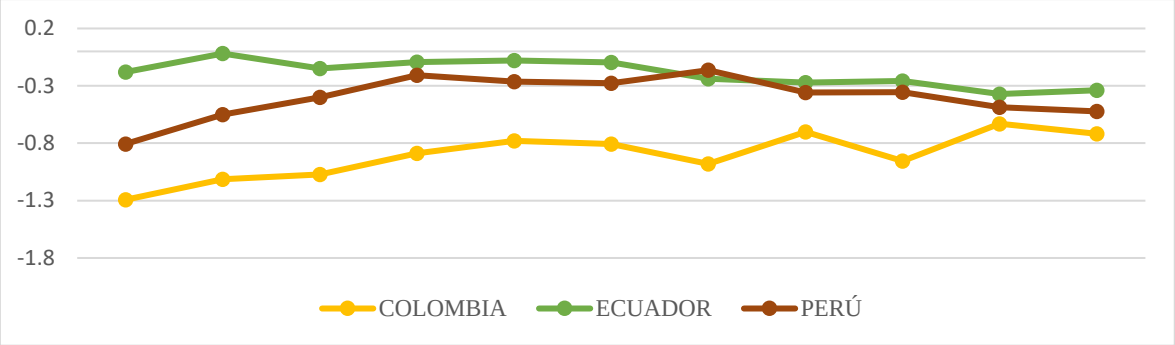
While in Peru, it has very significant variations in the institutional indicator, at the beginning of 2013 high levels of government effectiveness were observed, but in subsequent years it deteriorates significantly in 2019, which coincides with the moments of government instability caused by political instability and constant changes of government. which affects the implementation of public policies.

5.2.3 Political stability and absence of violence/terrorism (PV)

Political stability and the absence of violence is one of the indicators where the three countries differ the most.

Figure 4

Political stability and absence of violence/terrorism in Colombia, Ecuador and Peru, measured through the Worldwide Governance Indicators Index, with a Scale of -2.5 to +2.5, in the period 2013–2023



Note: Prepared by the authors with data from the Worldwide Governance Indicators (World Bank), according to the Political Stability and Absence of Violence/Terrorism (PV) index.

Figure 4 illustrates the level of risks of instability faced by each country, whether due to political conflicts, social protests, or situations of internal violence. In Colombia, the rates are significantly low throughout the study period, this can be understood as a historical factor that is related to the internal conflict, the presence of armed groups and insecurity in several areas of the country. Although the peace agreement that was signed in 2016 demonstrated a very significant advance, the stability index continues to present a political and social risk.

In Ecuador, this indicator shows negative figures, but it remains the same compared to Colombia. A relative drop could be observed in 2019, which was represented by strong social protests and political tensions due to the economic reforms and fiscal adjustments that took place in the country, this caused a deterioration of its institutional quality in relation to its political stability.

On the other hand, Peru presents a less stable level, its political instability caused several alterations regarding the institutional indicator in recent years, marked by a series of presidential changes combined with his impeachment processes and the disputes between

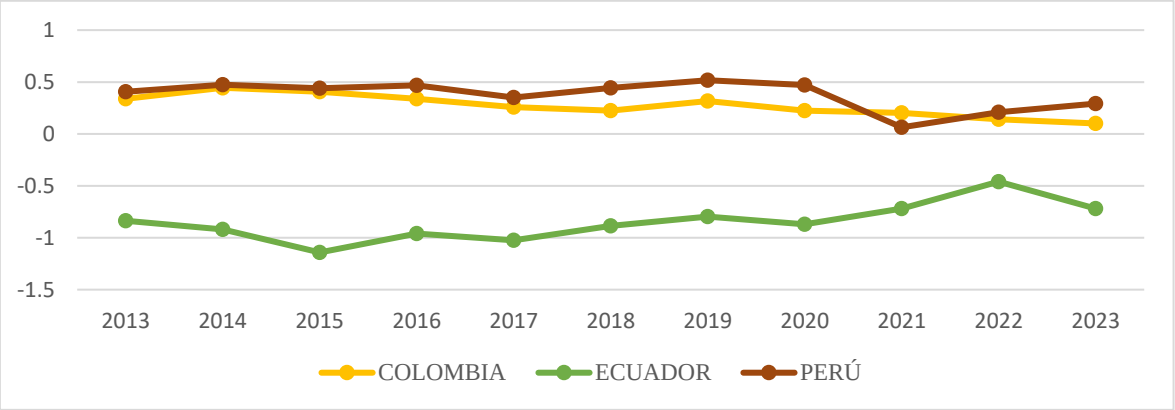
the executive and legislative branches. These disputes caused a greater perception of institutional uncertainty and are the main cause of variations in institutional quality.

