National Culture and Public Sector Budgeting: The Mediating Role of Country-Level Institutions Using a Structural Equation Modelling Approach

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ABSTRACT

Purpose – Despite cultural dimensions being included in hundreds of business and management research studies, there have been relatively few studies in public sector accounting that include the use of cultural dimensions. It is posited that national cultural variables impact the institutions, which in turn have an influence on the public sector budgeting. This study contributes to the literature by examining these relations in 31 countries.

Design/methodology/approach – These relationships are empirically evaluated by structural equation modelling using measures of national culture from the *GLOBE study* and *Worldwide Governance Indicators (WGI)* measures named institutions from the *World Bank.* Furthermore, measures of public sector budgeting are evaluated in which public sector budgeting is classified according to the legislative power of the purse and budget transparency.

Findings – Generally, findings reveal that institutions mediate the relationship among national cultural variables and budgeting at the national level. By that means, budgeting in a given nation is linked to the nation's supporting institutions which, in turn, are influenced by the national culture of those who maintain them. Particularly, power distance and uncertainty avoidance impact budgeting through the full mediation of institutions.

Research limitations/implications – The World Bank's database used for the institutions contained over 200 countries (Kaufmann et al., 2007/2019); the GLOBE cultural database (House et al., 2004) contained data for 62 societies; the public sector budgeting (Qi and Mensah, 2011) included power of the purse and budgeting transparency country scores for 49 countries; and the datasets comprised 31 nations, mostly from OECD countries. While smaller than we would have preferred, the size is consistent with other international studies (for instance: Waldman et al., 2006; Kwok and Tadesse, 2006).

Practical implications – The findings of this paper suggest that any plan to improve a nation's budgeting should consider the links between budgeting, supporting institutions and the culture of those that run them. The formal adoption of new methods and standards by supporting institutions may not be enough without accompanying efforts to transform national culture.

KEYWORDS: Public Sector Budgeting, National Culture, Country-Level Institutions, Power of the Purse, Budgeting Transparency.

1. INTRODUCTION

The paper addresses the issue of variations in the cultural and country-level institutional contexts in which public sector budgeting is influenced. Distinctly, the paper aims to describe the impact of national culture on public sector budgeting through the mediating role of country-level institutions. The paper, in other words, seeks to provide a suitable route for optimal budgeting regarding the cultural environment in a given nation, since public sector budgeting has more flexibility against changes compared to national culture and country-level institutions (Qi and Mensah, 2011; Daniel et al., 2012). The budgeting process is ordinarily the manner in which resources are allocated and, for this process to be accomplished efficiently, information must be obtained from subordinates who are in close proximity to resource usage (Rankin et al., 2008). The public sector budgeting represents financial plans which specify how public resources are supposed to be used to meet public policy goals (OECD, 2006; Qi and Mensah, 2011, Alkaraan, 2018). Given the importance of public welfare, there is a focus on the issues that contribute to effective budgeting in the public sector, because the governments demand funding to conduct their tasks and promote relevant services. In recent years, theoretical and practical advances in budgeting processes have been such that now in the leading national economic system, the budget has become one of the most important tools for optimal allocation of resources, particularly in the public sector. Managers using the new budgeting techniques, along with the rational use of resources, may provide a suitable platform to improve the efficiency of government agencies (Dahmarde and Zarei, 2018).

It has long been recognized in the literature that national accounting systems are shaped by the national environment, which includes culture. Although the study of culture has a long history, it is only recently that researchers have realized the importance of culture in understanding professional and business practice (Perera et al., 2012). As defined by Hofstede (2011), culture is a representation of the shared values, attitudes, belief and behaviour among a group of people.

Within the accounting and management fields, researchers have attempted to use culture to explain country differences in accounting and budgeting (e.g. Gray, 1988; Salter and Lewis, 2011; Perera et al., 2012; Cieslewicz, 2014; Rodríguez Bolívar et al., 2015; Graham and Sathye, 2017; McNab and Wilson, 2018; Zarei et al., 2020). The linkage between accounting systems, strong governance and accountability has been established by both Allen (2002) and Matheson (2002) across nations. In the current paper, the impact of national culture on the public sector budgeting is evaluated, particularly to ensure that the efficiency applied in the budgeting system accommodates public accountability and strong governance in the public sector.

Furthermore, the effectiveness of management control and planning systems used in developing countries is an important issue. As countries become more industrialized, leading local companies and even the public sector are importing systems and budgeting techniques from more advanced industrialized countries. Academic centers and consultants are also accelerating this work. Unfortunately, such companies and the public sector, regardless of the possible effect of cultural differences in the successful implementation of these systems, try to use them and sometimes do not achieve the desired result at great expense. Therefore, it is necessary to pay attention to the culture as an influential factor to recognize differences.

Using Hofstede's (1980, 1983) cultural dimensions, Qi and Mensah (2011) consider the influence of national culture on government budgeting practices. This includes classifications of government budgeting practices in terms of the extent to which the legislative body controls government expenditures (legislative power of the purse), and also the extent to which budgets are transparent to both the legislature and people (budget transparency). In their study, Qi and Mensah (2011) used 49 countries covered in both the OECD and World Bank as the sample and concluded that national culture has a significant relation with regard to government budgeting practices. Using data for budget transparency from the Open Budget Index, McNab and Wilson (2018) investigated whether cultural values significantly influence budget transparency. They found evidence that individualism positively influences budget transparency. They also revealed that stronger preferences for institutional collectivism, masculinity, and authoritarian rule lower budget transparency. Importantly, they concluded that public sector budgeting is considered to be influenced by these factors. The current study addresses the impact of the cultural variables on institutions. We consistently emphasize cultural practices that may influence attitudes surrounding business. In considering the institutions, we emphasize "*the rules of the game*" (North, 1990). This emphasis agrees with Aoki (2001) and Amable (2003), who specify that institutions have to observe certain rules. The World Bank's Worldwide Governance Indicators, which we utilize in our research, reflect measures of institutions or "*rules*" as they are followed within nations. Our treatment of public sector budgeting follows the process of reasoning in that we evaluate the legislative power of the purse and budgeting transparency as determinants of budgeting, referred to by Wehner (2003) and the OECD (2002). The legislative power of the purse controls the extent of government expenditures, and budget transparency reveals the extent budgets are transparent to both the legislature and individuals (Qi and Mensah, 2011).

The current paper opens a revived discussion about the relevant role of the public sector in the light of cultural dimensions and their effect on budgeting. Our research implies that the practices related to budget may reflect the cultural values of the society in which the public sector /policymakers operate. Further empirical investigation addressing the link between culture, budget and institutions is required to adequately address the proper mechanisms for promoting the economic welfare of the society.

Our investigation has further practical implications for legislators. During the preparation of budgets, legislators may find it necessary to align their determination in light of our conclusions that there could be a congruence between the national culture and the practices of budgeting.

We understand that this has been discussed in the literature but our findings also add to its importance, hence reminding legislators of such a critical issue.

The distinctions between culture and budget are important factors that are examined in the present study. Comparing Qi and Mensah (2011) with the current paper, we acknowledge that, while their results may be somehow similar to ours, they utilized different cultural dimensions through various methods that could impact/limit the constitutional structure of the legislative body for budgeting issues. In light of our conclusions, there may be a chance to reconsider prior studies that directly associate national culture with budgeting issues.

Given the importance of public welfare and guiding others to achieve that, it is crucial to identify the factors that contribute to effective budgeting in the public sector. This paper thus contributes to the literature on the influences on budgeting issues through identifying cultural factors at the national level.

The paper contributes to the literature by providing empirical evidence of the ties among (1) national culture and institutions, (2) institutions and budgeting, and (3) the indirect influence of national culture on public sector budgeting through its influence on institutions. Validation of these ties supports the premise that changing budgeting practices requires more than recognizing or adapting budgeting best practices; rather, it requires adjustments to institutions. Importantly, it is argued that these adjustments to institutions should be aligned with the prevailing national culture (Cieslewicz, 2014). There are a limited number of studies examining the relationships among specific aspects of culture, institutions, and budgeting. The mediating effect of institutions on the relationships among national culture and public sector budgeting will be further discussed in this study.

Our contribution thus is the development of constructs for national culture and institutions to develop a model which better illuminates the methods by which culture impacts public sector budgeting. We then test the model using data from 31 countries to examine the impact of culture and institutions in public sector budgeting. To put it more clearly, the study particularly examines whether national culture impacts public sector budgeting through country-level institutions.

These relationships are examined through empirical observation. Moreover, these relationships are evaluated by structural equation modelling using: measures of national culture from the GLOBE study (House et al., 2004); Worldwide Governance Indicators (WGI) measures identified as institutions from the World Bank (Kaufmann et al., 2007/2019); and measures of public sector budgeting from Qi and Mensah (2011) in which public sector budgeting is classified regarding the legislative power of the purse and budget transparency.

The next section of the paper provides a review of the prior literature on culture, institutions, public-sector budgeting and how they are related to each other. As the remainder of the paper requires an understanding of public sector budgeting, national culture and institutions as well as the datasets used, the data sources are also introduced in this section. The specific variables from the above-mentioned studies are then discussed in greater detail to explain how we operationalize the constructs and variables used to test our model in section four. Building on the theoretical discussion in the third section and the explanation of the variables in the fourth section, the fifth section presents the hypotheses and the methodology used to test the hypotheses. The results are then discussed in section six. The next section contains discussion and conclusion in which suggestions and limitations are also provided.

