Public accounting reporting, under an achievable metamorphosis?

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This study aims to provide a holistic approach of the European Union (EU) fiscal and financial reporting systems by assessing them through European System of National Accounts (ESA 2010) and International Public Sector Accounting Standards (IPSAS) reference, both having the accrual basis as benchmark of governmental accounting. The empirical research performed by combining the cluster analysis with the multidimensional scaling technique enables us to map all EU member states and emphasize potential connections between their fiscal and financial systems, thus providing a visual image of the two facets of public accounting. The results reveal a wide and strong interest in sound reporting able to improve transparency through performance management systems. These support European Public Sector Accounting Standards project aimed to adjust inaccuracies between IPSAS and ESA 2010 and finally to enhance good governance and create a positive environment by facilitating transparency and comparability.

Keywords: European Public Sector Accounting Standards, European System of National Accounts, European Union, International Public Sector Accounting Standards.

IN the dynamic context of the last decades, the public sector tends to turn from 'Cinderella' into a 'beloved princess' as it reinvents itself after a bohemian period of development disturbed by financial crises, drawing attention like a 'princess' metamorphosis.

Our study is focussed on public accounting development at European Union (EU) level, as an important pillar of qualitative management, defined by high transparency and incentive performance[1]. The New Public Management theory suggests that managerial system specific to the private field is a requirement[2,3] for the public sector due to the highly increasing power of stakeholders over bureaucracy[4].

Accounting, as a source for managerial decisions, is the key player of this change[5]. Presently, the EU member states are subject to great decisions implying extensive transformations within public sector accounting, where the international standards are the primary tool for accounting systems' development[6,7], in accordance with comparability and information accuracy principles[8].

Our study focuses on assessing how the general-purpose financial reports apply International Public Sector Accounting Standards (IPSAS), and how statistical/fiscal reports apply European System of National Accounts (ESA 2010) at EU level, using the accrual as benchmark. The main reason for approaching this topic is based on the recent decision of European Commission[9] to promote the accrual concept in financial and fiscal reporting systems, through European Public Sector Accounting Standards (EPSAS) and ESA 2010.

The key objective of this study is to offer arguments for a complex vision of the public sector accounting development in EU countries, through a financial-fiscal reporting radiography, a base for future developments. This approach will ensure high added value to the scientific literature and at the same time will fulfill the gap regarding the correlation IPSAS-ESA-Accrual in all EU member states through financial and fiscal reporting.

Based on a complex theoretical documentation, our empirical viewpoint combines cluster analysis with the multidimensional scaling (MDS) technique, validated by significance and robustness tests performed. The originality of the study is provided by at least the following aspects: theoretically, it focuses on a current research topic regarding the financial/fiscal public reporting in all EU countries. Empirically, it assesses the degree of implementing financial and budgeting accounting standards (IPSAS/ESA), a useful reference base for quantifying the magnitude of changes that will govern the public sector. The main findings reveal that developing the financial/fiscal reporting in an accrual world as a basis for governmental accounting is an important landmark in the public sector replacement.

Our article deals with the following: First, we provide the theoretical background for the European financial and fiscal policy through accountability view, emphasizing the significance of harmonizing the current financial reporting (IPSAS) and fiscal reporting (ESA 2010) with the aid of the latest EPSAS. Our research question aims to assess the EU government reporting systems from accrual perspective by underpinning it on the New Public Governance theory. Next, we describe the research design and

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results reached by applying cluster analysis and MDS technique for mapping the EU countries in accordance with their reporting systems. Finally, we provide our conclusions revealing a broad and strong interest in a reliable reporting, thus sustaining the initiative of the EPSAS project aimed to promote uniform standards for both financial and fiscal purposes.

