The Effect of IPSAS Adoption on Governance Quality: Evidence from Developing and Developed Countries

Vincent Tawiah[1] ⬤

Abstract

We use large panel data of 107 developed and developing countries to examine the impact of the International Public Sector Accounting Standards (IPSAS) adoption on governance quality. Our results show that IPSAS has a positive and significant influence on governance quality, suggesting that IPSAS ensure accountability and transparency between the government and its citizens. However, we find that the positive effect of IPSAS is limited to developing countries. The findings provide empirical evidence to policymakers and regulators in their pursuit of global harmonisation of governmental accounting through the adoption of IPSAS, especially in developing countries.

Introduction

Quality accounting systems improve government accountability to its citizens and serve the needs of government decision-making (Opanyi, 2016; Oulasvirta, 2014). Therefore, over the past decades, there have been tremendous efforts to modernised and strengthen the public sector accounting system (Lapsley & Miller, 2019; Mügge & Stellinga, 2015; Tran et al., 2021). One such effort is the development and application of International Public Sector Accounting Standards (IPSAS) (Brusca & Martínez, 2016). According to the International Federation of Accountants (2018), IPSAS as a set of high-quality standards improves governance quality because it increases transparency and accountability in managing public resources (Bakre et al., 2017). Following these perceived benefits, international organisations such as the World Bank, International Monetary Fund, and the United Nations are promoting the adoption of IPSAS as means of improving governance and accountability in the public sector (Bakre et al., 2017).

✉ Vincent Tawiah
   Vincent.tawiah@dcu.ie

[1] DCU Business School, Dublin City University, Dublin, Ireland

As argued by Schmidthuber et al. (2020), the adoption of IPSAS is expected to increase transparency and comparability of government financial activities which will strengthen governance. International Federation of Accountants (2008) emphasis that the objective of IPSAS is to serve the public interest by improving preparation, presentation and comparison of government's financial statements (Oulasvirta, 2014). If IPSAS improve, transparency, accountability and decision-making, then it is expected that the adoption of IPSAS will increase governance quality.

Notwithstanding the numerous benefit of IPSAS, it is not without criticism. Adhikari et al., (2015); Senarath and Ukwatte, (2015) report that the implementation of IPSAS does not really promote transparency and accountability as IPSAS promoters have portrayed it. For instance, IPSAS is likely to dampen governance due to the lack of specificity to the business-style accounting in government and ineffective implementation by many countries (Bakre et al., 2017; Oulasvirta, 2014; Schmidthuber et al., 2020). In fact, some countries such as Finland and Germany have refused to adopt IPSAS due to criticisms of fair valuation and arbitrary estimation (Bakre et al., 2017; Oulasvirta, 2014).

It is in the above context that this paper seeks to examine the impact of IPSAS adoption on quality of governance across developed and developing countries. Particular attention is given to the effect of the two versions of IPSAS (Accrual and cash basis IPSAS). Governance quality is measured by the World Governance Indicators. We employ robust econometric estimation on a large sample of 107 countries between 2005 and 2019. Our results show that the adoption of IPSAS positively and significantly increases governance quality. The results are consistent with the assumption that IPSAS is a set of high-quality standards that improve transparency, comparability, accountability, and decision-making at different government levels, translating to good governance (International Federation of Accountants, 2018). However, we find that the benefit of IPSAS improving governance is only limited to developing countries. In developed countries, our results show a negative relationship contrary to the findings of Cuadrado-Ballesteros and Bisogno (2020). Our findings, therefore, provide new insights to why developed countries are slow in adopting IPSAS. In further analyses, we found that the effect of IPSAS adoption is not static or just one-off, it remains positive and significant as the country continue to use it. To better position our findings in the context of different version of IPSAS, we considered the effect of cash-based IPSAS and accrual-based IPSAS adoption on governance quality. The results indicate that both versions of IPSAS have a positive and significant impact on governance quality, even though, the influence of accrual-based standards is stronger than the cash-basis. Our results are robust to alternative measurement of variables and not sensitive to endogeneity problems.

This study makes incremental contributions in several ways. First, IPSAS is not only significant development in government accounting, but it is also seen as one of the panaceas for achieving transparency and good governance in the public sector (Schmidthuber et al., 2020). However, the effect of IPSAS remains debatable and limited mainly to developed countries (Cuadrado-Ballesteros & Bisogno, 2020; Cuadrado-Ballesteros et al., 2019). Therefore, examining the outcomes of IPSAS adoption across developed and developing countries offers important insights into the benefit of the standard. Although Cuadrado-Ballesteros and Bisogno (2020), provide some evidence of IPSAS on quality of governance, our paper is distinctively different and hence extending the literature. Unlike Cuadrado-Ballesteros and Bisogno (2020), our paper is not only limited

