

THE ROLE OF GOVERNANCE IN CRYPTOCURRENCY
ADOPTION: A COMPARATIVE ANALYSIS BETWEEN
LATIN AMERICA AND DEVELOPING EUROPE

*EL PAPEL DE LA GOBERNANZA EN LA ADOPCIÓN DE
LAS CRIPTOMONEDAS: UN ANÁLISIS COMPARATIVO ENTRE
AMÉRICA LATINA Y LA EUROPA EN DESARROLLO*

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ABSTRACT

This study aims to identify the extent to which a country's quality of governance is associated with the use of cryptocurrencies, as well as any other main elements associated with the use of currencies alternative to traditional ones. The method used is a descriptive analysis of the variables, an econometric ANOVA, and a truncated regression model, which aims to bring the research closer to the possible correlation between governance indicators and the rate of adoption of cryptocurrencies. The study concludes that countries with low levels of the quality of governance tend to be associated with higher levels of the adoption of cryptocurrencies. To the best of our knowledge, this study is the first to analyse the relation between cryptocurrency adoption and institutional

governance by comparing two regions with different levels of development. The research is limited by the existence of other factors that influence the analytical framework of cryptocurrency adoption, but the availability of data has allowed the present study to focus on governance aspects. Despite the fact that the governance indicators present a global analysis in terms of their measurement, the specific aspects of each country are not included in the study. The adoption of cryptocurrencies in some countries may not be strongly related to governance aspects but rather to the friendly regulations that have been implemented.

Keywords: Cryptocurrencies, Latin America, Europe, Governance.

RESUMEN

Este estudio tiene como objetivo identificar en qué medida el nivel de gobernanza de un país está asociado con el uso de criptomonedas, así como los principales elementos asociados al uso de monedas alternativas a las tradicionales. La metodología utilizada es un análisis descriptivo de las variables, un ANOVA econométrico y un modelo de regresión truncada, cuyo objetivo es acercar la investigación a la posible correlación entre los indicadores de gobernanza y la tasa de adopción de las criptomonedas. El estudio concluye que los países con bajos niveles de gobernanza están asociados con altos niveles de adopción de las criptomonedas. Según nuestro conocimiento, este estudio es el primero en analizar la relación entre la adopción de las criptomonedas y la gobernanza institucional comparando dos regiones con diferentes niveles de desarrollo. La investigación se ve limitada por la existencia de otros factores que influyen en la adopción de las criptomonedas, pero la disponibilidad de datos ha permitido que el presente estudio se centre en los aspectos de gobernanza. A pesar de que los indicadores de gobernanza presentan un análisis global en cuanto a su medición, no se especifican los aspectos relevantes de cada país. Es posible que la adopción de las criptomonedas en algunos países no esté fuertemente relacionada con aspectos de gobernanza, sino más bien con las regulaciones favorables que se han implementado.

Palabras clave: Criptomonedas, América Latina, Europa, Gobernanza.

JEL Classification / Clasificación JEL: E42, H10.

1. INTRODUCTION

Historically, the majority of Latin American countries have suffered significant institutional crises (Helmke, 2010; Weyland, 2020). The high levels of corruption (Azam, 2022), the characteristics of ruling elites (Acemoglu & Robinson, 2001), the low levels of trust in democratic processes, and the influence of populism (Doyle, 2011), have led to a discontent with the high levels of inequality and poverty in the region (Segovia et al., 2021). Problems such as low political and fiscal capacity, lack of transparency and reduced efficiency in public administrations, excessive bureaucratisation and economic instability limit the scope for public management and result in governments that are unable to respond to the basic needs of the population and businesses (Cárdenas et al., 2018a, 2018b). The implementation of public policies that undermine the promotion of inclusive economic development and the fulfilment of citizens' basic needs has resulted in the strengthening of the informal economy. This shadow economy is characterised by illegal activities as a response to a low level of employment opportunities, high levels of poverty and permanent disagreement with the governments and their tax systems (Irandoust, 2024). This problem is compounded by the deterioration of economies in recent decades, with high rates of inflation and currency devaluation.

The situation is different in other latitudes, particularly on the European continent. Even countries with income levels similar to those in Latin America have inclusive institutions and political, social and economic stability, which constitutes an important aspect in terms of governance that Latin America still needs to improve. The importance of the issue increases when considering the economic and social boom that the acceptance and use of cryptocurrencies is currently experiencing in a context of an uncertain financial regulatory environment (Raza et al., 2023).

Although cryptocurrencies have been considered as an alternative to the weaknesses of traditional financial systems, in some cases they have been associated with various risky activities related to tax fraud and money laundering (Alnasaa et al., 2022; Guo et al., 2025). This has led many to think that cryptocurrency markets have flourished due to the political crises and economic instability that are evident in most developing countries (Fletcher et al., 2021). For these reasons, the present paper carries out an analysis focused on the use of cryptocurrencies in relation to the state of governance and institutional framework of developing countries in Latin America and the least

developed countries in Europe, so that we can identify the main governance aspects that motivate the adoption of this new financial alternative.

There is a scarcity of prior research that has examined the factors driving Cryptocurrency Adoption (CA) from the perspective of institutional governance. Moreover, this perspective has been addressed tangentially alongside other macroeconomic factors that influence in the adoption and acceptance (Bhimani et al., 2022; Nguyen & Nguyen, 2024). To the best of our knowledge, only González-Gallego & Pérez-Cárceles (2021a, 2021b) exclusively focus on the governance factors influencing the CA, but using a heterogeneous sample of countries. Therefore, to fill this gap in the literature, our study is the first to analyse the relation between CA and institutional governance by comparing two regions with different levels of development and qualities of governance. In this regard, our contribution aims to further explore how the dimensions of institutional governance affect the use of cryptocurrencies, for the sake of the potential implications for public policies in different regions, particularly considering the risks associated with the use of these assets as a tool for illicit practices (Susanto & Afifah, 2024; Al Naqbi et al., 2025).

