
The influence of IFAC membership on the implementation of sustainability in accounting training programs

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Abstract: This paper presents empirical evidence of International Federation of Accountants (IFAC) membership's influence on integrating sustainability in accounting training programs of professional accounting organisations in sub-Saharan Africa countries. The paper applies a quantitative approach and uses ex post facto research design to actualise its objective. The sample size comprises 50 sub-Saharan African countries. The study uses secondary data from the entire 50 sub-Saharan Africa countries, and analyses data using multivariate regression analysis. The paper stands out from previous research by including three other independent control variables: country accounting system, country age since independence, and the age of syllabus. Findings show that, against expectation, membership of international accounting association (IFAC) has no significant influence on the inclusion of sustainability in the accounting education curriculum of professional accounting organisations in sub-Saharan Africa; instead, the results show that the age of the syllabus significantly influences the extent of sustainability inclusion in the accounting curriculum. Practical implication includes the need for the IFAC to elevate its sustainability framework guide to a mandatory status for inclusion in professional members' education curriculum. This is vital for imbuing sustainability ethics in qualified accountants. The paper identifies an agenda for further research.

Keywords: sustainability education; accounting education; institutional theory; professional accounting organisations; PAOs; sub-Saharan Africa; professional association; International Federation of Accountants; IFAC.

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1 Introduction

This paper examines the relationship between memberships of International Federation of Accountants (IFAC) and sustainability inclusion in the professional accounting curriculum of professional accounting organisations (PAOs). This study is motivated by four major factors emanating from policy and scholarly debates, namely: increasing focus on PAOs as a tool to facilitate the development of accountants' skills and awareness of sustainability issues, advocacy to apply sustainability issues in business processes, particularly accounting and reporting, growing policy interest on the importance of accounting education relating to sustainable development and increased policy interest on the opportunities available to the accounting profession in actualising the sustainable development goals (SDGs). Anyolo et al. (2018) highlights that sustainable development education provides sustainability potential for leaders to efficiently manage environmental resources in consideration of future generations.

First, there is a policy interest in how accounting educators can leverage PAOs to improve members' skills and awareness of sustainability. Accordingly, this study on the connection between the syllabi of PAOs in enhancing members' skills and awareness of sustainability is essential. This connection is meaningful because some researchers have advocated that PAOs have roles to ensure members' skills development and awareness of sustainability issues. Some PAOs that have identified this role are the Institute of Chartered Accountants in England and Wales (ICAEW) and the Association of Chartered Certified Accountants (ACCA). The ICAEW recognises that accountants have roles to play in sustainable development. This realisation culminated in adopting the SDGs as a new model to actualise public interest [Wilson, (2017) as cited in Bebbington and Unerman (2018)]. The ACCA features another success story resulting in improved sustainability awareness among members. This awareness is raised through Continuing Professional Development, publications, member surveys to ascertain the need for more training and materials on sustainability issues, and participation in relevant groups whose primary business bothers on sustainability. In addition to the success as mentioned above, Makarenko and Plastun (2017) note that IFAC, ICAEW, ACCA, and the Chartered Institute of Management Accountants (CIMA) support some of the current global initiatives towards sustainability (especially in the area of sustainability accounting and reporting).

Second, on the advocacy to apply sustainability issues in business processes, accounting and reporting, it has been argued that accountants should show more interest in sustainability issues for two main reasons. First, the world is experiencing a period when great emphasis is placed on sustainable development. Accountants can measure and create indices to guide corporate reporting on sustainability issues. Businesses are expected to operate within the limits of sustainable development by improving their processes, accounting and reporting of sustainability. KPMG surveys have provided evidence on the reporting of sustainability which is usually embedded in corporate responsibility reports over the years. In one of the most recent surveys on corporate

responsibility reporting, KPMG (2017) states that Africa (excluding South Africa and Nigeria) has traditionally low corporate responsibility reporting compared to the Americas, Asia Pacific, and Europe. On the other hand, North America has higher rates of corporate responsibility reporting. The USA and Canada are countries in North America with particularly high responsibility reporting levels. This evidence shows that responsibility towards sustainability issues is yet to gain wide acceptance by corporate organisations in some countries. Another reason why accountants should show more interest in sustainability issues is that high-quality sustainability information is significant support for achieving sound capital markets and resilient companies. The accounting profession can promote responsible companies and capital markets (International Federation of Accountants, 2016).

Third, the growing policy interest on the importance of accounting education relating to sustainable development can be discussed in two main strands, namely: the current academic accounting syllabi of tertiary institutions and the professional syllabi of PAOs. Fourth, the increasing policy interest on the accounting profession's opportunities in actualising the SDGs has been discussed (Bebbington and Unerman, 2018).

