Moderating effect of institutional quality on the relationship between IPSAS and the level of perceived corruption in Latin American governments

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Resumo/Abstract

This research examined the moderating effect of institutional quality on the relationship between the adoption of IPSAS by the accrual regime and the level of corruption perception of Latin American governments, between 2010 and 2020. The analysis comprised a sample of 19 countries, adopting a longitudinal approach. For central governments, using the statistical technique of multiple linear regression, using panel data, unbalanced, with fixed effects. The main findings indicate that the harmonization of government accounting through the adoption of IPSAS generates a positive effect on the corruption perception index in Latin American countries, causing a reduction in the perception of corruption in these countries, corroborating the findings of other studies on developing countries. This study provides a comprehensive view of IPSAS and its impact on levels of corruption, expanding the studies to the context of Latin America, where corruption is generally high and IPSAS can function adequately to reduce it, in addition to verifying its impact given the institutional quality of the country. This interaction can be understood as the result of a mechanism that increases the evidence of corrupt activities present to a greater degree in developing countries, so the institutional quality leads central governments to disclose more fiscal policies, improving general transparency and contributing to the
fight against to corruption, making it possible to minimize illegal and corrupt acts to obtain better results for the public sector.

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Abstract
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Keywords: IPSAS, corruption, Latin America, central governments, country-specific factors.

1. INTRODUCTION
Accounting, as an applied social science, plays an important role by providing financial information for the decision-making process of its users. Public sector accounting, specifically, is the tool used by public administration managers to inform citizens about the resources acquired, as well as their effective application for the provision and maintenance of public goods and services.

Financial information that is reported to society can be looked at using terms such as disclosure, accountability and transparency. Even if the law obliges public managers to disclose accounting information, they may still act with discretion, based on choices that motivate them to disclose, or not, all the information they have. It appears, therefore, that there is a tendency to manage the available information with a specific purpose, either to legitimize themselves before the population (aiming to convey a good image of their management) or even, in some cases, to manipulate or hide information due to acts of corruption.

Corruption is defined by the World Bank Group (1997) as the abuse of public power to obtain private benefits, including the payment of bribes, embezzlement, favoritism, improper use of influence or irregular payments in the public procurement process.

In recent decades, different scenarios of global corruption scandals have been experienced. In Latin America, the corruption scheme known as ‘Lava Jato Operation’ (MPF, 2022) stands out. Elected representatives and government officials are seen as the most likely to be corrupted (Transparency International, 2017). There is, therefore, an intensified need to address and deepen studies on (financial) transparency and accountability, in order to bring new
evidence that can support corrective and preventive actions. Also, it is important to address mechanisms that can counteract this reality, as corruption is undoubtedly the biggest obstacle to the delivery of aid and economic development (Davis and Ruhe, 2003).

The increased quality of financial information related to the use of International Public Sector Accounting Standards (IPSAS) has been widely debated, seeing that the accrual basis regime allows for reporting more reliable, comprehensive, timely and comparable financial information (Benito et al., 2016; Cohen & Karatzimas, 2015). Given that accrual-based accounting entails the recognition of transactions when economic events occur, these are directly evidenced, allowing users to properly assess the current financial position and performance of governments or governmental entities (Mussari, 2014), as well as having information available to make projections and assist in decision-making (Bastida & Benito, 2007). In addition, IPSAS-based financial reporting information can better satisfy the needs of markets and investors (Gomes et al., 2015), allowing a better comparison between governments (Caperchione & Salvatori, 2012), providing better information on solvency and the costs of investments and public services (Pina & Torres, 2003), in order to attract foreign investment to the countries, boosting economic development and assisting in decision-making.

The use of performance indicators is a challenge that public administrators have faced in the last decades. Thus, several international organizations have developed performance indicators of country governance, corruption and social-economic development. (del Campo et al, 2021). The World Bank Institute’s Worldwide Governance Indicators (WGI) are relevant metrics used to measure specific areas of governance, of which will be considered in this study: the political stability, the rule of law and the government effectiveness.

Adding to these, the degree of economic freedom, the democracy index and the transparency of the government will compose the Institutional Quality, which will have a moderating effect on the IPSAS adoption of the countries and the interaction of the adoption and the perceived corruption.

On the other hand, some studies point out that accounting can act as a facilitator of corruption, especially in regard to the accrual basis (Everett et al, 2007). This is because the potential discretionary measurements of assets and liabilities (Carnegie & West, 2005), as well as the subjectivities of the accrual basis, can lead to the manipulation of accounting records (Stalebrink & Sacco, 2007).

Even though various countries are currently in the process of convergence towards IPSAS at different levels of government, it is important to advance research that looks for new evidence on the benefits (and possible harms) resulting from the adoption of these standards by governments, in order to contribute to the promotion of financial information that supports the reduction of corruption. Furthermore, as the problems caused by widespread corruption can directly affect the economy and trigger economic recession, slowing economic development, this is especially relevant for developing economies, such as those of Latin American countries, which tend to be more impacted by corruption. Several studies indicate that developing and emerging economies tend to have higher levels of corruption (Svensson, 2005), and that the degree of economic openness is negatively associated with corruption (Ades & Di Tella, 1999; Herzfeld & Weiss, 2003). Thus, the more developed, democratic and free a country is, the less it tends to be corrupt (Treisman, 2014). This has led to the conclusion that countries with developing economies tend to benefit more from public sector accounting reforms towards transparency than developed countries (Galera & Rodríguez-Bolívar, 2011).