This paper is structured as follows. Firstly, it reviews the existing literature on topics such as CA and their relations with tax fraud, corruption and the economy, as well as the characteristic factors that frame the governance of Latin American and European countries, highlighting the characteristics of the regulations and the state of use of cryptocurrencies in the countries of both regions. Following that section, and after a brief descriptive analysis of the variables, an ANOVA and a truncated regression model will be presented, which the aim of bringing this research closer to the possible correlation between the governance indicators developed by Kaufmann et al. (2011), compared to the index of CA for the countries of Latin America and the least advanced countries of Europe. Finally, a set of conclusions, recommendations and an approach for possible further research will be presented according to the literature review and empirical analysis.

2. THEORETICAL FRAMEWORK

2.1. CRYPTOCURRENCIES AND ILLICIT PRACTICES

The undoubted success of cryptocurrencies since their launch has led many researchers to focus their attention on this new system (Pattnaik et al., 2023). Cryptocurrencies are defined as “a digital asset designed to work as a medium of exchange using cryptography to secure transactions, to control the creation of additional value units, and to verify the transfer of assets.” (Härdle et al., 2019, p. 3). Cryptocurrencies have redefined the concept of finance by being regarded as a more efficient alternative to traditional financial systems, in light of the challenges faced by the latter. They can also generate social benefits by providing an inclusive option for individuals who are outside conventional banking systems. Nevertheless, this innovation also poses significant risks to

financial markets due to its low levels of regulation and oversight, creating ideal conditions for the proliferation of illegal activities and tax fraud.

Undoubtedly, identifying the specific causes that promote the use of cryptocurrencies is a complex task for various reasons. For instance, in situations of geopolitical tension they can provide liquidity, act as a store of value and protect against possible embargoes (Alexakis et al., 2024). Bhimani et al. (2022) found that CA depends on a country's level of development. The use of these assets would correlate with macroeconomic factors such as the Human Development Index (HDI), the Gini Index, and Gross Domestic Product (GDP). Recently, Thi Hang (2025) has found that CA is positively correlated with the imposition of international sanctions, particularly in regions with high levels of economic inequality.

Despite the rapid proliferation of cryptocurrencies since their inception, divergent perspectives on their use as financial assets have emerged over the years. Some claim that cryptocurrencies serve as a viable alternative to traditional financial systems due to the inherent vulnerabilities of the latter. They argue that cryptocurrencies act as an investment mechanism that mitigates the risks of devaluation of various conventional currencies. Furthermore, the technological advances associated with cryptocurrencies are believed to enhance consumer value and potentially contribute to alleviating poverty and corruption. In this way, cryptocurrencies have fundamentally changed the concept of finance by introducing new ways of transacting that are characterised by increased speed, better security, and reduced costs (Tsakaev & Khadzhiev, 2019).

Cryptocurrencies such as Bitcoin have a 'pseudo-anonymous' nature, meaning that while bitcoins can in some cases be traced back to a specific computer or identified with a specific public key associated with a user, that user is never required to reveal their real-world identity. The transactions are instantaneous and irreversible, without the intervention of financial institutions, and are conducted through transnational companies (Fletcher et al., 2021). For these reasons, this virtual asset is ideal for circumventing the regulatory tools of the traditional financial sector. Their use to circumvent restrictions on the introduction of illicit proceeds would be encouraged by higher levels of corruption and capital controls (Alnasaa et al., 2022). Additionally, it is argued that cryptocurrencies act as economic instruments that facilitate tax evasion, money laundering, and the financing of illicit activities, primarily due to the lack of stringent regulatory frameworks and the high volatility of cryptocurrency markets. These factors collectively pose significant risks to both investors and the financial system as a whole (Shanaev, et al., 2019).

Moreover, cryptocurrencies can thrive in countries with weak and precarious socioeconomic environments where combating hyperinflation is necessary (Rosales, 2021). This perspective is also supported by the analysis conducted by Cuadrado-Avilés et al.(2021), which indicates that the surge in CA in Latin America is partly driven by the significant devaluations of the national currencies. This is particularly evident in countries such as Argentina

and Venezuela, which experience high levels of inflation relative to the exchange rates of other countries. Consequently, these nations have turned to cryptocurrencies as a safer financial alternative to traditional currencies.

2.2. INSTITUTIONS, GOVERNANCE AND CORRUPTION

Kaufmann et al. (2011) defines governance as “the traditions and institutions by which authority is exercised in a country” (p. 222). This concept is shaped by several elements: (1) the traditions and institutions through which authority is exercised in a country, including the processes by which governments are instituted, monitored and replaced; (2) the government’s capacity to formulate and effectively implement sound policies; (3) and the respect of citizens and the state itself for the institutions that govern economic and social interactions between them.

A country’s institutional framework comprises a defined set of institutions, organisations, beliefs, and criteria that guide, empower, and constrain the activities of individuals to varying degrees. Building on this definition, Dietsche (2007) clarifies the concept of institution, highlighting that approaches to governance and corruption are based on this analytical category. These approaches are considered as examples of indicators used to assess the quality of institutions or the robustness of a country’s institutional framework.

An analysis of the causes of corruption reveals that it often arises as a consequence of failed welfare states or as a result of citizens’ discontent with existing social inequality. Corruption is typically examined from two different approaches. Firstly, state corruption, which impacts income redistribution and, consequently, exacerbates inequality and hampers economic growth. The second approach analyses the corruption in environments where the quality of institutions is low and the informal economy gains strength by generating the main sources of employment given the few opportunities for formal work. This ends up generating a positive correlation between corruption and the reduction of inequality (De Vaal & Ebben, 2011). In this line, Keneck-Massil et al. (2021) points out that corruption generates permanent distortions in income inequality through the fiscal channel, by facilitating tax evasion and reducing resources for social programmes. Additionally, the informal economy obscures the distinction between those who fulfil their obligations and those who do not. This reduces the tax base and increases the potential for fraud, thereby undermining the collection, efficiency and equity of the tax system (Lago Peñas, 2018). Therefore, weak governance and the lack of credibility of institutions could create the basis for corruption and intensify illegal and informal economic activity. This supports our initial hypothesis: the use of cryptocurrencies is a consequence of the lack of regulation of digital financial systems, which fosters the conditions for tax fraud and the development of illicit practices. Given the negative factors that have emerged with the use of new digital technologies, the issue of regulation of the financial sector has become increasingly important. In this regard, various approaches have emerged,

ranging from a complete prohibition of its use to a staunch opposition to its regulation due to the decentralized nature of the system. Additionally, there are other experts who advocate an intermediate position, implementing regulatory measures with a degree of flexibility (Shanaev et al., 2019). These assets are increasingly perceived as safe-haven instruments, even in certain stock markets such as Islamic equity markets (Zaman et al., 2025).