This paper's novel approach in examining the relationship between membership of the IFAC and sustainability inclusion in professional accounting education curriculum distinguishes it from four studies related to the extant literature on the role of curriculum in improving accounting education. The first study is by Montero-Sieburth (1992), where the methods of curriculum innovation in emerging countries were discussed. The second (Ainsworth, 2001) focused on the changes in accounting curricula. The third (Martin, 2005) discussed a system of sustainability thought in professional accounting practice of sustainability; the fourth group of study discussed the leadership role in sustainability education (Shaimemanya and Shihomeka, 2019) and the implementation of education for sustainability (Anyolo et al., 2018). The current study's positioning contributes to both the broad literature on the relevance of accounting education towards increasing the skills and awareness of professional accountants about sustainability.

2 Problem statement

The IFAC is a global organisation and an industry association responsible for serving the public interest by overseeing the training of worldwide public accountants that are imbued with quality and ethical standing that conforms to society's interest (International Federation of Accountants, 2011). As an industry association, IFAC attests to the capacity of PAOs in providing the education, skills, and training required of the individuals who subscribe to the curriculum of PAOs to qualify as professional accountants. The regulation of the global accounting industry by IFAC shapes the accountants' education, experience and continuing professional education. These institutions have a responsibility to govern sustainability issues within the purview of accounting and have been described as transnational rule-making organisations in relation to sustainability issues (Dingwerth and Pattberg, 2009). Empirical literature on the relationship between associations and members' sustainability practices has diverse findings (Clarke, 2004). The relationship between membership of the IFAC by PAOs and level of inclusion of sustainability in the accounting examination curriculum of PAOs in sub-Saharan Africa is yet to be empirically ascertained by prior studies. Therefore, this

paper bridges this existing gap in the literature by examining this phenomenon in sub-Saharan Africa.

2.1 Research objective

Based on the preceding statement of the research problem and the existing gap in the literature, the objective of this paper is to examine the influence of membership of the IFAC by PAOs in explaining the variation in the implementation of sustainability in accounting training programs (specifically, the accounting curriculum).

2.2 Research question

Based on the above research objective, the question that underscores this paper is how membership of IFAC by PAOs influences the variation in the implementation of sustainability in accounting training programs (specifically, the accounting curriculum).

3 Theoretical background

3.1 New institutional theory

According to Powell (2007), the practices of organisations are influenced by the organisational environment. New institutional theory is also known as neo-institutional theory. Vargas-Hernández (2008) noted that the neo-institutional theory explains the international management of organisations. The theory can be applied at the firm-level and country-level, respectively. According to DiMaggio and Powell (1983), the neo-institutional theory explains the dynamics of change in organisational practices. This change could be attributed to several factors outside and within an organisation.

Hussain and Hoque (2002) applied the new institutional sociology theory to assess non-financial performance measurement practices in banks. The theory helped understand factors affecting the design and adoption of non-financial performance measurement practices of banks. Based on the study, economic constraint was found to be the most influential factor. Other significant factors include regulatory control of the central bank, accounting standards, the strategic focus of management, size, competition, and the tendency to copy others who are getting it right in the banking industry. Lochtenbergh (2013) finds that institutional factors influence organisations' implementation of GRI's sustainability reporting guidelines. Tsamenyi et al. (2006) used the new institutional theory in analysing the historical and other contexts in which the accounting and financial information system in a company was adopted. The company's adoption of the accounting and financial information system was attributable to institutional forces: head office control over various subsidiaries, cost reduction, and professional groups like the SAP and IT professionals. These studies show that institutional pressures emanate from the organisational environment, making it almost impossible for organisations to exist without being influenced by them. There are regulations, socially accepted behaviours, and norms which can affect organisations. Also, the operations and systems of an organisation's peers in the industry (that is, competitors) make it difficult not to desire or emulate their peers' practices and systems. PAOs are governed by the IFAC which is an institution that represents the global body of

accountants. Thus, PAOs operate under the influence of a regulatory authority. Consequently, they can connect with this regulatory institution to design the syllabi that guide professional accounting examinations. There is a similarity between the actions of these organisations and socially acceptable behaviours of society. According to Emtairah and Mont (2008), the similarity between organisational actions and shared beliefs of society depicts the concept of legitimacy. An organisational action such as developing a curriculum that includes sustainability is often a response to expectations from the organisational environment. These expectations arise from some sources such as regulators, professional organisations, industry members, host communities, and other groups. PAOs are expected to uphold high ethical standards of the accounting profession. These expectations stem from the industry or clients serviced by professional accounting firms who provide their clients with tax, audit and assurance, management consultancy, liquidation and receivership, and so on.

The institutional theory explains that organisations respond to sustainability issues because of their organisational environment. This study proposes that this environment makes PAOs respond favourably to include sustainability in their education syllabi. PAOs respond to the pressure from their organisational environment to move beyond corporate financial accounting and reporting to incorporate environmental, social and governance aspects of corporate performance. These pressures from their environment come from investors, shareholders, suppliers, government organisations, tax authorities, profit-making organisations and not-for-profit organisations. As stakeholders in the corporate financial reporting process, PAOs ensure that business and other types of organisation account for their operation's environmental, social and governance aspects.

