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Impact of management accounting reform in the public sector: the Portuguese case.

Abstract

Purpose: Based on the New Public Management Theory and New Public Financial Management (NPFM) into the theoretical framework, this study analyzes the impact of implementing management accounting reform in the Central Public Administration in Portugal and how this implementation affects control, transparency, and management reports within these organizations.

Design/methodology: The research methodology is based on a questionnaire sent to all central public administration institutions in Portugal. The data were analyzed using a structural equation model, using the Partial Least Squares (PLS) tool.

Findings: The main findings, consistent with the NPFM indicate that implementing the management accounting reform has a significant positive effect on increasing the quality of management reports and the transparency of public administrations, as well as contributing positively to the increase of control in these organizations. Thus, it can be concluded that managers of organizations perceive that the intended objectives of the accounting reform are being achieved.

Originality: The accounting reform in public administration is still ongoing in Portugal and is a unique opportunity to study the implementation of the reform in the area of management accounting with the heads of the organizations responsible for this task. This study allows us to know their perceptions regarding the impact that the implementation of the management accounting reform has on control, transparency, and management reporting. This study also incorporates New Public Financial Management (NPFM) into the theoretical framework for a more comprehensive analysis of public sector accounting reforms.

Research limitations: The study has some limitations, as the data are limited to central public administration, leaving the impact on local and regional administration unstudied.

Practical implications: This study helps public institutions understand the advantages of implementing management accounting since their managers need information for decision-making. This includes aspects such as control, enhancing organizational efficiency and

effectiveness, improving transparency in public spending, and elevating the quality of reporting by considering reliability, timeliness, and comparability.

Social implications: This study enhances citizens' comprehension of management accounting in the Portuguese public sector, highlighting its role in improving control, transparency, and management reports. It fosters increased interaction between society and government, ensuring that decisions align better with society's needs.

Keywords: Management accounting; IPSAS, Public sector, Control, Transparency, Management report, Portugal, New Public Financial Management.

1. Introduction

Over the past decades, significant reforms in public sector accounting (PSA) have contributed to greater transparency and strengthened accountability in resource allocation and government statistical reporting (OECD and IFAC, 2017). These reforms, driven by the adoption of International Public Sector Accounting Standards (IPSAS) endorsed by global institutions like the World Bank, IMF, OECD, UN, and European Commission, have made accrual accounting a prerequisite for advanced cost accounting (Bertoni *et al.*, 2017), now essential to good management accounting (MA) (Drury, 2006). This enhancement aligns with New Public Management (NPM) principles, promoting accounting reforms in public institutions through performance measurement and management control procedures (Eriotis *et al.*, 2012).

The requirement for appropriate management control systems is especially severe in times of financial difficulty, when resources are in high demand and subject to significant limits, as illustrated by the crisis of 2008 (Lautour, 2018; Labrador and Olmo, 2019). Reforms in public accounting include MA as a foundation for solid information systems (Orelli *et al.*, 2016) because it focuses on the control and assessment of organizational performance (Fandel *et al.*, 2020) and assures report quality for internal and external users by delivering correct information (Ojra *et al.*, 2021). This contributes to transparency in decision-making, accountability for decision-making processes, and citizen trust in government (Gray and Kang, 2014).

Previous literature indicates a relationship between management accounting (MA) and control, highlighting MA as a crucial tool for management control (Ahmed *et al.*, 2019; Höglund *et al.*, 2021; Jiang, 2019; Fiondella *et al.*, 2016; Malmi, 2016). It supports management in achieving organizational goals through option analysis, planning, performance monitoring, and activity coordination (Ahmed *et al.*, 2019; Höglund *et al.*, 2021; Jiang, 2019). Studies also show MA's link

to transparency in the public sector, where MA focuses on internal data for decision-making, and transparency involves disclosing this information to stakeholders (Dimitrić *et al.*, 2016; Fiondella *et al.*, 2016; Malmi, 2016). Furthermore, MA helps to prepare reports that assess and enhance management and organization operations (Brusca *et al.*, 2019; Hamawandy *et al.*, 2021; Veledar *et al.*, 2020). However, obstacles to MA implementation include political, technical, and cultural barriers (García-Fénix and González-González, 2020), fear of transparency, insufficient learning processes, poor understanding of control, overly ambitious targets (Plötz, 2022), resistance to change, unreliable data, lack of management will, and legal barriers (Brusca *et al.*, 2019).

Although the literature about PSA reform processes is broad, especially regarding the adoption of the IPSAS, studies addressing the impacts of implementation of management accounting reforms are rare, and even fewer explore the control and transparency of these processes (Liberato *et al.*, 2024; Schmidhuber *et al.*, 2022). There is thus still a considerable gap in understanding the implementation of PSA management reform and the impacts on control, transparency, and management reporting of the organizations (Mohr *et al.*, 2018).

The reform of PSA in Portugal began in 2015 with the publication of Decree-Law 192/2015, which introduced the Accounting Standardization System for Public Administrations (ASSPA)¹. This PSA reform in Portugal is unique compared to those that have taken place elsewhere, as in other countries the accounting reforms addressed the implementation of IPSAS only (Mosoba, 2017; Polzer *et al.*, 2019; Silva *et al.*, 2022). In Portugal, in addition to the IPSAS, reforms in budgetary accounting and MA have also been implemented on a mandatory basis, covering Central Government, Local Government, and Regional Administration (Marques, 2018). The ongoing PSA reform in Portugal provides a valuable opportunity to explore the implementation of MA by engaging with the personnel monitoring the process and analyzing their perspectives of the problems and incentives they encountered (Alsharari and Daniels, 2023).

The purpose of this research is to investigate the impact of the implementation of MA reforms in the public sector in Portugal's central public administration, and how this implementation impacts control, transparency, and reporting inside these organizations. We applied a structural equation model (SEM) with the Partial Least Squares (PLS) tool (Hair *et al.*, 2017) to the data gathered from a survey made available to financial managers in all Portuguese central public administration (495 institutions) from September 2022 to March 2023.