to OECD countries; it covers both developed and developing countries. As argued by the authors, only a few OECD countries have adopted IPSAS (Cuadrado-Ballesteros & Bisogno, 2020, p.4; also see Schmidthuber et al., 2020). Majority of the adopting countries are non-OECD members. Indeed, our data shows that as of 2019, only 5 OECD countries have fully adopted IPSAS compared with about 12 developing countries. Therefore, their findings may not reflect the effect of IPSAS in totality. More importantly, our measurement of IPSAS adoption is quite different from that of Cuadrado-Ballesteros and Bisogno (2020). For example, the authors considered countries discussion the adoption of IPSAS as a form of adoption. Such classification may bias the results as these countries are the same as non-adopters because they do not use any form of IPSAS. Furthermore, Cuadrado-Ballesteros and Bisogno (2020) do not consider the differential effect of accrual based IPSAS and cash-based IPSAS. Our paper is also different from Tawiah (2021) which focused on only corruption. Arguably, governance goes beyond the level of corruption in the country.

Second, by using a large sample, more extended period and updated data, our study provides more precision and reliable results on the effect of IPSAS on quality of governance. Moreover, we extend existing studies to cover developing countries where the adoption of international accounting standards appears relevant and fast-growing. We also provide empirical evidence to show that developing countries are likely to benefit more from the adoption of IPSAS compared to OECD countries. This piece of evidence is relevant to international financial institutions such as the World Bank and IMF who are pushing for the adoption of IPSAS in developing countries (Adhikari et al., 2015; Bakre et al., 2017).

Third, our additional analysis between accrual and cash-based IPSAS provides new evidence that the ultimate adoption of accrual-based IPSAS will enhance governance quality compared to cash-basis. This line of investigation has not been established yet in the literature. This study also adds to the discussion on the contribution of accounting standards to economic development.

The remainder of the paper is as follows. First, we present the literature and hypothesis. Next, the research method is described in Sect. 3. The results and discussion are contained in Sect. 4, and the paper concludes in Sect. 5.

Literature Review and Hypothesis

The appointment or the election of politicians and government officials to manage public resources generate an agency problem which requires high-quality structures for accountability. The collective structures for ensuring effective decision making, transparency and accountability between the principal (citizens/voters/taxpayers) and the agents (government officers/politicians) can be broadly described as governance (Cuadrado-Ballesteros & Bisogno, 2020). Governance, therefore, involves different arrangements (Al-Al-Marhubi, 2004; Kooiman, 1999); however, a key ingredient is high-quality and comparable financial information. Not only does such quality information enhance the principals in monitoring the performance of the agents, but it also facilitates the decision-making process of the agent in providing good governance. The quality and comparability of any financial information largely depend on the quality of the accounting standards used to prepared the financial statements (Arnold, 2020). Accordingly, IPSAS has been hailed as a set

of high-quality standards that advances comparability and transparency of financial information across all government agencies (Christiaens et al., 2014). Schmidthuber et al. (2020) submit that IPSAS provide a uniform basis for preparing financial statements. Such a uniform basis will enable citizens to compare the performance of different government agencies and prior years' performance.

Similarly, different government officers and politicians can compare their performance with peers and across different years. Increases in comparability ensure high accountability between the government and its citizens. In addition to the comparability advantage of IPSAS, Rodríguez Bolívar and Galera (2016), found that fair valuation accounting under IPSAS improves the usefulness of public sector financial statement in monitoring government officers. Similarly, Rodríguez Bolívar et al. (2015) submit that the adoption of IPSAS ensures better presentation and understandability of governmental financial statements. Consequently, these attributes translate to high-quality governance because citizens get a clearer picture of government activities.

Despite these perceived benefits associated with IPSAS as a driver of good governance, some features of the standards are likely to weakened governance. For instance, Bakre et al. (2017) argue that government officials can use historical cost accounting under IPSAS to legitimised corruption and patronage in the sale of public properties. Similarly, Grossi and Steccolini (2015) submit that the adoption of IPSAS may not ensure the expected discourse and hence may not improve governance quality. Some scholars also argue that IPSAS is vague with no detailed guidelines (Agasisti et al., 2015; Bakre et al., 2017; Oulasvirta, 2014; Schmidthuber et al., 2020) and this vagueness can lead to abuse of discretional measurement at the advantage of politicians and government officers. Agasisti et al. (2015) report that IPSAS does not provide detailed guidelines that overcome the recognition and valuation challenges in public sector accounting.

The preceding discussions indicate that the effect of IPSAS on governance might not be straightforward as perceived by many. That is, IPSAS can increase or decrease the quality of governance. However, recent studies on the topic are primarily geared towards a positive effect. For instance, Cuadrado-Ballesteros and Bisogno (2020) report that IPSAS positively influence the quality of governance in OECD countries. With similar sample countries, Cuadrado-Ballesteros et al., (2019), also found IPSAS reduce corruption in OECD countries. Tawiah, (2021) also report the positive effect of IPSAS on corruption. Owing to this empirical evidence and the widespread perception that IPSAS is a set of high-quality standards, we hypothesis that.

