AÑO 31 NO. 113, 2026
ENERO-MARZO

RVG

AÑO 31 NO. 113, 2026
ENERO-MARZO

Revista Venezolana de Gerencia

UNIVERSIDAD DEL ZULIA (LUZ)
Facultad de Ciencias Económicas y Sociales
Centro de Estudios de la Empresa

ISSN 1315-9984

Como citar: Flores-Sotelo, W. S., Paredes-Taipe, F. A., Flores-Palomino, F., y Zarate, J. R. (2026). Macroeconomic factors for the global competitiveness of latin american countries (2013-2023). *Revista Venezolana De Gerencia*, *31*(113), e3111326. https://doi.org/10.52080/rvgluz.31.113.26

Universidad del Zulia (LUZ)
Revista Venezolana de Gerencia (RVG)
Año 31 No. 113, 2026, e3111326
Enero-Marzo
ISSN 1315-9984 / e-ISSN 2477-9423

Macroeconomic factors for the global competitiveness of latin american countries (2013-2023)

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Abstract

Latin America faces persistent global competitiveness gaps that limit its economic development, evidenced by lagging indicators compared to other regions. The lack of consensus on the determining macroeconomic factors in the Latin American context justifies this research, which seeks to identify those with a significant impact on regional competitiveness over the last decade. Using a quantitative design based on secondary data analysis from representative countries, variables such as trade openness, infrastructure investment, educational quality, inflation, and institutional stability were examined. The results showed that trade openness and investment in education are determining factors, while inflation and foreign direct investment did not present statistically significant impacts. Marked competitive disparities between countries were identified, associated with differences in their macroeconomic policies. The study provides empirical evidence to guide effective public policies, contributing to both academic debate and decision-making by policymakers and business leaders interested in improving regional competitive sustainability.

Keywords: Global competitiveness; macroeconomic factors; Latin America; infrastructure; education.

Recibido: 31.07.25 **Aceptado**: 03.11.25

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Factores macroeconómicos para la competitividad global de los países latinoamericanos (2013-2023)

Resumen

América Latina enfrenta persistentes brechas de competitividad global que limitan su desarrollo económico, evidenciadas en indicadores rezagados frente a otras regiones. La falta de consenso sobre los factores macroeconómicos determinantes en el contexto latinoamericano justifica esta investigación, que busca identificar aquellos con impacto significativo en la competitividad regional durante la última década. Mediante un diseño cuantitativo basado en análisis de datos secundarios de países representativos, se examinaron variables como apertura comercial, inversión en infraestructura, calidad educativa, inflación y estabilidad institucional. Los resultados mostraron que la apertura comercial y la inversión en educación son factores determinantes, mientras que la inflación y la inversión extranjera directa no presentaron impacts estadísticamente significativos. Se identificaron marcadas disparidades competitivas entre países, asociadas a diferencias en sus políticas macroeconómicas. El estudio proporciona evidencia empírica para orientar políticas públicas efectivas, contribuyendo tanto al debate académico como a la toma de decisiones de formuladores de políticas y líderes empresariales interesados en mejorar la sostenibilidad competitiva regional.

Palabras clave: Competitividad global; factores macroeconómicos; América Latina; infraestructura; educación.

1. Introduction

Latin America underperforms in global competitiveness indices, exhibiting critical deficiencies in infrastructure, innovation, and macroeconomic stability (World Economic Forum, 2023). Cooperation with Europe remains limited (OECD, 2022). The COVID-19 pandemic worsened these challenges, causing a 7.7% GDP contraction and 27.8% of global deaths despite 8.4% of the population (CEPAL, 2023).

Macroeconomic instability further constrains competitiveness. Europe saw inflation at 8.1% (Eurostat, 2024), while Latin America faced 7.5% inflation and 3.6% growth (CEPAL, 2023). In Peru, inflation peaked at 8.6%, growth slowed to 2.6%, unemployment rose to 7.3%, and poverty affected 23.9% (BCRP, 2023; INEI, 2021; INEI, 2022a; INEI, 2022b). Structural issues like persistent inflation, underinvestment, and rising inequality exacerbate gaps (Ministerio de Economía y Finanzas, 2024; BCRP, 2023; CEPAL, 2023; IDB, 2024). Corrective measures include monetary restrictions, infrastructure investment, and institutional strengthening (FMI, 2023; Grupo Banco Mundial, 2024; Banco Interamericano de Desarrollo, 2023; Consejo Nacional de Competitividad, 2023), though economic pessimism persists (Ledesma, 2021).