¹ Translation for Portuguese SNC-AP – Accounting Standardization System for Public Administrations

Our main findings, which are consistent with the new Public Financial Management (NPFM), show that implementing the MA reform has a considerable beneficial impact on improving on quality of management reports and the transparency of public administrations. The findings also demonstrate that implementing MA reform improves organizational control. As a result, Portuguese managers of public organizations perceive that MA reform's stated goal is being met satisfactorily. Although MA is legally mandated alongside budgetary and financial accounting within the Portuguese public sector reform, its implementation remains comparatively limited. This gap underscores the practical challenges of embedding MA practices across public institutions. By capturing the perceptions of officials directly involved in the reform process, this study provides a novel contribution to the literature, offering deeper insights into how MA is perceived to support core dimensions of public sector performance.

While prior studies have provided valuable insights into the adoption of IPSAS and general public sector accounting reforms (Dmitrović-Šaponja and Suljović, 2017; Fiondella *et al.*, 2016), there is a notable gap in the literature when it comes to the specific impacts of MA reforms on control, transparency, and management reporting within public institutions. Our research directly addresses this gap by focusing on the implementation of MA reforms in the Portuguese public sector, a context that has been underexplored in the existing literature. Notably, there is limited published research on the Portuguese context (Jorge *et al.*, 2021; Marques, 2018), contrasting with the more plentiful studies available on this subject for other countries (Dmitrović-Šaponja and Suljović, 2017; Fiondella *et al.*, 2016; Papiorek and Hiebl, 2023; Veledar *et al.*, 2020). Furthermore, by incorporating control, transparency, and management reporting into our study, we offer a new contribution examining the overall impact of the management changes on the public sector. We contend that understanding the mechanisms through which reforms impact control and transparency is vital for policymakers and practitioners alike (Nakmahachalasint and Narktabtee, 2019; Tóth, 2020). This paper differs from previous studies by adopting a dual theoretical framework, combining NPM and NPFM, to better understand the contrasting approaches between innovation and compliance in public sector reforms (Cohen *et al.*, 2017).

The subsequent sections include background about PSA reforms in Portugal (Section 2), literature review and hypotheses formulation (Section 3), research design overview (Section 4), and presentation of results and discussion (Section 5). The paper concludes in Section 6, offering suggestions for future research directions.

2. Background literature

2.1. New Public Management Theory, New Public Financial Management and MA Reforms

The first wave of public sector reform was New Public Management (NPM) in the aftermath of the oil crisis in the 1970s, which prompted questions about how the social state was being implemented. It was influenced by theories related to neoliberalism and public choice theory (van Helden *et al.*, 2021). The NPM first spread in developed and Anglo-Saxon states, and thereafter across much of Europe and to developing and transitional countries. In developed countries, the impetus for NPM arose from fiscal crises characterized by reduced revenues and increased spending through the expansion of social welfare services resulting in the quest to cut costs (Bevir, 2024). The purpose of NPM was to improve efficiency and effectiveness in public sectors (Nogueira and Jorge, 2017). The ways of doing so included adopting private-sector management practices, putting the citizen at the center of public activity, and ascertaining costs in comparison to the public services provided (Cohen *et al.*, 2017).

Recent years have seen more global harmonization in financial accounting owing to advancements in information technology (Pistoni and Zoni, 2000). The creation of IPSAS was a significant catalyst for modernization and harmonization in several nations (Gómez-Villegas *et al.*, 2020). IPSAS aims to improve the quality of general-purpose financial reporting by public sector organizations, increase transparency and accountability in the public sector, and improve the comparability of financial statements worldwide.

Several authors have employed NPM in their studies of the implementation of PSA reforms. Van Helden and Reichard (2018) investigated why central governments in four European countries have moved from a cash budgeting system to accrual budgeting. They concluded that the change process in all four cases was influenced by several contextual factors, such as cash-accounting legacies and previous NPM reforms. Brusca, Gómez-Villegas, and Montesinos (2016) used NPM theory to justify that the use of exercise accounting generates political rationality and incorporates a set of calculation techniques that reduce the autonomy and legitimacy of the state.

If the NPM was critical for the reform of public administration, the New Public Financial Management (NPFM) was the key to the reforms in the systems, procedures, organizations, and regulations for the successful acquisition and use of public financial resources. It involves not only expenditures, but also income and debts in the framework of public budgeting, accounting, and financial reporting, in pursuit of efficiency, effectiveness, quality, transparency, accountability, and good governance in the administration of public financial resources (Guthrie *et al.*, 1999). This idea is reflected in the practice of accounting and budgeting reforms, the

adoption of international public sector accounting standards (IPSAS), and improvements in internal and external control mechanisms (Christiaens *et al.*, 2015; Sellami and Gafsi, 2019).

One of the defining features of NPFM is the transition from cash-based to accrual accounting, marked by a stronger reliance on IPSAS and the systematic incorporation of MA approaches to enhance the measurement and control of public sector activities (Baird *et al.*, 2007; Clarke and Lapsley, 2004; Cohen *et al.*, 2007; Venieris and Cohen, 2004). Accounting reforms in the public sector aim to improve the financial control, legality, economy, efficiency, and effectiveness of public expenditure, with management accounting playing a key role.

Although NPM and NPFM share common goals, such as improving efficiency, effectiveness, and accountability in public administration, their underlying logics often create tensions that directly affect the implementation of MA. NPM emphasizes decentralization, performance measurement, and the adoption of private sector management practices, placing citizens at the center of service delivery (Cohen *et al.*, 2017). In contrast, NPFM focuses on financial discipline, control, and compliance, often reinforcing centralized structures and formal mechanisms (Guthrie *et al.*, 1999; Christiaens *et al.*, 2015). These conflicting logics can create ambiguity for public sector employees, who are expected to simultaneously innovate and comply with rigid financial regulations (Grossi *et al.*, 2022). As Alsharari and Daniels (2023) argue, successful implementation of MA reforms requires not only technical changes but also behavioral and cultural adaptation by staff. These contrasting approaches shape how management accounting tools are applied, how reports are generated, and how concepts such as transparency and control are interpreted within public organizations. Developing a clear understanding of these dynamics is important to ensure that reforms are not only formally adopted but also effectively embedded into the everyday practices of those responsible for their implementation (Cohen *et al.*, 2017).