2. THEORETICAL UNDERPINNINGS AND RELEVANT LITERATURE

2.1 Direct effects of national culture on accounting and public sector budgeting

In the globalization era where there is a need for different cultures to be in much greater contact than ever before, there is an urgent need to obtain a better perception of other cultures and ideas of doing business, and that is currently driving business education and challenging leadership and human resource advancement in business (Javidan and Dastmalchian, 2009).

Hofstede (1980, p.13) described culture as: "*the collective programming of the mind which distinguishes the members of one human group from another"*. He contends that culture is rooted in values and defines culture as values manifesting at the collective level, and identifies sub-culture as representing values within organizations, professions, and other human groups in society (Gray, 1988). An expanded definition of culture is provided by House et al. (2004) in the more recent and extensive Global Leadership and Organizational Behavior Effectiveness (GLOBE) cultural study, which built upon Hofstede's seminal study. Like Hofstede, the GLOBE study focused on aspects of national culture. GLOBE distinguished between cultural values and practices because of its view that national culture can be broadly defined as "*values, beliefs, norms and behavioral patterns of a national group*" (Leung et al., 2005, p.2). House et al. (2004) developed the more recent GLOBE database of cultural values and practices, which incorporates nine cultural constructs. Javidan and House (2001) revealed that culture consists of "*shared motives, values, beliefs, identities, and interpretations or meanings of significant events that result from common experiences of members of collectives and are transmitted across age generations"*. It therefore follows that national culture will directly influence accounting and budgeting (Cieslewicz, 2014). Everyone is influenced by culture in ways that impacts their behaviour. The influence of culture on accounting and budgeting practices has been the subject of many studies (e.g., Braun and Rodriguez, 2008; Askary, Pounder et al., 2008; Askary, Yazdifar et al., 2008; Agbejule, 2011; Pifeh, et al., 2017; Pifeh and Zarei, 2016; Zarei et al., 2019). National culture influences institutions through the input of citizens who develop and maintain them and are themselves influenced by their culture (Hofstede, 1980; Cieslewicz, 2014). Thus, one can say that the requirements to achieve optimal budgeting with regard to the particular cultural and institutional environment of a country include an increased awareness that a lack of attention to the possible role of national culture in public sector budgeting may lead to low consideration of comprehensive official budgeting in the public sector bodies. This then leads to negating the sense of accountability as well as a lack of transparency in budgeting (Qi and Mensah, 2011; McNab and Wilson, 2018). Therefore, this paper provides the primary basis of raising cultural issues that may assist the government to create national responsibility and transparency in public sector budgeting.

Cieslewicz (2014) argues that people are imbued with culture and human actions underpin the most crucial aspects of budget preparation, revision and implementation (See also Milani, 1975); these subjects are also related to the public sector budgeting as a social activity based on human interactions, therfore the perception of cultural dimensions and their implications are of great importance at country level (Kanan, 2010).

The extant literature shows that budgeting practices and accounting have become bases of international policy (e.g. Qi and Mensah, 2011; Zarei and Pifeh, 2016) to develop decisions, local planning, and administration; reduce corruption and fiduciary risk; control the effectiveness of aid against development goals; and make funders more accountable to their constituencies (Fyson, 2012). Hopper et al. (2017) further clarify it is important to determine accountability and regulation for these reasons. These were to be fed back through Ministries to Parliament and potentially to the public in developing countries. The authors concluded that the iterative budgeting would coordinate central plans with those of state-owned organizations (Hopper et al., 2017).

There is empirical evidence regarding the effect of culture on budgeting in organizations (e.g. Douglas and Wier, 2005; O'Connor, 1995) which can be utilized to develop official budgeting of the public sector and control units linked with cultural issues to implement effective budgeting policies (Qi & Mensah, 2011).

Relevant studies document that the development of accounting and such budgeting issues are affected by certain environmental matters; the most important of these is culture (Gray 1988) and institutions (Cieslewicz, 2014). As an effective issue, culture can explain differences in accounting across nations. The paper adopted Gray's (1988) framework to explain the relationships among culture, accounting, and institutions, represented in Figure 1, making slight changes, and illustrates that societal values (or cultural values) are affected by ecological influences, which in turn are influenced by external issues. Furthermore, both ecological issues and cultural values influence a society's institutional arrangement; ultimately, cultural values and institutions impact accounting values, accounting systems and public sector budgeting (McNab and Wilson, 2018; Perera et al., 2012; Berland, 2018; Qi and Mensah, 2011; Douglas and Wier, 2005; O'Connor, 1995; Ueno and Wu, 1993; Sandalgaard and Nielsen, 2018). There are empirical pieces of evidence regarding the role of culture on accounting which can be used to develop official budgeting and control units linked with cultural issues to implement effective budgeting policies (Qi and Mensah, 2011).

[Insert Figure 1 about here]

The data source for national culture and the appropriateness of cross-national culture datasets

The GLOBE study (House et al., 2004) is described in this section as it will be referenced throughout the remainder of the paper. It is one of several studies offering dimensions for statistical comparisons of different national cultures (Cieslewicz, 2014). As stated by Cieslewicz (2014, p. 3): "*the primary rationale for choosing the GLOBE data as opposed to other available cultural datasets is that (1) it is the most current (2) the study sampled employees of businesses as opposed to some other population, such as school teachers (Schwartz, 1994), and (3) it expands upon Hofstede's study so that existing research utilizing Hofstede's data can be conceptually compared to it"*. Another advantage of the GLOBE database is that it draws on data from 62 countries, making it valuable for international comparisons (Daniel et al., 2012; Cieslewicz, 2014).

2.2 The influence of national culture on institutions

Culture exerts pervasive influences on individuals (Hofstede, 1984; House et al., 2004). Since people are imbued with culture, it follows that the institutions they operate in any given country will be shaped by that nation's national culture (Cieslewicz, 2014). Hofstede's description of culture as "*the software of the mind*" refers both to the process through which people are socialized or programmed to function in a society and to the logical consequence: that culture influences the institutions. That is, culture impacts individuals, and individuals then construct and maintain institutions (Hofstede, 1984). This theoretical relationship is echoed by Gray (1988) when he indicated that societal values accept institutional consequences (Fig. 1). This phenomenon assists in explaining why independent societies establish and support different institutions to facilitate business transactions; some institutions are more effective than others, and all tend to evolve over time (Strange et al., 2009). Earlier studies (Guillen, 2001; Daniel et al., 2012 and Cieslewicz, 2014) emphasize the role and effect of culture on institutions. Thus, it is obvious that many studies have referred to the role of culture in institutional development. North (1991, p.1) defined institutions as "*the humanly devised constraints that structure political, economic, and social interaction"*, arguing that the focus is not on the entities themselves. In this study, the focus is not on governmental entities but on governmental policies, conventions and enforcement. Empirical business research has indicated that there are linkages among aspects of national culture and institutions. Licht et al. (2007) demonstrated that institutional norms related to law, corruption and democratic accountability correlate significantly with national cultural dimensions developed by Schwartz (1994, 1999). Cieslewicz (2014) indicated that accounting in a given nation is linked to the nation's supporting institutions, which, in turn, are influenced by the national culture of those who maintain them. Taken as one, there is strong theoretical support behind the premise that national culture influences national institutions (Daniel et al., 2012).

2.3 The data source for institutions

One of the most well-known and comprehensive studies of institutions across countries is that of Kaufmann et al. (2007/2019), who have provided measures of national institutions through their work on the World Bank's Worldwide Governance Indicators (WGI). The WGI project reports aggregate individual governance indicators for 212 countries and territories annually over the period 1996–2019 for six dimensions of national governance. The aggregate indicators combine the views of a large number of enterprises, citizens and expert survey respondents in industrial and developing countries. The individual data sources underlying the aggregate indicators are drawn from a diverse variety of survey institutes, think tanks, non-governmental organizations and international organizations (See Kaufmann et al., 2007/2019). The WGI assesses institutional variables such as regulatory quality, government effectiveness, rule of law, corruption controls and political stability (Cieslewicz, 2014).

2.4 The influence of institutions on accounting and public sector budgeting

Institutions impose constraints on budgeting through both formal mechanisms, such as laws and regulations, and informal processes, like norms and conventions. Thus, sophisticated accounting environments and public sector budgeting require a degree of societal support. Scott (2001) refers to institutions as relatively enduring systems of social beliefs and socially organized practices associated with varying functional areas of societal systems (e.g., religion, work, politics, laws, and regulations) (Uddin, 2018; Zelikson and Shubita, 2020). Institutions provide the structure and reinforcement required for accounting to reliably function and thereby influence budgeting. Hagen (1998) expressed that institutions shaping the budget process of a nation represent the critical issue in determining that nation's level of national deficits and debts. The implication is that institutional reform of the budget process provides substantial protection against massive deficits and debts. He added that institutions impact decisions related to government finances. As Hagen (1997) revealed, the government budget becomes crucially dependent on institutions outside the annual budget process, i.e., wage setting institutions in the local sector, the social security system, the welfare system, and labour market regulations. Under such circumstances, fiscal discipline becomes critically dependent on the quality of a nation's institutions outside the budget process as well.

