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FERNANDO SANTOS DA PAIXÃO

EVIDÊNCIAS DA RELAÇÃO ENTRE A ADOÇÃO DE IPSAS NOS PAÍSES E A TRANSFORMAÇÃO DIGITAL NO SETOR PÚBLICO DAS ECONOMIAS MUNDIAIS

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Dissertação apresentada ao Programa de Pós Graduação em Ciências Contábeis da Universidade Federal de Pernambuco, Centro Acadêmico CCSA, como requisito para a obtenção do título de Mestra em Ciências Contábeis. Área de concentração: Informação Contábil.

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A Deus, pai que tudo nos permite.

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RESUMO

O objetivo desse artigo é investigar a associação entre o índice de maturidade Govtech, iniciativa do Banco Mundial para mensurar a transformação digital no setor público, e a adoção das IPSAS pelos países. O estudo utiliza o método dedutivo de natureza exploratória e descritiva. Os dados secundários foram coletados por meio de um levantamento bibliográfico e a partir do banco de dados em planilha de organismos internacionais para o ano de 2022, contemplando 130 países. Para análise dos dados, além das estatísticas descritivas, realizou-se uma regressão linear múltipla, tendo o índice de maturidade Govtech como variável dependente, o estágio de adoção das IPSAS nos países como variável independente e como variáveis de controle a liberdade de imprensa, a qualidade regulatória, a comunicação e a estabilidade macroeconômica. Os achados do estudo demonstram que o nível de Govtech nos países está relacionado positivamente com a adoção das IPSAS. Além disso, também está relacionado positivamente com as variáveis de controle qualidade regulatória, comunicação e estabilidade macroeconômica. Conclui-se que a relação entre a adoção das IPSAS e transformação digital no setor público, contribui para maior transparência das informações à população, responsabilização dos governos, ratificando com uma maior transparência pública dos países e melhor prestação de contas, podendo subsidiar os formuladores de políticas públicas para que favoreçam a disponibilização de serviços e informações públicas aos cidadãos, além de aperfeiçoar a relação entre governos e cidadãos.

Palavras-chave: Cidadão; Govtech; IPSAS; Serviços públicos; Transparência.

ABSTRACT

This paper aims to investigate the association between the Govtech Maturity Index, an initiative by the World Bank to measure digital transformation in the public sector, and the adoption of the International Public Sector Accounting Standards (IPSAS) by countries. The study employs a deductive approach of exploratory and descriptive nature. Secondary data were collected through a literature review and from international organizations' databases for the year 2022, encompassing 130 countries. In addition to descriptive statistics, a multiple linear regression analysis was conducted, with the Govtech Maturity Index as the dependent variable, the stage of IPSAS adoption in countries as the independent variable, and press freedom, regulatory quality, communication, and macroeconomic stability as control variables. The study findings demonstrate a positive relationship between the Govtech level in countries and the adoption of IPSAS. Furthermore, it is positively associated with control variables such as regulatory quality, communication, and macroeconomic stability. It is concluded that the relationship between IPSAS adoption and digital transformation in the public sector contributes to increased transparency of information to the public, government accountability, reinforcing greater public transparency in countries, and improved accountability. This can guide policymakers to favor the provision of public services and information to citizens, enhancing the relationship between governments and citizens.

Keywords: Citizens; Govtech; IPSAS; Public services; Public transparency.

LISTA DE TABELAS

LISTA DE ABREVIATURAS E SIGLAS

CGSI	Core Government Systems Index
DCEI	The Digital Citizen Engagement Index
GTEI	The Govtech Enablers Index
GTMI	Govtech Maturity Index
ICT	Information and Communication Technologies
IFAC	committee of International Federation of Accountants
IPSAS	International Public Sector Accounting Standards
IPSASB	International Public Sector Accounting Standards Board
OECD	Organization for Economic Cooperation and Development
PME	encompass small and medium
PSC	Public Sector Committee
PSDI	Public Service Delivery Index
RSF	Reporters Without Borders
VIF	Variance Inflation Factor

SUMÁRIO

1 INTRODUCTION

The public sector digital transformation has been a global movement in governments worldwide. In 2019, the World Bank launched the Govtech initiative, employing the Govtech Maturity Index (GTMI) to monitor and support this process in the public sector of countries, aiming to enhance government efficiency, improve access and the quality-of-service delivery, provide increased government-to-citizen and government-to-business communications, boost transparency, reduce corruption, improve governance and oversight, as well as modernize key government operations.