The evolution of MA reflects the improvements businesses have made over time to achieve their goals. The International Federation of Accountants (Abdel-Kader and Luther, 2006) identified four stages of this evolution. Before 1950, the focus was on cost determination and financial control through budgeting and cost accounting. This stage was vital for understanding expenses and managing resources efficiently. By 1965, the focus shifted to providing information for management planning and control, using tools like decision analysis and responsibility accounting. By 1985, the emphasis was on reducing resource waste through process analysis, and by 1995, attention turned to creating value through effective resource use. Recently, MA has embraced sustainability and social responsibility, reflecting their growing importance in

business. The future includes predictive analytics and artificial intelligence to anticipate trends and make proactive decisions (Waweru, 2010).

The literature discusses several methods for PSA changes. According to Christiaens *et al.* (2015), nations adopt accounting systems based on local needs, moving away from standardized changes (Benito *et al.*, 2007; Brusca and Condor, 2002; Carvalho *et al.*, 2007; Luder and Jones, 2003). Some nations, mostly Anglo-Saxon, are rapidly modernizing their systems, whilst others adopt a more traditional approach (Benito *et al.*, 2007; Carlin, 2005; Christiaens *et al.*, 2010; Groot and Budding, 2008; van der Hoek, 2005). Reform implementation varies: some nations begin at the local level before central government adoption, whilst others enforce reforms centrally (Groot and Budding, 2008; Guthrie *et al.*, 1999; Olson *et al.*, 1998).

Also, the level of implementation of MA in the public sector varies from country to country and is determined by several factors, including the special characteristics of the public sector setting, government initiatives, and the preferences of other stakeholders (Cohen *et al.*, 2019; Oyewo *et al.*, 2019). Previous studies have highlighted significant variations in the deployment and use of MA across different countries. While NPM theory suggests that the positive link between performance management and MA may be partly driven by efforts to improve organizational information, a Mohr *et al.* (2018) found an average MA implementation score of 4.43 out of 7 across several European countries. Other study found that in Spain, despite the implementation of a costing tool for local authorities, only 39.6% reported providing cost-effective service information to the Regional Finance Ministry in 2016, and no sanctions were applied (García-Fénix and González-González, 2020).

Lutilsky *et al.* (2016) found that cost accounting is underused in Croatian public hospitals, while Mättö and Sippola (2016) reported that Finnish managers often underestimate implementation challenges and overestimate the capabilities of MA tools. In contrast, Italian and Greek municipalities have successfully adopted integrated accounting systems, creating a more favorable environment for MA implementation (Orelli *et al.*, 2016). In Malaysia, where the Activity-Based Costing (ABC) system was introduced in 2012, users rated its usefulness as relatively low. Despite efforts by international organizations to promote Western models of public sector MA, emerging nations face challenges in adapting and implementing these frameworks, as seen with the IPSAS adoption (van Helden and Uddin, 2016).

2.2. Impact of MA reforms on control, transparency, and management report

Over the past decades, public sector organizations have experienced major transformations, particularly in the field of accounting with the adoption of IPSAS. While these reforms were

driven by various incentives, their application also encountered substantial challenges (Gomes *et al.*, 2015). In this trend of paradigm shifts, strongly driven by NPM, MA practices are an important source of organizational information (Nuhu *et al.*, 2017). Many countries are increasingly adopting management accounting practices, driven by the pressure to manage rising debt, shrinking budgets, and growing public dissatisfaction with government performance (IFAC, 2000).

When analyzing management accounting (MA) reforms in the public sector, it is important to consider whether implementation is voluntary or mandated by law. In several countries, MA practices have been introduced on a voluntary basis, allowing public organizations to tailor their adoption according to internal priorities and capacities (van Helden & Uddin, 2016). In contrast, the Portuguese case stands out due to the mandatory nature of the reform, established through Decree-Law 192/2015. While legal enforcement may promote consistency and improve transparency across institutions, it can also lead to implementation challenges, particularly when organizations face resource constraints or lack a supportive organizational culture (Carvalho *et al.*, 2008; García-Fénix & González-González, 2020; Liberato *et al.*, 2024).

In this study, MA refers to a set of practices and tools used within public sector organizations to support internal decision-making, enhance control mechanisms, promote transparency, and improve the quality of management reporting. MA includes: (i) cost accounting, including Activity-Based Costing (ABC), to determine the direct and indirect costs of goods, services, and activities; (ii) budgeting and financial planning, to align resource allocation with strategic objectives; (iii) performance measurement, through indicators that assess efficiency, effectiveness, and economy; (iv) internal control systems, to monitor compliance and support accountability; (v) management reporting, including periodic, environmental, and annual reports, which provide relevant financial and non-financial information for decision-making and public accountability. These components are linked to the control, transparency, and management reporting, and reflect the broader role of MA in supporting public sector reforms.

Management and cost accounting tools can support the control and perhaps cut spending in the public sector, therefore increasing the efficiency and effectiveness of public administration (Veledar *et al.*, 2020). Performance indicators can be utilized to evaluate budget users of similar scale, considering factors such as the number of employees, the population served, available financial resources, and the overall budget. This strategy promotes transparency and productive dialogue with public governments (Veledar *et al.*, 2020).

Table I outlines studies on impact of MA and control, transparency, and management report, which are widely acknowledged as fundamental to effective organizational management.