Given the above, this study focused on 19 central governments in Latin America, representing developing or emerging economies that have a history of corruption scandals and recurrent economic crises. In this sense, all countries in South America, Central America and
Mexico were considered, with the exception of Belize (Central America) and Venezuela (South America), due to the lack of available data for the analysis. The research examines the moderating effect of institutional quality on the relationship between the adoption of IPSAS by the accrual regime and the level of corruption perception of Latin American governments, between 2010 and 2020, as well as understanding how IPSAS can help to control corruption and, in this way, benefit society through economic development that provides a financially solvent and efficient State in the management of public finances.

2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Agency Theory

The in-depth study of the presentation of financial information by government and public sector entities from the perspective of the agency theory (Jensen & Meckling, 1976) presupposes that, although politicians (agents) are expected to act in the interests of citizens (principals), this sometimes does not occur. Thus, this approach seeks to understand the result of this divergence in the quality of information effectively provided to society by such agents, acting as public managers (Rodríguez Bolívar, 2013).

According to Eisenhardt (1989), the relationship between the agent and the principal must reflect an efficient organization, that is, balanced in terms of information and risks. This balance also stems from the commitment between them, which, in the case of government agents, translates into the public commitment of representatives to those represented.

The agency theory presents three conditions resulting from the bilateral economic relationship between agent and principal: the agent has several possible behaviors; the agent’s actions affect not only his well-being, but also that of the principal; and the agent’s actions are scarcely observed by the principal, due to the informational asymmetry between the parties (Jensen & Meckling, 1976).

Furthermore, within this agent (politicians) and principal (citizen) relationship, there may be a relevant conflict of interests arising from the fact that the principal expects from the agent a behavior that is in accordance with his/her objectives, but that diverges from the agent’s own interests. Therefore, as explained by Jensen & Meckling (1976), agency costs arise from the necessary actions to be taken by the principal to reduce any losses resulting from this non-alignment of interests with the agent.

This conflict of interests is also a consequence of the adoption by politicians of an opportunistic behavior in the face of information asymmetries (Rogoff & Sibert, 1988). Such happens because, if the principal has access to information from the organization only after and through the agent, then the agent could claim decisions motivated by the alleged necessity of being agile or influencing the principal into quick decisions, preventing the principal from analyzing the best alternative (Cunha, 2012). It is expected, as a result, that politicians remain utility maximisers of their own well-being (by using data to which the other party does not have access) rather than that of the public interest (Mueller, 1989).

Political corruption can be understood as a governance failure, that is, a violation of contractual clauses that results from institutional gaps and incentives for opportunism, present in an environment where information is asymmetric (Muramatsu-roberta, 2020). Given that public managers might use the accounting system to their own advantage, a need arises to establish rules, procedures and institutions to avoid abuses of power and other political temptations (Pereira, 1997).

From the reduction of the informational advantage with the mitigation of asymmetry, by allowing citizens (principal) to monitor politicians’ (agent) actions (Laswad et al., 2005),
the aim is to reduce the public agent’s advantage, as more reliable information would stimulate action in favor of the public well-being, increasing society’s trust in political actors.

2.2 Corruption, accounting and other determinants

The possibility for agents to take advantage of public affairs to the detriment of the interests of the principals, due to the information deficit (asymmetry) of their actions and the deficiency of accountability systems to hold them accountable for any failures or irregularities facilitates corruption. Accordingly, the corrupt act would result from the agents’ perception of the institutions’ weaknesses, since these are the basis for their calculations as to whether the possible benefits of corruption would outweigh its eventual costs (Vieira, 2006). Thus, the agent would abuse of public power for its own benefit (World Bank Group, 1997), which characterizes corruption.

Real corruption affects perceived corruption, but corruption may be perceived, even if there is no real corruption. For example, if a country has a lack of monitoring in the public sector, low anti-corruption control and, on the other hand, it has a lack of infrastructure and of public services offered to the population, this can consequently trigger a perception of corruption, which in itself generates distrust in the environment, even if such corrupt practices have not been confirmed (Houqe & Monem, 2016). Thus, the degree of perceived corruption may be more serious than the actual corruption. Furthermore, both perception and corruption itself depend on how people understand the rules and the deviations from them (Melgar et al., 2010).

Corruption is a clandestine, unreported activity, and therefore there are no statistics that officially present the number of corruption cases (Chabova, 2017). Nevertheless, corruption perception indices have been used in research to measure corruption in the countries. One measure is the Corruption Perception Index (CPI) by Transparency International.

The adoption of the accrual basis and the harmonization of accounting standards in the public sector has been a relevant debate due to the specificities to be faced (Wynne, 2008), with important considerations about the possibilities of manipulation that may result from this system. Accordingly, one can assess the process of adopting accounting rules and procedures under the same conceptual basis – the IPSAS. In particular, one can consider the impacts on corruption levels, of: 1) the adoption, by all public entities in a given country, of the same accounting concepts and standards; and 2) the existence of a common control mechanism that aims to compare, nationally and internationally, the financial situation of various countries or public sector entities (Santos & Almeida, 2015).

Government accounting procedures, notably accrual-based accounting, compile budgetary accounts to encourage openness of off-budget, extra-budget, off-balance sheet, long-term financial rights, obligations, and future cash flows, which should be coherently accounted in Public Financial Management cycles, thus enhancing the integrity and reliability of the fiscal condition (Chan & Zhang, 2013).

There have been several questions about the effective benefits that developing countries can obtain from the adoption of IPSAS, given that these accounting standards are based on the accrual regime and the adoption of broad principles, which require measurements with a certain degree of subjectivity (Ball, 2006). As Stalebrink & Sacco (2007) argue, some specific techniques associated with fraud and corruption in financial statements can persist for a long time. Pilcher & Zahn’s (2010) study presents empirical evidence of local governments that manipulate techniques such as measuring depreciation to adjust their financial performance and boosting the receipt of central government revenues.
On the other hand, other studies highlight the advantages of adopting the accrual regime, such as the possibility of providing complete and accurate information about public entities, namely on solvency, evaluation and costs of public services (Pina & Torres, 2003). Accrual-based accounting also allows for greater accountability (Christiaens & Rommel, 2008).

