



ORIGINAL RESEARCH PAPER

Management

A STUDY ON VARIOUS DIMENSIONS OF EPS, ITS IMPACT ON MONETARY AND FISCAL POLICY AND ECONOMIC PERFORMANCE OF THE UAE

KEY WORDS: E-payment system (EPS), security, acceptability, speed, ease of payment, convenience, control, monetary policy, fiscal policy, central bank, exchange rate stability, money supply, price stability, interest rate variation, budgetary policies, taxation and revenue, public debt, public

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ABSTRACT

The study is an attempt to find out the importance of various dimensions of e-payment system (EPS) such as security, acceptability, speed, ease of payment, convenience and control and its impact on monetary policy and fiscal policy measures followed by the central bank and the government of the country respectively. The major monetary policy measures considered in the study are exchange rate stability, money supply, price stability and interest rate variations. The primary fiscal policy components considered in the study are budgetary policies, taxation and revenue, public debt policies and public expenditure policies. The overall effect of these policies and its impact is measured by considering GDP growth rate, flow of foreign direct investment (FDI) and balance of payment (BoP) position of the country. From the study, it can be found that the various dimensions of EPS are very important in implementing effective EPS in the country. An effective EPS can support the central bank in adopting proper and timely policy measures to control the various macro-economic variables such as money supply, inflation, currency exchange rate and interest rate in the country. The EPS also has been found to be much supportive in framing proper fiscal policy measures of the government in relation to budgetary activities, revenue and taxation, public debt and public expenditure.

1. Introduction

The E-Payment System is a platform that enables all the financial transactions in between the payer and the receiver, whether it is in between the entities in a commercial transactions or between the government and its various stakeholders or between two entities that locates in different countries of the world (Summers, 2012). The traditional payment system which was solely built upon the medium of cash transactions got replaced by the EPS in many parts of the world due to the development that has taken place in realm of Information Communication Technology across the world now (Mishra, Azar and Joshi, 2016). The EPS is an operational network that functions within the ambit of laws, standards and rules that connect the bank accounts as a route to make payments by using bank deposits (Rogers, 1976). The EPS system is built upon the infrastructure that consist of various rules, procedures, standards, policies, institutions, instruments and technical means to enable the transfer of money value in between various stakeholders such as buyers and sellers, exporters and importers, government and other entities etc. The system has been widely used by all advanced as well as developing countries to facilitate government transactions with that of the various stakeholders such as citizens, business entities, employees, inter-government departments and other governments. The studies conducted in different countries of the world reveals that the EPS has multiple number of features such as security, acceptability, speed, ease of payment, convenience and control (Abrazhevich and Tella, 2012; Tella and Olasina, 2014). These dimensions are given priority in the EPS system by many countries of the world as these features are inevitable for the successful operation of the EPS. In line with the developments that have been taking place across the world in EPS, committed initiatives are adopted by the rulers of UAE to implement the system in every field of economic activity where monetary transactions take place.

2. E-Payment System

An EPS is a way of performing various financial transactions by using electronic medium, without the usage of any financial documents such as cheques, draft, cash etc. The system is operating through online and hence, it is also termed as online payment system, which has become rampant across the world after the revolutionary changes in information technology. The most prevalent forms of payments consists of debit cards, credit cards and automated clearing house wherein electronic cheques, direct debit and

direct deposit transactions are routed (Hock-Han & Hway-Boon 2016). Even though the system got originated during 1960s, the cashless payment has become widely prevalent now only in various parts of the world and it has become a regular part of the monetary management by different central banks (Kochergina and Yangirovab, 2019). It is found that non-cash payment is an important source of economic development and it has got considerable impact on consumer expenditures (Mark, Z., Sophia, K., Singh, V., and Matsiras, 2016). The application of the system has generated synergy through economies of scale in reduction of costs, response time, reduction in fraud etc. (World Payment Report, 2020). These developments have given rise to e-Governance system. According to UN Global E-Government Readiness Report, E-Governance is "a people-centered and inclusive information society, putting the potential of information and communication technologies at the service of development and addressing new challenges of the information society" (UN, 2020). E-payment is one of the primary objectives of all the governments, as the citizens or expat residents of any countries of the world have to make and receive payments from the government which includes tax payments, utility bills, fees, fines etc. Thus an EPS makes a complex structural interaction between the stakeholders, technology and the environment that is multi-facet and complex technologically, organizationally as well as relationally which highlights the fact that its operational efficiency depends upon collaboration and the synchronization of all the facets together to achieve the desired objectives (Jain, 2006; Park, 2012).