Table I: Studies on impact of MA reform in the public sector

Authors	Theory	Country	Main contribuition
Control			
Berisha and Asllanaj (2017)	-	Kosovo	Manage costs and improve product quality.
Bisogno et al. (2023)	Institutional	Spain	MA linked to improved government effectiveness and corruption mitigation.
Dmitrović-Šaponja and Suljović (2017)	NPM	Serbia	Cost control and cost reduction.
Labrador and Olmo (2019)	NPM	Spain	MA Improve efficiency.
Orelli et al. (2016)	NPM	Greece and Italy	Performance evaluation and cost control improve MA.
Papiorek and Hiebl (2023)	-	Germany	MA is positively related to management control.
Hastungkara & Hidayat (2024)	-	Indonesia	MA and internal controls enhance supervision and fiscal discipline.
Transparency			
Alsayegh (2020)	-	Several countries	ABC and greater transparency of costs.
Alsharari and El-Aziz Youssef (2017)	Old institutional economics; new institutional sociology	Jordan	MA ensures transparency in public transactions.
Bertoni et al. (2017)	-	Croatia and Italy	Cost accounting ensures greater transparency in the public resources.
Fiondella et al. (2016)	Theory of organizational change	Italy	MA contribute to achieve transparency and efficiency.
Tawiah & Soobaroyen (2022)	Institutional, Theory	Developing countries	IPSAS adoption improves transparency and governance.
Management report			
Brusca et al. (2019)	Institutional theory	Spain	Useful tool for management and accountability purposes.
Jiang (2019)	Economic theory and financial theory	China	MA uses financial and non-financial information.

Authors	Theory	Country	Main contribuition
Hamawandy et al. (2021)	Economic Theory	Iraq	MA techniques influence financial and non-financial disclosures
Rahman et al. (2015)	-	Malaysia	Inform better before deciding matters.
Veledar et al. (2020)	NPM	Bosnia and Herzegovina	Improving the quality of information.

Source: Elaborated by authors

Previous studies suggest that MA enhances control on the public sector (Berisha and Asllanaj, 2017; Dmitrović-Šaponja and Suljović, 2017; Labrador and Olmo, 2019). For instance, Berisha and Asllanaj (2017) found that nearly 50% of managers in Kosovo believe accounting techniques help manage costs and improve product quality. Similarly, Dmitrović-Šaponja and Suljović (2017) reported a positive impact of MA on cost control and reduction in Serbia. Labrador and Olmo (2019) and Orelli et al. (2016) noted that, despite the introduction of a cost accounting system to improve efficiency after the financial crisis, managers and experts did not perceive added value. In Germany, Papiorek and Hiebl (2023) found a positive link between the quality of MA information systems and management control effectiveness.

Previous literature finds that implementing MA enhances transparency. Transparency is defined as an entity's disclosure of management methods (economic, financial, social, and political) and performance, making this information accessible and understandable to all stakeholders (Vaz, 2023). Alsayegh (2020) found that techniques like the ABC system improve cost transparency, aiding planning, control, and decision-making. In Jordan, MA reforms increased transparency and accountability, particularly regarding public resource management (Alsharari and Abougamos, 2017). Similarly, studies in Croatia and Italy show that cost accounting enhances hospital resource governance, ensuring greater transparency in public fund usage (Bertoni et al., 2017; Fiondella et al., 2016).

For the management report, previous literature suggests that management reports are analytical tools used by managers to assess business performance and make data-driven decisions. Unlike financial accounting, which focuses on past transactions, MA helps managers use accounting information to inform decisions and improve management and control functions (Rahman et al., 2015). MA involves mining, analyzing, communicating, and using both financial and non-financial information for decision-making (Jiang, 2019), while also improving the quality of accounting data for decision support (Veledar et al., 2020). A study on Spanish universities highlighted the use of cost accounting for accountability, ensuring stakeholders are informed

about activity costs (Brusca *et al.*, 2019). The results highlight the significance of MA in governmental information, underscoring its relevance to the ongoing reform of public sector accounting in Portugal.

2.3. Public Sector Accounting Reforms in Portugal

Historically, public sector accounting (PSA) in Portugal was centered on budgetary accounting, with a primary focus on legal compliance and accountability. This approach, based on cash accounting, limited the ability to monitor actual public spending and hindered strategic decision-making. The reform process initiated in the 1990s with the introduction of the POCP (Plano Oficial de Contabilidade Pública - Official Public Accounting Plan) marked the beginning of a shift toward more comprehensive accounting practices, including financial and analytical accounting. From the “mother” POCP, several plans were derived for different sectors within the Public Administration – local government (POCAL), health (POCMS), education (POCE), and social security (POCPSS) entities. Since then the PSA system based on the POCP has lost its foundational underpinnings, leading to its gradual obsolescence, fragmentation, and inconsistency (Corte-Real, 2008; Jorge *et al.*, 2021; Marques, 2018).

The reform of public accounting in Portugal aimed to modernize the system in line with the NPM framework (Carvalho *et al.*, 2008; Marques, 2011). In this regard, the Public Chart of Accounts was approved, designed to meet the needs of a modern public administration, improving both the quantity and quality of accounting information, enabling comparability and consolidation of public accounts (Caiado *et al.*, 2017; Jorge, 2003).

The public sector accounting reform in Portugal, established by Decree-Law No. 192/2015, introduced the Accounting Standardization System for Public Administrations (ASSPA), which integrates three core pillars: budgetary accounting, financial accounting, and MA. MA, often referred to as analytical or cost accounting, plays a strategic role in generating relevant information for decision-making, internal control, transparency, and accountability. In the Portuguese context, MA is understood as a comprehensive system encompassing practices such as cost accounting, budget planning, performance measurement, internal control, and management reporting. Analytical accounting is an operational component of management accounting, focusing on the identification and allocation of direct and indirect costs of goods, services, and activities.

Regarding MA, implementation standards were scarce and varied across subsystems. Despite mandatory implementation, development lagged due to internal priorities and challenges in indirect cost allocation, causing delays (Carvalho *et al.*, 2008, 2012; Costa and Carvalho, 2007).

Previous studies in Portugal found that while the budgetary accounting system supported management and met legal requirements, cost accounting was not implemented (Santos, 2017).

The main reasons cited were the lack of necessity for the Court of Auditors' reports, difficulties in indirect cost allocation, and obstacles such as insufficient human resources, time, and political will (Carvalho *et al.*, 2008; Santos, 2017).

With the publication of ASSPA in 2015, the Public Accounting Standard (PAS) 27 for MA defined general requirements for its presentation (Marques, 2018), giving guidelines for its structure and development and prescribing mandatory requirements for its content and disclosure. Objectives were thus defined to establish the basis for the development of a system of MA in public administrations, emphasizing that MA should be used to support the internal processes of public management, contribute to the purposes for accountability, and allow for a better evaluation of the economy, efficiency, and effectiveness of public policies.