4 Literature review

4.1 Membership of IFAC and sustainability implementation in accounting curriculum

A notable innovation and connection amongst professional associations of various disciplines is the growing importance of sustainability ethics of members (Boulianne and Keddie, 2018). Previously, ethical conduct in professional membership was more attached to professional ethics, which resonates more uniquely with the individual professions (Cox, 2019). However, the emergence and growth of global sustainability campaign from various fronts has instilled sustainability advocacy in many professional associations – voluntarily or compliantly (Zsolnai and Flanagan, 2019).

Accordingly, some researchers have examined the professional association's role in members' social, sustainability and environmental ethics. Using an online survey approach from a sample of global professional accounting bodies, Jackling et al. (2007) found that membership of professional accounting associations play a vital role in instilling sustainability ethics in accounting associations. They also opine that professional accounting membership inspires members to embrace ethics education. A related paper surveyed tax practitioners in China and applied the regression and structural equation method to analyse the survey data. Findings from the research showed that tax practitioners' ethical integrity is influenced by adherence to professional accounting values (Shafer et al., 2016). A recent study examined the lack of sustainability coverage in French professional education program for professional accountants. Interviews and

content analysis indicate that while the French government recommends sustainability inclusion in accountants' education, sustainability fails to feature prominently in their professional accounting education and in their accounting practice and auditing for reasons mainly due to lack of enabling funding (Boulianne et al., 2018). Their analysis of the responses from a sample of respondents shows that an enhanced adoption of sustainability in the French accounting education program would be bolstered if the market begins to demand the services of professional accountants who specialise in sustainability and government regulatory bodies regulate sustainability as a compulsory tentacle of the accounting profession (Boulianne et al., 2018). Other researchers posit that professional accounting association, particularly the IFAC plays prominent environmental sustainability advocacy through the provision of sustainability education materials, workshops and the encouragement of IFAC member bodies around the world to develop and integrate sustainability education curriculum in their professional programs (Mădălina et al., 2011). Some researchers lament the apparent window dressing of the sustainability curriculum. For instance, in a hospitality professional curriculum survey, results indicate that although sustainability is included in the hospitality curriculum, little emphasis is paid about the sustainability concepts in the core delivery of hospitality educational program (Deale et al., 2009). Therefore, this indicates that mere inclusion of sustainability in the curriculum may not necessarily mean that due attention is accorded to the concepts embedded in the sustainability curriculum; in some cases, this could be used as a window dressing of the curriculum in order to appear compliant with sustainability education (Wright and Horst, 2013; Greenwood, 2010). Recently, a new study in Canada examined the extent of sustainability in the Canadian CPA accounting curriculum; applying a content analysis and interview approach, findings reveal, amongst others, that the sustainability content of the CPA accounting program has diminished during the past years, hence, despite the motivation from the IFAC, sustainability in the CPA education curriculum has little emphasis and priority accorded to it (Boulianne and Keddie, 2018). While probing the cause of the trivialisation of sustainability content in the CPA curriculum, they find that lack of due recognition of the society as a significant corporate stakeholder, lack of sustainability exposure and knowledge, and power dynamics in the CPA contribute to limit the elevation of sustainability in the CPA curriculum (Boulianne and Keddie, 2018). Despite the seemingly mixed results regarding sustainability inclusion in the professional accounting curriculum, some researchers maintain that IFAC plays a vital role in inspiring PAOs toward the inclusion of sustainability curriculum in their professional training curriculum (Akimova et al., 2019).

Companies may exaggerate their actual sustainability performance in the absence of education, policy, and sustainability reporting guidance. They are thereby hurting those persons and institutions that depend on sustainability information for several reasons. Therefore, posing a serious risk to business stakeholders, particularly those who have provided capital to finance the business. In addition to sustainability reporting guidelines, for example, GRI guidelines issued by the Global Reporting Initiative, United Nations Global Compact Principles, Carbon Disclosure Project, Greenhouse Gas Protocol and other guidelines developed by stock market regulators, academic and professional accounting syllabi may be able to provide accounting students with knowledge and information that could trigger the much needed organisational change towards accountability for sustainability performance.

According to Clarke (2004), in a study of the relationship between trade associations and sustainability behaviour by members, trade associations show less leadership in

promoting adoption of sustainable practices by small and medium-sized enterprises (SMEs) because few of them opine that meeting environmental criteria or signing up to an environmental code of conduct is mandatory for membership. Natarajan and Wyrick (2011) argue that this position of trade associations is under-utilised because through strong networks and local partnerships they can influence their members to mandatorily adopt sustainable business practices. Also, trade associations are a tool for collaboration between members. Hence, the challenges faced by their members can be collectively addressed.

According to Nwobu (2017), corporate membership of international industry body can influence sustainability reporting. Industry bodies usually govern the practices of members (that is, corporate organisations). For example, the International Petroleum Industry Conservation Association (IPIECA) is the global oil and gas industry association for environmental and social issues responsible for governing organisations operating in the upstream and downstream oil and gas industry. Due to the material nature of business transactions of oil and gas operations, their sustainability performance and behaviour should be paramount to their stakeholders. Stakeholders (that is, shareholders, suppliers, employees, trade unions, labour unions, host community, government, and customers) should be concerned because company value may be eroded due to negative corporate reputation that results from bad sustainability performance.