H_1 The adoption of IPSAS increases governance quality

Developed and developing countries

Some prior studies assert that developed countries already have robust institutional structures such as high-quality domestic standards, hence the adoption of international standards including IPSAS will not yield significant outcome (McSweeney, 2009; Sikka, 2015). However, other scholars argue that the existence of quality institutional

structures in developed countries help these countries benefit more international accounting standards than developing countries(Ball, 2006; Daske et al., 2008). Specifically, international standards are seen as complex standards developed by developed countries for developed countries (Bova & Pereira, 2012).

Within the context of developing countries, prior studies provide evidence that the wholesale adoption of international accounting standards such as IPSAS is less likely to yield any significant benefits due to the westernised nature of the standards (Adhikari et al., 2015). Specifically, Adhikari et al., (2015); Senarath and Ukwatte, (2015) found that the implementation of IPSAS rarely promotes transparency and accountability in Nepal and Sri Lanka. Similarly, Bakre et al. (2017) found that the adoption of IPSAS does not improve transparency and accountability in Nigeria, a developing country, due to the lack of weak regulatory framework. Contrastingly, Navarro Galera and Rodríguez Bolívar (2011) argue that developing countries benefit from accounting reforms more than developed countries. This is because international standards such as IPSAS serve as a new rule that instils discipline, improves institutional structures, and legitimises developing countries' financial reporting (Cai et al., 2014; Houqe & Monem, 2016). Following these arguments, we expect the impact of IPSAS on governance quality to differ between developed and developing countries. Therefore, we hypothesis that.

H_2: The effect of IPSAS on governance quality differ between developed and developing countries

Research methods

Data

Our sample selection is based on 130 jurisdictions profile at the IFAC website. After dropping countries with missing data, we remain with 107 developed and developing countries between 2005 and 2019. Compared to prior studies (Cuadrado-Ballesteros & Bisogno, 2020; Cuadrado-Ballesteros et al., 2019; Jesus & Jorge, 2016; Rodríguez Bolívar et al., 2015), we contend that, to the best of our knowledge, we are the first to analyse the consequence of IPSAS on a large scale, considering both developed and developing countries.

Measurement of variables

Quality of governance As stated earlier, governance is a broad concept encompassing different aspect of government activities; hence it is difficult to capture all in a single index. However, recently, the World Governance Indicators (WGI) by Kaufmann and Kraay (2018) has become the widely used indicator in accounting and finance studies (Cuadrado-Ballesteros & Bisogno, 2020; Elamer et al., 2020; Konara & Shirodkar, 2018). Therefore, following on from Cuadrado-Ballesteros and Bisogno (2020), we generate the quality of governance score from the World Governance Indicators. The WGI covers six areas

namely; control of corruption; government effectiveness; political stability and absence of violence; regulatory quality; rule of law; voice and accountability. According to Kaufman and Kraay (2018), these indicators cover the core areas of governance. Given that each indicator covers different aspects of institutional quality, we follow on from Cuadrado-Ballesteros and Bisogno (2020) to develop a composite index covering all the six indicators in a single score using the mean score of all the indicators. Consistent with prior studies (Elamer et al., 2020; Konara & Shirodkar, 2018; Tunyi et al., 2020) we employ the Principal Component Analysis (PCA) to develop alternative measurement from the six indicators. We also developed additional scores based on the sub-categorisation of the WGI. The six indicators of WGI reflect the three important areas of governance: (1) the process by which governments are selected, monitored and replaced (voice and accountability; political stability and absence of violence)—VAPS; (2) the capacity of the government to effectively formulate and implement sound policies (government effectiveness and regulatory quality)—GERQ; (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them (control of corruption and rule of law) – RLCC (Kaufmann et al., 2011).

IPSAS adoption Information on country's adoption status is ascertained from the IFAC member profile at the IFAC website. We read this detailed adoption and implementation report on IPSAS for each country to ascertain the adoption status. We follow the IFAC country adoption status to code countries on a 3-point categorical scale, where 0 means non-adopted, 1 – partially adopted and 2 – fully adopted. Non-adopted countries are countries that have not engaged with IPSAS in any form. Partial adopters are countries that are using the cash-basis or parts of the IPSAS. Fully adopting countries are countries that are using the full and up to date version of IPSAS. We collaborate coding information from the member profile with other sources such as ACCA (2017) and the report on International Public Sector Financial Accountability Index. However, following prior studies (Cuadrado-Ballesteros et al., 2019; Cuadrado-Ballesteros & Bisogno, 2020), we make the members' profile the primary source because is more neutral and regularly updated.