3. Review of Literature

Even though EPS evolved during 1960s, various studies have been conducted across the globe due to its rapid application by various developed as well as developing economies of the world (Humphrey, Willeson, Bergendahl & Lindblom, 2006; ECB, 2001). A number of empirical studies are conducted around the world on the operational feasibility of EPS in facilitating money transactions in between the government and various stakeholders. It offers unprecedented advantages against theft of paper and cash and offers cost reduction, improved working capital, enhanced operational efficiencies and processing efficiencies and cycle time (Kaur and Pathak, 2015). It has brought efficiency, fraud reduction and innovativeness in world payment system by enabling governments and central banks to effectively monitor and transact various payment mechanisms to promote public

governance (Premchand and Chaudhry, 2015; Freedman, 2000). In-depth studies are also conducted on the cause and effect relationship between the use of EPS and benefits accrued to the organizations, including government as well as banks (Berger, 2003; Humphery, 2006). But as far as the impact of EPS on monetary policy is considered, it is observed that a single transaction is not able to create serious impact on national monetary policy, but when innumerable number of transactions with different volumes take place through EPS, monetary policy statistics may become inaccurate and monetary policy makers who develop different policy measures could be missing certain major data which may end up with an inappropriate policy (Kelly, 2014). In connection with the studies on the impact of EPS on economic growth, Newstead (2012) observed that very close link exists between cashless payment and the speed of economic growth in many countries of the world. The cashless system makes it easier and faster for people and business entities to transact activities by pumping money into the system instantaneously and thereby contribute to GDP growth (World Payments Report, 2012). But from the literature review, it is obvious that very few studies are conducted on the impact of various dimensions of EPS on fiscal policy measures adopted by the government across the world.

4. Background of the Study

Various programs and policies are envisaged by the UAE government with a view to position the country as a leader in digital services and the country is considered in the forefront of implementation of various digital infrastructural facilities among all the countries in the Middle East. On 1st January 2017, the UAE Central Bank published the Regulatory Framework for Stored Values and EPS which is popularly called as EPS Regulations which is applicable to businesses providing digital payment service in the country. Wide powers are granted to monitor and enforce the payment service providers (PSP) as a means of implementing various provisions enshrined in the regulation, safeguard the interest of the stakeholders and protect the general payment system as well as the economy. The potential impact of the efforts of the government in this field on the nation's economy is significant as the country has recorded a 0.23 percent increase in GDP due to the application of EPS during a period of 2011-2015 (Jayashree, 2017). Apart from this, the UAE Government's "The Mobile Wallet" financial project has identified more than 90 different services provided by various government departments as requiring digital payment system and forecasts a 35% market share within five years (Jayashree, 2017). In the light of these initiatives, it is pertinent to conduct a study exploring the impact of various dimensions of EPS on the monetary and fiscal policy followed by the Central Bank of the country and the government respectively.

5. Research Problem & Research Questions

The research topic is related to the impact of various dimensions of EPS such as security, acceptability, speed, ease of payment, convenience and control on activities related to monetary policy and fiscal policy measures adopted by the Central Bank and Government of UAE respectively. Since the EPS is implemented on a large scale by the UAE government and the Central Bank, it is pertinent to study the impact of the EPS on various policy measures adopted by the Government as well as the Central Bank so that its effectiveness can be assessed based on an empirical study. So the study is initiated with the objective to explore the impact of various dimensions of EPS on monetary policy and fiscal policy measures adopted by the Central Bank as well as the Government respectively. Based on this research problem, the following questions are posed with an objective to analyze the impact of different dimensions of EPS on monetary policy and fiscal policy measures in the country.

Question 1: Whether various dimensions of EPS such as

security, acceptability, speed, ease of payment, convenience and control are important in the effective implementation of EPS in a country?

Question 2: What is the impact of each dimension on the effectiveness of various components of monetary policy and fiscal policy measures adopted by the authorities in a country like UAE?