In recent years, several studies have been conducted on the influence of regulation on prices in cryptocurrency markets. Auer & Claessens (2018), Shanaev et al., (2019) and Chokor & Alfieri (2021) agree that increased regulation has a negative impact on the market and use of cryptocurrencies, which intensifies as efforts to root out corrupt activities escalate. However, regulation tailored to specific functions of cryptocurrencies, enhancing the financial system, are associated with substantial gains in the market. This indicates that a minimal regulation could have a positive effect on the cryptocurrency market, contributing to reduced volatility and more stable prices. Chavez-Perez et al. (2025) indicate that one of the significant challenges faced by regulation is the rapid evolution of cryptocurrencies. Therefore, they frame regulation in a proposal that addresses the three main issues cryptocurrencies need to overcome: their inherent price bubbles, regulatory disorientation, and the rise of cybercrime.

2.3. OTHER FACTORS DRIVING THE USE OF CRYPTOCURRENCIES

CA cannot be attributed exclusively to governance-related or institutional determinants (Mohammed et al., 2023). The literature suggests that this adoption is shaped by a broader set of social, psychological, and technological factors (Hairudin et al., 2022). For instance, Yazbek & Rehman (2024) emphasize that the extent of the use of cryptocurrency is contingent upon the quality and robustness of a country's Information Technology (IT) infrastructure. Additionally, other drivers have been identified, including the circumvention of international sanctions or the need to mitigate inflationary pressures (Mahdavi, 2022). Garzón et al. (2023) argue that the inherently speculative nature of cryptocurrencies constitutes a primary determinant of their adoption, as such assets generate substantial expectations among investors of high returns. Furthermore, governmental actions may also play a facilitating role, as regulatory frameworks in certain jurisdictions actively promote the use of cryptocurrencies (Burgess, 2024). Notwithstanding the recurrent warnings issued by international organizations regarding the associated macroeconomic and financial risks, El Salvador became, in September 2021, the first country to recognize Bitcoin as legal tender, simultaneously implementing an extensive nationwide financial education program (Gorjón, 2021). Srivastava et al. (2024) demonstrate that the development of the crypto-economy is not directly dependent on conventional macroeconomic indicators such as Gross Domestic Product (GDP) or the Human Development Index (HDI). However, it is indirectly influenced by the establishment of robust regulatory frameworks, which tend

to be correlated with higher levels of societal well-being. Complementing this view, a recent literature review by AlQudah & Bariviera (2026) highlights that CA can enhance financial inclusion, particularly in regions characterized by limited access to formal banking services, thereby contributing to greater development and poverty alleviation. From this standpoint, collective cryptocurrency-based investment platforms may represent an alternative financing mechanism for small enterprises and entrepreneurial ventures, especially in contexts where access to traditional financial channels is severely constrained. Consequently, although the use of cryptocurrencies has been associated with illicit activities and potential adverse economic effects, it may simultaneously serve as a practical financial instrument enabling people to fund essential projects in underserved regions (Lising, 2026).

3. METHODS

3.1. DESCRIPTIVE STATISTICAL ANALYSIS OF THE VARIABLES

A sample of 39 developing countries in Latin America and Europe with different levels of income and values of the HDI has been selected. The HDI data correspond to the year 2021. For the sake of framing the proposed hypothesis, the model developed by González-Gallego & Pérez-Cárceles (2021b) has been used as a reference. We correlate the governance indicators developed by Kaufmann et al. (2011) with the available statistics on levels of the use of cryptocurrency (Chainalysis, 2021) (See Appendix, Table A.1).

Cryptocurrency Adoption (CA). The Global Cryptocurrency Adoption Index (GCAI) for the year 2021 was published in the Geography of Cryptocurrency Report prepared by the international company Chainalysis (2021). This index is composed of three different metrics: (1) on-chain cryptocurrency value received, weighted by per capita power parity purchases; (2) on-chain retail value transferred, weighted by per capita power; and (3) peer-to-peer exchange trading volume, weighted by per capita value and number of Internet users. Countries are ranked based on each metric, and their overall position is calculated using the geometric mean of these rankings, normalized between 0 and 1: values closer to 1 indicate higher levels of CA.

The GCAI indicates that Latin America is positioned as the sixth largest cryptocurrency economy out of the eight regions analysed. Despite being a relatively small economy globally, the region exhibited strong popular adoption. In fact, four countries were among the top 20 in the index (in the following order: Venezuela, Argentina, Colombia and Brazil). In contrast, developing countries in Europe exhibited a low level of cryptocurrency usage, with the exception of Russia, which ranked eighteenth in the index.

Governance Indicators. To measure the quality of governance, the World Bank's *Global Governance Indicators* (WGI) for the year 2020 have been used (World Bank, 2026). They currently take as a reference more than 200 countries and more than 30 data sources, measuring the perceptions and experiences of

thousands of entrepreneurs, as well as experts both in the public and private spheres, in their relationships with institutions. There are six indicators that are grouped in pairs into three different areas (Table 1).