The primary focus of the Govtech initiative is related to the use of technology, incorporating innovation and transformation in government operations, decision-making processes, and service delivery to enhance government services through transparency, efficiency, agility with technology suited to the purpose, and citizen engagement.

In the context of innovating the provision of public services, the government structure needs to be prepared and committed to adopting technology to meet citizens' needs. In this regard, previous studies demonstrate that the adoption of standards, such as International Public Sector Accounting Standards (IPSAS), facilitates the enhancement of innovations in government and electronic participation. These standards can contribute to the quality and accessibility of information from different accounting systems and Govtech strategies, along with their outcomes, underscore the need for a holistic perspective considering not only technological issues but also the quality and integrity of information, international comparability, and the socio-economic context.

Given this context, the study is justified by the need for research analyzing the relationship between new trends in public services, the use of technological tools, and the significant expectations in the relationship between citizens and government through digital services provided to society, including tax revenue disclosure, fraud detection, state modernization, accountability, and budget monitoring.

Further, it can be observed that digital transformation in the public sector considers the use of Internet-based Information and Communication Technologies

(ICT), actions related to service digitization, innovations in public services with a focus on serving citizens, and open data for society. It also emphasizes norms and policies that promote Govtech and actions that enhance transparency, such as the adoption of IPSAS by central governments. Therefore, the present study aims to investigate the association between the Govtech maturity index and the adoption of IPSAS by countries.

Methodologically, this investigation adopts a deductive method with a quantitative approach to better analyze the relationship between variables through a hypothesis. The research has an exploratory and descriptive purpose, with data collected through literature review and international organizations' spreadsheet databases for the year 2022. Data analysis involves descriptive statistics and multiple linear regression with 130 countries, with the Govtech maturity index as the dependent variable and the stage of IPSAS adoption as the independent variable. Control variables related to Govtech are also included in the econometric model.

The study begins with this introduction, the first section showcasing the theme, research justification, objectives, methodological details, and text section characterization. The second section presents the literature review, covering concepts and studies on Govtech, International Public Sector Accounting Standards (IPSAS), and subsequently, the study's hypothesis. The third section details the methodological procedures, including the scientific method, approach used, study objectives, technical procedures, data collection and analysis methods, data profile, sample selection, and research design. The fourth section encompasses results analysis, both descriptive and econometric, along with discussions on the findings. Finally, in the fifth and last section, study conclusions, limitations, and suggestions for future research are outlined, emphasizing the aim of advancing the discussion and construction of the thematic area.

2 RESEARCH BACKGROUND

2.1 GOVTECH

The suffix "tech" emerges as a complement to characterize a trend that technology has imprinted across various domains. Governments worldwide strive to modernize public administration through technology, leading the World Bank to launch the Govtech initiative in 2019 to support this reform in the public sector. Govtech, according to the World Bank, can be understood as a holistic government approach to modernizing the public sector, promoting simplification in its processes, efficiency, and transparency of data, with citizens at the core of reforms. It refers to the use of technology to transform government services (IMF, 2023b). From a technological perspective, Govtech is linked to technological solutions developed by various stakeholders, including startups and other organizations that are transforming public services (BENNETT INSTITUTE, 2019). Studies in different world regions (BHAROSA, 2022; SANTISO, 2020; SANTISO, 2022; IMF, 2023b) approach the level of Govtech maturity and its innovating characteristics to public services.

In terms of government strategies, digital transformation, and the digitization of public processes, Govtech is seen as the process of making government technology more modern, transparent, intuitive, and user friendly aligned with the technology used in consumer and business sectors through digital transformation in government (DENER *et al*., 2021; GONG *et al*., 2020; MERGEL *et al*., 2019; TASSABEHJI *et al*., 2016). Thus, Bharosa (2022) defines Govtech as sociotechnical solutions developed and operated by private organizations interconnected with components of the public sector to facilitate their processes.

