

The Influence of Information Technology (IT) on Accrual Accounting Adoption: The Case of the Jordanian Public Sector

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Jordan is one of many countries that intends to reform its public sector by adopting accrual accounting, which is primarily carried out through the International Public Sector Accounting Standards (IPSAS) implementation plan, scheduled to be completed by 2021. Considering the difficulties of adoption, this process cannot be completed without an appropriate Information Technology (IT) system capable of providing the accounting information required for this reform. Therefore, this study aims to examine the influence of IT on accrual accounting adoption in the Jordanian public sector. The study employed the quantitative survey approach. Based on 331 usable questionnaires, the descriptive findings showed that the use of IT in the Jordanian public sector is relevant to daily accounting transactions in general and to accrual accounting in particular. The regression analysis showed a positive, significant relationship between IT use and accrual accounting practice. The IT specialist should be able to understand the needs of public sector in adopting accrual-based accounting. In line with today's digitalization age, which integrates advanced technologies and numerous techniques, this study suggests that a combination of accounting and IT experts is a value added to sharpen the competitiveness of public sector reform. This study contributes to the extant literature in public sector, concerning the relationship between IT and accrual accounting adoption in the context of Jordan.

Keywords: public sector, accrual accounting adoption, information technology, Jordan

Introduction

Nowadays, there is a global trend towards public sector accounting reform. Among the globe, Jordan took the initiative to reform its public sector by the announcement to implement International Public Sector Accounting Standards (IPSAS) in 2014. Succeeded in this initiative, Jordan adopted IPSAS based cash accounting in 2015 (Alghizzawi & Masruki, 2019a). Making Jordan the first middle-eastern country succeeds in implementing these standards. Sequentially with that, Jordan announced that the government will proceed for IPSAS based accrual accounting adoption which is expected to be completed by 2021 (Alghizzawi & Masruki, 2019b). This step is aimed at improving the quality of financial reports and the transparency of government financial accounts. In addition, it is expected to enhance control and accountability as well as simplifying the decision-making process in a timely manner with the optimal use of financial resources (JMOF, 2015). Moreover,

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IPSAS based accrual accounting is expected to contribute significantly for several financial thorny issues in the Jordan's economy including: financial-aids, corruption, taxes, and budget deficit (Alghizzawi & Masruki, 2020).

Empirical evidence showed the difficulties in public sector reform practices in developing countries. Developing countries face a myriad of challenges in adopting accrual accounting for the public sector. Challenges are inevitable wherever change is instituted (Monteiro & Gomes, 2013). One of these important challenges is the limitation of technological infrastructure that reduces options and raises costs of the adoption process. Accrual accounting adoption cannot be done without appropriate sufficient Information Technology (IT) in order to provide the needed accounting information for such reform process; example includes the recognition and valuation of assets and liabilities (OECD/IFAC, 2017; Athukorala & Reid, 2003). Additionally, several scholars discovered the important role of IT in related with accrual accounting adoption in the public sectors as the IT is the most challenge for the adoption process, for instance, Upping and Oliver (2012) in the context of Thailand; N. N. Ahmad, Mazlan, S. D. Ahmad, and Pangat (2015) and Mahadi, Noordin, Mail, and Sariman (2015) in the context of Malaysia; and Setiyawati and Doktoralina (2019) in the context of Indonesia.

In line with theses evidences, this study seeks to examine the influence of IT on accrual accounting adoption, considering the fact there are limited sources concerning the IT with accrual accounting in the context of the Jordanian public sector.

Literature Review

The public sector is part of the governmental economy that is responsible to provide various services in any country. Public sector is involved in developing economy, and monopolized by the government. The importance of the public sector includes (Haider, 2010): (1) economic development of the country, (2) providing sound infrastructure, (3) serving the general public (tax-payers) without profit. Barton (1999) argued that, the public sector should provide services to satisfy the receivers' needs including citizens or customers. These services should be maintained and developed continually in order to enhance its performance. Due to the public sector reform is initiated more aggressively under various terms of reference, such as transparency, better governance, delivery efficiency and effectiveness. This requires good management of the resources of the public sector. Consequently, the management of governmental resources was identified as critical issue due to rapid changing of the governmental transformation characteristics such as decentralization, collaborate with outsources, redefine the government responsibilities and outputs management. The main aims of the resources management of public sectors are to enhance effectiveness of the provided services (Pina & Torres, 2003). Hence, public sector management needs an accounting system capable of organizing its own operations (Norman, 1995).