Theoretical background

European Union financial and fiscal policy through the accountability perspective view

Between EU member states, interconnections in the economic, social and political fields are evident and so it is necessary to promote uniform accounting standards for both micro- and macro-perspectives for increasing the information's quality and comparability. This goal requires a comprehensive set of measures, unprecedented in the development of public accounting, placed on three essential pillars: (1) accrual accounting basis; (2) EPSAS references and (3) ESA references, sustained by official documents issued by international/European bodies. The documents describe them as:

(1) Accrual basis: 'Financial management, whether at the macro-level (general government) or the micro-level (the government entity) should be based on the principle of accruals accounting', thus 'superiority of accruals principle whether for macro- or micro-fiscal monitoring is indisputable'[9].

(2) EPSAS references: 'The primary objective of the EPSAS project is to implement robust accrual accounting systems in all Member States for all sub-sectors of general government that will generate comprehensive and reliable data that can be used for budget surveillance and fiscal monitoring in the EU'[9].

(3) ESA references: 'As concerns national systems of public accounting, Member States shall have in place public accounting systems comprehensively and consistently covering all sub-sectors of general government and containing the information needed to generate accrual data with a view to preparing data based on [ESA]'[10].

Thus, accrual concept becomes a benchmark for all financial and fiscal public policies, while EPSAS's referential meet the officially recognized need[11] that any unnecessary differences between IPSAS and ESA have to be eliminated. As a premeditation of this measure, the European Commission[11] stresses the danger created by a separate IPSAS-ESA reporting due to a significant amount of data and necessary corrections that might double the information presented in many situations. Moreover, it argues that the adoption of a single set of accounting standards on an accrual basis at all levels of government throughout the EU will be able to enhance performance and neutralize the side effects of the current IPSAS's reference[9]. Thus, the saving solution appears to be the EPSAS, a common language and the foundation of a sound budgetary policy at both national and European level[12]. In performance approach, one of the primary EPSAS objectives is to develop consistent and comparable accrual-based accounting rules to ensure the quality of the information on which ESA data is based[13].

In this context, our study wonders if the EU countries are prepared to face these massive changes, with important effects on public sector attitude. Thus, accrual, EPSAS and ESA concepts are placed as a terminus point for the performance growth, being analysed according to the current financial/fiscal status of each EU countries.

Research question development

In the last few decades, at the core of public accounting reforms, stood the need for high-quality and relevant information able to enhance transparency and accountability of EU countries' financial and fiscal policies. Nevertheless, the pluralistic mosaic of public sector accounting in Europe[14] and the long twisted path towards harmonization[15,16] raise difficulties in getting reliable, accurate and comparable accounting and statistical data. Moreover, it led to a definite need for standardized procedures able to support these requirements.

Thus, a common set of accounting principles eligible to further support fiscal and budgetary integration among countries became a priority on the European Commission's policy agenda. By aiming to ensure financial reporting standardization, the European Commission[9] appreciates the accrual accounting's ability of providing the most complete and the only reliable image of the governmental performance, thus increasing accountability, openness and transparency. Furthermore, heading for fiscal standardization, the European Parliament/Council[10] enforced the EU public accounting systems to generate accrual data for preparing ESA reporting. Therefore, accruals are at the core of harmonization despite all criticism and concerns related to this self-evident[17] and unstoppable process[18].

Designing IPSAS referential based on accrual accounting was a big step ahead towards harmonization, useful in assessing the government's performance regarding service costs, accomplishments and efficiency[17]. Since the primary goal is still to improve the comparability of the financial performance and provide a greater accountability of public resources, the fiscal and financial data must be harmonized. As a consequence, ESA 2010 has been recently updated to reflect better the performance in line with changes occurring in world economies[19].

Besides, there has been a project to introduce EPSAS, a set of harmonized standards across EU to improve the quality of financial reporting, leading to better-informed

Table 1. EPSAS based on IPSAS references correlated with IPSAS compliance (I_c) having EPSAS as proxy