Control variables Following on from Cuadrado-Ballesteros and Bisogno (2020), we control for socio-economic and political factors that are found to influence the quality of institutions. Among the socio-economic factors are *Education* (number of secondary school enrolment); *Trade openness* (sum of import and export as a percentage of GDP); *Economic development* (GDP growth); *Foreign direct investment* (the net inflow of investment as a percentage of GDP); *Ethnic fragmentation* (the level of ethnic diversity within the country); *Political ideology* (the political orientation of the party in power); *Electoral system* (the system of government; presidential, assembly-elected president and parliamentary). The description and sources of variables are presented in Table 1.

Model specification

Using large panel data provides high precision in the estimation; however, the reliability and validity of the results depend on the appropriateness of the model specification. Therefore, we perform different pre-regression analyses to determine the suitable model specification. We begin with the correlation matrix to rule out multi-collinearity problems. The results in Table 2 shows that there is no high correlation among the independent variable that possess any multi-collinearity issue (Field, 2000; Tabachnick & Fidell, 2013). The perfect correlation between the *Avg. governance* and *PCA governance* shows that both variables are good alternatives. Next, we perform the Hausman's (1978) test to choose between the random and fixed-effect models. The results indicate that the fixed effect is more appropriate than the random effect. We, therefore, specify our equation as follows.

$$
\begin{aligned}
Governace\ quality_{it} = {}& a + \beta_1 IPSAS_{it} + \beta_2 Education_{it} + \beta_3 Trade\ openness_{it} \\
& + \beta_4 Economic\ development_{it} + \beta_5 Foreign\ direct\ investment_{it} \\
& + \beta_6 Ethnic\ fragmentation_{it} + \beta_7 Political\ ideology_{it} \\
& + \beta_8 Electoralsystem_{it} + \varepsilon_{it}
\end{aligned}
\tag{1}
$$

where i and t refer to country and year, respectively. All variables are defined in Table 1.

Results and discussion

Univariate analysis

The descriptive statistics are presented in Table 3. The mean of *Average governance* is 0.164, which is reasonable given that the score of all the six indicators ranges between -2.5 and $+2.5$. However, the median is far from the mean, and the standard deviation is high, indicating large variation among the sample countries over the period. We observe a similar trend among the alternative measurement of governance quality and individual WGI indicators. The average of IPSAS (0.366) shows that the adoption of IPSAS is relatively low among the sample countries. This is also evident in low IPSASEXP, which shows how long countries have been using IPSAS. In absolute terms, there are 17 fully adopting countries, 40 partially adopting countries and 50 non-adopting countries.

Multivariate analyses

Main analysis

Table 4 contains the estimation for testing H1. As robustness, we present the results on the alternative measurement of governance quality, including the sub-categorisation of the WGI. The results in all the columns show that *IPSAS* has a positive

Table 1 variable description and sources

Variable name	Measurement	Source
Quality of governance	It is constructed from the six World Governance Indicators (WGI); voice and accountability, political stability; government effectiveness; regulatory quality; rule of law and control of corruption	Kaufmann and Kraay (2018)
IPSAS	A country IPSAS adoption status. 0 – non adopting countries; 1 – partially adopting countries; 2 – full adopting countries	IFAC website ACCA (2017)
IPSAS experience (IPSASEXP)	The number of years a country has been using IPSAS since the time adoption	IFAC website ACCA (2017)
Education	The number of students enrolled in secondary school expressed as a percentage of the official school-age population corresponding to that level of education	World Development Indicators
Trade openness	The sum of export and import as a percentage of gross domestic product	World Development Indicators
Economic development	Annualised growth in gross domestic product	World Development Indicators
Foreign direct investment	The net inflow of foreign direct investment as percentage of gross domestic product	World Development Indicators
Ethnic fragmentation	This reflects the probability that two randomly selected people from a given country will not share the same ethnic group. It ranges from 0 to 1 where high value indicates a higher degree of fragmentation	Quality of Government database
Political ideology	The political ideology of the party in power measured as follows; right (1); centre (2); left (3)	Database of Political Institutions
Electoral System	A categorical variable that takes 0 for presidential systems; 1 for assembly elected president systems and 2 for parliamentary systems	Database of Political Institutions

Table 2 correlation matrix

	1	2	3	4	5	6	7	8	9	10
Avg. governance	1									
PCA governance	1	1								
IPSAS	0.12	0.12	1							
IPSASEXP	0.1	0.1	0.75	1						
Education	0.66	0.67	0.11	0.1	1					
Trade openness	0.28	0.28	−0.07	−0.06	0.22	1				
Economic development	−0.3	−0.3	−0.05	−0.05	−0.29	−0.01	1			
Foreign dir. Inv	0.1	0.1	−0.04	0	0.06	0.32	0.14	1		
Ethnic fragmen	−0.43	−0.43	0.09	0.04	−0.49	−0.12	0.16	−0.05	1	
Political ideology	0.14	0.14	−0.13	−0.03	0.13	−0.01	−0.05	0.03	−0.14	1
Electoral system	0.58	0.58	0	0	0.41	0.3	−0.24	0.04	−0.34	0.06