Therefore, with regard to the adoption and application of internationally accepted public sector accounting standards, it is expected that adopting countries may experience a decline in the degree of perceived corruption from the positive impact of IPSAS (Cuadrado-Ballesteros et al., 2019; IPSASB, 2021; Tawiah, 2021). IPSAS can impact perceived corruption through the promotion of disclosure and accountability, that is, with emphasis on the implementation of better transparency and quality of financial reporting (Bergmann, 2012). It can be an adequate instrument for public sector accounting to play a dual role in the reduction of corruption, either of corruption itself or perceived corruption, as it has been observed in the parallel adoption of the International Financial Reporting Standards (IFRS) in the business sector (Houqe & Monem, 2016).

The use of a globally accepted international accounting standards improves decision-making for both citizens and international institutions (Sutcliffe, 2003), such as the IMF and the World Bank. These financial institutions are of great importance to developing countries that make extensive use of their mechanisms for financing. In this regard, the pressures on the part of these bodies for countries to adopt international regulations as a way of fighting corruption stand out (Allen, 2009).

Being considered high-quality accounting standards, IPSAS may benefit public sector reporting users with better information, allowing greater comparability and transparency and providing a reduction in corruption actions. On the other hand, as explained, some point out that accrual-based regime standards, which allow for discretion when exercising judgement and choosing between measurement criteria, may facilitate corrupt actions.

In addition to the adoption of accounting standards, a moderating effect variable that comprises the institutional quality of the governments was measured, by aggregating the following variables: the level of transparency, the rule of law, the level of democracy, the government effectiveness, the degree of economic freedom and political stability.

To establish the moderating effect of institutional quality on the relevance of IPSAS to the perceived corruption, we create a two-way interaction term between IPSAS and institutional quality (IPSAS*IQ). The institutional quality is obtained using these aspects of the governments that are considered to be relevant to the analysis and the interaction with the relationship between the IPSAS adoption and the perceived corruption.

The level of public transparency (Transp) of the countries can be analyzed through the Open Budget Index (OBI) by the International Budget Partnership, which measures public availability to information on how central governments collect and spend public resources. This indicator is also considered in the empirical study, given the relevance of the availability of information on the data of its government that the population of a given country has. As it indicates whether a country is disclosing enough information to support informed public debate on the government budget, it is expected to be related to corruption perception.

The rule of law (RoL) indicates a good public governance that represents the quality of government, contract enforcement, law enforcement and courts (Kaufmann, Kraay, & Mastruzzi, 2011). The demands for transparency are expected to be driven by better law enforcement and obedience to the legal environment (Kartiko et al, 2018).

Another aspect that contributes to this variable is the democracy index (Democ), according to Arapis and Reitano (2017) it measures democratic system scores from the least
democratic to the most democratic. Public participation and voice are predicted to be the determinants of transparency improvement. A democratic culture with political competition supports central governments disclosing more fiscal policies, which, in the end, improves overall transparency and adds to the fight against corruption. The democracy index refers to political rights and civil liberties, such as freedom of expression, beliefs, rights of assembly, and participation in the political process.

The government effectiveness (GovEffect), in its turn, reflects the 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. The effectiveness of a government is related to the good management of public resources, and the country that aims to maintain better efficiency will have greater chances of investing in its governments’ accounting. Also, countries with greater government effectiveness have the possibility of minimizing illegal and corrupt acts to obtain better results for the public sector (Silva et al, 2022).

Economic freedom (EFW) results from market freedom by the existence of fewer government controls, whether legal (fewer and simpler rules) or bureaucratic (State structure). The greater this freedom, the lower the need for State agents to act, which tends to reduce corruption. Thus, the greater the State and its intervention in the economy, the greater the corruption options available (Treisman, 2000); in contrast, with greater economic freedom, the level of corruption will be lower, thus the perceived corruption is expected to be lower in countries with greater economic freedom. Political stability (STPol) and absence of violence captures the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means.

It is also important to consider that, evaluating from a macroeconomic perspective, there are factors likely to influence the level of corruption in a country, that are considered control variables, such as: the level of wealth, education, the size of the population.

The country’s level of wealth, determined by its Gross Domestic Product (GDP) is negatively associated with corruption (Herzfeld & Weiss, 2003). Economic development, usually measured through GDP, which considers the market value of all final goods and services produced by a country in a given period of time, and which can be measured per capita by dividing the result of GDP by the population of the country, serving as an indicator of wealth for purposes of international comparability. Furthermore, the wealth of countries is also related to the quality of education, health, communication and infrastructure, which act as prevention and control factors to reduce corruption levels (Kimbro, 2002).

Education, degree of economic freedom and political stability also negatively impact corruption (Treisman, 2000; Svensson, 2005). Education (Educ) measured by the population’s level of educational development presupposes that a well-educated population must demand more information from public administrations (Tolbert & Zucker, 1998). Thus, if citizens have a sufficient level of education to acquire the knowledge and skills necessary to make use of public disclosure tools (Ríos, 2013), they will exert greater pressure for disclosure and assertiveness of public information, generating a positive association with transparency, and negative with corruption.

The size of the population (Pop) is important to distinguish the different demands for public services and the demography of the countries. Large populations reflect citizens’ desires, which impose consequences in terms of greater demand for public financial transparency. (Kartiko et al, 2018).
Subsequently, it is concluded, as highlighted by Lederman (2005), that democratic governments, adopters of parliamentarism and political stability, are factors positively related to less corruption.