Govtech, as a domestic ecosystem, plays a role in creating opportunities to renew the public sector in governments worldwide, doing so by measuring the employment of innovation that encompass small and medium (PME) companies who offers public services to citizens (BENNETT INSTITUTE, 2019). According to the same author, on a global scale, many governments seek to leverage the advantages of a Govtech ecosystem, indicating relationships with structural aspects, service delivery, participation, and regulation. The use and study of Information and Communication Technologies (ICT) in the public sector involve providing electronic

access to services that facilitate compliance with a set of rules or regulations, including the establishment of mechanisms such as portals that provide information from the customer's perspective rather than an agency or functional perspective (PARDO, 2000; SUNDBERG, 2019). These authors also highlight initiatives using technology in the daily operations of governments, such as citizen access to government information, easing rule compliance, citizen access to personal benefits, procurement, including bidding, purchase, and payment, government-to-government information, and service integration, as well as citizen participation (suffrage), among others.

The implementation of Govtech also requires a shift in how government agencies operate, adopting new approaches to project management, supplier relationships (e.g., considering startups and open source), technology adoption (e.g., promoting innovation), and data transparency (IMF, 2023b). Adopting a digital approach and, consequently, a higher level of Govtech maturity in the country improves publicly available information on the overall government approach's performance, contributing to transparency and accountability to citizens regarding the policies being adopted (WORLD BANK, 2022).

2.2 IPSAS

The IPSAS encompasses standards related to the preparation and presentation of financial information based on international accounting standards applied to the public sector. The International Public Sector Accounting Standards Board (IPSASB), a committee of International Federation of Accountants (IFAC), is responsible for developing IPSAS, aiming for international comparability of accounting information (BILHIM *et al*., 2022; GIL-GARCIA *et al*., 2018; SCHMIDTHUBER *et al*., 2020).

The Public Sector Committee (PSC), formerly known as IPSASB, emerged in 1986 and only succeeded in advancing and creating the program for developing international accounting standards applied to the public sector in 1997 (MAPURUNGA *et al*., 2011). Since the 1980s, international institutions such as the

World Bank, the United Nations, and the IMF have encouraged the process of convergence and standardization, viewing IPSAS as a normative perspective (ADHIKARI *et al*., 2013; BASKERVILLE; GROSSI, 2019; IMF, 2023b).

The adoption process of IPSAS has been underway globally, with countries across regions participating. IFAC provides, through its associated countries, a list of governments that have fully adopted or are in the process of adopting international accounting standards applied to the public sector. Studies (CHAN, 2010; LOMBRANO; ZANIN, 2013) have analyzed the implementation of IPSAS in relation to government report integrity. Others, like (MANES ROSSI; AVERSANO, 2015; MANES ROSSI *et al*., 2015), have examined aspects where adoption correlates with the production and communication of better accounting information in the public sector.

Research by (ARAYA-LEANDRO *et al*., 2026; BRUSCA *et al*., 2013; ILIE; MIOSE, 2012; MATTEI *et al*., 2020; SELLAMI; GAFSI, 2019) pointed out contributions of adoption to the accountability and transparency processes of countries. Studies by (BEKIARIS; MARKOGIANNOPOULOU, 2022; BRUSCA *et al*., 2016; WHITEFIELD; SAVVAS, 2016) demonstrated a positive relationship between IPSAS and technology. The investigations conducted by (ARGENTO *et al*., 2018; BOOLAKY *et al*., 2019) focused on the analysis of institutions that had a supporting role in the IPSAS implementation. Meanwhile, studies by (ABDULKARIM *et al*., 2020; DEIGHTON-SMITH, 2004) indicated positive relationships between innovation and IPSAS implementation. In the same vein, Brusca *et al*. (2013) asserted that countries enhance their information with the implementation of IPSAS combined with technology. Cuadrado-Ballesteros, Santis and Bisogno (2021) investigated accounting innovations and e-government in countries belonging to the Organization for Economic Cooperation and Development (OECD), suggesting that IPSAS play a significant role in implementing innovations in the public sector. As per our approach, the hypothesis of this research is:

H1: IPSAS adoption is correlated with a countries' Govtech level.

3 METHODOLOGY

3.1 METHODOLOGICAL CHOICES

To address the hypothesis of this research, a deductive method was adopted, moving from general to specific, using collected data to evaluate the hypothesis related to existing theory (SAUNDERS; LEWIS; THORNHILL, 2019). A quantitative approach was employed, as it examines the relationships between variables, which are numerical and analyzed using statistical and graphical techniques (SAUNDERS; LEWIS; THORNHILL, 2019). In this regard, the research explored the association between the World Bank's Govtech Maturity Index, a proxy for digital transformation in the public sector, and the adoption of IPSAS by countries.