Existing research remains limited, focusing mostly on Europe or Asia with poorly adapted methodologies (Ginevičius et al., 2023; Cetin & Erkisi, 2023; Mukhamediyev et al., 2023). This study addresses these gaps through quantitative analysis adapted to Latin America (Flores-Sotelo et al., 2024).

The contribution lies in analyzing underexplored structural factors. While prior studies focus on innovation and labor policies (Vera & Rendon, 2023; Strilets et al., 2024; Rajnoha & Lesnikova, 2022), this study integrates economic elements into a coherent framework. Literature indicates converging determinants, highlighting innovation and macroeconomic stability, though perspectives differ (Mukhamediyev et al., 2023; Morano et al., 2023; Whitney et al., 2023).

Findings suggest oil price volatility and low innovation investment hinder competitiveness (Mukhamediyev et al., 2023; Whitney et al., 2023), while infrastructure policies are underutilized (García-García et al., 2024; Marti & Puertas, 2023; Paredes-Soria et al., 2024). Sectoral analyses highlight energy and innovation as key drivers (Cetin & Erkisi, 2023; Wang & Alsaleh, 2023; Melara-Gálvez & Morales-Fernández, 2022; Mukhamediyev et al., 2023; Kiselakova et al., 2018).

Methodologically, most studies use econometrics, panel data, or the Global Competitiveness Index, yet are insufficiently adapted (Ginevičius et al., 2023; Mukhamediyev et al., 2023; Marti & Puertas, 2023; Rajnoha & Lesnikova, 2022; Morano et al., 2023). Knowledge gaps remain regarding inequality and sustainability (Strilets et al., 2024; García-García et al., 2024). This research aims to provide updated, evidence-based insights for policymakers.

2. Macroeconomic factors: literature review

The following is a summary of the essential academic literature, analyzing the various theoretical perspectives on the determining macroeconomic factors.

2.1. Global competitiveness

Global competitiveness is determined by multiple interconnected factors. Strong institutions and governance, with low corruption and the rule of law, create favorable environments for economic activity (Volosnikova et al., 2022; Marčeta & Bojnec, 2023). Robust infrastructure facilitates connectivity and operational efficiency (Marčeta & Bojnec, 2023; Viloria-Nuñez et al., 2024), while macroeconomic stability with low inflation strengthens the foundations for competitive growth (Volosnikova et al., 2022; Marčeta & Bojnec, 2023).

Market size and labor efficiency provide advantages through economies of scale (Marčeta & Bojnec, 2023; Qazi, 2024). Innovative capacity and technological readiness maintain competitive advantages (Marčeta & Bojnec, 2023; Qazi, 2024; Malek et al., 2024), supported by quality education and a skilled workforce (Qazi, 2024; Malek et al., 2024). Health and social inclusion ensure stable populations and social cohesion (Qazi, 2024; Kouskoura et al., 2024).

Theoretical developments have progressively emphasized innovation and investment in research. Priede and Pereira (2013) highlight the Europe 2020 Agenda for strengthening European competitiveness through innovation. Paraušić et al. (2014) propose the development of industrial clusters as a key mechanism. These approaches

emphasize the synergy between innovation and institutional support, although heterogeneous implementation limits the universal applicability of strategies.

Tudose and Rusu (2015) introduce the Global Competitiveness Index as a fundamental tool for assessing innovative capabilities (Ştefan, 2013). Athari et al. (2020) explore how competitive environments attract greater investment, particularly in emerging economies.

From an efficiency perspective, Fifeková et al. (2018) examine the transformation of competitiveness into per capita income, identifying innovative inefficiencies. Kiselakova et al. (2018) demonstrate that research spending significantly improves competitiveness. Both studies reinforce research investment strategies, although they note inconsistent conversion into tangible improvements.