2.3 Previous Studies

The literature review revealed an overall lack of studies that survey the effective role played by the adoption of international accounting standards in the face of the harmful results of corruption which society experiences, and which are responsible for restricting essential resources to the population to the detriment of privileges and private interests.

In this scenario, studies assessing the impacts of the adoption of accounting standards on corruption were considered, involving the IPSAS (public sector).

A summary of previous studies on the relationship between accounting standards and corruption is presented in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Author/Year</th>
<th>Methods</th>
<th>Objective</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC SECTOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuadrado-Ballesteros et al (2019)</td>
<td>Sample: 33 countries; Period: 2010 - 2014.</td>
<td>Investigate the effect of implementing IPSAS and the accrual method on the level of corruption in OECD countries.</td>
<td>The findings confirmed that reforms resulting from the adoption of the IPSAS and the accrual basis have resulted in a reduction in levels of corruption by improving the quality of financial information, strengthening transparency.</td>
</tr>
<tr>
<td>Gómez-Villegas et al (2020)</td>
<td>Sample: 19 countries</td>
<td>Analysis the process of reform of public financial management in Latin America and the state of implementation of IPSAS.</td>
<td>The paper provides evidence of a process of institutionalization of the IPSAS in the region, as many governments have initiated the process of implementation and others declared that IPSAS are an objective for the future.</td>
</tr>
<tr>
<td>Tawiah (2021)</td>
<td>Sample: 77 countries; Period: 2005 - 2017.</td>
<td>Examine the impact of IPSAS as a whole on corruption.</td>
<td>The results indicate that accounting disclosure with quality, from the adoption of international standards, can serve as a good mechanism for preventing corruption in developing countries.</td>
</tr>
<tr>
<td>Silva et al (2022)</td>
<td>Sample: 73 countries; Period:</td>
<td>Aims to analyze institutional, political, and cultural factors related to countries’ propensity to adopt IPSAS.</td>
<td>The results showed a new adoption trend by developed countries, with greater financial resources and public policy investments. However, the variable economic freedom is negatively related to the norms, demonstrating a direction of adoption aimed at the internal sphere, not having repercussions in transactions or negotiations in the external sphere.</td>
</tr>
</tbody>
</table>
The two studies (Cuadrado-Ballesteros et al, 2019, and Tawiah, 2021) assessed the impact of countries adopting IPSAS, both finding that the adoption of international accounting standards for the public sector reduces the levels of corruption perceived by the adopters. For Cuadrado-Ballesteros et al (2019), this is because the IPSAS weaken the informational asymmetry that political agents have, which reduces the perception of corruption in the country. Tawiah (2021), in turn, concluded that the adoption of IPSAS is a good additional corruption prevention mechanism for developing countries.

In line with these studies, our research assesses the impact of IPSAS adoption on corruption in Latin American countries, using data from 2010 to 2020. IPSAS adoption is a relatively recent process in these countries, currently with 9 adopting countries, 3 countries with partial adoption and 7 non-adopters, among the 19 countries to be analyzed. In 2010, only the Dominican Republic and Uruguay already had regulations determining the adoption of these standards, which show how recent the process of embarking towards IPSAS is; impacts are still in an initial phase (IFAC, 2021). Thus, given the literature surveyed, we propose the following hypothesis:

**H1:** The adoption of IPSAS affects corruption in Latin American countries.

### 3. METHODOLOGY

#### 3.1 Sample and period of analysis

This study focuses on the central governments of Latin America, seeking to verify the influence of the adoption of IPSAS on corruption, considering the beginning of the implementation of these international standards by the 19 governments under analysis, taking into account the moderating effect of institutional quality. To measure the accrual-based IPSAS implementation level of the countries, this study used the country situation regarding the adoption of the accrual-based standards or the full IPSAS implementation year over year utilizing the IFAC-CIPFA International Public Sector Financial Accountability Index: 2021 Status Report (IFAC, 2021), the Table 2 briefly characterizes the countries considered.

<table>
<thead>
<tr>
<th>Country</th>
<th>IPSAS Adoption</th>
<th>Corruption Level*</th>
<th>Degree of Economic Freedom*</th>
<th>Transparency*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>non-adoption</td>
<td>CPI (0 to 100)</td>
<td>36</td>
<td>-0.34</td>
</tr>
<tr>
<td>Bolivia</td>
<td>non-adoption</td>
<td>CC (-2.5 to +2.5)</td>
<td>-0.64</td>
<td>47</td>
</tr>
<tr>
<td>Brazil</td>
<td>2017 partial adoption</td>
<td>CPI (0 to 100)</td>
<td>39</td>
<td>-0.23</td>
</tr>
<tr>
<td>Chile</td>
<td>2016 full adoption</td>
<td>CPI (0 to 100)</td>
<td>69</td>
<td>1.32</td>
</tr>
<tr>
<td>Colombia</td>
<td>2015 partial adoption 2019 full adoption</td>
<td>CPI (0 to 100)</td>
<td>36</td>
<td>-0.33</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>2014 partial adoption</td>
<td>CPI (0 to 100)</td>
<td>55</td>
<td>0.66</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>2010 full adoption</td>
<td>CPI (0 to 100)</td>
<td>30</td>
<td>-0.80</td>
</tr>
<tr>
<td>Ecuador</td>
<td>2016 partial adoption 2019 full adoption</td>
<td>CPI (0 to 100)</td>
<td>33</td>
<td>-0.64</td>
</tr>
<tr>
<td>El Salvador</td>
<td>non-adoption</td>
<td>CPI (0 to 100)</td>
<td>36</td>
<td>-0.43</td>
</tr>
<tr>
<td>Guatemala</td>
<td>2019 full adoption</td>
<td>CPI (0 to 100)</td>
<td>29</td>
<td>-0.70</td>
</tr>
</tbody>
</table>
### Table