Table 3 descriptive statistics

Variables	(1) Mean	(2) p25	(3) Median	(4) p95	(5) sd
Average governance	0.164	−0.512	−0.133	1.712	0.843
PCA governance	0.007	−1.829	−0.804	4.165	2.271
Voice and accountability	0.216	−0.404	0.141	1.542	0.865
Political stability	−0.0116	−0.573	−0.0223	1.253	0.866
Government effectiveness	0.224	−0.551	0.0103	1.832	0.914
Regulatory quality	0.266	−0.412	0.0774	1.775	0.840
Rule of law	0.150	−0.591	−0.155	1.885	0.951
Corruption	0.140	−0.640	−0.232	2.123	1.018
IPSAS	0.366	0	0	2	0.610
IPSASEXP	0.364	0	0	2	1.357
Education	84.04	65.78	90.90	125.3	29.14
Trade openness	84.24	55.61	75.46	160.7	45.47
GDP growth	3.647	1.810	3.563	8.557	3.588
Foreign direct investment	4.599	1.512	3.044	14.74	7.858
Ethnic fragmentation	0.447	0.186	0.491	0.880	0.267
Political ideology	1.303	0	1	3	1.259
Electoral System	0.927	0	1	2	0.959
Number of countries	107	107	107	107	107

and significant influence on governance quality. The results, therefore, suggest that countries that have adopted IPSAS experience increase in the quality of governance. This is consistent with the assumption that IPSAS is a set of high-quality accounting standards that improve disclosures, comparability, and decision-making in the government (Bakre et al., 2017; International Federation of Accountants, 2008, 2018; Schmidthuber et al., 2020). These attributes translate into accountability and transparency between the government and its citizen, thereby increasing governance quality. High-level disclosures and comparability of IPSAS financial information attenuate the information advantage politicians and government officers have over the citizens. In effect, citizens are likely to get more relevant and reliable information from financial statements prepare per IPSAS than domestic standards. Such information improves the monitoring of government officials as well as improve the decision-making of government agencies.

Developed and developing countries

In this section, we employ a sub-sampling technique to classify countries into developed and developing countries. To maintain comparability and consistency with prior studies (Cuadrado-Ballesteros & Bisogno, 2020; Cuadrado-Ballesteros et al., 2019), we classify all OECD members as developed countries. The results

Table 4 main results

Variables	(1) Average	(2) PCA	(3) VAPS	(4) GERQ	(5) RLCC
IPSAS	0.019***	0.053***	0.037***	0.018**	0.014***
	(2.733)	(2.761)	(3.558)	(2.159)	(5.247)
Education	−0.000	−0.001	−0.001**	0.000	0.014***
	(−1.304)	(−1.230)	(−2.244)	(0.133)	(19.540)
Trade openness	−0.001***	−0.004***	−0.002***	−0.001**	−0.001*
	(−5.661)	(−5.522)	(−6.873)	(−2.280)	(−1.840)
Economic development	0.004***	0.010***	0.007***	0.002*	0.020***
	(3.944)	(3.872)	(4.858)	(1.948)	(4.080)
Foreign direct investment	0.000	0.001	0.000	0.001*	0.007***
	(1.128)	(1.184)	(0.593)	(1.755)	(2.973)
Ethnic fragmentation	0.172	0.472	0.086	0.393***	0.339***
	(1.427)	(1.464)	(0.490)	(2.820)	(4.657)
Political ideology	−0.008**	−0.023**	−0.007	−0.010**	−0.021
	(−2.037)	(−2.082)	(−1.100)	(−2.035)	(−1.556)
Electoral system	0.086***	0.219***	0.249***	0.015**	0.346***
	(3.086)	(2.928)	(6.148)	(2.469)	(17.480)
Constant	0.150**	0.045	0.103	0.129*	1.290***
	(2.276)	(0.257)	(1.082)	(1.698)	(14.915)
Observations	1605	1605	1605	1605	1605
R-squared	0.047	0.046	0.079	0.020	0.550
Number of countries	107	107	107	107	107

t-statistics in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

are presented in Table 5. The coefficient of IPSAS is positive and significant in developing countries, implying that IPSAS increased governance quality. However, in developed countries, we find a negative and significant effect, which contrasts the findings by Cuadrado-Ballesteros and Bisogno (2020). The negative relationship implies that the adoption of IPSAS is less likely to be beneficial to developed countries, highlighting the reason for the low adoption and in some cases reluctant to adopt IPSAS by some developed countries (Oulasvirta, 2014). To further demonstrate the differential effect of IPSAS between developed and developing countries, we use an interaction term between developed countries and IPSAS (all developed countries are code 1 and developing countries 0). The negative and significant coefficient of the *Interaction term* compared with the positive coefficient of *IPSAS* confirm that the adoption of IPSAS does not improve governance quality in developed countries. The findings, therefore, support our second hypothesis that there is a differential effect of IPSAS on governance between developed and developing countries (Table 6).