Recent research explores emerging factors. Marti and Puertas (2023) develop synthetic indicators of digital capability and innovation, identifying north-south disparities in the EU. Morano et al. (2023) argue that business facilitation mediates between innovation and competitiveness, emphasizing regulatory obstacles. These studies integrate additional elements into competitive analysis, highlighting the importance of digitalization.

2.2. Panel data model

The econometric model is structured as follows:

$$GCI_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 INF_{it} + \beta_3 FDI_{it} + \beta_4 EDU_{it} + \beta_5 ICT_{it} + \beta_6 TRADE_{it} + \varepsilon_{it}$$

(Equation1)

$\boldsymbol{GCI_{it}}$: Global Competitiveness Index $country_i$ in the $year_t$. This is the dependent value and will use data from the Global Competitiveness Index provided by the World Economic Forum (WEF).

$\boldsymbol{GDP_{it}}$: Gross Domestic Product per capita of the $country_i$ in the $year_t$. Open data available at the World Bank (World Bank Open Data) will be used.

$\boldsymbol{INF_{it}}$: Inflation rate of $country_i$ in the $year_t$, as an indicator of macroeconomic stability. Data will be obtained from the World Bank.

$\boldsymbol{FDI_{it}}$: Flow of foreign direct investment as a percentage of GDP in the $country_i$ in the $year_t$. This indicator is fundamental to understanding the country's level of economic integration and its financing opportunities, and will be accessible through World Bank databases.

$\boldsymbol{EDU_{it}}$: Expenditure on education as a percentage of GDP $country_i$ in the $year_t$. This variable measures the level of investment in human capital, which is crucial for the development of competitiveness. Data will be available from the World Bank and UNESCO.

$\boldsymbol{ICT_{it}}$: Access to information and communication technologies (e.g., broadband subscriptions or Internet use) from the $country_i$ in the $year_t$. This variable captures the level of technological development, and data can be obtained from the International Telecommunication Union (ITU) and the World Bank.

$TRADE_{it}$: Trade openness, measured as the sum of exports and imports as a percentage of the country's GDP $country_i$ en el $year_t$. This indicator is obtained from the World Bank and represents the degree of integration of the country in international trade.

ε_{it}: Random error term that captures unobserved factors affecting global competitiveness.

2.3. Model Specification

The empirical specification employs panel data methodology to estimate the relationship between macroeconomic determinants and global competitiveness. Model estimation utilizes either fixed effects (FE) or random effects (RE) approaches, with the selection determined through formal specification tests including the Hausman test (Amini et al., 2012; Baltagi & Liu, 2007; Adkins et al., 2012). The fixed effects specification controls for unobservable time-invariant country-specific characteristics that may influence competitiveness outcomes, such as cultural norms, institutional frameworks, or historical factors. Conversely, the random effects approach proves more appropriate when these country-specific characteristics are theoretically uncorrelated with the independent variables included in the model.

Panel data methodology offers particular advantages for this research given the combined cross-sectional and temporal dimensions of the dataset. This approach enables simultaneous examination of between-country variations and within-country dynamics over time, capturing both structural differences and evolutionary patterns in competitiveness determinants (Gujarati & Porter, 2009). The utilization of openly accessible data sources from international organizations enhances methodological transparency and facilitates replication of findings, essential considerations in scientific research. However, estimation robustness may be influenced by data quality and consistency across sources, necessitating careful assessment of measurement reliability.

The choice between fixed and random effects specifications depends on the specific research context and data characteristics, with the objective of obtaining results that accurately reflect Latin American regional realities. The Hausman test provides statistical guidance for this selection, testing whether unique errors are correlated with regressors (Amini et al., 2012). When the null hypothesis of no correlation is rejected, fixed effects estimation is preferred as it produces consistent results even in the presence of such correlation. When the null hypothesis cannot be rejected, random effects estimation becomes preferable due to its efficiency advantages (Baltagi & Liu, 2007).

This methodological approach aligns with established practices in competitiveness research while addressing specific Latin American context considerations that distinguish this study from predominantly European-focused analyses in existing literature. The panel data framework accommodates both the regional heterogeneity and temporal dynamics characteristic of Latin American economic development trajectories, providing appropriate analytical tools for examining competitiveness determinants across diverse national contexts within the region.