From the perspective of the study's objective, it is exploratory research, as it promotes greater familiarity with the problem under study, making it more explicit or formulating it through a hypothesis (PRODANOV; FREITAS, 2013). It is also descriptive, establishing a relationship between the study's variables of a specific phenomenon without manipulating them a priori (KÖCHE, 2011). Thus, the research was developed by consulting scientific articles, and through the characteristics of the sample, the relationships between variables were analyzed (SILVA; SARLO NETO; REINA; NASCIMENTO; NASCIMENTO, 2023).

Data were gathered through a literature review, involving the reading of scientific articles, publications on official websites, scientific journals, and searches on the CAPES Periodicals Portal, IOLEs Portal, and Google Scholar (RAPOSO; LORETO; PIRES, 2023; STROPARO; KOHUT, 2022). For this purpose, we used the following keywords: "GovTech"; "GovTech Maturity Index"; "IPSAS"; "Implementation IPSAS"; "GovTech and IPSAS"; "GovTech Maturity Index and Implementation IPSAS"; "EGov"; "EGov and IPSAS" and "EGov and Implementation IPSAS."

The data used to achieve the research objective were obtained for the year 2022 from spreadsheet databases of international organizations with different focuses: financial (World Bank); accounting profession-oriented (IFAC); focused on monitoring and reporting violence, censorship, and misinformation in journalism (Reporters Without Borders); and focused on helping others thrive (Legatum Institute).

Regarding data analysis, Stata 18 software was used to generate the necessary data for descriptive statistics and the econometric model estimated through multiple linear regression. It is emphasized that during the model estimation process, compliance with assumptions such as normality of residuals, absence of multicollinearity (variance inflation factor - VIF), homoscedasticity, and absence of autocorrelation in residuals was investigated.

3.2 SAMPLE SELECTION

The study's population refers to the global economies analyzed by The World Bank for the Govtech Maturity Index (GTMI), totaling 198 countries, using the year 2022, considering the metric update undergone by the index. The GTMI calculation involves the simple arithmetic average of normalized scores from four components, as per The World Bank's report (2022).

According to the World Ban, the overall composition of the index includes: the Core Government Systems Index (CGSI) captures the mains aspects of a government approach, including government cloud, interoperability structure and other plataforms; The Public Service Delivery Index (PSDI) measures the maturity of online public portals with a focus on citizen-centric design and universal accessibility; The Digital Citizen Engagement Index (DCEI) measures aspects of public participation platforms, citizen feedback mechanisms, open data, and government open portals and The Govtech Enablers Index (GTEI) captures strategy, institutions, laws, regulations, digital competencies, and innovation policies and programs to foster Govtech..

The dummy variable for IPSAS adoption (independent variable) was extracted from the International Federation of Accountants: Adoption Status (IFAC, 2023), divided into two stages for evaluation in this study: 1 for countries that fully or partially adopted it and 0 for countries that did not, following the comprehension of Sellami and Gafsi (2017). Control variables were inserted into the model, collected from the 2022 World Press Freedom ranking by Reporters Without Borders (RSF) and by disaggregating indicators from the Legatum Prosperity Index 2022 that were prepared by the Legatum Institute.

Given the peculiarities of IPSAS adoption or non-adoption for the countries covered in GTMI, as well as the insufficient data availability for some control variables studied, particularly the Legatum Prosperity Index indicators, exclusions were necessary, as demonstrated in Table 1:

Table 1

Sample selection

	Countries
Total world economies	198
(-) IPSAS adoption	(62)
(-) Lack of data regarding communication, regulation quality, and macroeconomic stability variables	(6)
Final sample	130

Source: Research data.

The final sample comprises 130 countries from various regions worldwide, considering the exclusion of 62 countries not listed in the IFAC 2023 and an additional 6 countries lacking data related to control variables for the present study.