Standards	Accounting area*	IPSAS compliance	Measurement extent**
IPSAS 1[1]	[1]Presentation of accounts/reporting	$I_c = \sum_{i=1}^{32} I_i / 32$ and	$I_{\frac{c}{Aa}} = \sum_{i=1}^{14} Aa_i$
IPSAS 2[1]			
IPSAS 3[1]	[2]Financial position (fixed assets; intangible assets; inventories; provision)	where:	
IPSAS 4[3]			
IPSAS 5[2]		I_i – IPSAS references according to EPSAS category	
IPSAS 9[3]	[3]Income and expenditure	Aa_i – IPSAS from accounting area	
IPSAS 10[1]			
IPSAS 11[3]	[4]Other specific standards (for completeness)	$I_c = 0.44$	Moderate
IPSAS 12[2]			
IPSAS 14[2]		$I_{c/A1} = 0.29$	Moderate
IPSAS 16[2]		$I_{c/A2} = 0.43$	Moderate
IPSAS 19[2]		$I_{c/A3} = 0.21$	Moderate
IPSAS 27[4]		$I_{c/A4} = 0.07$	Low
IPSAS 32[2]			

*IPSAS inclusion in the defined accounting areas is helpful in assessing the meaning and the magnitude of change.
**Starting from the need of determining how the EPSAS relies on IPSAS, we are interested in 'standards that might be implemented with minor or no adaptation' category[13,29].

assessments of governments' decisions regarding resource allocations, thereby increasing the efficiency and effectiveness of government actions[9].

Thus, there is an undeniable need for an unique reporting field for all public sector entities promoting transparency and accountability to provide accurate and comparable information for ESA 2010 accounts. Thus, while accrual basis adoption by governments became the framework for IPSAS and ESA 2010 references, accrual world became a benchmark in this study. Consequently, a question arises – How is the EU public reporting standards systems viewed from accrual perspective as a pillar of performance?

For adding higher value to the outlined direction, we grounded our research into the New Public Governance (NPG) theory. This paradigm lays greater emphasis on external accountability and transparency[20] provided by the accrual accounting and performance-oriented systems introduced first by the New Public Management. Moreover, it encourages the creation of a transparent and uniform accounting field for all public organizations to provide accurate and comparable information for ESA 2010 accounts[14]. Since the IPSAS adoption within central and local governments is voluntary, creating and developing a mandatory set of standards at EU level (namely EPSAS) comes as a reconciliation of the significant differences existing between IPSAS and ESA[21].

Research design and results

Methodology framework

To achieve our objective, we turned to the exploratory data analysis (EDA) at EU country-level to summarize and visualize the main characteristics of both fiscal and accounting reporting system in the European public sector, thus identifying and comparing the general patterns developed from both fiscal (ESA 2010) and the financial (IPSAS) aspects.

According to the Council Directive 2011/85/EU, the EPSAS development process is meant to ensure the harmonization of EU public accounting system through the creation of unified reporting (accounting and statistics), which is mandatory on an accrual basis. The EPSAS references, some of them based on the existing IPSASs, must capture individual peculiarities and needs of the public sector. Thus, these include three categories: (i) standards that might be implemented with minor or no adaptation; (ii) standards that need adaptation, or for which a selective approach is needed; (iii) standards that appear to be amended for implementation[9].

Our study includes only those EPSASs which would apply standards with 'minor or no adaptation', as we wanted to emphasize how these standards are known and used in national accounting systems across the EU, by extrapolating the implementation of IPSAS. Consequently, our assessment aims to quantify only the implementation effects of IPSAS 1–32, due to objective reasons such as the very recent applicability of IPSAS 33-38 and the lack of official national reports related to existing EU/Eurostat documents. An overview of EPSAS 'Standards that might be implemented with minor or no adaptation' is presented in Table 1.

The main category that will be taken over by the new standards targets the financial statements compiled by public institutions (0.72). This leads to continuity in financial reporting format and content, with positive implications on EU countries' familiarity, relevant to IPSAS 1 and IPSAS 2 impact on the future EPSAS.

In this respect, we considered two variables for our analysis, namely the fiscal reporting basis (ESA_Sys) and the level of accounting harmonization to IPSAS at national level (IPSAS_Sys), by assigning values ranging from '1' to '4' (Table 2).

To achieve our goal, we performed a hierarchical cluster analysis, followed by MDS to emphasize the potential connection between fiscal and financial systems to be able to support the need for accrual harmonization as a pillar for performance in public sector. The results of cluster analysis conducted on the countries' sample were validated by applying various tests. Thus, the homogeneity test (Levene) confirms the five cluster solutions reached, while the two robustness tests (Brown-Forsythe and Welch) increase the reliability of the results.