Each individual question from the data sources used is assigned to the indicator that best fits the question posed, resizing the answers in a range of 0-1. However, resizing does not guarantee a reliable comparison due to the diverse nature of the different data sources. To overcome this difficulty, a statistical technique known as the Unobserved Component Model (UCM) is used. The UCM allows obtaining governance values as a weighted average of each data source, reflecting the weights of the correlations between the different sources. Sources that correlate more closely with others are assigned a higher weight. The six governance indicators are measured on a scale from -2.5 to 2.5, expresses in standard normal distribution units.

Table 1 shows the three areas of governance mentioned above with their respective governance indicators and the definition of each one.

TABLE 1. DESCRIPTION OF THE WORLD BANK'S GOVERNANCE INDICATORS

Indicator	Acronym	Description
Voice and Accountability (1)	VA	Perceptions of the extent to which a country's citizens can participate in the selection of its government, as well as freedom of speech, freedom of association, and freedom of the press.
Political Stability and Absence of Violence/Terrorism (2)	PSAVT	Perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism.
Government Effectiveness (3)	GE	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
Regulatory Quality (4)	RQ	Perceptions of the government's capacity to formulate and implement sound policies and regulations that enable and promote private sector development.
Rule of Law (5)	RL	Perceptions of the extent to which officers trust and abide by society's rules, and in particular the quality of compliance with contracts, property rights, police and courts, as well as the likelihood of crime and violence.
Control of Corruption (6)	CC	Perceptions of the extent to which public power is exercised for private gain, including minor and major forms of corruption, as well as the "capture" of the state by elites and private interests.

Source: Own elaboration based on Kaufmann et al. (2011).

3.2. ESTIMATION OF THE ECONOMETRIC MODEL

In this section, we seek to reinforce the conclusions obtained from the initial analysis by using statistical-econometric tools that will allow us to test the hypothesis raised in this research.

The first econometric technique used is the linear Analysis of Variance (ANOVA). This differs from regression analysis (Ordinary Least Squares, OLS) in that the explanatory variable is categorical rather than continuous.

The objective is to determine whether there is independence between the quantitative variables (viz., their means) based on the groups formed by the categorical variables.

A one-factor ANOVA model was employed to investigate whether significant differences exist in the means of governance indicators based on the geographical location of developing countries, specifically comparing Latin America and Europe. The underlying hypothesis posits that European countries possess superior institutions and exhibit higher quality of governance compared to their Latin American counterparts.

Therefore, the categorical variable used pertains to the geographical region of the countries and has only two levels: it assumes the value “1” for countries located in Latin America and “0” for those in Europe. The hypothesis to be tested through this method is as follows:

- H_0 : The mean is the same (in statistical terms) in the two groups of countries.
- H_1 : The mean is different (in statistical terms) in the two groups of countries.

To this end, Equation 1 serves as the reference point:

$$Y_i = \mu + \beta_j X_i + \varepsilon_i \quad (1)$$

where Y_i is the value of the governance indicators in country i ; μ references to the constant or average of the dependent variable corresponding to the group in which the categorical variable takes the value of 0 (European countries); quantifies the extent to which the mean of the governance indicator for Latin American countries deviates from the average value observed for European countries; finally, ε_i denotes a random perturbation term, encompassing the remaining unobservable factors that, while influencing the dependent variable, are not taken into account by the model.

The second econometric technique employed is the *truncated regression model*. This model involves estimating a regression of a dependent variable on an independent variable using a sample drawn from a restricted segment of the population. Truncation primarily refers to a characteristic of the distribution from which the sample data are extracted (Greene, 2003).

According to González-Gallego and Pérez-Cárceles (2021b) the truncated regression model is explained using the following approach (Equation 2):

$$Y_i = \beta_1 + \beta_2 X_i + \varepsilon_i$$

$$\varepsilon_i \sim N(0, \sigma^2) \quad (2)$$

In Equation 2, Y_i is the level of use of cryptocurrency in country i ; X_i is the governance indicator analysed and ε_i is a random perturbation term. If the dependent variable Y_i is a continuous random variable with a probability

density function $f(Y_i)$ and a is a constant, the truncated distribution is a conditional distribution (Greene, 2003):

$$f(Y_i|Y_i>a)=\frac{f(Y_i)}{P(Y_i>a)} \quad (3)$$

Additionally, if Y_i follows a normal distribution with mean μ and standard deviation σ , the probability P and the density of the truncated normal distribution can be expressed, respectively, as shown below (Greene, 2003):

$$P(Y_i>a)=1-\Phi\left(\frac{a-\mu}{\sigma}\right)=1-\Phi(\alpha) \quad (4)$$

$$f(Y_i|Y_i>a)=\frac{f(x)}{1-\Phi(\alpha)}=\frac{(2\pi\sigma^2)^{-1/2}e^{-(Y_i-\mu)^2/(2\sigma^2)}}{1-\Phi(\alpha)}=\frac{\frac{1}{\sigma}\phi\left(\frac{Y_i-\mu}{\sigma}\right)}{1-\Phi(\alpha)} \quad (5)$$

In our study, the CA index ranges from 0 (lower bound) to 1 (upper bound). Therefore, following González-Gallego & Pérez-Cárceles (2021b), the specific density function can be expressed as

$$f\left(\frac{Y_i}{b}<Y_i<c\right)=\frac{f(Y_i)}{F\left(\frac{c-\mu}{\sigma}\right)-F\left(\frac{b-\mu}{\sigma}\right)} \quad (6)$$

where the constants b and c represent these limits.

4. RESULTS

4.1. DESCRIPTIVE STATISTICS AND CORRELATIONS

Table 2 presents the descriptive statistics of CA in conjunction with the individual governance indicators for the sample as a whole. These will allow us to have an initial perspective on the behaviour of the variables in relation to the 39 selected countries.