Table 5 Developing and OECD countries

Variables	Developing		OECD		Interaction term	
	(1)	(2)	(3)	(4)	(5)	(6)
	Average	PCA	Average	PCA	Average	PCA
IPSAS	0.042***	0.114***	−0.041***	−0.109***	0.043***	0.116***
	(4.648)	(4.708)	(−3.945)	(−3.924)	(5.252)	(5.281)
Interaction term					−0.086***	−0.231***
					(−5.457)	(−5.471)
Developing countries					1.426***	3.866***
					(14.715)	(14.917)
Education	0.002	0.001	0.001*	0.002	−0.000	−0.001
	(−0.533)	(−0.510)	(−1.730)	(−1.572)	(−0.675)	(−0.593)
Trade openness	−0.001***	−0.003***	−0.002***	−0.004***	−0.001***	−0.003***
	(−3.372)	(−3.202)	(−4.450)	(−4.489)	(−4.345)	(−4.211)
Economic development	0.004***	0.011***	0.004***	0.010***	0.004***	0.010***
	(3.473)	(3.417)	(2.866)	(2.797)	(4.121)	(4.053)
Foreign direct investment	0.001	0.002	0.000	0.000	0.000	0.001
	(0.640)	(0.672)	(0.151)	(0.166)	(0.732)	(0.783)
Ethnic fragmentation	0.160	0.438	0.004	0.001	0.003	0.017
	(1.224)	(1.256)	(0.74)	(0.98)	(0.032)	(0.066)
Political ideology	−0.015**	−0.042***	−0.002	−0.007	−0.010**	−0.026**
	(−2.567)	(−2.608)	(−0.490)	(−0.532)	(−2.354)	(−2.411)
Electoral system	0.087***	0.218**	0.086*	0.229*	0.105***	0.271***
	(2.582)	(2.433)	(1.761)	(1.730)	(4.248)	(4.109)
Constant	−0.337***	−1.363***	1.284***	3.018***	−0.275***	−1.198***
	(−4.335)	(−6.571)	(12.933)	(11.284)	(−3.533)	(−5.753)
Observations	1110	1110	495	495	1605	1605
R-squared	0.060	0.059	0.110	0.108	0.063	0.062
Number of countries	74	74	33	33	107	107

t-statistics in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Further analyses

Accrual and Cash-based IPSAS We admit that there is significant variation in the application of IPSAS by many countries (Christiaens et al., 2014). Although we have captured some of these difference with the coding of countries into partially adopted and fully adopted, there could still be differences between the major variation of adoption. Therefore, in this, we section investigates whether the relationship between IPSAS adoption and government is similar for both accrual and cash-basis IPSAS. Proponents of IPSAS argue that it is the accrual-based IPSAS that provided more detailed information and transparency as such any benefit of IPSAS improving governance is likely due to the accrual system (Rodríguez

Table 6 Accrual basis and cash-basis IPSAS

Variables	(1) Average	(2) PCA	(3) Average	(4) PCA	(5) Average	(6) PCA
Accrual vs Cash	0.336***	0.909***				
	(5.820)	(5.820)				
Cash vs Non			0.071*	0.173*		
			(1.694)	(1.776)		
Accrual vs Non					0.329***	0.885***
					(5.475)	(5.470)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	− 0.709***	− 2.409***	− 1.228***	− 3.766***	− 1.534***	− 4.584***
	(− 5.484)	(− 6.884)	(− 14.592)	(− 16.603)	(− 14.482)	(− 16.082)
Observations	367	367	942	942	948	948
R-squared	0.672	0.669	0.615	0.616	0.614	0.615
Number of countries	25	25	63	63	64	64

t-statistics in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Bolívar & Galera, 2016). However, critics submit that the cash-based provide less discretion for manipulation, which is essential for quality governance, given that politicians and government officials are likely to abuse discretional and principle-based measurement for their benefits (Oulasvirta, 2014). To test this conjecture of the differential impact of accrual and cash-based IPSAS, we classify countries into three groups; accrual-based IPSAS, Cash-based IPSAS and non- adopting countries. Next we re-run Eq. 1 (EQ1) in three separate estimations; Accrual (1) vs Cash (0); Cash (1) vs Non-adopting (1); Accrual (1) and Non-adopters (0). The results are presented in Table 7. The results show that both accrual and cash-based IPSAS positively and significantly improve governance quality. However, as evident by the small and weak significant level in the case of Cash vs Non-adopters (see columns 3&4), the benefit of IPSAS increasing government is much stronger for accrual-based adopters than cash-based adopters. The strong relationship is also confirmed in the Accrual vs Cash basis analysis in columns 1 and 2. The coefficient is larger than all other columns, suggesting that the accrual basis IPSAS, which is equivalent to full adoption of IPSAS, is more likely to improve governance than cash-basis. That is all other things been equal, as a country moves towards full adoption of IPSAS, its governance increases.