2.4. General (GO) and specific objective (SO)

GO: Analyze the macroeconomic factors that significantly affect the global competitiveness of Latin American countries during the period 2013-2023.

SO1: Examine the influence of inflation and economic growth on competitiveness in Latin America.

SO2: Evaluate the impact of infrastructure investment on improving competitiveness in the region.

SO3: Analyze the influence of the quality of education and training on the competitiveness of the Latin American labor force.

SO4: Investigate how the strengthening of institutions affects competitiveness and business climate in Latin America.

SO5: Identify and compare macroeconomic factors that affect competitiveness among different Latin American countries.

3. Research Design and Methodological Framework

This research analyzes Latin America from 2013 to 2023, a period of significant global economic transformation requiring contemporary analysis of macroeconomic factors influencing regional competitiveness (Grupo Banco Mundial, 2024). A comparative methodology identifies common factors and inter-country variations to derive insights for policy interventions (Grupo Banco Mundial, 2024).

The study integrates quantitative and qualitative data from international organizations, academic publications, and statistical databases. This multi-source approach identifies pivotal macroeconomic determinants and formulates evidence-based recommendations (FMI, 2023). The research covers all Latin American countries, with sample selection based on economic magnitude, development level, and data availability to develop tailored recommendations.

Multiple data sources enhance reliability through methodological triangulation (Grupo Banco Mundial, 2024). Techniques include systematic literature review, secondary data analysis, and expert consultations. The review identifies relevant macroeconomic factors, secondary data analysis examines temporal trends, and expert interviews provide qualitative insights on regional constraints.

This integration enables comprehensive understanding of macroeconomic influences. Data facilitates testing panel data econometric models to identify causal relationships between determinants and competitiveness outcomes (Gujarati & Porter, 2009). The framework accommodates cross-country heterogeneity and temporal dynamics in Latin American development.

The comparative design examines convergence and divergence patterns, while the longitudinal dimension captures evolutionary dynamics in factor importance. This dual approach addresses structural differences and developmental pathways, offering comprehensive insights specific to Latin America.

4. Determine competitiveness in Latin America: Results

The following are the statistical results that identify the macroeconomic factors that determine competitiveness in Latin America.

4.1. Influence of inflation and economic growth on competitiveness in Latin America

The analysis of inflation in Latin America between 2013 and 2023 shows a marked disparity between countries in the region. In particular, Argentina has a significantly high average inflation rate (49.67%), with a clear upward trend in recent years, reaching a maximum of 133.84% in 2023. This behavior contrasts with other countries such as Ecuador and El Salvador, which have shown moderate inflation levels, in some cases even negative, as in the case of Ecuador with a minimum of -5.47%. Inflation variability is also evident in Haiti, where an average of 15.52% is recorded, standing out for its volatility compared to the other countries.

It is important to note that the rest of the region, including countries such as Mexico, Chile, and Colombia, have maintained relatively stable inflation rates, with averages below 10%, reflecting better management of price stability. This disparity in inflation rates suggests the existence of significant differences in the economic policies adopted by each country, which have a direct impact on their global competitiveness. Consequently, inflation management appears as a critical factor influencing economic stability and, therefore, the competitiveness of Latin American countries, highlighting the need for consistent monetary and fiscal policies adapted to the specific conditions of each nation.

4.2. Impact of infrastructure investment on improving competitiveness in the region

An analysis of GDP growth trends for Latin American countries during the period 2013-2023 shows significant fluctuations, especially marked during the COVID-19 pandemic. The graph shows a marked decline in economic growth during 2020 for all countries in the region, with most experiencing negative growth rates. Countries such as Ecuador and others in the region suffered significant declines in GDP, even exceeding -15%, reflecting the devastating impact of the health crisis on the region's economies.

However, from 2021 onwards, economic recovery is evident, with several countries showing a positive rebound in their growth rates, in some cases reaching growth above 10%, as is the case of Costa Rica. The variation in economic growth during this decade highlights the vulnerability of Latin American economies to adverse global events and their uneven capacity for recovery. In addition, some countries, such as Bolivia, showed less volatility throughout the period, with more stable growth rates.