Furthermore, MDS technique was applied to complete the results of cluster analysis, thus revealing the countries' dataset into two dimensions: ESA versus IPSAS reporting system. To increase the reliability of mapping results, we tested the fit of MDS solutions reached by using the Stress test (Kruskal's type I) whose values confirmed an excellent fit.

In conclusion, our study enhances the literature[9,18] by expanding the sample comprising all 28 EU member states and broaden the research topic by focusing on both financial and fiscal reporting systems. Moreover, it provides reliable results validated by various statistical tests that make our findings trustworthy.

Table 2. Variables considered for the empirical analysis

	Variables	
Values assigned	ESA_Sys*	IPSAS_Sys**
1	Cash	Formal
2	Mixed	Material to formal
3	Accrual	Material
4	NA	None

*The reporting basis of the fiscal data published by the EU member states on the European Commission's initiative of assessing the compliance with the Council Directive 2011/85/EU, article 3(2) related to fiscal data[30].
**The degree of IPSAS takeover into national legislation[31].

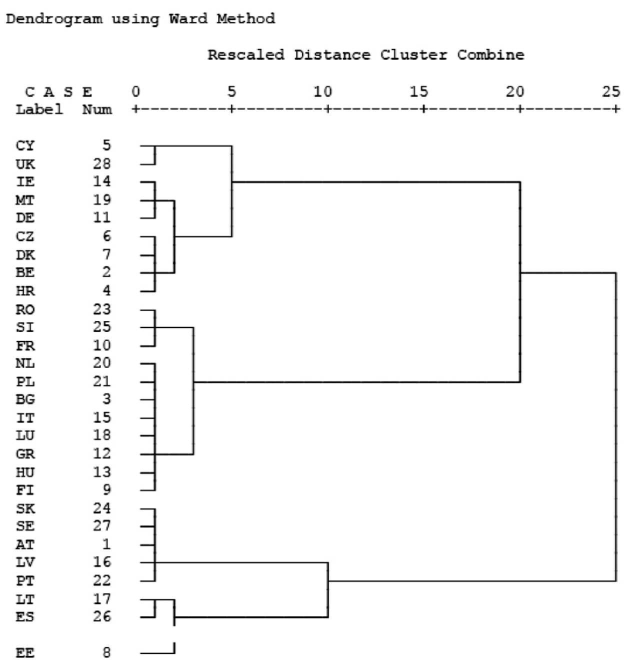


Figure 1. Dendrogram of the cases – statistical versus financial reporting system.

Data and results

In order to provide a bigger picture of European fiscal and financial accounting environment, we focused on emphasizing the EU reporting system from the accrual perspective as a pillar of performance. Thus, we performed our empirical research by utilizing the hierarchical cluster analysis for classifying the EU member states into homogenous groups, as different as possible, by considering the most similar countries that share common characteristics into the same group.

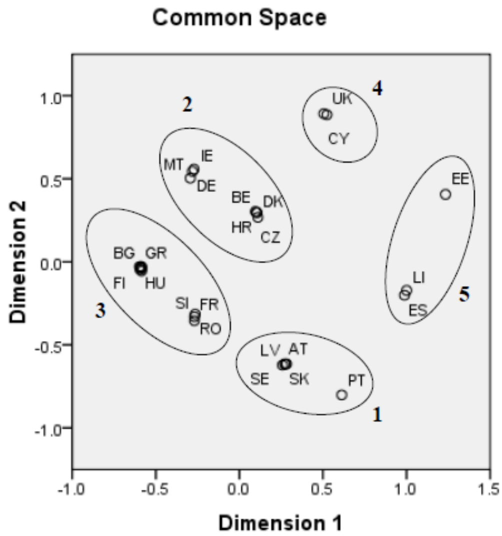
Figure 1 shows a dendrogram of 2 cases of reporting system of the EU countries. The vertical axis of the dendrogram reveals the appropriate rate of clustering by considering the distance between individual clusters showed by the horizontal axis. Accordingly, dendrogram reveals five significant clusters in the case classification process (encoded group 'A' to 'E') for the sample of all 28 EU countries according to the status of their fiscal and financial reporting systems judged from accrual perspective.