5.2.4 Regulatory Quality (RQ)

In the regulatory quality indicator, the graph pointed out differences that allow evaluating the government's capacity to implement policies and regulations that favor the private sector and the functioning of markets.

Figure 5

Regulatory Quality in Colombia, Ecuador and Peru, measured through the Worldwide Governance Indicators Index, with a Scale of -2.5 to +2.5, in the period 2013-2023



Note: Prepared by the authors with data from the Worldwide Governance Indicators (World Bank), according to the Regulatory Quality Index (RQ).

Figure 5 shows how well the government creates and enforces rules that make it easier for businesses and markets to function. In Colombia, it reflects relatively stable levels throughout the period, this explains a favorable capacity of the government to establish and implement economic regulations that help the function of the commercial market, which have allowed the creation of a regulatory framework that supports the private sector and generates adequate conditions for foreign investment.

While Ecuador presents the lowest values with respect to the other countries, despite having moderate variations, its level is still negative, which may be related to the lack of being able to increase economic regulations that improve the country's regulatory system. Regulatory quality is affected by recurrent changes in economic policies, regulatory reforms, and the disruption caused by state sectors.

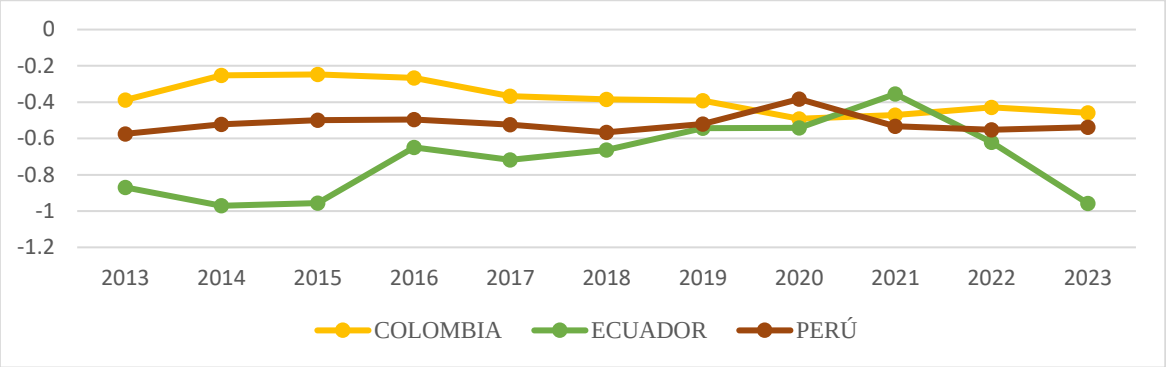
In the case of Peru, it reflects high values, even slightly exceeding zero in several years, which indicated that a very favorable framework has been maintained in terms of promoting economic and commercial activities, this stability is related to the persistence of policies that help generate more economic and investment in the productive sectors. Despite the political crises, especially the changes in the mandate in power, the regulatory quality has a relatively positive perception.

5.2.5 Rule of Law (RL)

This indicator is important because trust in the law and in the way, conflicts are resolved influences investment and trading decisions.

Figure 6

Rule of Law in Colombia, Ecuador and Peru, measured through the Worldwide Governance Indicators Index, with a Scale of -2.5 to +2.5, in the period 2013-2023



Note: Prepared by the authors with data from the Worldwide Governance Indicators (World Bank), according to the Rule of Law (RL) index.

Figure 6 shows how much confidence is placed in the functioning of the justice system and in the capacity of the State to guarantee legal certainty. In Colombia, the index showed higher figures compared to the other countries, although it remains in an unfavorable range during the periods of analysis. This determines that, despite the judicial situations, security, the country has a perception about compliance with the law and the functioning of the judicial system. The index shows stability over time, due to the progressive strengthening of several judicial institutions and new reforms to preserve transparency and respect for the law.