In Portugal, there are limited studies on the implementation of public accounting reform focusing on IPSAS adaptation (Gomes *et al.*, 2019, 2021, 2023; Jorge *et al.*, 2019; Marques, 2018). Some study reveals a gap between theory and practice, where MA manuals propose complicated procedures, while managers frequently utilize simpler decision-making processes (Major, 2009). For example, ASSPA's proposed ABC scheme has been criticized. Although potentially useful for decision-making and resource management (Salmanzadeh *et al.*, 2022), it is limited by arbitrary cost distribution (Armstrong, 2002) and significant time and resource consumption, raising questions about its cost-effectiveness (Lima, 2010).

3. Hypothesis development

3.1. Control

An important aspect of the implementation of PSA reforms may be found in accounting procedures, with a change from cash to accrual accounting, as well as the adoption of MA tools to measure and control operations (Baird *et al.*, 2007; Clarke and Lapsley, 2004; Cohen *et al.*, 2007; Venieris and Cohen, 2004).

The literature highlights features of management control, focusing on achieving effectiveness and efficiency in public spending and resource rationalization (Dimitrić *et al.*, 2016; Labrador and Olmo, 2019; Orelli *et al.*, 2016), driven by the emergence of the ideas of NPM with managerial logics and instruments typical of the private realm that allow efficiency to be improved in the public sector (Mussari *et al.*, 2021). Providing cost-related information, MA

supports decision-making in various ways (Caperchione *et al.*, 2019), such as evaluating government projects or products (Oseifuah, 2014).

Additionally, the literature indicates that quality information systems in MA positively impact the effectiveness of management control (Papiorek and Hiebl, 2023), and when management control becomes tighter, decision-makers have limited autonomy to tackle risk matters, especially in turbulent and uncertain times (Bracci *et al.*, 2022). According to previous literature, our first hypothesis is defined:

H1: The implementation of MA reform in Portugal contributes positively to increased control.

3.2. Transparency

Transparency pertains to the comprehensive and complete exposition of all accounting transactions and events (Al-otoom and Alrabba, 2022; Alsharari and Abougamos, 2017). MA, influenced by NPM principles that promote stakeholder engagement, including citizens, community organizations, and businesses, encourages public institutions to proactively disclose data and information, thereby enhancing transparency.

MA contributes to transparency in public sector organizations by enabling the disclosure of detailed and structured information about the use of public resources. Through cost accounting techniques, such as Activity-Based Costing (ABC), public entities can determine the expenses associated with specific activities and services, thereby improving the visibility of financial operations (Alsayegh, 2020; Bertoni *et al.*, 2017). In addition, existing literature shows that management accounting improves transparency by enabling better governance of public resources. Studies from Croatia and Italy demonstrate that cost accounting practices contribute to more transparent use of public funds, particularly in hospital management (Bertoni *et al.*, 2017; Fiondella *et al.*, 2016).

Previous studies show that management accounting plays a significant role in ensuring transparency and accountability when managing the public sector (Veledar *et al.*, 2020), accurately reflecting the resources spent on assets and determining the expenses with activities, services, and goods. Accounting and cost control techniques influence planning, control, and decision-making (Alsayegh, 2020; Bertoni *et al.*, 2017). Rahman *et al.* (2015) suggest that public sector organizations should use MA in response to the Corruption Perception Index, which measures transparency, accountability, and integrity.

MA also supports the preparation of periodic and environmental reports, which provide financial and non-financial data relevant to internal decision-making and external accountability (Decree-

Law 192/2015). These reports help stakeholders understand how resources are allocated and consumed, reinforcing transparency in public administration (Veledar et al., 2020).

The need to increase transparency in Portugal, especially in the disclosure of financial information in reports, is widely recognized. This effort aims to strengthen the perception of the State's financial transparency and facilitate a more accurate assessment of public sector debt (Decree-Law 192/2015, Article 75). Given this legislative goal and according to previous literature, our second hypothesis posits that the implementation of MA reform contributes to achieving the desired transparency.

H2: The implementation of MA reform in Portugal contributes positively to the increase of transparency.

3.3. Management report

Accounting information accurately and fairly reflects an entity's financial position. Management accounting (MA) practices enhance the reliability and relevance of such information as a foundation for decision-making in the realm of public administration (Brusca et al., 2019; Veledar et al., 2020). These improvements are largely driven by New Public Management (NPM) reforms, which prioritize value for money, transparency, and accountability to taxpayers (Höglund et al., 2021; Lowe and Wilson, 2017; Speklé and Verbeeten, 2014). It is also shaped by organizational adaptation to external pressures and accepted norms influenced by cultural and political traditions (Donatella and Tagesson, 2021; Zarei et al., 2022).

Several studies show that MA is a useful instrument for accountability in public organizations, encouraging the distribution of financial and non-financial information, and improving the quality of accounting information as a foundation for decision-making in the field of public management (Brusca et al., 2019; Hamawandy et al., 2021; Jiang, 2019; Rahman et al., 2015; Veledar et al., 2020).

In the Portuguese case, ASSPA defines (in PAS 27) that information should be produced on the costs, savings, efficiency, and effectiveness of the activities carried out, as well as on the amount and resources needed to support future activities, meeting the needs of external users, thereby promoting accountability for budgetary, financial and general-purpose management reporting (Decree-Law 192/2015). In addition to interim reports, Portuguese legislation, the basis of the MA reform, defines that, annually, the management report that accompanies the individual and consolidated accounts of each public administration body must disclose, for each good, service, or final activity, the following information: (a) direct and indirect costs of each good, service and

activity; (b) income directly associated with goods, services, and activities; (c) total costs of the financial year and total cumulative cost of activities, products or services with a multiannual duration; (d) final cost objects for which the total cost has been determined. According to previous studies, we formulate the third hypothesis:

H3: The implementation of MA reform in Portugal contributes positively to the increase in the management report.

3.4 Conceptual model

By integrating the findings from the various investigations discussed earlier, our model (Fig. 1) seeks to illustrate the assessment of the MA reform's implementation level and its impact on control, transparency, and management reports.