2.5 The mediating role of institutions in national culture and public sector budgeting

Culture-related accounting studies have focused primarily on the direct effects of culture on accounting (see, for instance, Salter and Niswander, 1995; Doupnik and Tsakumis, 2004; Salter and Lewis, 2011). Gray (1988) argued that institutional outcomes of cultural values further impact accounting (Fig. 1). Societies are culturally charged (Cieslewicz, 2014; Ferraro and Briody, 2017). Societies tackle economic problems through institutions which are influenced by culture and act as mediators among the expectations of both the nation and the groups they are targeting (Cieslewicz, 2014). However, few scholars have addressed the issue of the mechanisms by which culture influences budgeting. It is posited that cultural influences on budgeting are primarily indirect, through the development of institutional systems, rather than direct. Several researchers have theorized that culture influences institutions (Daniel et al., 2012; Amable, 2003; Aoki, 2001; North, 1990) and have detailed how institutions shape economics (Cieslewicz, 2014). As mentioned earlier, direct cultural effects on public sector budgeting at the level of the nation and corporation have been found by previous quantitative studies (see Qi and Mensah, 2011; Graham and Sathye, 2017), but there is a gap in the literature concerning the underlying mechanisms. Researchers have tended to neglect potential mediation effects, although these can provide further explanation of initial findings, and focus on primary effects. However, where there is mediation, mediators can help explain how an effect occurs (Baron and Kenny, 1986; Daniel et al., 2012; Cieslewicz, 2014).

3. THEORETICAL MODEL.

Culture influences individual cognition, emotion, motivation, behaviour and interactions (Nisbett, 2003; Cieslewicz, 2014). Conceptualized at the nation level, the collective culture directly influences the overall budgeting of a nation. As institutional efforts are shaped in part by culture and these institutional efforts impact public sector budgeting, culture again comes to bear on budgeting, but this time indirectly through those with oversight, enforcement and judicial-related responsibilities. In addition to the direct influences of culture on budgeting, this presents an indirect, mediating avenue through which culture influences public sector budgeting. The theoretical model illustrating these relationships can be found in Fig. 2. In this model, national culture influences public sector budgeting in a nation directly. National culture also influences public sector budgeting by influencing institutions, which further influence public sector budgeting and act as a mediator between national culture and public sector budgeting. Our emphasis on macro-level relationships among national culture, institutions, and budgeting in nations allows us to produce conclusions in line with our theory. Having discussed the theoretical development of the model, the linkages among the variables in the model depict our hypotheses.

[Insert Figure 2 about here]

4. OPERATIONALIZATION OF CONSTRUCTS

4.1 The relationship of national culture variables with public sector budgeting

For the paper, we sought to develop a construct of culture that would focus on the elements of national culture that most influence budgeting. The nine national cultural dimensions available in the GLOBE study are therefore reviewed for their expected theoretical importance to public sector budgeting.

4.1.1 Power distance. Power distance "*reflects the extent to which a community accepts and endorses authority, power differences, and status privileges*" (House et al., 2004; p.513). Javidan and Dastmalchian (2009) explained that power distance is defined as the degree to which members of an organization or society expect and agree that power should be unequally shared. Societies that are high on power distance, such as Thailand or Spain, distinguish among those with power and status and those without, and expect obedience towards superiors. Societies low on power distance, such as Denmark and the Netherlands, expect less differentiation among those in power and those without. Haxhi and Ees's (2010) paper using Hofstede's variables of power distance and individualism revealed that in cultures with a high receptivity to power differences there is a more reasonable probability that the first issuers represent the government, directors or professional associations, whereas, with low receptivity, the stock exchange and investors groups of issuers are more likely to initiate the first code. Daniel et al. (2012), using GLOBE variables, find a negative relationship between power distance and corporate governance practices. Cieslewicz (2014) provides support for the relationship between power distance and national accounting (IFRS). Adopting the cultural dimensions of Hofstede, Qi and Mensah (2011), contrary to theoretical underpinnings (reverse impact on budgeting), observe no significant relationship between aspects of government budgeting and power distance. More recently, McNab and Wilson (2018) discussed the relationship between power distance and budgeting transparency. High power distance implies doing as one is told, even where this ignores errors or ethical problems: an approach that contravenes the premises of budgeting and accounting. As a result, power distance is expected to impact institutions that support budgeting.

4.1.2 Uncertainty avoidance. Uncertainty avoidance is defined in the GLOBE study as *"the extent to which members of collectives seek orderliness, consistency, structure, formalized procedures, and laws*" (House et al., 2004, p.603). Javidan and Dastmalchian (2009) illustrated that uncertainty avoidance is defined as the extent to which members of an organization or society strive to avoid uncertainty by reliance on social norms, rituals and bureaucratic practices to alleviate the unpredictability of forthcoming events. Societies with high scores on uncertainty avoidance, like Switzerland or Sweden, value orderliness and consistency, structured lifestyles, and rules and laws to govern situations. Societies scoring low on this dimension, on the other hand, like Hungary or Brazil, have a strong tolerance for ambiguity and uncertainty, live less structured lives and are less concerned about following rules. According to Gray (1988), strong uncertainty avoidance involves "*a concern for law and order and rigid codes of behavior, a need for written rules and regulation, a respect for conformity…*" (pp. 9-10), which seems relevant to public sector budgeting. Chanchani and MacGregor (1999) reviewed the literature that examined Gray's postulations and found consistent support for a direct relationship between aspects of accounting and uncertainty avoidance. More recently, both Nabar and Boonlert-U-Thai (2007) and Doupnik (2008) found that uncertainty avoidance is significantly related to earnings management; Makarem and Roberts (2020) and Makarem et al. (2018) emphasize that earnings management is a critical subject in accounting. Daniel et al. (2012), using GLOBE variables, found a positive relationship between uncertainty avoidance and corporate governance practices. Cieslewicz (2014) provided support for the relationship between uncertainty avoidance and national accounting (IFRS). Adopting the cultural dimensions of Hofstede, Qi and Mensah (2011) exposed a significant relationship between aspects of government budgeting and uncertainty avoidance. Graham and Sathye

(2017) recently found that social uncertainty is significantly related to budgeting systems. More recently, McNab and Wilson (2018) discussed the relation among uncertainty avoidance and budgeting transparency. As the literature supports a relationship among uncertainty avoidance and public sector budgeting, uncertainty avoidance will be included in this study.

4.1.3 Performance orientation. There are no definitive findings in accounting research concerning Hofstede's masculinity construct. (Chanchani and MacGregor, 1999). House et al. (2004) argue that this could be because this construct combines factors of assertiveness, gender equality, performance orientation and humane orientation. "*Performance orientation reflects the extent to which a community encourages and rewards innovation, excellent standards, and performance improvement*" (House et al., 2004, p.239). Javidan and Dastmalchian (2009) stated that performance orientation referred to the extent to which an organization or society encourages and rewards group members for performance improvement and excellence. In countries where they scored high on this cultural practice, like Switzerland or New Zealand, organizations are likely to emphasize training and development. In countries where the score on this dimension is low, like Argentina or Greece, family connections and background are more emphasized. Daniel et al. (2012) expected to discover an effective relationship between performance orientation and corporate governance practices using GLOBE variables, but they revealed no direct relationship in the end. Cieslewicz (2014), contrary to theoretical underpinnings, provides evidence that there is no direct relationship between performance orientation and national accounting (IFRS) (Elbakry, 2010). Adopting the cultural dimensions of Hofstede, Qi and Mensah (2011) perceive a significant relationship between aspects of government budgeting and masculinity (or performance orientation). More recently, McNab and Wilson (2018) discussed the relation between performance orientation and budgeting transparency. The institutions of a nation concerned with performance will establish effective performance monitoring measures, including for budgeting. Consequently, performance orientation will be included in this study.

4.1.4 Future orientation. Future orientation is widely accepted as a key cultural dimension (Kluckhohn and Strodtbeck, 1961; Hussainey and Al-Najjar, 2011). According to House et al. (2004, p.285): "*Cultures with high future orientation have a strong capability and willingness to imagine future contingencies, formulate future goal states, and seek to achieve goals and develop strategies for meeting their future aspirations*". Javidan and Dastmalchian (2009) expressed that future orientation assesses the degree to which individuals in organizations or societies engage in future-oriented behaviours such as planning, investing in the future, and delaying gratification. In high future-oriented cultures like Switzerland or Canada, there is a tendency to have a longer-term horizon for decision-making and more systematic planning processes. In less future-oriented cultures, like Argentina or Poland, there tends to be less systematic planning and more preference for opportunistic behaviours and actions. It is predicted that budgeting would be involved in such planning and projects. Daniel et al. (2012) expected to recognize a constructive relationship between future orientation and corporate governance practices using GLOBE variables, but they revealed no direct relationship in the end. Cieslewicz (2014) provides evidence of a direct relationship between future orientation and national accounting (IFRS). More recently, McNab and Wilson (2018) discussed the relation among future orientation and budgeting transparency. Institutions providing for the future, such as those for financial systems, tend to be more future-oriented. Consequently, future orientation will be included in this study.