<table>
<thead>
<tr>
<th>Country</th>
<th>Type of Adoption</th>
<th>Year</th>
<th>CPI</th>
<th>Corruption Perception Index (CPI)</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guyana</td>
<td>non-adoption</td>
<td>32</td>
<td>-0.51</td>
<td>55</td>
<td>-</td>
</tr>
<tr>
<td>Honduras</td>
<td>2014 full adoption</td>
<td>27</td>
<td>-0.78</td>
<td>59</td>
<td>44</td>
</tr>
<tr>
<td>Mexico</td>
<td>2014 partial adoption</td>
<td>31</td>
<td>-0.65</td>
<td>66</td>
<td>68</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>non-adoption</td>
<td>26</td>
<td>-0.87</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>Panama</td>
<td>2014 full adoption</td>
<td>36</td>
<td>-0.42</td>
<td>65</td>
<td>-</td>
</tr>
<tr>
<td>Paraguay</td>
<td>non-adoption</td>
<td>26</td>
<td>-0.84</td>
<td>62</td>
<td>45</td>
</tr>
<tr>
<td>Peru</td>
<td>2017 full adoption</td>
<td>36</td>
<td>-0.42</td>
<td>68</td>
<td>69</td>
</tr>
<tr>
<td>Suriname</td>
<td>non-adoption</td>
<td>35</td>
<td>-0.30</td>
<td>51</td>
<td>-</td>
</tr>
<tr>
<td>Uruguay</td>
<td>2010 full adoption</td>
<td>71</td>
<td>1.31</td>
<td>69</td>
<td>-</td>
</tr>
</tbody>
</table>

* Mean values over the years of the period considered in the analysis.

### Sources

IFAC & ACCA; World Bank; Transparency International; Fraser Institute.

The period selected was from 2010 to 2020. Considering the difficulties in obtaining the data, which were manually collected using the IFAC website in 2021, we selected the longest period in which it was possible to obtain information on the situation of public sector accounting of the countries regarding the adoption of IPSAS.

During this period, heterogeneity was observed in terms of IPSAS adoption: there were seven non-adopting countries, while nine countries reached full adoption. Earlier adopters (in 2010) were Dominican Republic and Uruguay. Latin-American countries in general, except Chile and Uruguay, present low average values for corruption perception and control, which mean that corruption levels are high. The degree of economic freedom is below 70%, except for Chile. Also, in most countries the transparency level (open budgets) is below 50% or they do not even participate in the open budget survey.

### 3.2 Research characterization, variable definition and econometric model

A longitudinal analysis of central governments was adopted, configuring the research as quantitative, in terms of its approach, using the statistical technique of multiple linear regression with panel data (combining dimensions of time and space).

According to Hsiao (2007), the longitudinal analysis provides an improvement in the inference of the parameters studied, as it offers more degrees of freedom and greater variability in the sample in relation to cross-section data or time series, which debugs the efficiency of the econometric estimators.

In order to achieve the general objective of the research, the dependent and independent variables discussed in the literature were defined. The dependent variable of the study is Corruption, represented by the Corruption Perception Index (CPI), according to the empirical models below, used to measure the level of corruption in central governments in Latin America. CPI is structured on a scale from 0 to 100, where higher values represent lower perceptions of corruption, that is, the greater the perceived corruption in a country, the lower the CPI value.

The key independent variable is the adoption of IPSAS. Consistent with Cuadrado-Ballesteros et al. (2019), we also used one-year corruption values (both for CPI and CC), as the previous year's corruption index can influence the current year's corruption. In particular, according to the literature, the adoption of IPSAS can be influenced by factors such as: Degree of Economic Freedom, Political Stability, Transparency, Rule of Law (RoL), Democracy index (Democ), Government Effectiveness (GovEffect), where, in this In this research, these indicators make up the Institutional Quality (IQ) variable, being the interaction variable, constituting a weighted average obtained from the aforementioned dimensions with equal
weights for each indicator. The remaining control variables consist of other factors that are assumed to be more likely to influence the level of corruption, according to the literature discussed above.

Initially, with model (1) we sought to capture the effect of IPSAS together with the other variables, on the CPI, without taking into account the mediating effect of institutional quality (IQ), while in model (2) it was verified the IQ's interaction with IPSAS in order to capture its moderating effect on the relationship between IPSAS adoption and perceived corruption.

Therefore, the empirical models below were applied to the data:

\[
CPI_t = \alpha + \delta CPI_{t-1} + \beta_1 IPSAS_t + \beta_2 IPSASp_t + \beta_3 PIBC_t + \beta_4 Educ_t + \beta_5 Pop_t + \epsilon_t
\]

(1)

\[
CPI_t = \alpha + \delta CPI_{t-1} + \beta_1 IPSAS_t \times IQ_t + \beta_2 IPSASp \times IQ_t + \beta_3 PIBC_t + \beta_4 Educ_t + \beta_5 Pop_t + \epsilon_t
\]

(2)