While Ecuador in the first years analyzed, is in a standard variation without presenting any change, but with negative figures, this evidence suggests that, although there are no drastic

changes, there are certain restrictions linked to the degree of effectiveness of the judicial system and the institutional ability that guarantee that the law is complied with according to the regulations. These factors impact the trust that citizens and economic agents place in the legal system.

In Peru, it shows a more erratic behavior, especially in 2018 when the variation became more noticeable. These fluctuations produce a context of political instability and judicial investigations that affect senior officials and political leaders, which has had an impact on how the institutional system perceives and handles judicial performance and support for the rule of law. The more pronounced decline in the indicator in the coming years demonstrates a temporary loss of confidence in institutions.

5.3 Panel Data Regression Model with Pooled OLS Estimation between Export Intensity and Institutional Variables in the period 2013–2023

After the descriptive and graphical analysis, a regression model was estimated with panel data using the Pooled OLS method, with the aim of analyzing the relationship between export intensity and some institutional variables. The dependent variable was export intensity, while the independent variables were: Control of corruption (CC), Political stability and Absence of Violence (PV), and Regulatory quality (RQ). For more reliable results, robust standard errors were used.

Table 4

Results of the Panel Data Regression Model with Pooled OLS Estimation

Variable	Coefficient	Standard Error	Statistic t	P value	Significance
Intercept	0,366451	0,051427	7,1256	0,0000000767	***
Control of Corruption (CC)	0,174253	0,084226	2,0689	0,047575	*
Political Stability (PV)	0,100580	0,031898	3,1532	0,003739	**
Regulatory Quality (RQ)	0,029072	0,010765	2,7006	0,011435	*

Note: Pooled OLS regression model for Colombia, Ecuador, and Peru (2013–2023). Robust HC0-type standard errors grouped by panel data. ***p < 0.01; **p < 0.05; *p < 0.01.

The results of Table 4 of the model show that the three institutional variables have a positive and significant relationship with export intensity. In other words, this indicates that a better institutional environment is associated with a higher level of exports in Colombia, Ecuador and Peru during the period analyzed.

First, the variable Control of corruption (CC) showed a coefficient of 0.174253 and a p-value of 0.047575, so these results are considered statistically relevant at the level of 0.05. This result determined that an increase of one unit in the variable of Control of corruption is related to an increase of approximately 0.174 units in export intensity. This implies that an advance in international transparency and in the supervision of corruption creates a more suitable environment for international trade, since it increases investor confidence and facilitates commercial operations in the global arena.

Secondly, the variable Political stability and absence of violence/terrorism (PV) presented a coefficient of 0.100580 and a p-value of 0.003739, which is significant at 0.05. This variable is the most important in the model, which indicated that political stability is one of the most essential components to understand how the export intensity of each country acts. The coefficient is positive, an increase of one unit in the variable, is related to an approximate increase of 0.10 units in export intensity, which showed that a safer political environment, with fewer crises or internal conflicts, generates greater investment, long-term planning and maintenance of international trade.

Finally, the Regulatory quality (RQ) variable showed a coefficient of 0.029072 and a p-value of 0.011435, therefore, it is significant at 0.05. Although this variable is the lowest in relation to the others, its coefficient is positive, which determines that, for the increase of one unit, the increase for export intensity is 0.029 units. These results demonstrate the government's ability to implement effective, coherent and favorable regulations in the private sector that greatly influence the performance of the exporter. Stable economic policies and clearly established regulatory frameworks contribute to countries' global competitiveness.

Regarding the intercept of the Pooled OLS regression model, it presented a coefficient of 0.366451 and is very important, since it measures the initial degree of export intensity when institutional variables present values at zero. This figure presented the average of the

export intensity and the structural portion of the model, without the modifications in the institutional variables.

In addition, diagnostic tests were carried out to corroborate that the model is valid. As presented in Appendix 1 and Appendix 2, these results demonstrated that the Breusch-Pagan test revealed that there was no evidence of heteroskedasticity in the regression model (p–value = 0.3901), and the Breusch-Godfrey/Wooldridge test indicated that the errors were correlated in a serial manner (p–value = 0.0003488). Based on the results, it was decided to use robust standard errors, in order to address possible problems in the estimation and ensure the validity of the coefficients obtained.