4.1.5 Other cultural variables. The other cultural variables used in the GLOBE study are not included in this paper because they seem less fundamental overall to budgeting. They are collectivism, gender egalitarianism, humane orientation and assertiveness. This study does not predict significant relationships between them and budgeting-related institutional consequences.

4.2 The relationship of WGI institutions variables with public sector budgeting

The WGI dataset created by the World Bank study lists six variables for measuring key factors that reflect each country's political, regulatory, bureaucratic, and legal institutions (Kaufmann et al., 2007/2019).

4.2.1 Regulatory quality. This concerns the "*ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development*" (Kaufmann et al., 2007/2019, pp. 3-4). Examples of regulatory quality relevant to a nation's budgeting are oversight of the independence of public sector budgeting, responsive standard setting, and oversight of public deficits and debt.

4.2.2 Government effectiveness. This concerns the "*quality of national services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies*" (Kaufmann et al., 2007/2019, pp. 3–4). In circumstances of government ineffectiveness, for example, those in power can more easily circumvent established budgeting procedures.

4.2.3 Rule of law. This concerns the "*extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence*" (Kaufmann et al., 2007/2019, pp. 3-4). For budgeting systems, the rule of law affects the degree to which laws can be relied upon, contracts can be enforced, and property rights are respected.

4.2.4 Control of corruption. This concerns the "*extent to which public power is exercised for private gain, including both slight and grand forms of corruption, as well as the capture of the* *state by elites and private interests*" (Kaufmann et al., 2007/2019, pp. 3-4). Corruption can have a big impact on budgeting systems, including the wastage and misuse of budget resources.

4.2.5 Voice and accountability. This concerns the "*extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media*" (Kaufmann et al., 2007/2019, pp. 3-4). An independent media usually gives citizens more access to information, while freedom of expression facilitates more objective feedback within organizations and among regulators. Increases in public accountability will inevitably bring increased expectations of accurate and truthful budgeting.

4.2.6 Political stability and absence of violence. This concerns "*perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism*" (Kaufmann et al., 2007/2019, pp. 3-4). In general, the effectiveness of budgeting systems will be adversely affected by conditions of high political instability.

4.2.7 Public sector budgeting. Legislative monitoring over the national budget is a worthwhile attribute, because, to the extent that public resources are being expended by the executive branch of government, some oversight by the vaster body of elected representatives of the taxpayers is meritorious and conducive to greater budget efficiency (Wehner, 2011). To achieve the objectives of this paper, two key attributes of public sector budgeting are adopted and developed, as elaborated on below.

4.2.8 The legislative power of the purse. As Publius stated, "*This power over the purse may, in fact, be regarded as the most complete and powerful weapon with which any constitution can arm the immediate representatives of the people, for obtaining the redress of every grievance, and for carrying into effect every just and salutary measure*" (Hamilton, et al., 1961). The 'power of the purse' was created in 2003, then modified by the OECD in 2006, 2012 and 2015. This index refers to the legislative oversight of the national budget and, to the extent that public resources are being expended by the executive branch of government, monitoring is necessary by elected representatives. Wehner (2006) developed this index using six institutional prerequisites for legislative control, relating to amendment powers, reversionary budgets, executive flexibility during the performance, the timing of the budget, legislative committees and budgetary information. He suggested the power of the purse was a discrete and non-fundamental element of liberal democratic governance and, for some countries, it is a key safeguard against executive overreach, while others maintain a constitutional myth.

4.2.9 Budget transparency. According to the OECD-related studies (OECD, 2001b; Blondal and Murphy, 2002; Benito and Bastida, 2009; Rodríguez Bolívar et al., 2015; McNab and Wilson, 2018), budget transparency is defined as the full disclosure of all relevant fiscal information in a timely and systematic manner to individuals and taxpayers. In recent years, the OECD has highlighted the need for budget transparency to achieve better governance in public-sector agencies. Greater information and consultation and more active participation make a government more transparent and accountable, which leads to a stronger democracy (OECD, 2001a; Rodríguez Bolívar et al., 2015) and to the greater legitimacy of the state and its relationship with citizens (Brown, 2005). In fact, the development of government could increase efficiency, transparency and accountability in the use of national resources (United Nations, 2003).

These two variables (the legislative power of the purse and budget transparency) are deemed to be reflective of strong governance and public accountability (Qi and Mensah, 2011). In consideration of the fact that one of the most significant budgetary policies is the improvement of the public welfare system, which is the duty of responsible institutions in society; the elements involved in public sector budgeting therefore have great importance.

5. HYPOTHESES

The previous literature leaves a gap that has not yet addressed the question as to whether culture directly influences public sector budgeting, or whether culture influences the institutions which in turn influence public sector budgeting. We, therefore, examine both the direct effects of culture on public sector budgeting and the indirect effects through the mediation of the institutions. The presentation of the hypotheses is preceded by an explanation of how the mediating effects will be tested, as this will influence the structure of the hypotheses.

Baron and Kenny (1986) provided a highly cited regression approach to analyzing mediation. The approach recommended by Baron and Kenny (1986) has been used in several business-related papers. Magro (2005) utilized Baron and Kenny's approach to examine the mediating effect of information search adaptivity on the relation among institutional knowledge and tax research performance. Coletti et al. (2005) used the aforementioned approach in considering the mediating effect of cooperation on the relation among the control system and perceived trustworthiness. However, these two papers are unrelated to the current study. Daniel et al. (2012) employed the approach in evaluating the mediating role of institutions on the relationship between national culture and corporate governance practices. Cieslewicz (2014) also followed the approach to examine the mediating role of institutions on the relationship between national culture and national accounting (IFRS). The Baron and Kenny (1986, p. 1177) approach is explained as follows:

"To test for mediation, one should estimate the three following regression equations: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and the mediator. Separate coefficients for each equation should be estimated and tested. These three regression equations provide the tests of the linkages of the mediational model. To establish mediation, the following conditions must hold: Initially, the

independent variable must affect the mediator in the first equation; second, the independent variable must be shown to affect the dependent variable in the second equation; and third, the mediator must affect the dependent variable in the third equation. If these conditions all hold in the predicted direction, then the effect of the independent variable on the dependent variable must be barely in the third equation than in the second."

The following hypotheses and sub-hypothesis are formatted according to the methodology outlined by Baron and Kenny. The manner of this approach is further discussed in more detail.

- *H1: GLOBE four Cultural Variables have a significant influence on WGI (institutions Composite) in a given nation.*
- *H2: GLOBE four Cultural Variables have a significant influence on public sector budgeting (the legislative power of the purse and budget transparency) in a given nation.*
- *H3: GLOBE four Cultural Variables indirectly influence public sector budgeting (the legislative power of the purse and budget transparency) through the mediation of WGI (institutions Composite).*
- *H1a: Power distance has a direct, inverse influence on WGI (institutions Composite) in a given nation.*
- *H2a: Power distance has a direct, inverse influence on public sector budgeting (the legislative power of the purse and budget transparency) in a given nation.*
- *H3a: Power distance indirectly influences public sector budgeting (the legislative power of the purse and budget transparency) through the mediation of WGI (institutions Composite).*
- *H1b: Uncertainty avoidance has a direct, positive influence on WGI (institutions Composite) in a given nation.*
- *H2b: Uncertainty avoidance has a direct, positive influence on public sector budgeting (the legislative power of the purse and budget transparency) in a nation.*

• *H3b: Uncertainty avoidance indirectly influences public sector budgeting (the legislative power of the purse and budget transparency) through the mediation of WGI (institutions Composite).*

• *H1c: Future orientation has a direct, positive influence on WGI (institutions Composite) in a given nation.*

• *H2c: Future orientation has a direct, positive influence on public sector budgeting (the legislative power of the purse and budget transparency) in a given nation.*

• *H3c: Future orientation indirectly influences public sector budgeting (the legislative power of the purse and budget transparency) through the mediation of WGI (institutions Composite).*

• *H1d: Performance orientation has a direct, positive influence on WGI (institutions Composite) in a given nation.*

• *H2d: Performance orientation has a direct, positive influence on public sector budgeting (the legislative power of the purse and budget transparency) in a nation.*

• *H3d: Performance orientation indirectly influences public sector budgeting (the legislative power of the purse and budget transparency) through the mediation of WGI (institutions Composite).*

5.1 The general relationship between national culture, institutions, and public sector budgeting

In this section, we premise three primary hypotheses initially based on theoretical underpinnings, models (Fig. 1. and Fig. 2) and the general methodology outlined by Baron and Kenny (1986). As we discussed earlier, we premise that national culture influences national institutions and national culture impacts public sector budgeting. To investigate the mediating effect, we hypothesize the mediating role of institutions in national culture and public sector budgeting; thereby, our primary hypotheses are outlined as H1, H2 and H3 in the section 5.