Public sector accounting is an accounting method applied to non-profit pursuing entities in the public sector—including central and local governments, and the process government agencies use to record financial transactions. The purpose of the public sector accounting is: (1) establishment of public governance system; the purpose of the public sector accounting system should be determined in accordance with the needs of its users, and (2) taxes and taxpayers within state governance structure; taxes, a prime revenue source of the government, should be recognized and assessed as an increase in taxpayers' equity, and taxpayers, through their tax payment, entrust the government with the management of economic resources (Sakurauchi, 2002). Consequently, the main aim of public sector accounting is to carry out a basic purpose of safeguarding the public treasury by timely preventing and detecting corruption, and preparation of financial statements responsible for organizing the public's funds (Tanjeh, 2016).

IPSAS Based Accrual Accounting

Since 2000, the International Federation of Accountants (IFAC) released the IPSAS that recognizes the significant benefits of achieving consistent and comparable financial information across countries (Oulasvirta, 2014). The purpose of IPSAS is to unify the presentation of financial statement of public sector in any country in order to improve the quality of accounting reports. Originally, IPSAS was formulated based on the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB). IFRS was formulated to standardize the financial statement of various private sectors such as business companies. Many standards of IFRS were audited, and maintained to formulate IPSASs as separate standards for the public sectors (IFAC, 2014).

The main aim of IPSASs is to unify and qualify the structure and contents of accounting reports of public sectors in order to sustain the transparency, accountability, and decision making based on these reports. The quality of accounting reports can be described as the following characteristics (IFAC, 2014):

- **Relevance:** The accounting information that contains confirmatory or/and predictive values would make differences in achieving the objectives. The confirmatory values are the current or past accounting values expectations. The predictive values are the future expectations of accounting values. The confirmatory or/and predictive values support the accountability of accounting reports, and the decision making depends on these reports.
- **Faithful representation:** The faithful representation of accounting reports is the completeness, fairness, and error free of accounting values and information. The faithful representation provides transparency accounting information which supports the reports accountability.
- **Understandability:** The understandability is presentation of accounting information in clear and simple manner such as format and concepts. The accounting information should understand by people of different education levels and knowledge. Thus, the accounting reports can be accountable by citizens of various knowledge and skills. On the other hand, the simple and clear accounting information allows the decision makers to provide accurate decisions based on good understanding of financial situation.
- **Timeliness:** The timeliness is the disclosing of accounting information in the right time before losing its value capacity. Timeliness of accounting information assures useful accountability and right time decisions.
- **Comparability:** Compatibility is the possibility of comparing the accounting information with other information such as standard or optimal financial situation. The compatibility allows the PSs to understand their past mistakes and avoid it in the future, and allow the accountability of wasted resources or happened errors (verifiability).

Significantly, IPSASs were formulated according to two main accounting bases which are accrual accounting and cash accounting (Christiaens, Reyniers, & Rollé, 2010). Accrual accounting is

the accounting transactions and activities that recorded when it arised (i.e. not when cash is paid). Hence, the records of accounting are documented in the financial statements and depend on the periods to which they need to be received or paid. (IFAC, 2008, p. 3233)

On the other hand, the cash accounting is “the documentation of accounting transactions and activities based on immediate received or paid cash” (IFAC, 2008, p. 926). Thus, the measuring of financial performance can be conducted based on the differences between the paid and received (IFAC, 2008).

In this context, IPSASs are becoming the benchmark for government financial information (Ernst & Young,

2012). In addition, one option that countries can choose is first to implement the cash accounting and then to develop a route for the transition to accrual accounting (Hughes, 2013). Mainly the IPSAS focused on accrual accounting rather than cash accounting. The final version of IPSASs consists of 40 standards for accrual accounting (IFAC, 2018).

Cavanagh, Flynn, and Moretti (2016) stated that, from the point of view of governments, cash accounting has a number of weaknesses; under cash accounting, transactions will be recognized only when the related cash is received or paid and the economic events are not reported in the absence of an immediate exchange of cash. Governments have been tempted to exploit this weakness by deferring cash disbursements or bringing forward cash receipts as a means of artificially inflating their financial balance. Moreover, governments that follow cash accounting tend to not maintain comprehensive and up-to-date records of the value of their assets and liabilities. This enables them to transfer assets (such as land or mineral rights) or incur liabilities (such as pensions or public-private partnership contracts) to third-parties without disclosing their financial implications for the government and taxpayer. While accrual accounting offers a number of benefits over traditional cash accounting from the point of view of government transparency, accountability, and financial management such as: (1) providing a comprehensive scene of the cost of government activities and financial and government performance, (2) increasing the concentration of decision makers in public sectors and making them more capable to manage assets and liabilities effectively, (3) providing a more complete picture of financial position of public sector as a whole and. Consequently, accrual accounting adoption in public sector accounting systems is one of the primary and supposedly determining steps in the improvement of public financial management (Ball & Pflugrath, 2012).