Industry associations can be described as governance institutions. These associations often operate through mandatory or voluntary codes which are applied by their members. Empirical studies (Adeniyi, 2016; Weber et al., 2016) find that members of United Nations Environment Programme Finance Initiative (UNEP FI) have more disclosures on sustainability. Larger companies have more compliance to these codes compared to smaller ones. The regulations have also been able to guide corporate members' reporting practices on sustainability issues such as climate change, social impacts, human rights, and other aspects of sustainability compared to non-members. In line with the aforementioned empirical studies, IPIECA (2014) notes that subscribing to industry associations can help improve organisational legitimacy, which includes compliance with accountability for impacts on society, climate change, energy reduction, waste, water usage, greenhouse gas emission and pollution.

The arguments of existing literature on industry associations and members' sustainability behaviour are rich. However, the relationship between membership of industry association and curriculum of association members regarding the inclusion of sustainability suffers monumental neglect, hence, the reason for developing the following hypothesis. The curriculum of association members can reveal meaningful actions toward sustainability practices. Consequently, the much-required organisational change towards improved sustainability performance can be achieved through education by professional accounting associations.

4.2 Accounting system

Based on the classification of international accounting systems, there are five international accounting systems. These accounting systems are: Anglo-Saxon, Nordic, Germanic, Latin, and Asian. The Anglo-Saxon accounting system originated from the USA and the UK; this accounting system diffused through colonialism by the British of other African countries such as Botswana, The Gambia, Ghana, Kenya, Lesotho, Malawi and Nigeria. Countries that fall under the Anglo-Saxon accounting system feature large

developed capital markets, investor protection regulation, large corporations, and shareholder activism. The Nordic accounting system group countries include the Netherlands, Denmark, Norway, Sweden and Finland. Countries classified under Germanic accounting are Germany, Israel, Austria, and Switzerland. France, Italy, Brazil, Argentina, Belgium, and Spain are classified under Latin accounting. Asian accounting feature countries such as Indonesia, India, Pakistan, Hong Kong, Singapore, and Malaysia.

Much of the literature on the international classification of accounting systems have considered the corporate disclosure impact of accounting systems (Adams and Kuasirikun, 2000; Faisal et al., 2012; Swinkels, 2012). The accounting systems of business entities in the Germanic classification are characterised by more secrecy than those associated with the Anglo-Saxon classification (Swinkels, 2012). Adams and Kuasirikun (2000) find that German companies report more ethical issues than the UK companies. Faisal et al. (2012) found that sustainability disclosure in emerging countries is higher than similar disclosures in Communist and Anglo-Saxon countries. The current study seeks to assess the ability of IFAC membership to predict a significant amount of the variance in the dependent variable (sustainability reporting inclusion) after controlling for the international accounting system.

4.3 Country age

According to Peter (2003), agenda-setting research focuses on country features as contingent conditions of agenda setting. Country age is measured as the age of a country since independence from its colonial influence. The age of a country is a pointer to how long it has existed since independence. Since independence, the older a country is, the more mature the disposition to issues bothering corporate disclosure and sustainability reporting. Older countries should be more concerned with improving sustainability. The current study seeks to assess the model (membership of IFAC) to predict a significant amount of the variance in the dependent variable (sustainability reporting inclusion) after controlling for country age.

4.4 Age of syllabus

The older an examination syllabus, the more improvements it will exhibit. These improvements are usually based on the expectations of clients who require the services of accountants. The syllabus's age can reveal how long such a syllabus has been in use since its adoption date. The age of a syllabus could point to the extent to which it adopts expectations from clients. The current study seeks to assess the model (membership of IFAC) to predict a significant amount of the variance in the dependent variable (sustainability reporting inclusion) after controlling for syllabus age.

This current research contributes to the literature by examining how membership of IFAC influences PAOs in sub-Saharan African countries to integrate sustainability in the education curriculum. According to recent literature, corporate membership of international associations can influence the sustainability reporting of its members. However, previous literature has not yet explored the link between membership of IFAC association and inclusion of sustainability in the professional accounting curriculum of sub-Saharan African countries. The following section provides the first empirical evaluation of this phenomenon in sub-Saharan Africa.

5 Research methodology

5.1 Sample

After the preceding literature review, the paper applied a quantitative approach to analysing the research data collected from the websites of 50 PAOs in sub-Saharan Africa. The sample of the study comprises 50 sub-Saharan African countries.

5.2 Research design and procedure of the study

The study employed an ex post facto research design. The study used this research design because the facts had already occurred. The researchers observed the implementation of sustainability in accounting training programs after the curriculum was published on the PAOs' websites. The content analysis methodology was used to assess the implementation of sustainability in the accounting curriculum. Information pertaining to membership of the IFAC was retrieved from the website of IFAC.