6. Discussion

In this section, a more in-depth interpretation of the results of the research is made, in order to better understand how the institutional environment influences the behavior of exports in Colombia, Ecuador and Peru. While the data, graphs, and results were presented in the previous chapter, in this section, we seek to go beyond the description, relating the findings to the objectives of the study and to the revised theory.

6.1 Relationship between Institutional Environment and Export Performance

The results obtained show that there is a relationship between the institutional environment and the export activity of the countries analyzed. Based on the descriptive data, it can be seen that countries with more favorable institutional indicators tend to have a more stable export performance. This coincides with what is stated by Abreo et al. (2021) and Acemoglu & Robinson (2012), who argue that better institutional quality helps reduce uncertainty, strengthens confidence in markets and generates better conditions for international trade. In the Latin American context, this aspect is important, because several economies still have structural weaknesses in their institutions.

In the same way, the findings allow us to understand that the international competitiveness of a country does not depend only on economic factors, but also on institutional quality, regulatory stability and the capacity of the State to act efficiently. In this sense, the results of the research show that the institutional environment influences not only the volume of exports, but also the stability of the export sector. This interpretation aligns with the findings of ECLAC (2024a) and the IDB, cited by Beverinotti et al. (2023), when it

stressed that institutional conditions affect the ability of countries to sustain their participation in international markets.

On the basis of the above, it can be pointed out that the behavior of exports does not respond only to prices or comparative advantages, but also to the level of security, continuity and confidence offered by the institutional system. This idea coincides with Brown del Rivero et al. (2020), who point out that the strengthening of the institutional environment helps business competitiveness in Latin America, due to its influence on the effectiveness of regulations, regulatory certainty and the capacity of the State to support the productive sector.

6.2 Export Intensity, Productive Structure and Differences between Colombia, Ecuador and Peru

In the graphical representations of export intensity and institutional variables, it was observed that, in the three countries analyzed, a higher level of export intensity does not demonstrate a more productive export sector or a more solid institutional base. In a number of cases, this situation may rather be associated with increased dependence on external markets or specific commodities.

In the case of Colombia, although it registered a lower export intensity compared to the other countries, it has better institutional indicators than Ecuador. These results coincide with what was stated by Abreo et al. (2021), who point out that institutional quality and the strengthening of trade relations with partners help to understand Colombian export behavior. However, the findings of this research show that an institutional improvement, by itself, does not guarantee an increase in export intensity, since this behavior also depends on other elements, such as the productive structure, the weight of the domestic market and the type of goods that are exported.

In Ecuador, the high share of exports within the economy does not necessarily translate into a stronger export performance. This is related to the fact that a large part of its exports continues to be concentrated in natural resources and derived products, which makes the external sector more vulnerable due to low diversification. This interpretation is related to what has been pointed out by ECLAC (2021), therefore, the evidence suggests that a higher proportion of exports in relation to GDP does not always mean export strength, but

may also reflect an economy more exposed to external shocks and dependence on primary products.

In the case of Peru, the results show a more consistent relationship between export performance and improvement in institutional quality. This allows us to interpret that a more favorable environment for trade, accompanied by greater openness and better regulatory conditions, can contribute to a better international positioning. This coincides with Beverinotti et al. (2023) those who argue that institutional differences in regulatory quality influence access to more advanced value chains and markets with greater demand. Consequently, Peru's better relative performance would not be explained only by the level of exports, but also by a comparatively more functional regulatory environment.

6.3 Institutional Variables and their Effect on Exports

The Pooled OLS econometric model showed that Control of corruption (CC), Political stability and Absence of Violence/Terrorism (PV), and Regulatory quality (RQ) have a positive effect on export intensity. In other words, this result allows us to argue that export performance is directly influenced by the institutional environment.

First, Control of corruption (CC) showed a positive relationship with export intensity. This suggests that greater institutional transparency and better functioning of the public sector favors foreign trade, by reducing transaction costs and generating a more reliable environment for economic activity. This interpretation coincides with Acemoglu & Robinson (2012) those who argue that better institutional control not only reduces internal problems, but also improves the efficiency of economic processes and strengthens trust in international and national actors.