Information Technology

Researches on public sector reform have focused on the relationship between IT infrastructure and its key success factor for accrual accounting adoption. Examples include Upping and Oliver (2012); Ahmad et al. (2015); Mahadi et al. (2015); and Setiyawati and Doktoralina (2019). Negara (2015) stated that, given the complexity of accrual accounting adoption, this process in public sector accounting certainly needs more complicated IT and accounting systems. Adequate internal control systems are also required to provide reasonable assurance on the achievement of organizational goals through effectiveness and efficiency, the reliability of financial reporting, security of state assets, and compliance with laws and regulations. Wynne (2003) explained that the IT capacity of a country must be able to respond the additional requirement in the adoption of accrual accounting. Furthermore, accrual accounting adoption not only requires financial resources but also in terms of IT specialists. The governments need to consider redesigning the system to make sure it supports accrual accounting (IPSASB, 2011).

Its argued by McLeod and Schell (2007), Merino et al. (2016), and Nurharjanto et al. (2018) that the characteristics of IT in related to financial statements should be included; accurateness in order to reflect the actual financial situation, timeliness to provide the needed accounting information on time, relevance to assure that the accounting information is prepared as required, and completeness to provide a comprehensive accounting information.

Based on the previous discussion, the following hypothesis is developed:

H1: IT influences significantly and positively on accrual accounting adoption in the Jordanian public sector.

Methodology

This study employed a questionnaire survey approach to collect the required data from government accountants in the Jordanian public sector, specifically the Jordanian Ministry of Finance (JMOF).

The questionnaire was developed in this study based on previous research (Karimi, Gupta, & Somers, 1996; Zhu, Kraemer, & Gurbaxani, 2006; Kwahk & Lee, 2008; Bosmans, Pieters, & Baumgartner, 2010) conducted in the context of this study. However, 375 questionnaires were distributed based on Krejcie and Morgan (1970). Only 331 were returned and used for subsequent analyses.

Prior to the actual data collection, a pilot study was performed to determine the reliability and validity of the developed instrument, the appropriateness of the language used in the instrument, and the estimated time required to complete the survey. Appropriate statistical data analyses were performed accordingly to assess the relationship between independent and dependent variables of specific construct. Consequently, the reliability results showed a 0.912 for the IT and 0.856 for the accrual accounting adoption.

Results

Demographics

Table 1 next depicts the demographics profile of this study. The characteristics examined included gender, work experience, level of education, educational background. Using SPSS Version 24, the frequency analysis was carried out to describe the respondents' demographics profile:

Table 1

Demographics Profile

#	Profile	Frequency	Percentage	Cumulative percentage
Gender	Male	205	61.9	61.9
	Female	126	38.1	100
Experience	Under 5 year	42	12.7	12.7
	6-10 year	58	17.5	30.2
	11-15 year	95	28.7	58.9
	16-20 year	52	15.7	74.6
	21-25 year	63	19	93.7
	26-30 year	20	6	99.7
	31 year and above	1	0.3	100
	High School	18	5.4	5.4
Education	2 Year Diploma	50	15.1	20.5
	Bachelor	205	61.9	82.5
	Master	49	14.8	97.3
	Doctorate	9	2.7	100
Background	Accounting and finance	230	69.5	69.5
	Law and political science	6	1.8	71.3
	Bushiness and information technology	33	10	81.3
	Public administration	18	5.4	86.7
	Others	44	13.3	100

The first demographic question related to gender. Table 1 demonstrated that 61.9 % of the respondents were male, while the rest 38.1% were female. For the second question which asked about respondents' work experience, Table 1 demonstrated that the majority of respondents' experience was between 11-15 years (28.7%), followed

by 21-25 years (19%), 6-10 years (17.5%), 16-20 years (15.7%), under 5 years (12.7%), 26-30 years (6%) and the lowest belonged to the respondents with more than 31 years of experience (0.3%). This implies that the respondents have a sufficient experience regarding government's transactions. This in turn increases the credibility of the distributed questionnaires' answers.

The third demographic question was the respondents' current educational level. Table 1 demonstrated that the majority of respondents' education was Bachelor Degree (61.9%), followed by Diploma (15.1%), Master Degree (14.8%), High School (5.4%) and the lowest belonged to the respondents with Doctorate Degree (2.7%). This implies that the respondents are knowledgeable in answering the distributed questionnaires.

Fourthly, respondents were asked to enter their educational background. Frequency statistics demonstrated that the majority of respondents' background was Accounting and Finance (69.5%) as shown in Table 1. This, in turn, gives a positive indicator of the respondents' knowledge in answering the distributed questionnaires from the specialization side.