5.3 Data collection instrument

Based on the literature on sustainability, a checklist of sustainability issues was developed by the researchers. After the preceding literature review, it was necessary to choose the items to be included in the sustainability implementation index. The curriculum disclosure literature was reviewed. Amongst the literature reviewed were studies on online curriculum disclosures. Martin (2005) provided a model to explore sustainability in business and professional contexts. The model comprises principles underlying sustainability and modes of integrating sustainability into professional practice and positive change in organisations. The data and their sources were explained in Table 1.

Table 1 Variables, their description and data sources

<i>Variables</i>	<i>Description</i>	<i>Source of data</i>
<i>Dependent variable</i>		
SRIS	Sustainability reporting inclusion score: represents the ratio of the number of sustainability items disclosed by PAOs to the total number of sustainability items in the authors' checklist. The dependent variable is numeric.	Websites of PAOs
<i>Independent variables</i>		
IFMB	Age of membership of IFAC:	International Federation of Accountants (2018)
APOG	Age of PAO	Websites of PAOs

Source: Authors (2020)

Table 1 Variables, their description and data sources (continued)

<i>Variables</i>	<i>Description</i>	<i>Source of data</i>
<i>Control variables</i>		
ACSY	Accounting system: 1 for Anglo-Saxon Accounting 2 for Nordic Accounting 3 for Germanic Accounting 4 for Latin Accounting 5 for Asian Accounting	Websites of colonial information about a particular country
COUA	Country age since independence	Websites of countries
AGSL	Age of syllabus	Websites of PAOs

Source: Authors (2020)

5.3.1 The construction of the sustainability implementation index

Based on the existing literature, it is expected that a professional accounting curriculum on sustainability should be versatile in both theoretical and practical aspects of sustainability reporting. The current study adopted these issues in the development of a sustainability implementation index. Therefore, the sustainability reporting inclusion scoresheet included items on the principles aspect (that is, concept of sustainability), tools in the curriculum to support the integration of sustainability into professional accounting studies (that is, assurance of sustainability reports, procedure for assurance engagements for sustainability reports) and organisational change (that is, indicators of sustainability performance and preparation of sustainability reports).

The study involved the use of secondary data obtained from the online curriculum of PAOs. The curriculum was necessary to ascertain the implementation of sustainability in accounting training programs. Sustainability reporting inclusion in the accounting curriculum of PAOs was based on content counting of the presence and number of sustainability items (that is, the presence of sustainability concepts, tools in the curriculum to support the integration of sustainability into professional accounting studies). The identification of sustainability concepts was based on a previous research outline of sustainability in business and professional context (Martin, 2005). The model is different from Martin (2005) because it includes explanatory variables related to the institutional environment from where a PAO operates.

5.3.2 The dependent variable – Sustainability implementation score

The dependent variable was calculated using the checklist in Table 2.

Each item in the checklist was assigned a score based on the aspect of sustainability in the checklist. The higher the score is, the better the implementation of sustainability in the curriculum of PAOs.

Table 2 Number of PAOs in North America and sub-Saharan Africa and the extent of inclusion of sustainability reporting themes in their examination syllabus

<i>S/no.</i>	<i>Sustainability implementation checklist</i>
1	Concept of sustainability
2	Strategy for business sustainability
3	Stakeholder groups and their definition
4	Meaning of sustainability reporting
5	Responsibilities towards stakeholders
6	Interests of stakeholder groups
7	Components of sustainability reporting
8	Assurance of sustainability reports
9	Procedure for assurance engagements for sustainability reporting
10	Indicators of sustainability performance
11	Preparation of sustainability reports

Source: Authors compilation (2020)

The index representing the weight of sustainability implementation was determined as follows:

$$SRIS = (M / 11) \times 100$$

where:

SRIS stands for the sustainability implementation score (SRIS).

M stands for the observed items disclosed in the PAO syllabus.

The maximum overall number of items in the checklist is 11, and this number corresponds to 100%.

The items in the checklist were extracted from the courses in the syllabus of the PAOs as shown in Table 3. The broad subject areas are accounting, auditing, business, corporate governance, and finance among others.

Table 3 Examination courses featuring the items on sustainability in the syllabus of PAOs

<i>Subject area</i>	<i>Specific subject</i>
Accounting	Advanced financial reporting
	Performance management
	Performance measurement
	Corporate reporting
	Management accounting
Auditing	Auditing and other assurance services
	Auditing principles and practice
	Auditing and assurance
	Advanced audit and assurance

Source: Authors (2020)

Table 3 Examination courses featuring the items on sustainability in the syllabus of PAOs (continued)

<i>Subject area</i>	<i>Specific subject</i>
Auditing	Assurance Audit and assurance Advanced audit and assurance in the private sector
Business	Principles of management Business policy and strategy Business and management Personal attributes Professional skills Strategy and leadership Business strategy Strategic business management Entrepreneurship and communication
Corporate governance	Governance
Finance	Financial management Managerial finance Strategic corporate finance
Law	Corporate law
Combined subject area	Management governance and ethics Strategy risk management and governance Business management and finance Corporate strategic management and ethics Case study Business and finance Strategy governance and ethics

Source: Authors (2020)

5.4 *Validity and reliability of the sustainability implementation index*

The validity of the sustainability implementation index was determined using content validity approach. According to Hassan and Marston (2019), content validity is assessed by seeking professionals' subjective judgment. Two professors specialising in accounting education assessed the sustainability implementation index developed for the study. They confirmed that an accounting training program featuring sustainability should be versatile in both theoretical and practical aspects of sustainability.