In the next step, the optimal five-cluster solution reached was subjected to various significance tests to increase the reliability of our results (Table 3).

Thus, the homogeneity test applied justified the number of clusters (Levene's test significance for the chosen cluster solution), while the robustness tests (Brown-Forsythe and Welch versions of the F-ratio) increased the trustworthiness of the solution, due to their high significance.

To complete the results of our analysis, we mapped the sample of countries into a chart by applying the MDS technique (Figure 2). Thus, we provided a visual image with two dimensions: financial (dimension 1) versus fiscal (dimension 2) reporting system, where the interconnected EU countries were placed. To increase the reliability of the mapping, we applied the Stress test, which indicated a good fit of countries placed in the MDS map according to Kruskal's type I value (0.0733). Therefore, the mapping of EU member states into groups reveals the status of both fiscal and financial reporting systems from the accrual approach perspective and provides evidence meant to support its status of pillar for performance, thus answering our research question.

We now briefly describe the main features of each group according to its location on the map at the junction



where
Dimension 1 – Financial reporting system (IPSAS)
Dimension 2 – Fiscal reporting system (ESA)

Groups' legend	
"A"	Austria (AT), Latvia (LV), Portugal (PT), Slovakia (SK), Sweden (SE)
"B"	Belgium (BE), Croatia (HR), Czech Republic (CZ), Denmark (DK), Germany (DE), Ireland (IE), Malta (MT)
"C"	Bulgaria (BG), Finland (FI), France (FR), Greece (GR), Hungary (HU), Italy (IT), Luxembourg (LU), Netherlands (NL), Poland (PL), Romania (RO), Slovenia (SL)
"D"	Cyprus (CY), United Kingdom (UK)
"E"	Estonia (EE), Lithuania (LI), Spain (SP)

Figure 2. Mapping EU member states into groups according to the status of fiscal and financial reporting systems

Table 3. Significance test results for cluster analysis

	Test of homogeneity of variances					Robust tests of equality of means			
	Statistic	df1	df2	Sig.		Statistic[a]	df1	df2	Sig.
Levene*	54.018	4	23	.000	Welch*	49.758	4	7.600	.000
Levene**	39.371	3	24	.041	Brown-Forsythe*	41.254	4	7.220	.000

*Six clusters solution; **Five clusters solution; [a]Asymptotically F distributed.

of the two dimensions: fiscal (ESA) and financial (IPSAS) reporting, by trying to glean from the experiences and challenges encountered or the reluctances expressed by different countries in implementing these systems.

As it can be noticed, EU countries tend either to the top or to the right side of the map, which means that there is a bigger intention to promote uniform standards directed towards accruals. Thus, despite criticisms, such as their irrelevance for the fiscal stance or inconsistency with budgetary systems[22], accrual seems to be a desired one due to its potential to enhance performance.

In this context, groups 'D' and 'E' (Figure 2) are by far the closest to the main goal of public sector reforms. They are open to improve the decisional process and enhance public sector performance through quality and transparent information[23], supported by NPG paradigm. Thus, most countries use full accruals in their fiscal reporting according to ESA 2010 and have harmonized accounting systems either formally (e.g. Estonia, Lithuania and Spain) or materially (e.g. UK, Cyprus), due to the higher degree of IPSAS adoption.

Unfortunately, we cannot say the same is true about groups 'B' and 'C' with countries having traditional systems and quite reticent to changes. Most of them have not yet stepped towards accrual statistics and are quite far from the IPSAS formal approach. They usually expressed a very low or no interest in developing their national accounting systems in agreement with IPSAS and, moreover, disagreed with the idea of EPSAS being based on IPSAS. Consequently, important steps are required to overcome the resistance of such countries (e.g. Germany) trying to retain their national standard-setting authorities[16].