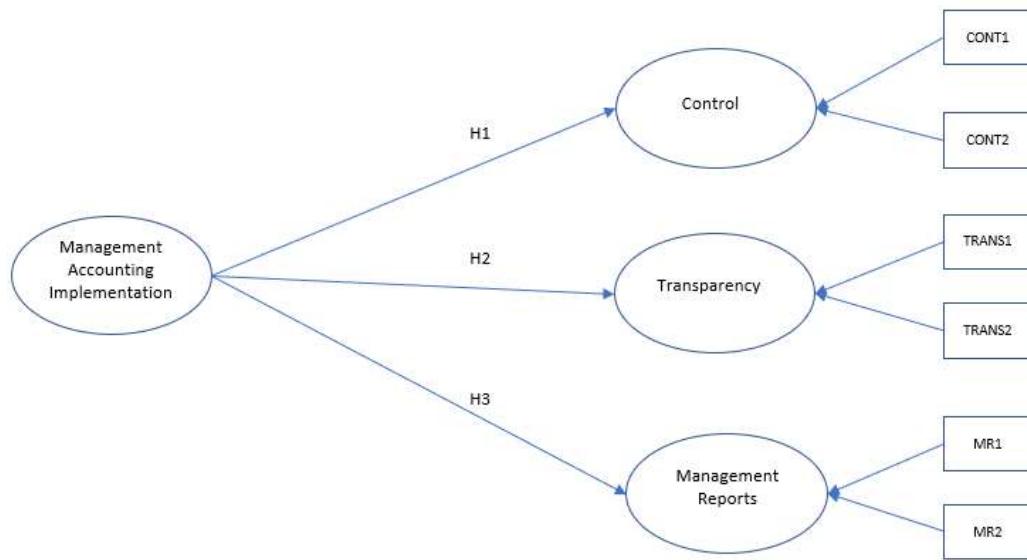


Figure 1: Conceptual model

Source: authors

4. RESEARCH DESIGN

4.1 Sample and data collection

A questionnaire with four sections was emailed to financial officers of all 495 organizations within the Portuguese Central Administration (Directorate-General for Budget, 2022). After a

pilot test with three organizations, the questionnaire was distributed in September 2022 (via Qualtrics), accompanied by a cover letter outlining the research's objective. Monthly reminders were sent until March 2023 to boost response rates, resulting in 170 completed responses (approximately 34%).

The questionnaire is structured as follows:

Sections one and two collected general data regarding the organizations and respondent profiles. Government areas were well-represented, with the Ministry of Science and Higher Education contributing the largest share (24%), followed by the Ministry of Health and the Ministry of Labor, Solidarity, and Social Security (12% each). In terms of respondent profiles, 57% were female, 68% held undergraduate degrees, and 23% had master's degrees or higher.

The third section focused on the level of implementation of the PSA reform in organization. Most respondents reported adopting financial (73%) and budget accounting (80%). The implementation of MA were still in the planning (45%), or testing (17%) stages.

The final section focuses on the level of compliance with the management, control, and information objectives outlined in the Decree-Law 192/2015. All responses were confidential.

Variables

To capture the perception of each responder, we developed measurement scales for each variables. The variables, the scales, and the items of the questionnaire are detailed in Table II.

Table II: Measurement of the variables

Latent Variables			Measured Variables			
Cod.	Variable	Measure	Cod.	Measure	Items from questionnaire	Scale
MAI	Management Accounting Implementation	Degree of implementation of MA during the implementation of the accounting reform	PAS_27	Degree of implementation of PAS 27 provided for in the PSA reform	Identify the degree of implementation of PSA Standard 27	1-Not Implemented 2-Planned, but not yet in place 3-In the testing phase 4-Implemented 5-In routine, with constant evaluation and improvements
			ABC	Degree of use of the ABC model	Identify the degree of implementation of the ABC System	
			Periodic Reports	Degree of production of periodic management reports, reports to monitor operations and reports to help make decisions about the future.	Identify the degree of implementation of Management Accounting disclosure maps.	
			Environmental Reports	Production of environmental management reports, identifying whether there is a policy to reduce effective environmental costs for improved performance	Identify the degree of implementation of environmental income and expenditure disclosures.	
			Annual Report	Degree of compliance with the preparation of the management report, to be included in the annual financial report.	Identify the degree of implementation of the Management Report.	
CONT	Control	Perception of the increase or decrease in control by financial officers, with the adoption of MA	CONT 1	Accounting reform provides useful information for decision-making purposes	Rate the statement: The PSA reform provides useful information for decision-making purposes	1) strongly disagree 2) disagree 3) indifferent (or neutral) 4) agree 5) strongly agree
			CONT 2	Accounting reform allows the control of the economy, efficiency, and effectiveness of public spending.	Rate the statement: The PSA reform allows the control of the economy, efficiency, and effectiveness of public spending.	
TRANS	Transparency	Perception of the increase or reduction of transparency in public administration with the reform of MA	TRANS1	The accounting reform allows for adequate reflection of the amount of resources spent on the acquisition of the assets consumed in the provision of services.	Classify the statement: The PSA reform allows for an adequate reflection of the amount of resources spent on the acquisition of assets consumed in the provision of services.	
			TRANS2	The accounting reform allows one to determine the expenses by activities, services, and goods, relative to the reporting period.	Classify the statement: The PSA reform allows you to determine the expenses by activities, services, and goods, relative to the reporting period.	
MR	Management Report	Perception of the increase or decrease in the quality of the reports with the reform of the MA	MR1	The accounting reform provides information for the determination of public service expenditures.	Rate the statement: The PSA reform provides information for determining public service expenditures.	
			MR2	The accounting reform provides forward-looking information on the sustainability of organizations.	Rate the statement: The PSA provides forward-looking information on the sustainability of public entities.	

Source: Elaborated by authors

The variables were assessed using a five-point Likert scale, which is recognized as the most commonly used and appropriate method for the statistical analysis of data collected through questionnaires (Ismaili et al., 2021). Specifically, the variable *Management Accounting*

Implementation, was adapted from the scale employed in the study by Ritsert et al. (2012), which examined the extent to which Germany's police forces had adopted selected public management instruments.