5.1.1 Power distance, institutions, and public sector budgeting

Power distance "*reflects the extent to which a community accepts and endorses authority, power differences, and status privileges*" (House et al., 2004, p.513). In a situation of high-power distance, leaders expect no challenge to their orders and subordinates expect to comply without question: this is problematic where the leadership is unethical (Cieslewicz, 2014). Accounting research has demonstrated links among accounting and power distance, as evidenced in such topics as whistle-blowing (MacNab et al., 2007) and budgeting (McNab and Wilson, 2018; Qi and Mensah, 2011; Douglas and Wier, 2005; O'Connor, 1995; Ueno and Wu, 1993). Power distance has been found to influence budgeting directly. Therefore, nations scoring high on power distance are expected to have sturdy executive branches of government, with a preference for strong monarchies or presidential styles of government. In low power distance cultures, superiors treat subordinates with more respect and equality, and governments are willing to subject budget information to the scrutiny of the common populace in such countries (Qi and Mensah, 2011). As a result, intense levels of power distance in a nation should be oriented towards the incapable legislative power of the purse and less budget transparency.

Based on the theoretical model (see Fig. 2), power distance may equally consider ramifications for institutions, in which institutions further influence the budgeting of a nation. Intense levels of power distance in a nation should be manifested in institutions as: lower control of corruption; lower tolerance for voice and accountability; and an overall lower expectation that regulatory quality, rule of law, political stability and government effectiveness will be realized. The alternative is equally true: if power distance is low, voice and accountability will be high; the control of corruption will be improved; and expectations for regulatory quality, rule of law, political stability and government effectiveness will be enhanced. This will result in positive ramifications for budgeting in that nation. The mediating role of institutions on the relationship between power distance and public sector budgeting at the national level is hypothesized as H1a, H2a and H3a in the section 5.

5.1.2 Uncertainty avoidance, institutions, and public sector budgeting

Uncertainty avoidance concerns a preference for order, consistency, structure and rule-following (Cieslewicz, 2014). These factors are intrinsic to effective budgeting. Nations scoring high on uncertainty avoidance have a preference for rules and regulations as a way to deal with uncertainties; it is theorized that they are more likely to opt for more extensive legislative control of the budgeting process, with the budgets likely to be adopted through legislative acts with the force of law (Qi and Mensah, 2011). The mediating role of institutions on the relationship between uncertainty avoidance and public sector budgeting is hypothesized as H1b, H2b and H3b in the section 5.

5.1.3 Future orientation, institutions, and public sector budgeting

Future orientation "*represents the degree to which a collectivity encourages and rewards future-oriented behaviors such as planning and delaying gratification*" (House et al., 2004). High future orientation is likely to influence budgeting directly through the preference for conservative, well-thought-of budgetary. High future orientation is equally likely to be manifested in institutions that plan for the future and delay gratification by curbing corruption, maintaining rule of law and effective government, stressing accountability, and avoiding political instability and violence. Such institutions would further demand accurate, timely and useful budgeting. This is hypothesized as H1c, H2c and H3c in the section 5.

5.1.4 Performance orientation, institutions, and public sector budgeting

Performance orientation "*reflects the extent to which a community encourages and rewards innovation, high standards, and performance improvement*" (House et al., 2004, p.239). Performance orientation should lead to means that will facilitate performance, like quality institutions. As accounting facilitates the measuring of performance, it seems likely that performance orientation will directly influence budgeting. Performance orientation should indeed, through its institutions, lead to the establishment of effective means for monitoring performance, which calls for budgeting. This is hypothesized as H1d, H2d and H3d in the section 5.

In the following tables, Table 1 provides the data of all four national cultural dimensions, all six institutional variables, and two budgeting-related indices, then, as descriptive statistics, Table 2 reveals the mean and the median of these variables along with the correlation among them.

[Insert Table 1 about here]

[Insert Table 2 about here]

6. ANALYSIS AND RESULTS

6.1 Sample size

The three datasets are utilized through an unbalanced timing framework with different sample sizes in this study: the GLOBE cultural study dataset (n=62, 2004), World Bank World Governance Indicators (WGI) or institutions (n=212, 2019), and public sector budgeting variables (n=49, 2011). In this paper, the more conservative listwise deletion has been used, resulting in data in common for 31 nations. Even after following this more conservative approach, the resulting sample size is large in comparison with other international studies performed at the national level. The datasets are provided in tables 1 and 2.

6.2 Discriminant validity of national culture and institutions

The boundaries of culture and institutions have been pushed and sometimes crossed over by the literatures on these two constructs (Cieslewicz, 2014). The correlation matrix (Table 2) indicates that institution variables are highly related to each other and that the culture variables are related to the institution variables. Consequently, it became urgent that the discriminant validity of these constructs be considered. To evaluate the discriminant validity of the separate constructs of culture and institutions, a factor analysis of the WGI and GLOBE data was conducted using principal component analysis utilizing a varimax rotation. Problems with sphericity, sampling adequacy and low commonalities were not encountered (Tabachnick and Fidell, 2007; Daniel et al., 2012; Cieslewicz, 2014). The six WGI institutional variables loaded on the first component, which accounted for 61.22% of the variance, while the four GLOBE cultural variables loaded on the second component, which accounted for an additional 34.64% of the variance. The results indicate national culture and institutions exhibit discriminant validity.

6.3 Model fit

Estimation of the model and goodness of fit results for the intended model in Fig. 3, including the national culture, the institutions composite variable, and the public sector budgeting variable, are provided in Table 3. As mentioned earlier, the factor loadings for the institutions variables were all at least 0.834 with a Cronbach Alpha of 0.97. Given the high convergent validity and reliability of the WGI variables, we elected to sum them into one variable to produce a more parsimonious model and improve model fit (Daniel et al., 2012). While not as high as the WGI factor loadings, the factor loading estimates for the four observed GLOBE culture variables were all greater than 0.66 and statistically significant at the 0.01 level, indicating they substantially construct one latent variable, which we label national culture. The model fit was evaluated adopting the following fit measures: the Chi-square, the Chi-square divided by the model degrees of freedom (CMIN/DF), Normed Fit Index (NFI), and the standardized root mean square residual (SRMR). The Chi-square divided by the model degrees of freedom (CMIN/DF) adjusts for the sensitivity of the Chi-square (Tabachnick and Fidell, 2007). An insignificant Chi-square (Joreskog, 1969) or a CMIN/DF ratio less than 3 (Kline, 1998) represents evidence of a good fit. An NFI close to 1 (Arbuckle & Wothke, 1999; Bentler,

1990) and an SRMR of less than 0.08 (Browne and Cudeck, 1993) are also considered an indication of a reliable model fit (Hu and Bentler, 1999). As evident in Table 3, the model fit is acceptable, indicating support for our theoretical model. The Chi-square divided by the df at 2.137 is less than 3, the NFI at 0.834 is close to 1, and the SRMR at 0.074 is less than 0.8. Also, as Table 3 reveals, the variance inflation factor gets a value of less than 2.5, which proves lack of multicollinearity (Graham, 2003).

[Insert Table 3 about here]

6.4 Testing of the hypothesized relationships using regression-based mediation

6.4.1 Analysis

Cieslewicz (2014) expresses that shared cultural assumptions can be found at many different levels, like the organization, community and nation. This attitude is pointed out by Gray (1988) as well as by others (Chenhall, 2003; Harrison and McKinnon, 1999). The current paper, therefore, utilizes the nation as the unit of analysis, as the topic of interest represents the development of public sector budgeting. To be consistent, culture, institutions and budgeting are all analyzed at the national level rather than the individual or firm level. This is consistent with La Porta et al. (1998), Daniel et al. (2012) and Cieslewicz (2014).

As the data are normally distributed without missing data and outliers, given that our data are well-behaved (i.e. normal) and our proposed model is relatively simple, we conclude that our sample size will not significantly affect the validity of the SEM results. However, we also report regression results for those readers more familiar with that technique. Our intended model (Fig. 5) is estimated using SEM, which reveals the relation among national culture, institutions and public sector budgeting in general.

6.4.2 Analyzing mediating effect

Baron and Kenny (1986) recommended the use of SEM for mediation analysis, but also provided a highly cited regression approach to analyzing mediation, which is discussed in the following.

According to Baron and Kenny (1986), testing for mediation involves first regressing institutions on national culture, then regressing public sector budgeting on national culture. This is done because there must be a relationship between national culture and budgeting if it is to be mediated. Furthermore, if institutions are to mediate the relationship, national culture must influence institutions, and institutions must also influence budgeting. Public sector budgeting should be regressed on both national culture and institutions. In this regression, the institutions variable must have a significant relationship with public sector budgeting. In this equation, when the institutions variable is controlled for the effect of national culture on public sector budgeting, this should decrease because much of a national culture's impact on public sector budgeting occurs through the mediating variable of institutions. If the influence of national culture on public sector budgeting occurs through the mediation of institutions, then the effect of national culture on public sector budgeting will be less in this last equation. As such, this controls the mediating variable of institutions more than in the second equation, which considers the direct effect of national culture on public sector budgeting.

6.4.3 Regression of institutions on the national culture variables

As stated above, based on Baron and Kenny (1986), we are initially supposed to regress institutions on national culture and this relation must be significant. In other words, the impact of independent variables on the mediating variable needs to be significant to continue.