The reliability of the sustainability implementation index was ascertained using the test re-test approach. The reliability of the sustainability implementation index measures how each result obtained from the index's use is similar. An author coded the entire curriculum at one time using a Microsoft Excel spreadsheet. After two months, the curriculum was re-coded by the same author using another Microsoft Excel spreadsheet. The results of sustainability implementation scores showed their stability from the index

used to measure the extent of sustainability implementation over some time. The reliability method used is in line with Hussainey et al. (2003).

5.5 Data analysis

Tobit model is used when the information on the regress and is available for some observation. In the analysis, values of the dependent variable (sustainability implementation – SRIS), are continuous and have a lower bound of zero. The zero occurs 39 times). In this case, linear regression model is not appropriate and instead a Tobit model (a censored regression model) should be used. The Tobit model is used to evaluate the influence of the explanatory variables on sustainability reporting inclusion in the syllabus of PAOs. The model is used is adapted from Dyduch and Krasodomska (2017), where corporate social responsibility disclosures were extracted from the annual reports of Polish companies. In the current study, sustainability issues were extracted from the syllabus of PAOs in sub-Saharan Africa.

The Tobit model assumes that the dependent variable is latent. The observable dependent variable y is equal to the latent variable whenever the latent variable is above zero and otherwise is zero. This is shown as follows:

$$\begin{cases} y^* & \text{if } y^* > 0 \\ 0 & \text{if } y^* \leq 0 \end{cases} \quad (1)$$

The equation used to model a linear relationship between the dependent variable (with censored values) and the set of independent variables is shown as follows:

$$y^* = \beta_0 + \beta_1 x_1 + \dots + \beta_n x_n + \varepsilon, \varepsilon N(0, \sigma). \quad (2)$$

The ordinary least square estimators are not consistent. The coefficients of the Tobit model should be estimated using the maximum likelihood method. Therefore, the model is estimated to assess the relationship between sustainability implementation and membership of the IFAC. Stata 11 Software was used to analyse the data.

The probability models such as Logit and Probit are not used for estimation of the model because the dependent variable is not binary. Also, the minimum value for the dependent variable is zero; hence the Tobit model is used to estimate the model. The model used in the current study differs from the existing literature on sustainability in the curriculum (Moore, 2005; Wright and Horst, 2013; Anyolo et al., 2018), as the current study models the influence of the explanatory variables at the country-level on sustainability reporting inclusion in the syllabus of PAOs. The country-level variables are the membership of the IFAC, age of the syllabus, country age and the accounting system. No prior study in the literature has modelled this relationship before.

6 Results and discussion

6.1 Descriptive statistics

The descriptive statistics for the dependent and independent variables is shown in Table 4. The score values of the dependent variable are shown in Table 4. The minimum value of the dependent variable is zero and the maximum value is 100. The range of the

dependent variable is 100. With a mean value of 14.00, the average level of sustainability inclusion in the PAO syllabus in the sample is relatively low. Based on the minimum value of zero, a majority of the PAOs do not include sustainability in their syllabus. The ratio of the standard deviation to the mean, known as the coefficient of variation, for the sustainability inclusion score is skewed.

Table 4 Descriptive statistics

	<i>Minimum</i>	<i>Maximum</i>	<i>Range</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>N</i>
Dependent variable:						
Sustainability inclusion score (SRIS)	0.00	100.00	100.00	14.0002	28.9363	50
Independent variables:						
IFAC membership age (IFMB)	0	43	43	12.4	16.0242	50
Accounting Professional Organisation Age (APOG)	0	102	102	25.82	22.8712	50
Accounting system (ACSY)*	1	3	2	2.16	0.9553	50
Country age (COUA)	28	2,000	1,972	95.400	275.5863	50
Age of syllabus (AGSL)	0	7	7	0.8200	1.6744	50

Note: *Dummy variable.

Source: Authors' data analysis output from Stata 11

6.2 Tobit regression analysis

This section presents the results of Tobit regression analysis for models 1 and 2. The results of the Tobit regression analysis are presented in Table 5. According to Pallant (2011), tolerance values of less than 0.10, and variance inflation factor (VIF) of more than ten reveal the presence of violated multicollinearity. There is evidence of compliance with the statistical assumptions required for the application of Tobit regression. First, there were no tolerance values of less than 0.10 and no VIF values of more than 0.10. Therefore, there were no violations of multicollinearity assumptions, making Tobit regression analysis appropriate for the dependent and independent variables. According to Wilhelm (2008), an approach is to estimate the Tobit model and conduct conditional moment tests to detect departures from homoskedasticity and normality. The current study uses this approach to ascertain the normality of the residuals. After estimating the Tobit model, the normality of errors and departure from homoscedasticity was ascertained to validate the robustness of the Tobit model. The residuals were generated and the skewness and Kurtosis test for normality was conducted. The probability of the skewness is 0.0001 implying that skewness is not asymptotically normally distributed (p -value < 0.05). The Kurtosis is not asymptotically distributed because the p -value < 0.05. The Chi-square p -value is 0.0006. Therefore, based on the skewness test for normality, the residuals do not show normal distribution.