To evaluate the perceived impact of the PSA reform on control, transparency, and management reporting, we used a five-point Likert scale applied to specific statements related to each construct. Respondents were asked to rate their level of agreement with each statement, using the following scale: 1 – strongly disagree; 2 – disagree; 3 – indifferent (neutral); 4 – agree; 5 – strongly agree. This scale was used to measure variables *Control*, *Transparency* and *Management report*. The use of this standardized scale ensures consistency in data collection and supports the appropriate application of the structural equation modeling methodology used in this study.

5. Main results

5.1 Data processing

To test the relationships between the variables under analysis, structural equation modeling (SEM) was conducted using the Partial Least Squares (PLS) approach, implemented through SmartPLS 4 software (Ringle et al., 2022). The measurement scale is deemed reliable when it achieves a Cronbach's Alpha (CRA) greater than 0.6, and the corrected item-total correlation greater 0.3 (Nunnally, 1978; Peterson, 1994). Based on these criteria, all measurement scales and observed variables proceeded to Exploratory Factor Analysis (EFA).

We performed the Exploratory Factor Analysis (EFA), that testing compatibility of variables, using the Kaiser-Meyer-Olkin (KMO) measure. According to Hair et al. (2006), a KMO value ranging from 0.5 to 1 indicates that the data are suitable for factor analysis. Additionally, the Bartlett's test of sphericity was applied to assess the correlation among the observed variables within each scale (Snedecor and Cochran, 1989). A significance level equal to or below 0.05 suggests that the variances are homogeneous across groups or samples. Furthermore, cumulative variance analysis was carried out to determine the proportion of total variance explained by the underlying factors.

The latent variables Management Accounting Implementation (MAI), Control (CONT), Transparency (TRANS) and Management report (MR) was derived from the results of individual task implementation degrees, as indicated in Table III.

Table IV: Latent variables measurement

	Average	Median	Min. Observed	Max. Observed	Standard deviation
Management Accounting Implementation (MAI)					
PAS 27	2.75	3.00	1.00	5.00	1.36
ABC	1.95	2.00	1.00	5.00	1.19
Periodic Reports	2.42	2.00	1.00	5.00	1.33
Environmental Report	1.78	1.00	1.00	5.00	1.10
Annual Report	3.90	4.00	1.00	5.00	1.08
	2.56				
Control (CONT)					
CONT 1	3.89	4.00	1.00	5.00	0.80
CONT 2	3.64	4.00	1.00	5.00	0.81
	3.76				
Transparency (TRANS)					
TRANS 1	3.82	4.00	1.00	5.00	0.79
TRANS 2	3.83	4.00	1.00	5.00	0.84
	3.83				
Management report (MR)					
MR1	3.93	4.00	1.00	5.00	0.80
MR2	3.69	4.00	1.00	5.00	0.84
	3.81				

Source: Elaborated by authors

The average score for the MAI is 2.56 points, suggesting the process is in advanced planning and moving toward testing. This suggests that the reform, although well-intentioned and theoretically sound, has not yet translated into widespread operational change. In comparison, according the results of Mohr et al. (2018) the average use of cost accounting in 19 European countries was 4.43 points on a 1 to 7 scale (equivalent to 3.56 points to scale from 1 to 5). Our results demonstrate that in Portugal, MA implementation is below the European average (Mohr et al., 2018). The average score for CONT, TRANS and MR are around 3.76, 3.83 and 3.81 respectively, which indicates a higher scores of these Control, Transparency and Management report compared to MA implementation, in Portugal. Moreover, the results demonstrate that while the reform aims to enhance accountability and decision-making, the limited use of tools such as ABC (1.95 points) and environmental reporting (1.78 points) suggests that many entities struggle with the complexity and resource demands of MA systems.

5.2 Structural model results

The analysis and interpretation involved assessing the reliability and validity of the measurement model, followed by the evaluation of the structural model (Dias et al., 2023). The examination of individual indicators included reliability, convergent validity, internal consistency reliability, and discriminant validity (Dias et al., 2023; Hair et al., 2017). The results showed that

the standardized factor loadings for all items exceeded 0.6 (minimum value of 0.65). Moreover, all loadings were statistically significant at $p < 0.001$, supporting the reliability of each individual indicator (Hair et al., 2017).

Table IV: Summary of reliability, variance extracted, correlations, and discriminant validity tests

Latent variables	α	CR	AVE	1	2	3	4
MAI	0.79	0.85	0.53	0.73	0.21	0.25	0.23
CONT	0.78	0.90	0.82	0.18	0.91	0.80	1.03
TRANS	0.85	0.93	0.86	0.24	0.65	0.93	0.79
MR	0.75	0.88	0.78	0.23	0.78	0.92	0.88

Note: α Cronbach's alpha; CR - Composite reliability; AVE -Average variance extracted; Bold numbers are the square roots of AVE. Below the diagonal elements are the correlations between the constructs. Above the diagonal elements are the HTMT ratios.

Table IV demonstrates that convergent validity was also confirmed for following reasons: (i) all items loaded positively and significantly on their respective constructs; (ii) all constructs had CR values higher than 0.70; (iii) the AVE for all constructs exceeded the threshold of 0.50 (Bagozzi and Yi, 1988). The discriminant validity was assessed using the following approaches. First, the Fornell and Larcker criterion was applied, which calls for the square root of a construct's AVE to surpass its highest correlation with any other construct (Fornell and Larcker, 1981). Table IV indicates that this criterion holds for all constructs. Second, the heterotrait-monotrait ratio (HTMT) criterion was utilized (Hair et al., 2017; Henseler et al., 2015). All HTMT ratios fall below the more conservative threshold of 0.85 (Hair et al., 2017; Henseler et al., 2015), offering additional evidence of discriminant validity.