3.3 RESEARCH DESIGN

To conduct this study, multiple linear regression was employed to understand the relationship between variables and the level of GTMI in countries. The dependent variable of the study, referred to as the Govtech maturity index (Govtech), is composed of the simple arithmetic average of the CGSI, PDSI, DCEI, and GTEI indices. The estimated model is presented in the equation below:

$$GovTech_i = \beta_0 + \beta_1 IPSAS_i + \beta_2 LIB_i + \beta_3 QREG_i + \beta_4 COM_i + \beta_5 MACRO_i + \varepsilon_i$$

In Table 2, the control variables inserted into the econometric model are described, along with how they are measured, previous studies serving as theoretical foundation, and the expected relationship with the dependent variable:

Table 2

Control variable description

Variable	Description	Prior studies	Expected relation
Press freedom (LIB)	Measured through quantitative assessment of abuses against media and professionals in the exercise of their functions, as well as qualitative analysis of each country's situation, assessed through responses from experts in press freedom. The World Press Freedom Index aims to compare the degree of freedom enjoyed by journalists and media outlets in 180 countries or territories. The ranking is based on a score assigned to each territory, ranging from 0 to 100. A high degree of press freedom is associated with a high score and vice versa (RSF, 2023).	(DUTTA *et al*., 2011; HAMADA *et al*., 2019; SGUEO, 2020).	-
Regulation quality (QREG)	Element of the Governance pillar, referring to the government's ability to formulate and implement robust policies and regulations that enable and promote private sector development. It consists of indicators such as the right to information, transparency of government policy, budget	(OECD, 2015; CUADRADO-BALLESTEROS; BISOGNO, 2020; DEIGHTON-SMITH, 2004; OLIVEIRA; TAZINASSO,	+

	transparency, regulatory enforcement, disclosure of government data and laws, delay in administrative procedures, and efficiency of the legal framework in challenging regulations (The Legatum Prosperity Index, 2023).	2015; TAWIAH, 2023)	
Communication (COM)	Element of the pillar of market access and infrastructure, referring to the assessment of media and the extent of their access. It consists of indicators such as international internet bandwidth, coverage of 2G, 3G, and 4G networks (GSMA), fixed broadband subscription, and internet usage (The Legatum Prosperity Index, 2023).	(BAYAR *et al*., 2021; GARRIDO-RODRÍGUEZ *et al*., 2019; INGRAMS, 2017)	+
Macroeconomic stability (MACRO)	Element of the pillar of economic quality, referring to the measurement of two key elements of the economy, which are its indicators: the per capita GDP growth rate and the volatility of the inflation rate, both taken as a five-year average (The Legatum Prosperity Index, 2023).	(AL-MARHUBI, 2000; INGRAMS *et al*., 2020; SEKHAR; GUDIMETLA, 2013)	+

Source: Authors.

These control variables, depicting factors related to culture, governance, technological infrastructure, and the economic quality of national governments, were included in the econometric model due to their connection with the four components forming the Govtech index. Therefore, the previous studies highlighted in the literature, as described in Table 2, are connected to the Govtech theme.

4 RESULTS

4.1 DESCRIPTIVE ANALYSIS

A descriptive analysis of the data for the control and independent variables of the study was conducted, and to enhance comprehension, the results were compiled in Table 3. The information included in the table consists of the mean, standard deviation, coefficient of variation, and the minimum and maximum values of the variables studied.

Table 3

Descriptive analysis

Variables	Average	Standard Deviation	CV	Minimum	Maximum
IPSAS	0,62	0,486	78,3870	0	1
LIB	60,3858	16,91151	28,0057	23,22	92,65
QREG	50,060	15,5970	31,1566	13,7	85,2
COM	74,013	16,6242	22,4611	36,9	97,2
MACRO	57,158	13,1075	22,9320	0	96,1

Source: Authors.

Note: IPSAS: IPSAS adoption level; LIB: Press freedom; COM: Communication; MACRO: Macroeconomic Stability.

Regarding the averages, the COM variable has a high mean, indicating that, for the most part, countries have good access to 2G, 3G, and 4G coverage, fixed broadband, and internet usage. Luxembourg (97.2) has the highest value, while Madagascar (36.9) has the lowest. Concerning the LIB variable, its mean is also reasonable, suggesting that, with high levels of Govtech, these countries respect the free exercise of journalists. Norway (92.65) has the highest value in this research, and Iran (23.22) has the lowest.