Table 5 Tobit regression analysis

<i>Variable</i>	<i>Coefficient</i>	<i>Standard error</i>	<i>t</i>	<i>p-value</i>
Intercept	-83.0270	34.9526	-2.38	0.022**
IFMB	4.246508	1.13037	3.76	0.001***
APOG	-1.486817	0.6023954	-2.47	0.018**
ACSY				
2	-5.480922	27.07455	-0.20	0.841
3	15.93719	24.72518	0.64	0.523
COUA	0.0397928	0.071606	0.56	0.581
AGSL	14.77042	4.330431	3.41	0.001***
Number of observations	50			
Number of censored observations	39			
Chi-square	48.39			
Chi-square p-value	0.0000			
Log likelihood	-57.4634			
Sigma coefficient	30.7558			
Sigma standard error	6.9622			

Notes: ***Significant at the 0.01 level.

**Significant at the 0.05 level.

Source: Authors' data analysis output from Stata 11

The variance of the residuals was assessed for heteroskedasticity. The White's test was the first test on heteroscedasticity. The p-value was less than 0.05 implying that the variance of the residuals was not homogenous. Another test for heteroscedasticity (the Breusch-Pagan/Cook-Weisberg test) showed that the variance of the residuals was not homogenous (p -value < 0.05).

According to Wooldridge (2013), the Tobit model relies crucially on normality and homoskedasticity in the underlying latent variable model. In the current study, the residuals do not meet the assumptions of normality and homoskedasticity, hence it is difficult to ascertain what the Tobit model is estimating. The presence of heteroscedasticity and non-normality result in the Tobit estimator $\hat{\beta}$ being inconsistent for β . If the model were to be estimated using ordinary least square, the robust option would have solved the problem by producing robust standard errors. However, in the Tobit model there is no option for robust standard errors. According to Wilhelm (2008), the censored least absolute deviations (CLAD) estimators are robust against departures of errors from homoscedasticity and normality.

The results of the Tobit regression analysis for models 1 and 2 were presented in Tables 5 and 6. The analysis showed that the age of syllabus, membership age, and age of PAO were statistically significant and had beta coefficients of 14.5924, 4.2223, and -1.5014. The age of the syllabus is significant at the 0.01 level. The membership of IFAC age is also significant at the 0.01 level while the age of the PAO is significant at the 0.05 level. The regression model accounted for approximately 29.46% of the sustainability inclusion score variance. The regression model reached statistical significance ($p = 0.0000$).

Table 6 Heteroskedasticity and normality

White's test for Ho: homoskedasticity against Ha: unrestricted heteroskedasticity chi2(20) = 39.88 Prob. > chi2 = 0.0052					
<i>Cameron and Trivedi's decomposition of IM-test</i>					
<i>Source</i>	<i>chi2</i>	<i>df</i>	<i>p</i>		
Heteroskedasticity	39.88	20	0.0052		
Skewness	12.95	5	0.0238		
Kurtosis	3.68	1	0.0550		
Total	56.51	26	0.0005		
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity Ho: Constant variance Variables: fitted values of sris chi2(1) = 22.74 Prob. > chi2 = 0.0000					
<i>Skewness/Kurtosis tests for normality</i>					
					<i>Joint</i>
<i>Variable</i>	<i>Observations</i>	<i>Pr (Skewness)</i>	<i>Pr (Kurtosis)</i>	<i>Adj. chi2</i>	<i>Prob. > chi2</i>
SRIS	50	0.0000	0.0243	18.24	0.0001
IFAC	50	0.0249	0.0018	11.92	0.0026
APOG	50	0.0034	0.0511	10.26	0.0059
ACSY	50	0.3063	0.0000	.	0.0000
COAG	50	0.0000	0.0000	73.47	0.0000
AGSL	50	0.0000	0.0023	22.84	0.0000

Source: Authors' data analysis output from Stata 11

Due to the presence of heteroscedasticity, Powell's estimator was used to estimate the CLAD. CLAD estimates the standard errors using the bootstrap method and is useful where there is heteroscedasticity, deviation from normality of the residuals. The results of the CLAD were presented in Table 7. The results of the CLAD estimator are robust even when there is heteroscedasticity and deviation from normality in the residual.