Second, Political stability and absence of violence/terrorism (PV) appeared as one of the most important indicators of the model. This finding allows us to affirm that the continuity of public policies, together with institutional solidity, are key elements for the development of exports. In this sense, the results are related to ECLAC (2024a) what has been pointed out by the importance of maintaining consistent policies and adequate institutional coordination to improve external performance. For this reason, this research not only supports what the theory proposes, but also provides empirical evidence that political stability does contribute to export intensity.

Finally, Regulatory Quality (RQ) showed a positive relationship with export intensity. The results indicate that having stable and effective standards strengthens investment, production and business internationalization processes. These findings are in line with studies by Abreo et al. (2021) those who highlight that governance and regulatory quality influence export performance and Beverinotti et al. (2023) those who point out that regulatory and institutional gaps limit access to more competitive international markets. it facilitates compliance with standards and strengthens the external competitiveness of countries.

6.4 General Interpretation of the Results and Contribution of the Research

The analysis of the descriptive and econometric results allowed us to establish that the institutional environment does influence export intensity. However, it was also evident that this effect does not act in isolation, since export performance depends in addition to the productive structure, the type of goods exported and the level of diversification of its economy. In this sense, the institutional environment influences both at the structural level, by determining the stability and predictability of the economic system, and at the operational level, by influencing transparency, the quality of regulations, and the confidence of exporters. This double dimension helps to better understand the relationship between descriptive and econometric results.

The study also showed that each country has a different relationship between institutions and exports. In Colombia, an intermediate performance was observed both in the institutional and export spheres, which reinforces the idea that the relationship between institutions and exports is not the same in all cases, but varies according to the economic and productive capacity of each country. This coincides with what has been pointed out by Abreo et al. (2021) those who point out that the institutional environment influences the performance of exports, but that this effect also depends on structural factors, such as productive capacity, institutional proximity to trading partners and exported goods.

In the case of Ecuador, the high level of exports is mainly linked to primary goods, which shows that the country can maintain a significant export volume, but at the same time presents structural vulnerabilities. Productive specialization has a direct impact on export performance, especially in developing countries where dependence on certain sectors limits international competitiveness. These results are in line with what has been pointed

out by Navarro-Soto et al. (2023), who argue that this situation not only affects the number of exports, but also the ability of countries to take better advantage of their export potential in accordance with their economic conditions.

For its part, Peru observed a more constant export performance, accompanied by more favorable institutional indicators and greater institutional capacity. This allows us to interpret that there is a stronger relationship between the institutional environment and competitiveness at the international level. This idea coincides with the observations of Beverinotti et al. (2023) those who argue that institutional quality and regulations influence the ability of countries to integrate into global value chains and access more sophisticated markets, which contributes to better export performance.

These results are in line with the approaches of Vitrenko et al. (2020), who point out how the institutional environment influences the internationalization capacity of economies, especially in those where access to global markets is conditioned by the functioning of institutions. Similarly, the institutional distance approach proposed by Correa da Cunha et al. (2022) provides a useful insight to understand that differences in the institutional environment not only affect the volume exported, but also business competitiveness and the possibilities of insertion in international markets.

7. Conclusions

In this section, the main conclusions of the study are presented, based on the results obtained in the descriptive analysis and in the regression model. The objective is to synthesize the most relevant findings and clearly show how the general objective and the specific objectives set at the beginning are met. Rather than repeating data, this section seeks to give a precise idea of what could be verified regarding the effect of the institutional environment on exports from Colombia, Ecuador and Peru.

First, it can be concluded that there is a relationship between the institutional environment, government policies, and foreign trade behavior in the countries analyzed. The results show that the institutional environment has a significant influence on exports, indicating that exports do not depend only on economic or productive factors, but also on political conditions, norms and the functioning of institutions. In this sense, the study showed that when a country has greater stability, better institutional control and clearer rules, better

conditions are generated for the development of its exports within the Andean Community, especially in Colombia, Ecuador and Peru.