[Insert Figure 3 about here]

6.4.4 Regression of public sector budgeting on the national culture variables

As stated above, based on Baron and Kenny (1986), in the second step regressing public sector budgeting on national culture needs to be done and this relationship must be significant. Expressly, if this relationship is insignificant, we cannot determine any mediating effect.

[Insert Figure 4 about here]

6.4.5 Regression of public sector budgeting on both national culture variables and institutions

Based on Baron and Kenny's (1986) study, as the ultimate step, the regressing of public sector budgeting on both national culture variables and institutions needs to be done. In this model, the direct impact of cultural variables as independent variables on public sector budgeting, as well as dependent variables and institutions as mediating variables, is evaluated. Furthermore, the indirect impact of national culture variables on public sector budgeting through institutions is evaluated. As is apparent, the full mediating effect of institutions is determined.

[Insert Figure 5 about here]

Results of statistical tests for the intended model are reported in Table 4.

[Insert Table 4 about here]

6.4.6 Regression of the mediating role of institutions on the relationship between separated national culture variables and public sector budgeting in four panels

Results of statistical tests for all independent cultural variables are reported separately in Table 5.

[Insert Table 5 about here]

6.5 Interpreting significant results

As mentioned earlier, the highly cited mediation analysis approach from Baron and Kenny (1986) is used to test for mediation effects. Tables 4 and 5 present the results of the analyses. As is obvious in Table 4, generally the direct relationship between national culture and institutions is significant. Thereby, as stated in Table 5, the national culture from the GLOBE study (House et al., 2004) used in this study is generally and individually analyzed and we found that all four cultural variables are linked to institutions as measured by the World Bank Worldwide Governance Indicators (Kaufmann et al., 2007/2019), as hypothesized by the first main hypothesis, Hypothesis 1, and Sub-hypotheses 1a, 1b, 1c and 1d. These results are in accordance with Daniel et al. (2012) and Cieslewicz (2014). As Table 4 shows, the direct relationship between the national culture variables and public sector budgeting is significant, generally. In this case, Table 5 presents more detail in which we can analyze independent variables separately. Based on Table 5, only power distance and uncertainty avoidance have direct relationships with public sector budgeting. Thus, the second main hypothesis, Hypothesis 2, and Sub-hypotheses 2a and 2b are supported. Accordingly, as Hypotheses 2c and 2d are not supported, it follows from Baron and Kenny (1986) that a mediating effect among both performance orientation and future orientation with public sector budgeting (Hypotheses 3c and 3d) is a non sequitur. Therefore, the third main hypothesis, Hypothesis 3, and Sub-hypotheses 3a, and 3b are discussed in the following.

Fig. 5 and Table 4 (Model 3) report on the regression of public sector budgeting on national culture and the hypothesized mediating variable of institutions. The significant effect of national culture on public sector budgeting disappears when the mediating variable of institutions is controlled for. This suggests that the effect of national culture on public sector budgeting is fully mediated by institutions. Based on Table 5, a similar result is found for the hypothesized mediating relationship of institutions on the negative and the positive relationship between power distance and uncertainty avoidance with public sector budgeting, respectively. Thus, the third main hypothesis, Hypothesis 3, and Sub-hypotheses 3a and 3b are supported.

Ultimately, support for general mediating effects is found (main Hypothesis 3). Indeed, considering cultural variables individually, support for two of the four mediating effects is found. While not all national culture variables influence institutions in ways that further influence public sector budgeting, there are cases in which this occurs. Thus the public sector budgeting should not be viewed as being free from the influences of culture or institutions.

7. CONCLUSIONS

Regarding the link between culture and accounting, national culture may directly influence accounting and budgeting (Cieslewicz, 2014). Horngren et al. (2015, p.165) argue: "the accounting system is only one of the several control systems that affect an individual's behavior. Society as a whole can be observed as a control system and various institutions can impinge on an individual's values and reactions." According to the research findings now, national culture has a significant impact on budgeting through the mediation of institutions.

As we suppose, the improvements of budgeting are affected by certain environmental matters and one of the most important ones is culture. we can now emphasize culture can demonstrate differences in budgeting practices across nations. A further development concerns the attention to the budgeting issues in international policy (e.g., Qi and Mensah, 2011; Zarei and Pifeh, 2016; Hopper et al., 2009), that may lead to develop decisions, local planning and administration; reduce corruption and fiduciary risk; control the effectiveness of aid against development goals; and make funders more accountable to their constituencies (Fyson, 2012; Hopper and Tanima, 2017).

The aim of the current paper was to explore the relations among national culture, institutions and public sector budgeting across countries worldwide. Our findings demonstrate that public sector budgeting in a given nation is related to both national culture and the institutions of that nation. For policymakers, this finding suggests that public sector budgeting may be influenced by national culture and through altering institutions, by controlling corruption, supporting the rule of law, or enhancing government effectiveness, for instance. It is not sufficient to simply adopt best practices of public sector budgeting; it is equally necessary to adjust institutions to support improvements in public sector budgeting practices. However, this remedy itself is subject to significant evaluation considering the relationship between national cultures and institutions. Changes to aspects of institutions to invite improvements in public sector budgeting may be ineffective if those changes are not aligned with the underlying values and norms of the national culture. This study demonstrates the significant relationship between national culture and institutions. National cultural measures were found to be positively and significantly related to institutions. In this paper, four cultural variables (power distance, uncertainty avoidance, performance orientation and future orientation) were combined based on statistical analyses to comprise the latent variable national culture. Findings suggest that the impact of national culture on public sector budgeting is indirect, through its influence on institutions. Indeed, we confirm our results through instances illustrating how these four specific cultural variables may impact public sector budgeting indirectly through the impact on institutions.

Our findings of significant linkages among national culture and institutions, and in turn public sector budgeting, support the need for proper consideration of government budgetary policies. A ramification of the paper is that one should not suppose there is one best government budgetary approach for all nations. Just as diverse national economies have attained success with various financial systems, we suggest it is possible to accept government budgetary policies that are different from each other.

While the paper provides a theoretical basis for its premises, namely that national culture influences institutions, which further influences public sector budgeting, it is also recognized that the assumption behind government budgeting is that, by adopting government budgetary policies which are adapted to both national culture and institutions, nations will improve their budgeting. This assumption is likely to also include the presumption that, by adopting government budgetary policies, institutions in each nation that provide the reinforcing structure required for budgeting will also be transformed. This latter prevailing sentiment has been challenged by the current paper.

This paper provides a theoretically developed model revealing the reasons for, and consequences of, relationships between culture, institutions and government budgeting. It finds that culture influences institutions, which in turn influence budgeting. At a national level, institutions act as a mediator between culture and budgeting and clarify the relationship between them.

The national culture of those that run them inevitably shapes institutions (Cieslewicz, 2014). In particular, nations that have high scores on uncertainty avoidance and lower scores on power distance tend to adopt public sector budgeting which gives greater control over public spending to parliament and legislature and attempts to have more transparent budgeting systems in the public sector to improve financial accountability.

The interrelationships of culture, institutions and budgeting suggest that it may be insufficient for institutions that support budgeting to adopt or copy codes and regulatory functions, unless there is a corresponding change in national culture.

Without this, a gulf may develop between stated intent and actual practice in the formal adoption of institutional practices from other nations (Rodrigues and Craig, 2007; Cieslewicz, 2014). There are claims already that this has been the case with respect to budgetary policies. It has been theorized that culture does not change easily (Daniel et al., 2012; Qi and Mensah, 2011; Hofstede, 1984). Therefore, the underlying and persistent national culture may gradually undermine the impact of changes made to institutions (Cieslewicz, 2014).

The findings of this paper suggest that any plan to improve a nation’s budgeting should consider the links between budgeting, supporting institutions and the culture of those that run them. The formal adoption of new methods and standards by supporting institutions may not be enough without accompanying efforts to transform national culture (Cieslewicz, 2014). Ultimately, by interpreting the importance of the efficiency and effectiveness of public spending, one can say that some concerns about public sector budgeting are deemed to be reflective of cultural and institutional challenges.

Arnold and Hope (1983, p.278) notes that "*budgeting entails behavioral problems. We must state quite categorically that the present state of information concerning the behavioral implications of accounting is such that even a wide generalization can be dangerous*". Nevertheless having paid lip service to the complexity of budgeting as a social (and political) practice, the authors begin upon an analysis of budgeting from a human relations stance (Rosenberg, 1989).

This paper has some implications for legislators. For example, through estimating the number of budgets, legislators may need to align their determination in light of our conclusions that there could be a congruence between the national culture and the budget practices. In the environment in which a government operates, the legislators also desire to recognize the mediating effect of institutions on the relations among culture and budget practices, regarding the key role of government as managing the issues of the executive branch.

Our empirical findings also have implications for researchers. The theoretical underpinnings provided in the paper contribute to the confirmation that national culture, budget practices and institutions are separate constructs, and enrich the literature for those researchers who may wish to perceive more about these variables. The distinctions between culture and budget practices are important relations examined in the current paper, because, for instance, while the results of Qi and Mensah (2011) may be similar with some parts of this paper, the infrastructures of their cultural dimensions have progressed through various methods. These infrastructures, in turn, could impact/limit the constitutional structure of the legislative body, for budgeting issues or institutions in each of these 31 countries. In light of our conclusions, there may be a chance to reconsider prior studies that directly associate national culture with budgeting issues. Better-specified models may be required to properly clarify the relationships and mechanisms when explaining budget practices in cultural contexts.