Table 7 CLAD model

<i>Variable</i>	<i>Observed</i>	<i>Standard error</i>	<i>t</i>
Intercept	0.7700217	18.34251	0.04198017
SRIS	0.2344751	0.1255102	1.86817565
APOG	0.3640643	0.2416294	1.50670531
ACSY	-4.193489	4.496978	-0.93251268
COUA	0.076377	0.2397148	0.31861612
AGSL	0.5775514	2.455677	0.2351903

Source: Authors' data analysis output from Stata 11

This foregoing result has provided evidence of sustainability reporting inclusion in the online examination syllabus of PAOs in 50 sub-Saharan African countries. The study employed the disclosure index method to evaluate the examination syllabus of PAOs. The sustainability reporting inclusion index included a total of eleven themes on sustainability reporting. The total score of sustainability reporting inclusion was 11.

Univariate and multivariate analyses were carried out to investigate the relationship between membership of IFAC, country regions, accounting systems, country age, age of syllabus and the extent of inclusion of sustainability reporting in the examination syllabus of PAOs in sub-Saharan Africa. Overall results on the extent of inclusion of sustainability into PAOs' curriculum affirm the literature's consensus that accounting is still insensitive to society and the environment. However, some other researchers have found that there were appreciable initiatives to sustainability in PAOs. These sustainability initiatives by PAOs are limited by a lack of standards, regulations, and uniform accounting policies. In the current study, the institutional environment where PAOs operate needs to be supported by appreciating sustainability reporting. This support should emanate from regulators, and importantly, PAOs such as the IFAC. This needed support by IFAC is urgently required. This paper's results show no relationship between membership of IFAC and the inclusion of sustainability in professional accounting education curriculum.

In this paper, the age of professional accounting education syllabus is strongly associated with the inclusion of sustainability in the accounting education curriculum. This result is against expectation that being a member of IFAC should have boosted the members' sustainability inclusion in their accounting education. Therefore, this suggests that in the absence of strong motivation by the international professional body – IFAC, PAOs should be proactive in developing internal sustainability strategy to keep up with international advocacy for sustainability ideology, which should resonate in the accounting curricula. It is along this imperative that Bebbington and Unerman (2018) argued that the accounting profession has a supporting responsibility in achieving the UN SDGs.

This research result confirms previous research finding that although an institution may be avid in outlining some sustainability policies for education, what matters is the actual implementation in the curriculum; if such policies such as those initiated by IFAC are not closely monitored, there is a chance that it may not precipitate to pragmatic application in the education curricula. This failure is often caused by certain institutional bottlenecks, including *inter alia*, misapplied evaluation criteria and conflicting multiple institutional priorities (Moore, 2005). Hence Shaimemanya and Shihomeka (2019) highlight that sustainability in education can be motivated by the organisation's leadership practise of sustainability. Perhaps, the non-significant nature of IFAC membership as a booster to the sustainability curriculum in sub-Saharan African professional accounting bodes could be linked to the non-mandatory nature of IFAC's sustainability as these appear in the form of sustainability statements, sustainability discussion papers, frameworks and guidelines (Owen, 2013).

7 Conclusions

This paper examines the influence of membership of professional accounting association (IFAC) on the inclusion of sustainability in accounting curriculum of PAOs in sub-Saharan Africa. Drawing from the literature, the analysis was controlled by other

independent variables: age of the country, age of education syllabus, and accounting system type. The results show that membership of IFAC does not significantly drive the inclusion of sustainability in accounting education curriculum of PAOs in sub-Saharan Africa. PAOs could, therefore, develop examination syllabus that incorporates sustainability reporting. This could boost students' knowledge who subscribe to examinations conducted by PAOs in sub-Saharan Africa. Also, this could boost the level of attention given to sustainability reporting by accountants in corporate entities. The present study results should provide useful information for those charged with developing the examination syllabus in line with current trends in accounting practice by indicating the state of inclusion of sustainability reporting in the examination syllabus and how it can be better. This should contribute to a corporate world where accountants are not passive about sustainable development. The study has some limitations. The first is that the present study shows the extent of inclusion of sustainability reporting in the examination syllabus of PAOs using the available online examination syllabus. The disclosure index method is limited because of the subjectivity involved in content analysis method where items are scored based on the number of times they appear in the examination syllabus. The effect of this subjectivity was minimised by using an un-weighted disclosure index where no weight is allocated to a disclosure item in terms of 'qualitative', 'quantitative', or 'both'. In this study the un-weighted disclosure index used a binary coding method of '0' or '1'. The cumulative un-weighted score for the 11 items in the inclusion index was used as the dependent variable.

Further studies on sustainability reporting and professional accounting education could focus on examining the effects of the decision of IFAC on the extent of inclusion of sustainability reporting in the examination syllabus of PAOs in sub-Saharan Africa before and after the imposition of this IFAC decision. The consequences of the inclusion of sustainability reporting in the examination syllabus of PAOs on corporate sustainability reporting practices in Sub-Saharan African countries could be investigated. Another area for future study is how other institutional characteristics such as differences in economic, social and governance contexts may influence the extent of sustainability reporting inclusion. A fourth possible study could assess sustainability reporting in the examination syllabus of PAOs in other regions of Africa and other developing economies.

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