Regarding the mean of the IPSAS variable, it shows a good estimate of adoption by countries, indicating an improvement in public sector accounting information for the population (LOMBRANO; ZANIN, 2013), better transparency, accountability of public officials, and a greater commitment from countries to allocate

budgetary, human, and technological resources to support such adoption (CHAN, 2010).

Concerning the mean of the MACRO variable, it was observed that countries face some difficulty in maintaining their macroeconomic stability, either by not being able to sustain GDP growth or by failing to contain inflation, with Guyana scoring (96.1) and Lebanon zero. Regarding the QREG variable, its mean suggests that almost half of the countries in the sample need to implement robust policies and regulations for private sector development, as well as promote the right to information, transparency in their budgets, efficiency in administrative processes, and disclosure of government data. Finland (85.2) has the highest value, and Yemen (13.7) the lowest.

Additionally, the standard deviation of the LIB and COM variables are quite similar. The coefficient of variation for the COM and MACRO variables is also similar, indicating a moderate data dispersion, as with the other variables, except for IPSAS, which showed a large dispersion. Therefore, it can be inferred from the moderate variability of most variables, concluding that each country experiences differences in adopting IPSAS, valuing freedom of the press, adequately regulating their norms, having access to communication, and stabilizing the macroeconomy.

The table 4 presents the correlation matrix of the variables. There is a strong correlation between COM and QREG (0.7510) and moderate correlations between COM and Govtech (0.6271), QREG and LIB (0.5918), as well as between QREG and Govtech (0.5742).

Table 4

Correlation matrix of the variables

	(1)	(2)	(3)	(4)	(5)	(6)
● Govtech	1					
● IPSAS	0,2792**	1				
● LIB	0,1703*	0,0322	1			
● QREG	0,5742**	0,1676*	0,5918**	1		
● COM	0,6271**	0,1673*	0,3640**	0,7510**	1	

● MACRO	0,2993**	0,0812	0,2124*	0,3660**	0,2294**	1

Source: Research data.

Note: **, * indicate, respectively, 5% e 10% levels of statistically significance.

The other pairs of variables showed weak correlations. Apart from the LIB/IPSAS and MACRO/IPSAS pairs, the other correlations were statistically significant, indicating an absence of multicollinearity in the estimated model.

4.2 DISCUSSION AND DATA ANALYSIS

To conduct the study on the association between the Govtech Maturity Index and the adoption of IPSAS by countries, in addition to the control variables, a multiple linear regression analysis was performed, summarized in Table 5:

Table 5

Econometric model analysis

Dependent variable: Govtech	Model
Constant	0,0769
	(0,0869)
IPSAS	0,0664**
	(0,0282)
LIB	-0,0023**
	(0,0010)
QREG	0,0041**
	(0,0015)
COM	0,0051***
	(0,0012)
MACRO	0,0019*
	(0,0011)
R^2 = 0,4821	F (5, 124) = 23,08
Adjusted R^2= 0,4612	Prob. > F = 0,0000

Source: Research data.

Note: ***, **, * indicate, respectively, 1%, 5% e 10% significance levels. Standard deviations indicated between parenthesis.

Regarding the variable IPSAS adoption (IPSAS), representing H1 in this study, a positive and statistically significant association was observed, supporting the hypothesis and indicating a correlation with the level of Govtech in countries. This result aligns with Cuadrado-Ballesteros, Santis and Bisogno's findings (2021) in a study with OECD countries, suggesting that IPSAS adoption positively impacts e-government, enhances transparency in information dissemination to the public, and strengthens government accountability all essential aspects of Govtech. Moreover, Govtech emphasizes public feedback and citizen participation in decision-making, contributing to increased public transparency and accountability (BRUSCA *et al*., 2013; ILIE; MIOSE, 2012), as well as advanced technology in governmental systems (BEKIARIS; MARKOGIANNOPOULOU, 2022; BRUSCA *et al*., 2016; WHITEFIELD; SAVVAS, 2016).

For the control variable Freedom of the Press (LIB), measuring the degree of abuse suffered by journalists and media, a negative and statistically significant association was observed. Therefore, as countries become more transparent, technological, and provide services to the population, the degree of abuse suffered by reporters and the media decreases. This conclusion aligns with Hamada *et al*.'s findings (2019), indicating that more transparent countries exhibit higher levels of press freedom (lower abuse levels) and are associated with increased innovation (DUTTA *et al*., 2011). This inference also confirms Sgueo's study (2020), suggesting that freedom of the press has less room in countries undergoing technological crises.