Effects of experience To this point, the analyses are primarily based on the comparison between adopters and non-adopters. Therefore, in this section, we test whether the benefit of IPSAS improving governance quality remains significant as the country continues to use the standards. As international standard with various options, it is probable, over time, that government officials will learn to get around the discretional and judgemental measurement. Also, changes in the government system take a long time (Likierman, 2000); therefore, the real effect of IPSAS may take some time to manifest. To test this conjecture, we follow on from Houqe and Monem (2016), to measure IPSAS experience (IPSASEXP) as the number of years from the time a country adopted IPSAS

Table 7 The effect of experience

Variables	Experience		Accounting globalisation	
	(1)	(2)	(3)	(4)
	Average	PCA	VAPS	GERQ
IPSASEXP	0.032**	0.084**	0.114***	0.305***
	(2.393)	(2.342)	(4.636)	(4.624)
Accounting globalisation			0.045**	0.121**
			(2.517)	(2.500)
Control variables	Yes	Yes	Yes	Yes
Constant	− 1.598***	− 4.756***	− 1.181***	− 3.636***
	(− 15.831)	(− 17.504)	(− 16.295)	(− 18.658)
Observations	965	965	1605	1605
R-squared	0.612	0.613	0.583	0.585
Number of countries	65	65	107	107

t-statistics in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

to 2019. We limit the sample to full adopters and non-adopters. The results presented in Table 7 show that the use of IPSAS over time continues to exert a positive and significant influence on the quality of governance. It is worth noting that prior studies on IPSAS and governance did not consider the effect of experience.

Effects of other international accounting standards The drive towards global harmonisation of accounting standards is not limited to the public sector alone. Many IPSAS adopting countries have also adopted other international accounting standards such as International Financial Reporting Standards (IFRS) and International Standards on Auditing (ISA). Though these standards are primarily meant for the private sector, some government agencies prepare accounts according to IFRS (Schmidthuber et al., 2020). These other standards are also found to improve governance quality (Houqe & Monem, 2016). Therefore, as a robustness check, we include *Accounting globalisation* in our model to check if the benefit of IPSAS improving governance quality still holds after controlling for the effect of the international standards. *Accounting globalisation* is measured by the number of other international accounting standards a country has adopted. It ranges from 0 to 2, where 0 – the country have neither adopted IFRS or ISA; 1 – the country has adopted either IFRS or IAS; 2 – the country has adopted both IFRS and ISA. As displayed in Table 7, the results show that the positive and significant effect of IPSAS on governance quality still holds. Similarly, as expected, we find that the adoption of other international accounting standards also exert positive and significant influence on the quality of governance.

Individual governance indicators Following on from Cuadrado-Ballesteros and Bisogno (2020), we run separate regression on each of the six indicators as additional robustness on the main findings. The results which are presented in Table 8

shows IPSAS increase governance quality. This is consistent with the main findings, confirming the robustness of our results.

Endogeneity check

In this section, we employed the Two-step System Generalised Method of Moment (S-GMM) to check the robustness of our findings to potential endogeneity. We used the pre-determined variables and lagged of the dependent variable as the instruments. The use of S-GMM and instrumental variables are consistent with priors studies on IPSAS and governance (Cuadrado-Ballesteros & Bisogno, 2020; Cuadrado-Ballesteros et al., 2019). The estimation of the S-GMM presented in Table 9 is consistent with the main findings, confirming the robustness of our results.

Conclusion

Although there have been practical and political emphasis on harmonising government accounting practices through the adoption of IPSAS, there remains the question of whether the perceived benefits have manifested. Given this background, we have examined the impact of IPSAS on quality of governance. Using a large sample of 107 developing and developed countries, we document that IPSAS is positively and significantly associated with an increase in governance quality. The results suggest that the comparability, transparency and detailed disclosure associated with IPSAS (International Federation of Accountants, 2018) translate into high-quality governance and accountability in the public sector. Regarding the effect in developed and developing countries, we find that the impact of IPSAS on quality of governance is more beneficial to developing countries and more likely to be detrimental in developed countries. This finding explains partly, why the rate of adoption is very slow among developed countries because the benefit is unclear. In further analysis, we found that both accrual and cash-based IPSAS