Table 3 describes the variables used in the study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Expected Signal</th>
<th>Description and Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DEPENDENT VARIABLE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corruption Perception Index (CPI)</td>
<td></td>
<td>Perception of corruption in the public sector and in politics, with a score ranging from 0 (high corruption) to 100 (low corruption). The index is obtained using more than 10 different sources of information from different institutions. Source: Transparency International <a href="http://www.transparency.org/">http://www.transparency.org/</a></td>
</tr>
<tr>
<td><strong>INDEPENDENT VARIABLES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Public Sector Accounting Standards (IPSAS)</td>
<td>+</td>
<td>(Sutcliffe, 2003; Bakre et al., 2017). The variable is measured according to the country's situation regarding the adoption of the International Public Sector Accounting Standards (IPSAS). Dummy variable equals 1 for full adoption, 0 does not adopt. Source: IFAC &amp; ACCA</td>
</tr>
<tr>
<td>International Public Sector Accounting Standards (IPSASp)</td>
<td>+</td>
<td>(Sutcliffe, 2003; Bakre et al., 2017). The variable is measured according to the country's situation regarding the adoption of the International Public Sector Accounting Standards (IPSAS). Dummy variable equal to 1 for partial adoption, 0 does not adopt. Source: IFAC &amp; ACCA</td>
</tr>
<tr>
<td><strong>Moderating effect variable – subindexes that make up Institutional Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Degree of Economic Freedom (EFW)</td>
<td>+</td>
<td>Index of Economic Freedom of the World (EFW) used as a measure of economic liberalization. It ranges in a scale from 0 (extremely closed country) to 100 (extremely liberal country) (Gwartney et al., 2011; Goel &amp; Nelson, 2005; Miller et al., 2019). Source: Fraser Institute</td>
</tr>
</tbody>
</table>
| Political Stability (STPol)                  | +               | Index Political Stability of The Worldwide Governance Indicators (WGI), which measures the perceived likelihood that the government in power will be destabilized or
overthrown by possibly unconstitutional and/or violent means; the score goes from 0 to 100, where higher score means better results (Lederman et al., 2005). Source: World Bank

| Transparency (Transp) | + | It allows citizens to monitor politicians and identify corrupt activities (Rodríguez-Bolivar et al. 2016; Zuccolotto & Teixeira, 2014). The Open Budget Index (OBI) is used as proxy. It measures public access to information about how the central government collects and spends public resources. A transparency score of 61 (out of 100) or more indicates that a country is likely to be publishing enough material to support an informed public debate on the budget. Source: International Budget Partnership (http://internationalbudget.org/what-we-do/open-budget-survey/) |
| Rule of Law (RoL) | + | Captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. Source: World Bank |
| Democracy index (Democ) | + | Quality of public participation based on the Economist Intelligence Unit’s democratization index that ranges from least democratic (0) to most democratic (10). The index ranges from 0 to 10, with countries classified as authoritarian regimes (0 to 4.0), hybrid regimes (4.0 to 6.0), defective democracy (6.0 to 8.0), and full democracy (8.0 to 10.0). Source: The Economist Group |
| Government Effectiveness (GovEffect) | + | Comprises more than 30 variables that seek to capture perceptions related to the quality of public services and the degree of independence from political pressures, quality of policy formulation and implementation, and government credibility and commitment to such policies. Countries are rated from -2.5 (least effective) to 2.5 (most effective), with different weights assigned to each of the variables that make up the indicator. Source: World Bank |

**CONTROL VARIABLES**

| GDP per capita (GDPpc) (Natural logarithm of GDP per capita) | + | It is assumed that more developed and wealthier economies are less corrupt (Donchev & Ujhelyi, 2014; Lederman et al., 2005; Treisman, 2014). Source: World Bank |
| Education (Educ) | + | Number of school-age students, expressed as a percentage, enrolled in secondary school (Ades & Di Tella, 1999; Svensson, 2005). Source: World Bank |
| Population (Pop) | + | Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. The values shown are midyear estimates. Country populations scaled by natural logarithm. Source: World Bank |
3.3 Estimation Techniques

In order to obtain consistent and satisfactory results, specification tests of multiple linear regression models (OLS) were used in this study, namely: Hausman test for choosing the best estimator; Durbin-Watson test to detect autocorrelation between regression residues with panel data; and Wald's test to verify the presence of heteroscedasticity.

The analysis carried out used the panel with the fixed effects model, based on the results of the Hausman test, to control for the effects of omitted variables that can influence perceived corruption and that are capable of varying between countries, remaining constant over time, throughout the investigated period.

Fixed effects models for panel data admit that intercepts vary between observational units, considering the heterogeneity between individuals. In addition, they are used in situations where it is not possible to dissociate the individual effect α from the independent variables. Thus, the fixed effects estimator is widely used in analyzes performed with panel data to address the issue of unobserved heterogeneity. According to Wooldridge (2008), the model intercept is treated as a fixed parameter. It is also desirable to use fixed effects when observations are taken from the entire population, and what we want are inferences for the individuals for which data are available.

Despite these theoretical justifications, in addition to the Hausman test to test fixed effects against random effects, the Chow test was performed to assess the possibility of using a pooled model, which was not validated.

4. ANALYSIS AND DISCUSSION OF RESULTS

In order to observe the behavior of the variables and their association, an analysis of descriptive statistics and correlation was performed initially, table 4, followed by the empirical results, table 5, obtained using the estimates of the regression models, to identify the effects of the variables on the perception of corruption in central governments in Latin America, the statistical technique of multiple linear regression was used, using the Ordinary Least Squares (OLS) method, using unbalanced panel data. The analysis of the survey results followed a longitudinal approach of central governments.

The results presented in Table 4 allow us to draw the following conclusions. The average level of the Corruption Perception Index (CPI) of 37.88 shows values close to 0 (high corruption). The results of the correlation between this variable and the IPSAS, at the level of total adoption, show that the greater the adoption of the IPSAS, the higher the indicator of corruption perception, therefore, leading to a perception of low corruption in the adopting governments. Therefore, with regard to the adoption and application of internationally accepted public sector accounting standards, the results corroborate what is expected, that adopting countries may experience a decline in the degree of corruption perceived by the positive impact of IPSAS (Cuadrado- Ballesteros et al., 2019; IPSASB, 2021; Tawiah, 2021).