TABLE 2. DESCRIPTIVE STATISTICS OF THE VARIABLES

Variable	Mean	Standard deviation	Variance	Kurtosis	Minimum	Maximum
HDI	0.785	0.086	0.007	0.737	0.540	0.920
CA	-3.237	0.846	0.716	2.678	-4.605	-1.386
VA	0.151	0.766	0.587	2.656	-1.510	1.315
PSAVT	0.025	0.618	0.382	2.409	-1.518	1.051
GE	-0.016	0.743	0.553	3.447	-2.034	1.343
RQ	0.104	0.808	0.652	3.431	-2.234	1.535
RL	-0.124	0.802	0.643	2.936	-2.346	1.382
CC	-0.163	0.761	0.579	2.603	-1.560	1.613

Source: elaborated by the authors based on United Nations (2022), Chainalysis (2021) and World Bank (2026).

Table II shows that the means are positive for three variables: PSAVT (0.025), RQ (0.104) and VA (0.151) but negative for GE (-0.016), RL (-0.124) and CC (-0.163), with CC having the lowest mean. This indicates a low perception of governance in the areas measured by these three indicators.

The techniques we use require normality and homogeneity of the variances, so these assumptions were tested for all variables. The Shapiro-Wilks test was employed to assess normality. At the 95% confidence level, the null hypothesis of normality was accepted for all governance variables. It is important to note that a logarithmic transformation was applied to the variable representing CA to ensure its normality (see Appendix, Table A.II). Due to this transformation, lower values (more negative) indicate lower levels of CA, while higher (closer to zero) values reflect higher CAs. In this context, the mean CA (-3.237) suggests a relatively low overall level of CA across the sample of countries. However, due to the logarithmic scale, this value should not be interpreted in absolute terms, but rather as a benchmark for comparing relative differences between countries, where less negative values indicate comparatively higher adoption levels.

Table 3 shows that the correlation between CA and governance indicators has negative values. This suggest that as the perception of governance decreases, the CA increases. Statistically significant correlations are observed between CA and PSAVT, GE, RQ and RL, with the correlation between CA and PSAVT being the most notable (see Appendix, Table A.III).

TABLE 3. PEARSON CORRELATION

	VA	PSAVT	GE	RQ	RL	CC
Pearson correlation	-0.170	-0.480*	-0.274**	-0.280**	-0.359*	-0.188

Correlations are significant for $p < 0.05^*$, $p < 0.1^{**}$.

Source: elaborated by the authors.

4.2. ANOVA MODEL

Table 4 presents the averages of CA and governance indicators for this sample of developing countries in Latin America and Europe. Analysing these averages enables the identification of the most representative trends of the variables within each group of countries.

TABLE 4. DESCRIPTIVE STATISTICS OF THE VARIABLES BY REGION

Variable	Latin America		Europe		Both regions	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
HDI	0.732	0.080	0.841	0.047	0.785	0.086
CA	-3.015	0.925	-3.470	0.705	-3.237	0.846
VA	-0.018	0.783	0.328	0.725	0.151	0.766
PSAVT	-0.198	0.609	0.261	0.548	0.025	0.618
GE	-0.331	0.694	0.315	0.658	-0.016	0.743

(Continue)

RO	-0.292	0.798	0.522	0.589	0.104	0.808
RL	-0.505	0.746	0.277	0.663	-0.124	0.802
CC	-0.439	0.781	0.127	0.636	-0.163	0.761

Source: elaborated by the authors.

The results indicate that the governance indicators for Latin America exhibit negative average values across all measurement areas, reflecting comparatively low levels of the quality of governance in this region. In contrast, developing countries in Europe display positive means, indicating a better institutional performance across their various components. These differences may also be partially explained by variations in regulatory frameworks and institutional environments across regions, as the governance of cryptocurrency markets differs significantly between jurisdictions (Burgess, 2024). In this context, regulatory uncertainty and evolving policy frameworks may further shape the development and adoption of cryptocurrencies across countries (AlQudah & Bariviera, 2026).

A one-factor ANOVA model is estimated to determine whether the mean values of each variable representing the different dimensions of governance are statistically different across the groups of countries. The following hypotheses are proposed, where μ represents the average for each variable in each of the two groups of countries.

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

Prior to estimating the ANOVA model, a test for homogeneity of variances is performed. The Levene (1960) test is used to analyse the equality of variances, based on the following hypotheses.

$$H_0: \text{variances for Latin American group} = \text{variances for European group}$$

$$H_1: \text{variances for Latin American group} \neq \text{variances for European group}$$

The null hypothesis is accepted at a significance level of 5%, indicating equality of variances for each variable (see Appendix, Table A.IV).

Table 5 presents the statistical results obtained from the ANOVA model. Regarding governance indicators, the data evidence significant differences between the set of countries in Latin America and Europe, with the exception of VA. These results support the previous findings, showing that the Latin American has a lower perception of the quality of their governance compared to Europe (measured through the coefficient β). The European countries exhibit positive averages for all components (represented by the parameter μ), indicating a higher quality of governance.

TABLE 5. RESULTS OF ANOVA MODEL

Variable	β_i	(μ)	F-Statistic	Sig.
HDI	-0.109	0.841	26.481	< 0.001 *
CA	0.455	-3.470	2.960	0.094 **
VA	-0.346	0.328	2.040	0.162
PSAVT	-0.459	0.261	6.100	0.018 *
GE	-0.646	0.315	8.870	0.005 *
RO	-0.813	0.522	13.000	0.001 *
RL	-0.782	0.277	11.940	0.001 *
CC	-0.566	0.127	6.120	0.018 *

A * indicates that the difference is statistically significant at the 95% level, ** indicates the 90% level.

Source: elaborated by the authors.

However, in relation to CA, statistically significant results are not obtained at the 95% confidence level, but rather at 90%. This may be attributed to the high degree of heterogeneity in CA, particularly in Latin America. Consequently, the initial hypothesis that a low level of quality of governance is associated with greater use of cryptocurrency is supported with a lower level of confidence due to the substantial dispersion observed across countries in both regions. This heterogeneity suggests that governance alone may not fully explain adoption patterns, as recent evidence highlights the relevance of additional social and developmental factors, including the broader digital ecosystem, in shaping cryptocurrency use (Lising, 2026).