These results suggest that economic resilience and the policies implemented by each country play a fundamental role in economic competitiveness and the capacity to adapt to global crises, evidencing the importance of robust and sustainable macroeconomic strategies in the Latin American context.

In the analysis of foreign direct investment (FDI) in Latin America between 2013 and 2023, a marked variability is observed among the countries of the region. The graph shows that, in some countries such as Argentina, there have been both positive and negative values in foreign investment, with significant variations, especially towards 2020, where the country experienced a negative value

close to -5% of GDP, highlighting the economic instability during that period. On the other hand, Colombia and Chile maintain a stable FDI trend during most of the period, with a value close to 5-7% of GDP, reflecting a more attractive economic environment for foreign investment.

In particular, Uruguay presents a volatile behavior, with a peak above 10% of GDP in 2022, evidencing a remarkable rebound after the pandemic crisis of 2020. This volatility in FDI highlights the influence of internal and external factors that affect investor confidence in each country. In general terms, the ability to attract foreign direct investment reflects the macroeconomic stability, political conditions and global competitiveness of each country in Latin America.

These results underscore the need to strengthen institutions and public policies that favor a more secure and attractive investment environment in order to promote competitiveness and sustainable development in the region.

4.3. Influence of the quality of education and training on the competitiveness of the Latin American labor force

The analysis of access to information and communication technologies (ICTs) in Latin America between 2013 and 2023 shows a general upward trend in most countries in the region. Countries such as Chile and Colombia stand out with access exceeding 80% of the population, reflecting significant progress in technological penetration. In contrast, countries such as Bolivia and Nicaragua show slower growth, remaining below 50% of the population with access to ICTs until 2023, suggesting structural limitations in the expansion of digital infrastructure. There is also a slowdown or reduction in the rate of access in some countries such as Nicaragua during the last years of the period analyzed, which could be attributed to economic or political factors that affect investment in technology.

In comparative terms, Mexico and Peru also show a continuous improvement, with access stabilizing at around 70% by the end of the period studied. These differences in ICT access are a reflection of the existing inequalities in the region in terms of technological development, which has a direct impact on the global competitiveness of each country. Equitable access to ICTs is a key factor in boosting competitiveness, since it fosters innovation and productivity at the national and regional levels.

4.4. Strengthening of institutions affects competitiveness and business climate in Latin America

In the analysis of trade openness of Latin American countries between 2013 and 2023, a significant heterogeneity in the levels of integration to global trade is observed. Countries such as Panama and Bolivia present high levels of trade openness throughout the period, reaching percentages of trade over GDP above 100%, suggesting a high dependence on international trade in these economies. In contrast, countries such as Argentina and Brazil maintain considerably lower levels of openness, averaging close to 40-60% of GDP, indicating a relatively more protectionist approach or a lower participation in global trade.

In 2020, most countries experience a decline in trade openness levels,

coinciding with the global trade disruptions caused by the COVID-19 pandemic. However, by 2022, a recovery is observed, especially notable in countries such as Colombia and Chile, which register a considerable increase in their levels of trade openness. These differences among Latin American countries in terms of trade openness reflect divergences in their trade policies and capacity for integration into the global market. Trade openness is a critical determinant of global competitiveness, as it facilitates access to new markets, fosters innovation and increases economic efficiency through international competition.

4.5. Macroeconomic factors affecting competitiveness among different Latin American countries

In the regression analysis of the macroeconomic factors influencing the global competitiveness of Latin American countries between 2013 and 2023, significant relationships are identified between the independent variables and the global competitiveness index (GCI_{it}). The model has a high R-squared value (0.953), indicating that 95.3% of the variability in global competitiveness can be explained by the variables included in the model.

The results show that the coefficient for the variable trade ($TRADE_{it}$) is positive and significant (0.0630, p<0.05), suggesting that a higher level of trade openness contributes positively to competitiveness. In addition, the education variable (EDU_{it}) has a significant positive impact (0.6484, p<0.05), highlighting the importance of the level of education in the competitiveness of countries. On the other hand, variables such as inflation (INF_{it}) and foreign direct investment (FDI_{it}) are not statistically significant, which could indicate a lesser direct influence of these factors on competitiveness during the period analyzed.