Table V: Structural model results

Path	Path coefficient	Standard errors	t statistics	p values	R^2
MAI -> CONT	0.18	0.08	2.12	0.03	0.31
MAI -> TRANS	0.24	0.07	3.46	0.00	0.51
MAI -> MR	0.23	0.08	2.71	0.01	0.59

Source: Elaborated by authors

The structural model was evaluated based on the sign, magnitude, and significance of the path coefficients, the R^2 values for predictive accuracy, and the Stone-Geisser's Q^2 values for predictive relevance (Dias et al., 2023; Hair et al., 2017). Collinearity was checked before evaluating the structural model, with variance inflation factor (VIF) values ranging from 1.17 to 2.25, well below the critical threshold of 5, indicating no collinearity (Hair et al., 2017).

The coefficient of the determination R^2 for the three variables of *Control*, *Transparency* and *Management report* were 31%, 51%, and 59%, respectively. The Q^2 values for endogenous variables (0.01, 0.03, and 0.04) were above zero, which indicates the predictive relevance of the model. To evaluate the significance of the parameter estimates, a bootstrapping procedure with 5,000 subsamples was applied (Hair et al., 2017).

The results in Table V for the *Control* variable demonstrated that $\beta=0.177$, $p<0.05$, indicating that the MA implementation has a positive and significant impact on control of public accounts, supporting Hypothesis 1. This finding aligns with prior research highlighting the importance of promoting cost accounting and management accounting as tools to control public expenditure and optimize resource utilization, thereby enhancing the effectiveness of public sector organizations (Labrador and Olmo, 2019; Orelli et al., 2016; Papiorek and Hiebl, 2023). Control is a key aspect of an organization's governance system to support the achievement of an organization's objectives and to create, improve, and protect stakeholder value (Ojra et al., 2021). Our results are in line with and confirm studies that organizations that prioritize management controls create a better environment for citizens and stakeholders (Li, 2020; Xiao et al., 2020).

The variable *Transparency* showed a $\beta=0.244$ and $p<0.01$. This result are supported the Hypothesis 2 our the study, indicates that the implementation of MA has a strong positive effect on increasing transparency. This result also supports previous research suggesting that implementation of MA fosters transparency and accountability (Alsharari and Youssef, 2017; Fiondella et al., 2016) particularly through cost accounting methods such as the ABC system, which plays a key role in planning, control, and decision-making processes (Alsayegh, 2020). Increased transparency contributes to strengthens an organization's capacity to adapt and perform under pressure (Balushi, 2021), while employees who comprehend how decisions are made tend to be more actively involved with stakeholders (Rahaman, 2023).

The results show that the implementation of MA has a strong impact on the *Management report* ($\beta=0.226$, $p<0.01$), supported hypothesis 3 of our study. According to the previous litherature, our findings show that the implementation of MA reforms in Portugal, improves the quality of accounting information as a basis for decision-making in public management (Brusca et al., 2019; Hamawandy et al., 2021). This accounting reform, together with the adaptation of IPSAS, allows standard boards and governments to provide information that can be useful for accountability and decision-making proposals for users and stakeholders (Gomes et al., 2023). These findings highlight the need for targeted strategies to overcome implementation barriers. This study

proposes practical measures such as technical training, simplification of accounting models, and incentives for producing periodic and management reports.

6. Conclusions

Based on the New Public Theory and New Public Financial Management framework, this study examines the influence of MA reform implementation in the public sector in Portugal's Central Public Administration, as well as how it impacts control, transparency, and reporting inside these institutions.

This study concludes that the implementation of the MA reform in the central public administration in Portugal has contributed to the increase of control, transparency, and useful information for management, although the reform is still at an early stage, with a long way to go before its full implementation in all sectors of public administration. Our research reveals that the internal control of organizations in Portugal encouraged by MA is effective in justifying the use of resources, contributing to a better perception by stakeholders, and fostering responsibility (Papiorek and Hiebl, 2023). Similarly, the usage of MA significantly contributes to boosting the transparency of organizations, encouraging a better atmosphere among employees, and leading to improved cooperation and customer service. Using MA also affects transparency and clear communication (Fiondella *et al.*, 2016). This study also reveals that the deployment of MA led to an increase in management report data. The financial leaders perceive that the PSA reform objectives are being accomplished, which is consistent with assessments from other countries (Ahmed *et al.*, 2019).

Although MA has been formally established as a mandatory component of the Portuguese PSA reform under the same legal framework as budgetary and financial accounting, empirical evidence reveals that its implementation remains comparatively limited. By examining the perceptions of public sector officials directly involved in the reform process, this paper offers a novel contribution to the literature by shedding light on how the new MA is perceived to enhance control, transparency, and reporting within public institutions.

This study seeks to enhance the understanding of public institutions regarding the advantages of implementing MA. It specifically focuses on control, efficiency, and effectiveness improvement within organizations, heightened transparency in public expenditure, and an elevation in the quality of management reporting. These considerations encompass attributes such as reliability, timeliness, comparability, and benefit (Labrador and Olmo, 2019; Veledar *et al.*, 2020).

This study highlights the role MA and NFPM in strengthening organizational practices by promoting greater transparency in public accountability towards citizens. As a relevant mechanism for combating corruption, transparency enables citizens to participate more actively in public sector governance. The aim is to improve citizens' perceptions of Portuguese public accounting reform, fostering increased control, transparency in public management, and higher quality management reporting. This involvement between society and public power ensures that decisions align with overall social needs (Hopper *et al.*, 2009; IFAC, 2000).

By demonstrating that reforming the MA increases the transparency of actions taken by citizens, such as a crucial component of effective governance and public trust, this article advances the political evolution of the accountability process of Portuguese political parties. The paper also demonstrates how enhanced control via management accounting aids in detecting inefficiencies and waste, encouraging a more effective use of public funds. Management accounting has become a crucial tool to guarantee that strategic objectives are accomplished sustainably and responsibly in the political environment, where fiscal responsibility and transparency are increasingly demanded.

The study has some limitations, as the data are limited to central public administration, leaving the impact on local and regional administration unstudied. It should be noted that the answers reflect the perception of the respondents, who were at the forefront of the implementation of the MA reform, so some degree of subjectivity must be taken into account. However, this subjectivity does not take us away from our objective of ascertaining, according to the perception of these individuals, what impact this reform has had on increasing control, transparency and quality of reporting.

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