Concerning the Quality Regulatory Control (QREG) control variable, a positive and statistically significant association was observed. Developing regulations that favor the right to information for the population through public policies or budgets, along with providing such governmental data, brings about changes in the public sector, as suggested by Deighton-Smith's study (2004). Regulatory quality, intertwined with Govtech, is instrumental in the adoption of IPSAS by national governments, fostering increased data transparency and improving the government's ability to formulate and effectively implement public policies (CUADRADO-BALLESTEROS; BISOGNO, 2020; TAWIAH, 2023). Additionally, in competitive environments, the formulation of policies and regulations supports the minimum

security necessary for private sector development, consistent with studies by OECD (2015), Deighton-Smith (2004), Oliveira and Tazinasso (2015).

Regarding the Communication (COM) control variable, a positive and statistically significant association was observed. Expanding internet access allows citizens in these countries to be more connected, participate in the decision-making process, access information, government services, and provide feedback, fostering improved relationships between them. This aspect of broad access to digital services through the internet is evident in Brazil, a Western country leading in Govtech levels (WORLD BANK, 2022). The GOV.BR platform enables access to various digital services offered by the government to the population, facilitating information retrieval and societal-government interaction, mitigating regional, gender, income, and education disparities (BAYAR *et al*., 2021), with significant socioeconomic impacts on the population. It is crucial to note that this significant relationship aligns with Ingrams' assertion (2017) that technology utilization in the public sector makes the government's relationship with citizens more democratic by simplifying processes.

Finally, for the control variable Macroeconomic Stability (MACRO), a positive and statistically significant association was observed. A higher level of digitization of offered services can contribute to an increase in Gross Domestic Product (GDP) due to the improved quality of supplied products to society (SEKHAR; GUDIMETLA, 2013). This finding aligns with Ingrams *et al*.'s study (2020), demonstrating a positive association between GDP growth and e-government development in the largest cities of the world's "most connected" 100 countries. Moreover, it may act as a partial control vector for inflation through data transparency to the population since increased corruption, as indicated by Al-Marhubi's studies (2000), is associated with rising inflation.

5 CONCLUSION

This article aimed to investigate the association between the Govtech maturity index and the adoption of IPSAS by countries. Unlike other studies on this topic, it considered all regions worldwide and utilized the new World Bank index, GTMI. The analysis involved a sample of 130 countries in the year 2022.

The research objective's hypothesis was not rejected, revealing a positive and significant association between the Govtech maturity index and IPSAS adoption by countries. Moreover, it is positively and significantly related to control variables such as regulatory quality, communication, and macroeconomic stability.

The control variable Freedom of the Press showed a negative and significant relationship with Govtech. This indicates that more transparent countries, providing more digital services to the population and having regulatory norms, also experience lower levels of press abuse. Thus, the implementation of Govtech tends to enhance the quality, reliability, availability, legitimacy, and comparability of public accounting information, as well as the government's provision of digital services to citizens.

Overall, this study brings new insights by demonstrating that achieving a high Govtech level requires a government structure committed to innovating public services, adapting to the Govtech ecosystem. In practical terms, the study shows a global transformation in public management across all regions, contributing to policymakers' understanding and implementation of innovations such as government cloud services, online public service delivery, open data for the public, and legislation encouraging the private sector. This aims to foster a more transparent relationship with the public, providing insights for the decision-making process.

As a limitation, the study assessed the correlation between the Govtech level and IPSAS adoption in countries that partially or fully adopted the standards and those with the necessary information encompassing all control variables. It is essential to note that the study's results are limited to the correlation analysis between the Govtech maturity index and IPSAS adoption, precluding any inference about causation. Additionally, public perception data on the digitization of public services were not considered.

For future research, it is recommended to investigate other factors possibly correlated with the Govtech level, such as cultural aspects (perception of corruption, democracy, political ideology, and legal system), accounting practices (cash, accrual, or hybrid accounting), social indicators (education level, life expectancy, and human development), governance effectiveness and integrity, political freedom, and financial transparency. Furthermore, qualitative research on how citizens assess Govtech in their countries and how governments, through public managers, can improve Govtech absorption capacity is necessary to study the specificities of Govtech in each country.

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