Differentiating countries by CA index. The countries are classified based on a median criterion. Y represents the value of CA in country i and Me is the median considering the full sample. The application of the logarithm yields a median value (Me) of -3.218.

If $Y_i < Me$, the country i presents a low use of cryptocurrencies

If $Y_i \geq Me$, the country i presents a high use of cryptocurrencies

The primary objective of this classification is to test the hypothesis of significant differences in governance between these two groups. Table 6 shows the classification of the countries in the sample.

For each group, the list of countries is organized in ascending order. In the high-use group, Venezuela and Russia lead their regions (respectively, Latin America and Europe). In the low-use group, Salvador (Latin America) is at the forefront, with Malta and Montenegro standing out as the countries with the lowest index of CA.

TABLE 6. RANKING COUNTRIES BY VALUE OF CA

High CA	Low CA
Venezuela (LA)	El Salvador (LA)
Argentina (LA)	Guatemala (LA)
Colombia (LA)	Haiti (LA)
Brazil (LA)	Panama (LA)
Russian Federation (EU)	Albania (EU)
Peru (LA)	Estonia (EU)
Belarus (EU)	Croatia (EU)
Ecuador (LA)	Lithuania (EU)
Poland (EU)	Slovenia (EU)
Chile (LA)	Nicaragua (LA)
Mexico (LA)	Uruguay (LA)
Republic of Moldova (EU)	Bosnia and Herzegovina (EU)
Honduras (LA)	Cyprus (EU)
Dominican Republic (LA)	Hungary (EU)
Bolivia (LA)	Cuba (LA)
Costa Rica (LA)	Paraguay (LA)
Latvia (EU)	North Macedonia (EU)
Romania (EU)	Malta (EU)
Slovak Republic (EU)	Montenegro (EU)
Serbia (EU)	

LA is used if the country belongs to Latin America and EU in case of Europe.

Source: elaborated by the authors.

This classification allows us to understand the high dispersion that exists in the use of cryptocurrencies, showing that a greater use of cryptocurrencies is not related in all cases to a low quality of governance. For instance, countries such as Chile have positive scores on all six governance indicators and are classified as having a high use of cryptocurrencies. In contrast, countries with poor governance, such as Cuba and Haiti, have low CA. These results suggest that there are other determining factors that make cryptocurrency investment attractive, regardless of the quality of governance. Therefore, although Latin America exhibits higher levels of CA and lower perception of governance compared to Europe, a more detailed analysis is necessary to understand the differences between the countries.

Descriptive statistics by high- and low-use groups. To identify the differences between the high-use and low-use groups in terms of governance, Table 7 and Table 8 present the descriptive statistics of CA and governance indicators.

TABLE 7. DESCRIPTIVE STATISTICS OF HIGH CA

Variable	Mean	Standard De- viation	Variance	Minimum	Maximum
CA	-2.604	0.603	0.364	-3.219	-1.386
VA	0.083	0.759	0.577	-1.510	1.143
PSAVT	-0.171	0.589	0.347	-1.518	0.762
GE	-0.145	0.614	0.377	-1.780	0.989
RQ	-0.032	0.817	0.667	-2.234	1.188
RL	-0.281	0.817	0.667	-2.346	1.068
CC	-0.236	0.685	0.470	-1.560	1.147

Source: elaborated by the authors.

TABLE 8. DESCRIPTIVE STATISTICS OF LOW CA

Variable	Mean	Standard De- viation	Variance	Minimum	Maximum
CA	-3.902	0.464	0.216	-4.605	-3.507
VA	0.222	0.787	0.620	-1.420	1.315
PSAVT	0.232	0.593	0.351	-1.043	1.051
GE	0.120	0.855	0.731	-2.034	1.343
RQ	0.248	0.794	0.630	-1.504	1.535
RL	0.041	0.773	0.598	-1.218	1.382
CC	-0.086	0.845	0.714	-1.320	1.613

Source: elaborated by the authors.

The high-use group has an average (CA) of -2.6, while the average for the low-use group is -3.9. As shown in Table 7, the average values of the governance indicators in the high-use group are negative for almost all variables, except for VA. This contrasts with Table 8, where the low-use group exhibits positive mean values for governance, except for CC.

4.3. TRUNCATED REGRESSION MODEL

The last tool employed in the inferential analysis is the truncated regression model, which serves as an additional method to identify the relation between CA and governance. Table 9 presents the estimated effects for the different groups of countries.

The governance indicators were negative and statistically significant exclusively in the high CA group. In contrast, in the low CA group no parameter was statistically significant despite revealing the expected sign. Upon analysing the results in the high-use group, it is evident that the PSAVT emerges as the most significant factor in the model. This indicates that the perception of an increased likelihood that the incumbent government could be destabilized through unconstitutional means is correlated with an increased on the part of economic actors to seek refuge in cryptocurrencies. This variable is followed by GE, pointing out that a low perception of the quality of public services, the

quality of policy formulation and implementation, and the credibility of the government is associated with a higher propensity to use cryptocurrencies.

TABLE 9. RESULTS OF TRUNCATED REGRESSION MODEL

Variable	High CA			Low CA		
	Coefficient	Const.	P > z	Coefficient	Const.	P > z
VA	-0.344	-2.575	0.032 *	0.120	-3.929	0.367
PSAVT	-0.596	-0.596	0.001 *	-0.079	-3.884	0.659
GE	-0.459	-2.671	0.018 *	0.007	-3.903	0.953
RQ	-0.366	-2.616	0.011 *	0.082	-3.923	0.536
RL	-0.407	-2.718	0.003 *	-0.003	-3.902	0.985
CC	-0.357	-2.688	0.048 *	0.038	-3.899	0.763

A * indicates that the p-value < 0.05, and a **, that the p-value < 0.1 **.

Source: elaborated by the authors.