Table 4 - Descriptive Statistics and Correlation

<table>
<thead>
<tr>
<th>Variáveis</th>
<th>Média</th>
<th>DP</th>
<th>CPI</th>
<th>CPIt-1</th>
<th>IPSASSt</th>
<th>IPSASSp</th>
<th>IQ</th>
<th>PIBpc</th>
<th>Educ</th>
<th>Pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPI</td>
<td>37.88</td>
<td>13.15</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPIt-1</td>
<td>37.83</td>
<td>13.16</td>
<td>0.9822**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPSASSt</td>
<td>0.22</td>
<td>0.41</td>
<td>0.1429**</td>
<td>0.1413*</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IPSASSp</td>
<td>0.11</td>
<td>0.32</td>
<td>0.0561</td>
<td>0.0608</td>
<td>-0.1985***</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IQ</td>
<td>20.92</td>
<td>4.87</td>
<td>0.6995***</td>
<td>0.6755***</td>
<td>0.2084***</td>
<td>-0.0524</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PIBpc</td>
<td>8.77</td>
<td>0.61</td>
<td>0.6420***</td>
<td>0.6365***</td>
<td>0.1600**</td>
<td>0.1780**</td>
<td>0.6030***</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educ</td>
<td>88.64</td>
<td>19.33</td>
<td>0.5462***</td>
<td>0.5436***</td>
<td>-0.0729</td>
<td>0.4139***</td>
<td>0.4240***</td>
<td>0.6366***</td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>
When observing the correlation of the variable IQ with the CPI, at a significance level of 1%, it is verified that the institutional quality of the country favors the reduction of the perception of corruption, increasing the reliability of society in relation to the management of public resources. The results confirm previous studies, indicating that good public governance represents the quality of government, in terms of contract enforcement, law enforcement and the courts (Kaufmann, Kraay, & Mastruzzi, 2011). Leading to demands for transparency so that they are driven by better law enforcement and compliance with the legal environment (Kartiko et al, 2018).

In table 5, column (1) shows the model results without the moderation variable, while column (2) shows the coefficients that clarify the relationship between IPSAS and institutional quality.

The models were tested to verify the presence of heteroscedasticity and autocorrelation, with the presence of heteroscedasticity, the covariance matrices of the robust parameters of Driscoll and Kraay were applied, being suitable for both panels, balanced and unbalanced, and in fixed effects regression (Driscoll & Kraay, 1998). No multicollinearity problems were detected according to the Variance Inflation Factor (VIF) test. Normality was implied by validating the assumption of the Central Limit Theorem (Brooks, 2014). The $R^2$ of the models presents a good explanation of the independent variables in relation to Perceived Corruption, and the model is well adjusted.

**Table 5**

Results for the impact of IPSAS in controlling perceived corruption in Latin American central governments

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CPI</td>
<td>CPI</td>
</tr>
<tr>
<td>CPI t-1</td>
<td>0.4243**</td>
<td>0.4221**</td>
</tr>
<tr>
<td></td>
<td>(0.034)</td>
<td>(0.032)</td>
</tr>
<tr>
<td>IPSAS\text{t}</td>
<td>1.7824*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.089)</td>
<td></td>
</tr>
<tr>
<td>IPSASp</td>
<td>1.4352**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.016)</td>
<td></td>
</tr>
<tr>
<td>IPSAS\text{t}\times IQ</td>
<td>0.0868**</td>
<td>0.0786***</td>
</tr>
<tr>
<td></td>
<td>(0.040)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>PIBpc</td>
<td>3.7350</td>
<td>3.4731</td>
</tr>
<tr>
<td></td>
<td>(0.429)</td>
<td>(0.440)</td>
</tr>
<tr>
<td>Educ</td>
<td>0.0216</td>
<td>0.0054</td>
</tr>
<tr>
<td></td>
<td>(0.302)</td>
<td>(0.785)</td>
</tr>
<tr>
<td>Pop</td>
<td>-23.0651**</td>
<td>-22.4828**</td>
</tr>
<tr>
<td></td>
<td>(0.043)</td>
<td>(0.032)</td>
</tr>
<tr>
<td>Constantante</td>
<td>363.1722**</td>
<td>357.393**</td>
</tr>
<tr>
<td></td>
<td>(0.057)</td>
<td>(0.049)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.2303</td>
<td>0.2397</td>
</tr>
</tbody>
</table>
Observing the results of Table 5, it is possible to verify that the IPSAS are statistically significant in both models, that is, in isolation and in interaction with institutional quality, both at the level of total adoption and at the level of partial adoption, and positively related to perceived corruption (CPI), suggesting that the corruption perception indicator is increased as governments begin to embark on international accounting harmonization according to IPSAS, leading to a low perception of corruption. Thus, the results validate the hypothesis, which states that the adoption of IPSAS affects corruption in Latin American countries. Under such conditions, the present study is consistent with those by Cuadrado-Ballesteros et al. (2019) and Tawiah (2021), indicating that the adoption of international accounting standards for the public sector reduces the levels of corruption perceived by adopters. For Cuadrado-Ballesteros et al. (2019), this is due to the fact that IPSAS weaken the information asymmetry that political agents have, which reduces the perception of corruption in the country. In turn, Tawiah (2021) concluded that the adoption of IPSAS is a good additional mechanism to prevent corruption for developing countries.

According to the characteristics presented in Table 2, Latin American countries have a history of high perception and low control of corruption, in addition to the fact that the tools for monitoring corruption by citizens, namely through disclosure, measure due to the level of transparency of public information, on average, they present scores lower than expected for due control. Finally, they have governments that are more closed and with a lower degree of economic freedom. Thus, it appears that, as countries move towards the adoption of competency accounting systems in the public sector, opportunistic behaviors and possible agency conflicts can be reduced, from the perspective of agency theory (Jensen & Meckling, 1976). Therefore, developing countries can benefit from the adoption of IPSAS, given their institutional context.