A little more encouraging case is group 'A', including countries with opposite systems, namely cash fiscal reporting versus accrual accounting reporting based on material IPSAS adoption. In this context, there is a great need for harmonization of public reporting systems within this group because these are the data sources for compiling GFS, which require appropriate accruals prescriptions. Moreover, having multiple reporting systems is risky for policy-makers because they might cause distraction or arbitrage between targets[24]. Nevertheless, evidence from country-level is quite encouraging, thus revealing that the impact of implementing ESA 2010 creates the premises for significantly higher convergence in the fiscal reporting (e.g. Austria has a high convergence index)[25]. Regarding financial reporting, IPSAS is reflected in almost all national accounting legislation for central governments in this group (e.g. Austria, Latvia, Slovakia, Portugal) even though some of them are still in the process of implementation[26]. There is an official evidence as well (e.g. Sweden) revealing limited differences between national accounting frameworks and IPSAS[27]. However, although most EU member states have applied IPSAS as a guideline when preparing their financial reports[15], there is still lack of comparability within government levels where the accounting systems are not yet harmonized (e.g. Portugal)[28]. Nevertheless, countries within this group are not expected to encounter difficulties in future reforms, due to their actual status of public reporting systems, which foreshadow a promising feature.

In conclusion, there are likely achievable chances towards harmonization of fiscal and financial reporting systems considering the status of IPSAS actual implementation within EU countries, despite the reluctance for accrual approach that still exists in some countries (mainly from Group 'C'). Thus, this picture of the EU reporting systems from the accrual approach perspective as a pillar of performance offers a virtual answer to our research question. Moreover, it creates the prerequisites for a future mandatory adoption of EPSAS at European level, as long as this new set of standards shows a strong coupling with IPSAS[26]. Also, we appreciate that the current development of EPSAS is an opportunity to ensure the unification of accounting across EU member states, thus reaching the ultimate aim of the EPSAS project[29], with potential benefits on performance and macroeconomic fiscal surveillance and transparency[12].

Conclusions

The latest trends in public sector development placed under the umbrella of NPG reform raised the need to enhance performance through greater transparency and accountability. Our article provides a comprehensive picture of the EU public sector accounting needs and evolution.

The novelty of research is ensured by approaching the emergence of the new set of accounting standards for the public sector (EPSAS) that comes to reconcile differences between IPSAS and ESA. Moreover, by addressing the correlation IPSAS_ESA_Accrual in all EU member states, we have successfully filled a significant literature gap supporting the need for all topics together.

Thus, these standards either focussed on micro-level (IPSAS) or macro-level (ESA 2010) and designed to enhance financial performance comparability across Europe led us to the objective of our study, i.e. to assess the EU reporting systems through accrual perspective, focussing on these notorious financial and fiscal standards for underpinning the need for the future EPSAS.

Our results reveal miscellaneous cases of reporting across EU member states from a few rooted cash-based systems to a majority of desired accruals, thus showing that governments are overall rather positive about ESA 2010 and IPSAS, which are perceived as suitable tools to gain wider accountability. In this context, mapping of EU reporting systems provided by our empirical analysis justifies the need for harmonization between fiscal and financial facets of public accounting. Under the pressure of NPG, there is a real demand for a homogeneous reporting system that can increase comparability and improve transparency through performance management systems. The emergence of EPSAS project seems to satisfy this need as long as this new set of accounting standards designed especially for EU public sector adjusts the inaccuracies between IPSAS and ESA 2010. Thus, EPSAS will facilitate to transpose public sector accounts into accrual fiscal statistics, ensuring their timeliness and reliability. Moreover, they encourage openness within institutions since they provide high-quality harmonized data empowered to increase accountability. Finally, EPSAS will be able to enhance good governance and create a positive environment by facilitating transparency and comparability.

In conclusion, EPSAS accrual accounting reform will turn the public sector into a 'beloved princess', fully harmonized towards accrual principles, and will make it capable of providing reliable and comparable data among EU member states, useful for economic decisions, budget monitoring and fiscal surveillance.

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