These findings reinforce the idea that CA is a multifaceted phenomenon. Previous studies highlight that, beyond governance, factors such as financial development, digital infrastructure, and regulatory environments play an important role (Hairudin et al., 2022; Mohammed et al., 2023). Moreover, country-specific evidence suggests that macroeconomic instability and geopolitical conditions may significantly influence adoption patterns, as observed in cases such as Venezuela and Russia (Mahdavi, 2022). Differences in regulatory approaches may also be related to the observed heterogeneity, as the governance of cryptocurrency markets varies from one jurisdiction to another (Burgess, 2024; AlQudah & Bariviera, 2026). Finally, broader social and developmental dynamics should also be considered when interpreting cross-country differences, as previous research highlights the relevance of the digital ecosystem in shaping technology adoption (Lising, 2026).

5. CONCLUSIONS AND RECOMMENDATIONS

As demonstrated in this study, after a review of the current scientific literature, several factors determine the adoption of cryptocurrencies. The phenomenon stems from a complex interaction of technological and macroeconomic conditions as well as social, regulatory, and institutional dimensions. However, the conclusions of this study reveal a significant relation between governance and cryptocurrency adoption (CA) in developing countries in Latin America and Europe. This suggests that contexts marked by political instability, economic crisis, and institutional weakness favour the search for monetary alternatives outside the traditional financial system.

The initial analysis of the variables indicates that Venezuela (Latin America) and Russia (Europe) are the countries with the highest use of cryptocurrencies. These countries also show low levels of the quality of governance in terms of the six measured components. This suggests that in the context of significant

political and economic instability, as observed in the aforementioned countries, there is a greater propensity to seek refuge in alternative currencies rather than traditional ones. The inferential analysis conducted supports these results through the application of statistical-econometric tools. Firstly, the implementation of the mean equality test revealed that there are significant differences in the variables for the selected countries in Latin America and Europe. This analysis also confirmed a lower level of quality of governance in Latin America compared to European developing countries, which exhibit positive averages across the 6 components of the quality of governance. However, regarding the CA, significant results were not observed at the 95% confidence level, but rather at the 90% level. This could be attributable to the high heterogeneity present in Latin America. Consequently, the initial hypothesis positing that a low quality of governance is associated with a high use of cryptocurrencies, when comparing developing countries in Latin America and Europe, is accepted with a lower confidence level due to the high dispersion observed in both regions. This could be explained by the existence of additional factors besides governance that influence the adoption of cryptocurrencies. These factors vary significantly in response to the specific political and economic conditions of each country. However, when analysing the classification of high and low CA, there is evidence of heterogeneity in their composition. The descriptive statistics consistently indicate high levels of the quality of governance in the group with low CA and low levels in countries with higher CA. Regarding the truncated regression model, governance indicators are significant in the group with high CA. Specifically, the variables PSVT and GE are the most important in the model. This indicates that a low perception of these components promotes the adoption of cryptocurrencies.

The literature affirms that the lack of control and regulation over the use of cryptocurrencies creates environments that are conducive to the development of illegal practices and tax fraud. This is exacerbated by the historical governance problems prevalent in Latin America countries. Furthermore, the success of cryptocurrencies as a financial asset has been facilitated by the conditions of vulnerability, political instability and economic crises experienced in many countries.

Similarly, institutional weakness, coupled with high levels of inequality and poverty in the region, enables cryptocurrencies to serve as a tool for corrupt activities that promotes tax avoidance and evasion, stemming from citizen discontent. While recent research advocates a collaboration between the State and the private sector in implementing regulatory frameworks to curb illegal activities involving cryptocurrencies, this study concludes that addressing the negative effects should not rely solely on regulation and control. Instead, it is imperative to resolve the structural issues of governance and institutional frameworks. By doing so, the benefits of equality and inclusion inherent in financial innovations can be fully realized.

DECLARATION OF INTEREST

The authors declare that there is no conflict of interest that could have influenced, or that could reasonably be interpreted as likely to influence, the design, conduct, analysis or drafting of this research. In particular, they state that the research has not received any funding, sponsorship or financial support from public bodies, foundations, companies or any other institution. The research has been carried out independently, using exclusively the authors' own academic and professional resources.

The opinions, interpretations, analyses and conclusions contained in this article are the sole responsibility of the authors and do not necessarily represent the official position, institutional criteria or policies of the universities, research centres or other organisations with which they have professional or academic links.

The authorship of the manuscript is based on an express and unanimous agreement amongst all the co-authors. In accordance with criteria of neutrality and transparency, the order of authorship has been determined alphabetically by surname: Bonilla Guzmán, Diana; García Gámez, Sofía de las Nieves; Mora-Ruano, Rubén; and Salas Suárez, Álvaro Antonio. All authors have contributed substantially, directly and equally to the various stages of the research, including the definition of objectives, the methodological design, the literature review, the analysis and discussion of the results, the drafting of the various sections of the manuscript, as well as the critical review, editing and approval of the final version submitted for assessment and publication. Consequently, all authors jointly assume scientific and intellectual responsibility for the entire content of this paper.

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APPENDIX

TABLE A.1. GOVERNANCE INDICATORS (YEAR 2020) AND CRYPTOCURRENCY ADOPTION INDEX (YEAR 2021)