Regarding the first specific objective, which sought to review the theory on the institutional environment and its relationship with foreign trade, it can be concluded that the information consulted served as an important basis for developing the research. From the review carried out, it was understood that variables such as political stability, government effectiveness, regulatory quality, control of corruption and the rule of law have an important role in the commercial performance of a country. This made it possible to see that foreign trade does not depend only on economic factors such as production, GDP or international demand, but also on the institutional conditions that influence confidence, investment and the ability to export.

Regarding the second specific objective, aimed at identifying the factors that explain the political and institutional stability of Colombia, Ecuador and Peru, it is concluded that the three countries had different behaviors during the period 2013–2023. Colombia was a slightly more favorable in aspects such as the effectiveness of government and the rule of law, although it continued to have problems in political stability. In the case of Ecuador, the results were less positive in several indicators, especially in regulatory quality and government effectiveness, which shows greater difficulties within its institutional environment. For its part, Peru has shown a more noticeable deterioration in recent years, especially in political stability, control of corruption and the rule of law, a situation that was linked to its political and institutional crisis. In other words, these results allow us to conclude that institutional and political stability did not advance in the same way in the three countries and that these differences were important to understand the reality within the Andean Community.

In relation to the third specific objective, aimed at examining the evolution of foreign trade flows with economic indicators, it is concluded that the three countries followed different trajectories. Ecuador was the country with the highest export intensity during much of the period, which shows an economy highly dependent on primary product exports. In contrast, Colombia recorded the lowest levels, reflecting less dependence on exports within its economy. Peru was in an intermediate position, although in recent years it showed growth that brought it closer to Ecuador. Thus, these results allow us to see that foreign

trade did not evolve in the same way in the three countries, since each one had a different level of participation in foreign markets. In addition, although the analysis focused mainly on export intensity, it is also evident that there are differences between the three countries in terms of their dependence and the variety of products they export.

Finally, the fourth specific objective, which consisted of evaluating the relationship between government consistency and changes in exports, concludes that the regression model shows a positive relationship between some institutional variables and export intensity, which is statistically significant. In particular: control of corruption, political stability, and regulatory quality showed positive results, indicating that better institutional conditions are associated with better export performance. Among these variables, political stability was of greater importance, suggesting that a more stable political environment with fewer conflicts favors investment, economic planning, and the continuity of trade relations. Therefore, it was possible to identify important patterns between the consistency of the government and the evolution of exports.

Based on the results obtained, it is recommended that the next lines of research continue to exploit this relationship between institutional environment and foreign trade, incorporating new variables that allow expanding the study analysis. It would be useful to include factors such as foreign investment, export diversification, logistics infrastructure, trade openness or innovation, to know if these elements reinforce or change the relationship found in this study.

Similarly, it is relevant to extend the period of analysis or the inclusion of new Latin American countries, in order to identify whether the patterns observed in Colombia, Ecuador and Peru are repeated in other areas of the region. It is also suggested to complement the quantitative analysis with qualitative approaches, such as interviews or literature review, to better understand how institutional conditions influence decisions related to foreign trade.

Finally, regarding the practical implications, it is suggested that government strategies focus on strengthening the country's political stability, reducing corruption and improving regulatory quality, in relation to the results of the study. These strategies must be linked to

productive diversification policies, which contribute to reducing dependence on primary products and raising the level of competitiveness in the international arena.

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9. Appendices

Appendix A

Breusch-Pagan Test for Heteroskedasticity

```
> bptest(modelo_pool)

        studentized Breusch-Pagan test

data:  modelo_pool
BP = 3.0096, df = 3, p-value = 0.3901
```

Note: The p-value = 0.3901 is greater than 0.05, so the null hypothesis of homoscedasticity is not rejected, pointing out that there is no evidence of heteroskedasticity in the model.

Appendix B

Breusch-Godfrey/Wooldridge Test for Autocorrelation

```
> pbgtest(modelo_pool)

        Breusch-Godfrey/Wooldridge test for serial correlation in
        panel models

data:  `INTENSIDAD EXPORTADORA` ~ CC + PV + RQ
chisq = 18.488, df = 3, p-value = 0.0003488
alternative hypothesis: serial correlation in idiosyncratic errors
```

Note: The p-value = 0.0003488 is less than 0.05, so the null hypothesis of autocorrelation is rejected, pointing out the presence of serial correlation in the errors.