7.1. Suggestions for Further Research

Concern about budgeting issues in the public sector explains the attention paid to the efficiency of public spending. Consequently, more research is needed to observe whether cultural factors are related to public spending. To the extent that budgeting manners are related to effectiveness, the current paper is probably correct to argue that cultural factors may have a role. Therefore, further research to investigate such relations will be a valuable contribution to public policy and to the literature.

For policymakers, the conclusion supposes that budgeting may be influenced by national culture. We assume it is not sufficient to simply adopt best practices of public sector budgeting; thus, it is equally necessary to adjust institutions to support improvements in public sector budgeting practices.

Findings show power distance and uncertainty avoidance impact budgeting through the full mediation of institutions. It is therefore suggested to scholarly researchers to investigate the indirect relations through the influence of fiscal reforms in each country.

A ramification of the paper is that one should not suppose there is one best government budgetary approach for all nations. Just as diverse national economies have attained success with various financial systems, we suggest that for further investigations researchers find the difference of developed and developing nations on the subject of government budgetary policies.

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Table 1

Data Used in the Study

Country	Pow-Dis	Unc-Avo	Per-Ori	Fut-Ori	Voi- Acc	Pol-Sta	Gov-Eff	Reg-Qua	Rul- Law	Con- Cor	Ins-Com	Pow-Pur	Bud- Tra
Argentina	5.64	3.65	3.65	3.08	0.60	-0.12	-0.09	-0.49	-0.43	-0.07	-0.60	74.8	169
Australia	4.74	4.39	4.36	4.09	1.32	1.09	1.57	1.87	1.73	1.81	9.39	78.3	199.5
Austria	4.95	5.16	4.44	4.46	1.33	0.98	1.49	1.46	1.88	1.55	8.69	89	159
Brazil	5.33	3.6	4.04	3.81	0.34	-0.55	-0.19	-0.18	-0.18	-0.33	-1.09	71.5	99
Canada	4.82	4.58	4.49	4.44	1.46	1.03	1.73	1.72	1.76	1.77	9.47	55.1	132
Denmark	3.89	5.22	4.22	4.44	1.58	1.01	1.94	1.57	1.90	2.11	10.11	81	136
Finland	4.89	5.02	3.81	4.24	1.59	0.91	1.93	1.85	2.02	2.15	10.45	81.6	178
France	5.28	4.43	4.11	3.48	1.14	0.31	1.38	1.44	1.41	1.30	6.98	52.4	179.5
Germany	5.25	5.22	4.25	4.27	1.34	0.58	1.59	1.72	1.62	1.90	8.75	95.8	211
Greece	5.04	3.39	3.2	3.4	0.94	0.29	0.41	0.53	0.20	-0.01	2.36	75	156
Hungary	5.56	3.12	3.43	3.21	0.22	0.73	0.50	0.60	0.49	0.00	2.54	74	137
Indonesia	5.18	4.17	4.41	3.86	0.16	-0.48	0.18	-0.09	-0.34	-0.42	-0.99	89.8	143
Ireland	5.15	4.03	4.36	3.98	1.34	0.97	1.28	1.60	1.39	1.46	8.04	74.9	166
Italy	5.43	3.79	3.58	3.25	0.97	0.46	0.46	0.95	0.28	0.24	3.36	100.7	133
Japan——	5.11	4.07	4.22	4.29	0.96	1.04	1.59	1.33	1.54	1.48	7.94	117.4	141.5
Mexico	5.22	4.18	4.1	3.87	0.02	-0.71	-0.16	0.10	-0.66	-0.82	-2.23	68.1	184
Netherlands	4.11	4.7	4.32	4.61	1.56	0.86	1.80	1.86	1.81	2.00	9.89	71.6	192
New Zealand	4.89	4.75	4.72	3.47	1.57	1.51	1.67	1.88	1.88	2.17	10.68	62.7	177
Philippines	5.44	3.89	4.47	4.15	0.03	-0.88	0.05	0.01	-0.48	-0.57	-1.84	72.5	134.5
Poland	5.1	3.62	3.89	3.11	0.70	0.52	0.60	1.01	0.45	0.60	3.88	85.5	200
Portugal	5.44	3.91	3.6	3.71	1.24	1.13	1.15	0.97	1.14	0.76	6.39	84.9	179
South Africa	5.16	4.09	4.11	4.13	0.67	-0.22	0.37	0.16	0.08	0.08	1.14	83.2	141.5
South Korea	5.61	3.55	4.55	3.97	0.77	0.48	1.38	1.07	1.19	0.76	5.65	83.3	179.5
Spain	5.52	3.97	4.1	3.51	1.09	0.32	1.00	1.05	0.93	0.65	5.04	75.1	149
Sweden	4.85	5.32	3.72	4.39	1.59	1.05	1.83	1.80	1.91	2.12	10.30	60.9	186
Switzerland	4.9	5.37	4.94	4.73	1.53	1.34	1.85	1.66	1.97	1.98	10.33	91.7	161
Taiwan	5.18	4.34	4.56	3.96	1.00	0.72	1.44	1.40	1.14	1.05	6.75	79.2	145
Thailand	5.63	3.93	3.93	3.43	- 0.83	-0.54	0.36	0.12	0.10	-041	-41.79	73.2	153.5
Turkey	5.57	3.63	3.83	3.47	- 0.81	-1.34	0.05	-0.01	-0.28	-0.29	-2.68	98.2	147
United Kingdom	5.15	4.65	4.08	4.28	1.26	0.52	1.44	1.63	1.60	1.77	8.22	47.3	134.5
United States	4.88	4.15	4.49	4.15	0.97	0.30	1.49	1.35	1.46	1.22	6.79	95.8	199.5

The data sources: The national culture variables are from the GLOBE study (House et al., 2004); the public sector variables are from the Qi and Mensah study (2011); Institutions variables are from the World Bank (Kaufmann et al., 2007/2019; 2019); the data sources are discussed and described in the text.

Table 2

Correlation table and descriptive statistics

	Mean	Median	Unc_Avo	Pow_Dis	Per_Ori	Fut_Ori	Voi_Acc	Pol_Sta	Gov_Eff	Reg_Qua	Rul_Law	Con_Cor	Ins_Com	Pow_Pur	Bud_Tra
Unc_Avo	4.206	4.1	1												
Pow_Dis	5.126	5.16	-0.643	1											
Per_Ori	4.128	4.11	0.467	-0.311	1										
Fut_Ori	3.911	3.97	0.735	-0.624	0.584	1									
Voi_Acc	0.892	1.05	0.652	-0.632	0.285	0.505	1								
Pol_Sta	0.426	0.72	0.55	-0.533	0.288	0.396	0.856	1							
Gov_Efe	1.051	1.42	0.711	-0.56	0.4	0.558	0.826	0.792	1						
Reg_Qua	1.041	1.15	0.68	-0.602	0.391	0.567	0.821	0.862	0.862	1					
Rul_Law	1	1.19	0.73	-0.639	0.396	0.606	0.842	0.912	0.845	0.912	1				
Con_Cor	0.926	0.90	0.781	-0.672	0.399	0.622	0.893	0.912	0.945	0.894	0.912	1			
Ins_com	3.930	6.75	0.726	-0.639	0.383	0.577	0.856	0.919	0.963	0.846	0.934	0.916	1		
Pow_Pur	78.855	78.3	-0.115	0.085	0.027	0.033	-0.084	-0.014	-0.05	-0.124	-0.087	-0.091	-0.08	1	
Bud_Tra	161.371	159	0.283	-0.185	0.089	0.051	0.315	0.298	0.446	0.379	0.367	0.365	0.382	0.054	1

N=49; correlations greater than .28 are significant at the .05 level; correlations greater than .36 are significant at the .01 level (two-tailed)

Table 3

Model Fit and Collinearity

Overall Fit Summary (n=31)			VIF	
Statistical tests	Results	Acceptable fit standard	Exp.Variables	Num
Chi-square	10.685	NA	Unc_Avo	2.377
df	5	NA	Pow_Dis	1.783
Chi-square/df	2.137	<3.00	Per_Ori	1.460
NFI	0.834	Close to 1	Fut_Ori	2.799
Residual analysis			Ins_com	1
SRMR	0.074	<0.08	The average	1.883

Table 4

Regression of the mediating role of the institutions on the relationship between national culture and public sector budgeting

	Model 1 Regression of institutions on national culture variables	Model 2 Regression of public sector budgeting on national culture variables	Model 3 Regression of public sector budgeting on the national culture variables and mediating variable of institutions
	coefficient P value	coefficient P value	coefficient P value
National Culture variables	0.769 0.000	0.265 0.018	-0.146 0.381
Institutions			0.569 0.029
Adjusted R Square	0.509	0.256	0.111
F Value (pros)	0.000	0.001	0.000