It is worth noting that the results of the econometric model show that variables such as inflation and foreign direct investment (FDI) did not have a statistically significant impact on the global competitiveness of Latin American countries, contrary to expectations. This insignificance may be due to the interaction of these variables with other macroeconomic and structural factors. In the case of inflation, its effect on competitiveness seems to be conditioned by the countries' ability to implement effective monetary policies and stabilization mechanisms, such as differentiated interest rates and price controls. The insignificance of FDI could be explained by the heterogeneity in the quality and destination of these investments. In many cases, FDI in Latin America has been concentrated in extractive or low value-added sectors, without generating substantial improvements in productivity, innovation or technological development. These findings suggest that, beyond the amount of investment received or the level of inflation, it is necessary to consider the quality of public policies and the strategic orientation of capital in order for these factors to have a positive impact on regional competitiveness.

Country coefficients also reveal notable differences, with Chile and Colombia showing the most positive values, suggesting greater relative competitiveness compared to other countries in the region. These results emphasize the importance of trade

openness and investment in education as key factors driving the competitiveness of Latin American countries, while other elements such as inflationary stability may have more indirect effects.

5. Macroeconomic determinants of competitiveness in Latin America

Inferential analysis reveals that macroeconomic factors significantly influence global competitiveness in Latin American countries during the 2013-2023 period. Innovation emerges as a crucial determinant of competitive performance, particularly in emerging economies where innovation index improvements translate into substantial competitiveness gains (Cetin & Erkisi, 2023). However, Latin America faces structural constraints including labor market rigidities and policy inadequacies that hinder competitive development (Vera & Rendon, 2023). The relationship between economic development and eco-innovation demonstrates non-linear characteristics, with stabilization effects at higher development levels (García-García et al., 2024).

Comparative analysis with European economies reveals substantial disparities in digitalization and innovation implementation. European countries, particularly leaders like Sweden, maintain competitiveness through robust innovation indicators and digital economy metrics (Marti & Puertas, 2023), while Latin American nations exhibit slower adoption rates, constraining global competitive capabilities. Oil price dynamics also influence competitiveness differentially, with exporting nations utilizing revenues to foster innovative development and enhance competitive positioning (Mukhamediyev et al., 2023).

Business environment quality significantly mediates innovation-competitiveness relationships. Regulatory frameworks and ease of doing business either constrain or enable competitive development, with favorable environments substantially enhancing innovation impacts (Morano et al., 2023). Latin America's challenges in transforming innovation into sustainable competitive advantages stem from perceived labor market rigidities and policy limitations, contrasting with Europe's coherent digitalization and innovation policy implementation.

Inflation management and economic growth patterns significantly correlate with competitiveness metrics. Persistent inflation and limited growth negatively impact competitive positioning, though innovation investments and infrastructure improvements provide mitigating effects (Ginevičius et al., 2023). The non-linear behavior between economic development and eco-innovation reveals substantial competitiveness variations across development levels (García-García et al., 2024). Methodological considerations regarding the Global Competitiveness Index highlight potential limitations in accurately reflecting Latin American realities (Vera & Rendon, 2023).

Infrastructure investment demonstrates crucial importance for competitiveness enhancement. Innovation and infrastructure represent key competitive factors in the European Union, with 1% investment increases yielding significant improvements (Cetin & Erkisi, 2023). Eco-innovation relationships with economic development underscore sustainable infrastructure's role (García-García et al.,

2024), while infrastructure investments increase GDP per capita and improve competitive positioning (Ginevičius et al., 2023). Digitalization drives economic growth and competitiveness, with inter-country variations explained by digital infrastructure quality (Marti & Puertas, 2023).

Energy infrastructure improves efficiency and economic resilience, particularly in oil-exporting countries (Mukhamediyev et al., 2023), while institutional and regulatory frameworks facilitate project implementation and investment attraction (Vera & Rendon, 2023; Morano et al., 2023). Sustainable energy investments, including geothermal resources, contribute to competitiveness and energy security (Wang & Alsaleh, 2023). Innovation enhances economic resilience, though physical infrastructure limitations constrain competitive development in certain contexts (Strilets et al., 2024).