Descriptive Analysis

Descriptive analysis for Information Technology (IT) items. Table 2 shows the mean, standard deviation, minimum, and maximum of IT.

Table 2

Descriptive Analysis for the Items of IT

Constructs	Code	Mean	Standard deviation	Minimum	Maximum
Our IT supports the business objectives and strategies of our organization.	IT1	3.66	0.779	1	5
In our organization, the responsibility and authority for IT operations are clear.	IT2	3.73	0.702	1	5
Our IT functions are clear on the performance criteria.	IT3	3.7	0.716	1	5
The structure of our IT functions fits our organization.	IT4	3.69	0.714	1	5
We constantly monitor the performance of IT functions.	IT5	3.56	0.789	1	5
The IT specialist-user relation in our organization is constructive.	IT6	3.66	0.687	1	5
Our IT specialist understands our business and the organization's needs.	IT7	3.75	0.728	1	5
Overall, our current IT systems will support accrual accounting adoption process that we need for our organization.	IT8	3.59	0.755	1	5

The results of Table 2 indicated that the JMOF using IT systems is suitable for its work and activities. On average, respondents consider the IT systems appropriate for them, showing satisfaction to the IT system. The results also showed that the JMOF appointed IT specialists who understand the needs of respondents to do their work in appropriate manner. In addition, respondents believe that the used IT systems support accrual accounting adoption.

Descriptive analysis for accrual accounting adoption items. Table 3 shows the mean, standard deviation, minimum, and maximum of accrual accounting adoption items.

The results of Table 3 demonstrated that the respondents in the JMOF agree with accrual accounting adoption and are inclined to accept this reform process. In addition, the results showed respondents' sense of readiness for accrual accounting adoption. Respondents also showed their intention to do whatever is possible to support the reform process. Respondents also have shown that they support new ideas and often suggest a new approach with their work.

Table 3

Descriptive Analysis for the Items of Accrual Accounting Adoption

Constructs	Code	Mean	Standard Deviation	Minimum	Maximum
I look forward to the accrual accounting adoption at work.	AA1	3.65	0.789	1	5
Other people think that I support the accrual accounting adoption.	AA2	3.53	0.752	1	5
I intend to do whatever is possible to support the accrual accounting adoption.	AA3	3.65	0.742	1	5
I usually support new ideas.	AA4	3.95	0.718	2	5
I often suggest new approaches to things.	AA5	3.85	0.761	2	5
I am inclined to try new ideas.	AA6	3.96	0.708	2	5
I feel ready to start working on the upcoming accrual accounting tasks.	AA7	3.72	0.819	1	5

Regression Analysis

Using SPSS Version 24, the result regression analysis demonstrated that the IT positively influences on the accrual accounting adoption in Jordanian public sector as indicated in Table 4. Therefore, H1 is accepted. The result is consistent with previous studies (Upping & Oliver, 2012; Ahmad et al., 2015; Mahadi et al., 2015; Setiyawati & Doktoralina, 2019), which demonstrated a significant relationship between IT and accrual accounting adoption.

Table 4

Regression Analysis

$AA = \alpha_0 + \gamma_1 * \beta_1 IT + \varepsilon$					
Model	Unstandardized coefficients		Standardized coefficients		Sig.
	B	Std. error	Beta	t	
Constant	1.607	0.183		8.805	0.000
Mean IT	0.586	0.049	0.549	11.919	0.000

Notes. * Significant at 1% level. a. Dependent variable: Mean AA.

Conclusion

In accordance with the transition from cash to accrual accounting in the Jordanian public sector, this study conducted an investigation on accrual accounting adoption in order to understand the most influential factors related for such reform process. The study revealed that the IT is the most important factor for this process. Moreover, in this study the IT positively influences on accrual accounting adoption. To the best of researchers' knowledge, this study is one of the very few studies conducted in developing countries especially in the Arab countries with a focus on the public sector accounting environment to examine the influence of IT on accrual accounting adoption. Therefore, this study contributed to the extant literature in public sector, concerning the relationship between IT and accrual accounting adoption in the context of Jordan. Thus, decision makers and policy makers in Jordanian public sector have to consider the findings of this study for better results in solving the paths of the reform currently in place.

The findings of this study suggest that the IT can lead to process for accrual accounting adoption. From government accountants' point of view, the existence of relevant IT systems for their work in the JMOF leads to higher readiness for accrual accounting adoption. In the same context, government accountants expressed their satisfaction with the IT systems used by the JMOF and the presence of IT specialists who facilitate their work and hence, they support accrual accounting adoption.

Finally, this study is limited in the sense that it only considers specific determinants of IT. Since this factor is the most important predictor for accrual accounting adoption, it would be worthwhile to incorporate other IT measures.

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