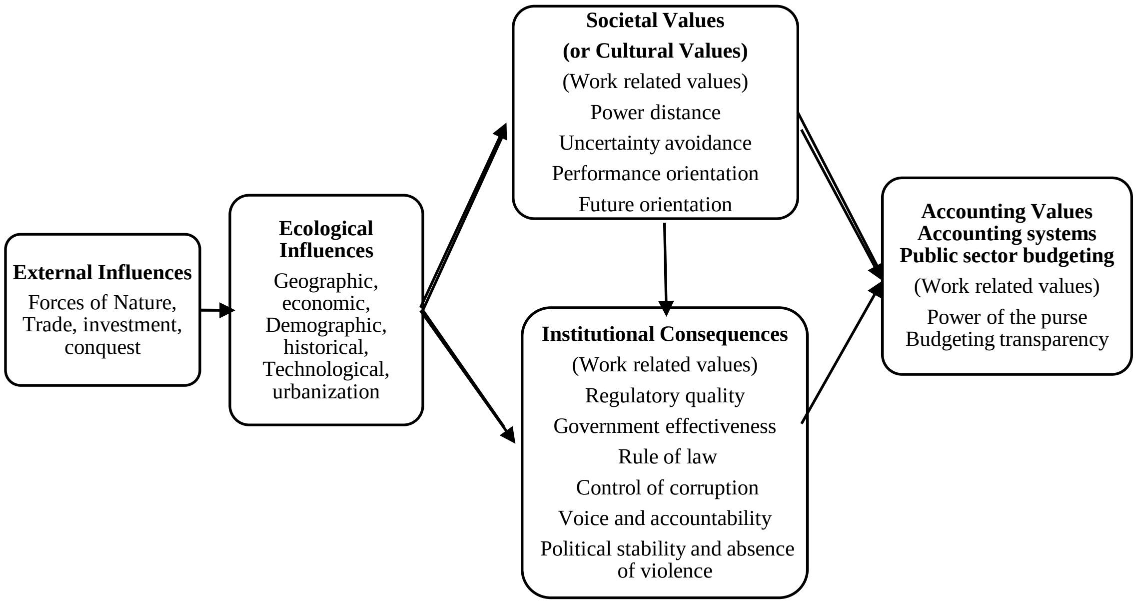
N=31

Table 5

Regression of the mediating role of institutions on the relationship between separated national culture variables and public sector budgeting in four panels

	Model 1 Regression of institutions on national culture variables	Model 2 Regression of public sector budgeting on national culture variables	Model 3 Regression of public sector budgeting on the national culture variables and the hypothesized mediating variable of institutions
	coefficient P value	coefficient P value	coefficient P value
Panel A			
Power distance	-0.652 0.000	-0.222 0.098	-0.051 0.662
Institutions			0.496 0.021
F Value (prob)	0.0001	0.0000	0.0000
Panel B			
Uncertainty avoidance	0.712 0.000	.0305 0.024	0.069 0.856
Institutions			0.416 0.083
F Value (prob)	0.0000	0.0002	0.0000
Panel C			
Performance orientation	0.379 0.004	0.089 0.365	-0.035 0.511
Institutions			0.465 0.008
F Value (prob)	0.0334	0.0393	0.0256
Panel D			
Future orientation	0.591 0.000	0.064 0.544	-0.229 0.175
Institutions			0.496 0.007
F Value (prob)	0.0007	0.0001	0.0000

N=31



Reinforcement (Adopted from Gray 1988)

Fig. 1. Relationship among cultural values, institutions and public sector budgeting

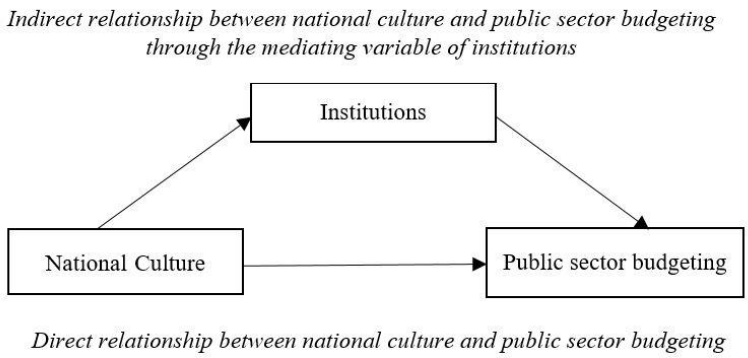


Fig.2

Theoretical model reflecting the expected relationship

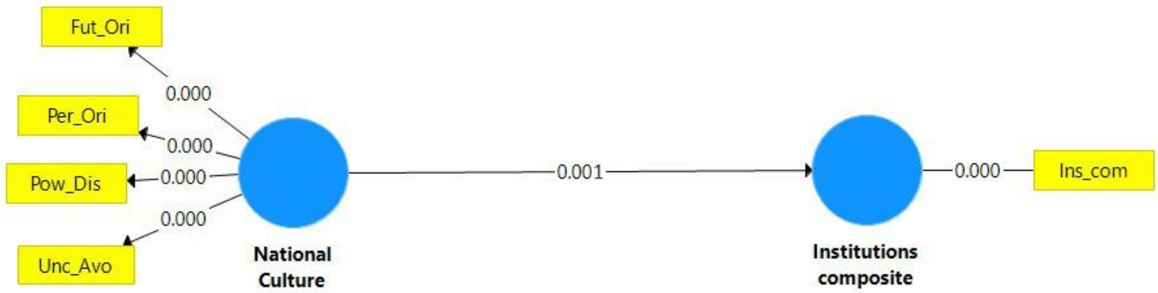


Fig. 3

EVALUATING THE RELATIONSHIPS AMONG NATIONAL CULTURE AND INSTITUTIONS

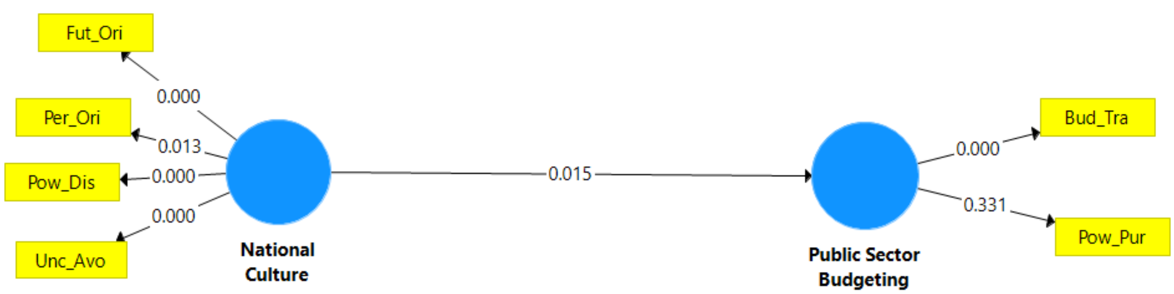


Fig. 4

EVALUATING THE RELATIONSHIPS AMONG NATIONAL CULTURE AND PUBLIC SECTOR BUDGETING

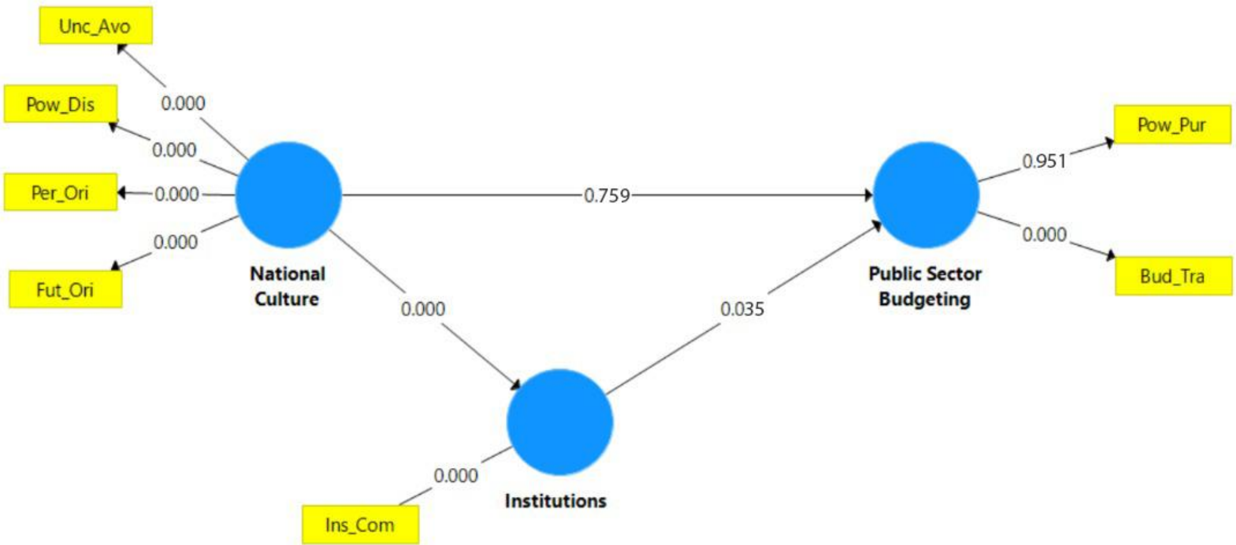


Fig. 5

Model evaluating the hypothesized relationships