Education quality and training significantly impact labor force competitiveness, with positive relationships between educational investment and productivity improvements. Digitalization and technical skills development enhance workforce competitive capabilities (Ginevičius et al., 2023; Cetin & Erkisi, 2023; Strilets et al., 2024; Morano et al., 2023; García-García et al., 2024; Marti & Puertas, 2023; Wang & Alsaleh, 2023). Business environment simplification enhances education and training impacts on productivity (Morano et al., 2023), though structural barriers and institutional support limitations constrain effectiveness in Latin American contexts (Strilets et al., 2024).

Substantial inflation management disparities emerge across Latin American countries, with Argentina exhibiting significantly higher rates compared to Ecuador and El Salvador's price stability maintenance. These policy variations directly impact national competitiveness, while pandemic-induced GDP declines followed by heterogeneous recovery patterns highlight macroeconomic stability importance. Peru and Costa Rica demonstrated robust recovery capabilities, while other nations experienced persistent volatility.

Panel regression analysis confirms trade openness and educational investment as key competitiveness determinants, while inflation and foreign direct investment lack statistical significance. These findings emphasize trade integration and human capital development as sustainable growth pillars, alongside macroeconomic stability and institutional improvement necessities. Structural reforms facilitating labor market efficiency and public spending optimization represent urgent requirements for reducing intra-regional competitiveness disparities.

The dual impact of highly skilled professional mobility necessitates consideration, with knowledge transfer potential through return migration contrasting with brain drain effects from permanent emigration. Strategic policies should maximize knowledge diffusion benefits while mitigating human capital depletion risks. Methodological enhancements combining objective metrics with perception-based indicators could improve competitiveness assessment accuracy, particularly regarding informal sector dynamics and macroeconomic volatility characteristics unique to Latin American economies.

6. Conclusions

This analysis establishes that trade

openness and educational investment constitute the primary macroeconomic determinants enhancing Latin American competitiveness during 2013-2023. These factors directly facilitate market integration and human capital development, whereas inflation and foreign direct investment demonstrate context-dependent influences without uniform statistical significance across the region.

The research reveals critical interdependencies between institutional quality, infrastructure development, and educational advancement. Countries achieving synergistic improvements across these domains exhibit superior competitive positioning, underscoring the necessity of integrated policy approaches rather than isolated interventions. Institutional strengthening emerges as a fundamental prerequisite for translating infrastructure and educational investments into tangible competitiveness gains.

Substantial inter-country heterogeneity necessitates differentiated policy frameworks. Nations with robust trade policies and advanced educational systems achieve superior competitiveness outcomes, while institutional effectiveness variations create disparate competitive environments. This divergence highlights the limitations of regional generalizations and emphasizes context-specific strategy formulation.

Macroeconomic stability provides the essential foundation for competitive development, with controlled inflation and sustained growth enabling long-term investment planning. However, stability alone proves insufficient without complementary structural reforms addressing institutional quality, infrastructure deficits, and educational accessibility.

Subsequent investigations should incorporate mediating variables including digitalization metrics, technological adoption rates, and social cohesion indicators to enhance analytical precision. Comparative studies with Asian and African economies would elucidate region-specific competitiveness dynamics, while sub-regional analyses within Latin America could identify development-level appropriate strategies.

Longitudinal examinations accounting for economic cycles and global disruptions would strengthen predictive capabilities. Research should differentiate foreign direct investment impacts across strategic sectors and assess how digital transformation moderates inflation-competitiveness relationships.

Policy frameworks must prioritize institutional transparency and regulatory quality to establish foundational competitiveness prerequisites. Strategic infrastructure investments should target connectivity enhancements and technological modernization, while educational reforms must align skill development with evolving market requirements.

Public-private partnerships fostering innovation clusters and knowledge transfer mechanisms can accelerate productivity growth. Policy integration across educational, institutional, and infrastructural domains represents the most promising pathway for sustainable competitive advancement in Latin America's diverse economic landscape.

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