From this perspective, when interacting with the IQ, the IPSAS in model (2) increase their response power, presenting a positive result and greater statistical significance, which may indicate that in places where there is greater institutional quality, there is a greater effect on the perceived corruption, reducing it.

Institutional quality takes into account the public transparency of information, which allows citizens to monitor politicians and identify corrupt activities (Rodríguez-Bolivar et al. 2016; Zuccolotto & Teixeira, 2014), allied to a rule of law (RoL) that indicates greater legal certainty (Kaufmann, Kraay, & Mastruzzi, 2011), which may increase demands for transparency. Furthermore, it encompasses democracy that, according to Arapis and Reitano (2017), central governments with a higher level of democracy, better political rights and civil liberties, such as freedom of expression, beliefs, rights of assembly and participation in the political process, observe improvements in transparency. A democratic culture with political competition leads central governments to publicize more fiscal policies, improving overall transparency and contributing to the fight against corruption. Government effectiveness, in turn, reflects perceptions about the quality of public services, the quality of policy formulation and implementation, and the credibility of the government's commitment to those policies. The effectiveness of a government is related to the good management of public resources, thus, countries with greater government effectiveness have the possibility to minimize illegal and corrupt acts to obtain better results for the public sector (Silva et al, 2022).

Furthermore, economic freedom (EFW) results from market freedom due to the existence of fewer government controls, whether legal (fewer rules and simpler) or bureaucratic
(state structure). Hoping that the greater this freedom, the less the need for State agents to act, which tends to reduce corruption (Treisman, 2000).

In the end, when analyzing the control variables, only the Pop variable proved to be significant at 5%, in both models, and with a negative relationship, suggesting that a higher population level reduces the perception of corruption, leading to a greater perception of corruption of more populous countries.

The lagged dependent variable, which represents the levels of corruption perceived in previous years, was included in the analysis and proved to be statistically significant, attesting that the level of corruption in a year depends on the levels of corruption perceived in previous years.

5. FINAL CONSIDERATIONS

This study examined the moderating effect of institutional quality on the relationship between the adoption of IPSAS by the accrual regime and the level of corruption perception of Latin American governments, between 2010 and 2020, which have been gradually increasing the adoption of these standards in recent years. Based on data from the 2010-2020 period, it was possible to estimate regression models to identify the impact of IPSAS on the perception of corruption, controlling for the effect of other determinants.

The main findings showed that with the adoption of IPSAS, there was also a reduction in the perception of corruption in the adopting countries. Considering that the perception of corruption is also strongly and positively affected by other factors, namely those related to the country's economic development, it appears that the increase in the transparency of the information provided tends to help the reduction of corrupt acts, by giving wide dissemination of information. In addition, by enabling greater accountability of agents for possible failures or irregularities, with effective compliance with the law, institutional quality comes to play an extremely relevant role, since corrupt practices that were previously hidden are now publicly disclosed.

In summary, the results allow us to conclude that the harmonization of government accounting through the adoption of IPSAS generates a positive effect on the indices of corruption perception in Latin American countries, represented by a decrease in the perception of corruption in these countries (increasing the values of the indexes). This impact can be understood as the result of a mechanism that increases evidence of corrupt activities present to a greater extent in developing countries. In fact, the implementation of IPSAS and the adoption of accrual accounting can reduce the informational advantage of politicians over citizens, as it allows for the dissemination of more complete information, increasing citizens' control power.

Thus, the results of our study suggest that government accounting standards that allow for greater transparency and better quality of disclosure, through the adoption of IPSAS, enable a reduction in the perception of corruption. In this sense, this research highlights the importance of adopting IPSAS in developing countries, where corruption perception rates are higher, bringing new insights. Additionally, this study contributes to the literature that assesses the impacts of accounting and its modernization on corruption, especially with regard to developing and emerging countries (Kythereotis, 2015; Houqe & Monem, 2016; Botinha & Lemes, 2019; Tawiah, 2021).
Furthermore, it is possible to see that as the country's level of institutional quality increases, with better levels of democracy, better government effectiveness, as well as a greater degree of economic freedom, political stability and better law enforcement, corruption can decrease and, therefore, this can again accelerate economic development and improve the well-being of local society, by reducing the misappropriation of public resources.

The adoption of standards is seen as a necessary aspect to improve the information environment of governments. In the end, relevant administrative reforms, as well as strong political commitment, will still be key to achieving the desired result; if these do not exist, IPSAS can lead to opposite and unexpected effects. There must be strong coordination between countries and international financial institutions during the adoption and implementation of IPSAS, so that the objective of these standards is adequately achieved. It is important that these institutions focus more on quality adoption than simply pushing countries for accelerated adoption, as quality and timely adoption create internal incentives for developing countries to reap the benefits.

As with other IPSAS studies, our study faced some data limitations. However, we used the largest available dataset, seeking to overcome this limitation. Furthermore, as in other studies on the adoption of international accounting (e.g. Cuadrado-Ballesteros et al., 2019; Tawiah, 2021), identifying country adoption status presents some challenges as countries use different implementation approaches, so we chose the IFAC map to solve this problem.

Despite these limitations, the present research provides a comprehensive finding on IPSAS and its impact on perceptions of corruption in Latin American countries. Future studies can explore how these governments can include the framework of public accounting standards in their anti-corruption strategies and what other complementary mechanisms are needed to prevent manipulation and fraud. Other studies may also investigate how the adoption of IPSAS facilitates quality auditing and timely disclosures of corrupt practices.

REFERENCES