Table 8 Individual governance indicators

| Variables | (1) | (2) | (3) | (4) | (5) | (6) |
	VA	PS	GE	RQ	RL	CC
IPSAS	0.021**	0.053***	0.101***	0.022**	0.031***	0.156***
	(2.103)	(3.149)	(4.102)	(2.310)	(3.390)	(5.255)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.269***	− 0.062	− 1.231***	0.250***	0.160*	− 1.311***
	(2.951)	(− 0.403)	(− 16.138)	(2.833)	(1.910)	(− 14.158)
Observations	1605	1605	1605	1605	1605	1605
R-squared	0.051	0.050	0.601	0.019	0.022	0.527
Number of code	107	107		107	107	107

t-statistics in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 9 Endogeneity check 2SGMM

Variables	(1) Average	(2) PCA	(3) VAPS	(4) GERQ	(5) RLCC
IPSAS	0.066***	0.200***	0.070***	0.040*	0.034***
	(4.112)	(4.349)	(3.602)	(1.774)	(3.155)
Lag dependent	0.507***	0.443***	0.440***	0.202***	0.753***
	(15.897)	(13.576)	(14.956)	(5.386)	(36.139)
Control variables	Yes	Yes	Yes	Yes	Yes
Observations	1498	1498	1498	1498	1498
Number of code	107	107	107	107	107

z-statistics in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

have a significant positive influence on governance quality; however, the effect is stronger for accrual-based IPSAS adopting countries than cash-based IPSAS adopting countries. Our results are robust to alternative measurements of variables and are not sensitive to endogeneity problems.

Our results have profound implications for both policy and academic literature. First, our findings respond to repeated calls for cross-country research into the benefit of IPAS (Schmidthuber et al., 2020). By documenting the consequences of IPSAS on quality governance across developed and developing countries, we show that IPSAS is more beneficial to developing countries than developed, which is contrary to the findings of prior studies (Cuadrado-Ballesteros & Bisogno, 2020; Cuadrado-Ballesteros et al., 2019; Rodríguez Bolívar et al., 2015). Our findings are therefore relevant to promoters of IPSAS (e.g. the World Bank, IMF IFAC) as well as regulators who are advocating for the globalisation of governmental accounting through the adoption of IPSAS in developing countries.

As revealed in other studies (Rodríguez Bolívar et al., 2015; Schmidthuber et al., 2020), IPSAS might be complex and too costly to implement, hence in practice, there could be variation in the application of the standards even by countries that claim full adoption. Although such variation could affect our findings, we believe that the majority of adopting countries are in full compliance with the IPSAS.

As with many studies on the consequence of international accounting standards (Cuadrado-Ballesteros & Bisogno, 2020; Cuadrado-Ballesteros et al., 2019), the measurement of IPSAS adoption may be cruel, because it might not capture the process of adoption as well as the year to year adoption strategies. However, given the available data and the fact that our coding is consistent with prior studies (Cuadrado-Ballesteros & Bisogno, 2020; Cuadrado-Ballesteros et al., 2019), we are convinced that our findings are robust.

Appendix

Table 10

Table 10 List of countries

Adopters	Partially adopters		Non-adopters	
Azerbaijan	Armenia	Mexico	Albania	Ireland
Barbados	Belgium	Mongolia	Argentina	Italy
Chile	Bosnia and Herzegovina	Morocco	Australia	Jamaica
Colombia	Botswana	Norway	Austria	Japan
Dominican Republic	Brazil	Pakistan	Bahamas	Kyrgyzstan
Ecuador	Canada	Philippines	Bahrain	Lebanon
Estonia	Costa Rica	Portugal	Bangladesh	Luxembourg
Ghana	Cote d'Ivoire	Rwanda	Benin	Mozambique
Guatemala	Czech Republic	Serbia	Bolivia	Namibia
Iceland	Fiji	Sierra Leone	Brunei	Nepal
Kazakhstan	Hungary	South Africa	Burkina Faso	Netherlands
New Zealand	Indonesia	Spain	Cambodia	Nicaragua
Nigeria	Israel	Sri Lanka	Cameroon	Papua New Guinea
Panama	Jordan	Thailand	China	Paraguay
Peru	Kenya	Turkey	Denmark	Poland
Switzerland	Lesotho	Uganda	Egypt	Senegal
Tanzania	Madagascar	Ukraine	El Salvador	Slovak Republic
	Malawi	United Kingdom	Eswatini	Slovenia
	Malaysia	Uruguay	Finland	Suriname
	Mauritius	Zambia	France	Sweden
			Germany	Togo
			Greece	Trinidad & Tobago
			Guyana	Tunisia
			Honduras	United States
			India	Vietnam

Declarations

Ethical approval None.

Informed consent None.

Conflict of Interest There is no conflict of interest on this paper.

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