COUNTRY	VA	PSAVT	GE	RQ	RL	CC	CA
Albania	0.09	0.08	-0.14	0.24	-0.36	-0.54	0.03
Argentina	0.59	0.04	-0.22	-0.57	-0.50	-0.1	0.19
Belarus	-1.46	-0.73	-0.73	-0.65	-1.00	-0.17	0.08
Bolivia	-0.07	-0.47	-0.56	-1.02	-1.15	-0.76	0.05
Bosnia	-0.32	-0.51	-0.98	-0.23	-0.31	-0.60	0.02
Brazil	0.26	-0.42	-0.45	-0.16	-0.18	-0.34	0.16
Chile	1.02	0.07	0.99	1.05	1.07	1.15	0.06
Colombia	0.15	-0.29	0.04	0.32	-0.49	-0.18	0.19
Costa Rica	1.14	0.76	0.36	0.45	0.57	0.78	0.04
Croatia	0.58	0.61	0.44	0.43	0.29	0.20	0.03
Cuba	-1.42	0.60	-0.17	-1.50	-0.28	-0.13	0.01
Cyprus	0.91	0.29	0.88	1.00	0.58	0.38	0.02
Ecuador	0.02	-0.36	-0.44	-0.89	-0.55	-0.54	0.07
Salvador	0.04	-0.02	-0.36	-0.02	-0.76	-0.59	0.03
Slovenia	0.94	0.71	1.17	0.92	1.07	0.81	0.03
Estonia	1.17	0.71	1.34	1.54	1.38	1.61	0.03
Guatemala	-0.39	-0.43	-0.36	-0.17	-1.05	-1.10	0.03
Haiti	-0.84	-1.04	-2.03	-1.21	-1.04	-1.32	0.03
Honduras	-0.60	-0.54	-0.60	-0.50	-0.96	-0.86	0.05
Hungary	0.39	0.86	0.58	0.48	0.51	0.10	0.02
Latvia	0.87	0.46	0.88	1.19	0.96	0.72	0.04
Lithuania	1.01	0.87	1.06	1.09	0.99	0.81	0.03
North Macedonia	0.06	0.10	0.14	0.51	-0.06	-0.42	0.01
Malta	1.12	0.95	1.04	1.22	0.92	0.37	0.01
Mexico	-0.04	-0.85	-0.16	0.08	-0.67	-0.85	0.06
Moldovia	-0.05	-0.42	-0.46	0.04	-0.41	-0.57	0.06
Montenegro	0.04	0.00	-0.02	0.40	0.06	0.00	0.01
Nicaragua	-1.10	-0.65	-0.71	-0.66	-1.22	-1.25	0.02
Panama	0.57	0.23	0.07	0.32	-0.21	-0.51	0.03
Paraguay	0.07	0.02	-0.47	-0.20	-0.42	-0.87	0.01
Peru	0.22	-0.29	-0.24	0.53	-0.34	-0.49	0.11
Poland	0.62	0.57	0.38	0.89	0.54	0.65	0.07
Dominican Republic	0.22	0.17	-0.33	-0.01	-0.26	-0.68	0.05
Slovak Republic	0.88	0.64	0.54	0.78	0.68	0.44	0.04
Romania	0.58	0.59	-0.22	0.38	0.37	-0.03	0.04

(Continue)

Russia	-1.08	-0.73	0.03	-0.44	-0.76	-0.91	0.14
Serbia	-0.12	-0.09	0.03	0.12	-0.18	-0.43	0.04
Uruguay	1.31	1.05	0.78	0.58	0.68	1.42	0.02
Venezuela	-1.51	-1.52	-1.78	-2.23	-2.35	-1.56	0.25

Source: elaborated by the authors.

TABLE A.2. NORMALITY TEST

Variable	Latin American					Europe				
	n	Shapiro Wilks	v	with	Prob > Z	n	Shapiro Wilks	v	with	Prob > Z
VA	20	0.956	1.034	0.067	0.473	19	0.895	2.404	1.762	0.039
PSAVT	20	0.983	0.392	-1.890	0.971	19	0.905	2.168	1.554	0.060
GE	20	0.895	2.483	1.833	0.033	19	0.970	0.696	-0.727	0.767
RQ	20	0.967	0.777	-0.508	0.694	19	0.976	0.549	-1.206	0.886
RL	20	0.944	1.313	0.549	0.291	19	0.971	0.662	-0.829	0.796
CC	20	0.897	2.441	1.798	0.036	19	0.966	0.772	-0.521	0.699
CA	20	0.959	0.973	-0.056	0.522	19	0.978	0.514	-1.338	0.910

Source: elaborated by the authors.

TABLE A.3. PEARSON'S CORRELATION

	VA	PSAVT	GE	RQ	RL	CC	CA
VA	1						
PSAVT	0.770	1					
GE	0.787	0.822	1				
RQ	0.845	0.718	0.866	1			
RL	0.847	0.869	0.893	0.884	1		
CC	0.782	0.810	0.860	0.765	0.909	1	
CA	-0.170	-0.480	-0.274	-0.280	-0.359	-0.188	1

Source: elaborated by the authors.

TABLE A.4. HOMOGENEOUS VARIANCE TEST

Variable		Levene statistician	GL1	GL2	Mr.
VA	Based on the average	0.002	1	37.000	0.961
	Based on the median	0.012	1	37.000	0.913
	Based on median and with adjusted gl	0.012	1	36.997	0.913
	Based on the cropped average	0.008	1	37.000	0.928
PSAVT	Based on the average	0.004	1	37.000	0.952
	Based on the median	0.009	1	37.000	0.927
	Based on median and with adjusted gl	0.009	1	36.650	0.927
	Based on the cropped average	0.008	1	37.000	0.930
CE	Based on the average	0.479	1	37.000	0.493
	Based on the median	0.440	1	37.000	0.511
	Based on median and with adjusted gl	0.440	1	32.795	0.512
	Based on the cropped average	0.452	1	37.000	0.506
RQ	Based on the average	1.389	1	37.000	0.246
	Based on the median	0.965	1	37.000	0.332
	Based on median and with adjusted gl	0.965	1	32.416	0.333
	Based on the cropped average	1.218	1	37.000	0.277
RL	Based on the average	0.050	1	37.000	0.824
	Based on the median	0.032	1	37.000	0.860
	Based on median and with adjusted gl	0.032	1	33.249	0.860
	Based on the cropped average	0.047	1	37.000	0.830
CC	Based on the average	0.150	1	37.000	0.700
	Based on the median	0.053	1	37.000	0.819
	Based on median and with adjusted gl	0.053	1	31.765	0.819
	Based on the cropped average	0.093	1	37.000	0.763
CA	Based on the average	1.409	1	37.000	0.243
	Based on the median	1.436	1	37.000	0.238
	Based on median and with adjusted gl	1.436	1	35.819	0.239
	Based on the cropped average	1.449	1	37.000	0.236

Source: elaborated by the authors.