Question 3: What is the effect of monetary policy and fiscal policy measures on the economic performance of the country?

6. Objectives of the Study

Based on the above questions, the following objectives are set for the study.

1. To explore and examine the various dimensions of EPS such as security, acceptability, speed, ease of payment, convenience and control on the effectiveness of EPS in the country.
2. To explore the association between the dimensions of EPS and various policy measures such as monetary and fiscal policy adopted by the central monetary unit and the government of the country respectively.
3. To examine the impact of these policies on the economic performance of the country.

7. Hypotheses Formulation

With a view to study the problem and objective mentioned above, the following hypotheses are developed in the study:

Null Hypothesis 1 (H01): The different dimensions of EPS such as security, acceptability, speed, ease of payment, convenience and control do not have any importance in implementing an effective EPS system in a country.

Null Hypothesis 2: (H02): There exists no relationship between the dimensions such as security, acceptability, speed, ease of payment, convenience and control with the various elements of monetary and fiscal policy followed by the Central Bank and the Government in the UAE

Null Hypothesis 3: (H03): The monetary and fiscal policy measures do not have any impact on economic performance of the country.

8. Conceptual Model of the Study

The study is conducted based on the following conceptual model.

Figure 1: Conceptual model of the study.

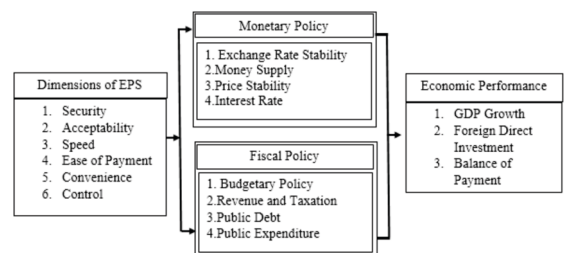


Figure 1 explains the conceptual framework of the study which highlights various dimensions of EPS such as security, acceptability, speed, ease of payment, convenience and control. After the implementation of EPS, how far these dimensions influenced the monetary and fiscal policy measures of the country is tested. Finally, the effect of the monetary and fiscal policy on the performance of the economy is assessed by considering major macro-economic variables such as GDP growth, FDI and BoP.

9. Methodology

The study is an empirical study based on descriptive approach to examine the relationship between the variables by employing mono-quantitative method of collection of data by way of numerical figures. The research philosophy adopted is positivism and realism. The research strategy applied is survey technique by administering a questionnaire structured by incorporating various variables under study. The questionnaire comprises of 90 questions, out of which 30 questions pertain to the dimensions of EPS, 20 questions on monetary policy, 20 questions on fiscal policy, 15 questions on economic performance and 5 general questions covering all the areas.

9.1. Population and Sample

The total population of the study consists of all government employees working in various ministries, central bank, banks etc., who are directly and indirectly associated with e-governance practice in the country, all the middle men engaged in EPS in between the government and the user and all people and firms that use EPS in the UAE. Since the study focus on the impact of EPS on government related activities, the samples can be categorized as Government to Citizens (G2C), Government to Government (G2G) and Government to Employee (G2E). From the total population, a sample of 400 people are chosen by adopting stratified sampling method as it is evident from the categorization that the samples belongs to different strata.

9.2. Collection of Data

The data used for the study is obtained from primary sources as well as from secondary sources. The primary data is collected by administering the aforesaid questionnaire that consists of 90 questions related to the diverse field of the study. The scale applied is 5 point Likert Scale with a range of High Agreeableness (5), Agreeableness (4), Neutral (3), Disagreeableness (2), High Disagreeableness (1). The questionnaire was tested for its content validity and face validity during the course of a pilot study conducted during November 2020. The secondary data for the study is collected from various journals, articles, text books, magazines, websites, newspapers, documents from government departments etc.

9.3. Data Analysis

The data collected is classified, tabulated and summarized by using various statistical tools. The data is summarized by using descriptive statistical measures such as mean, standard deviation and percentages. The relationship between the variables are explored by applying inferential statistics such as Pearson's Correlation Coefficient and F-Test.

9.3.1. Validity and Reliability Test

The validity and reliability of the data is tested by using Cronbach's alpha values. Table 1 shows the Cronbach's alpha values of all the variables under study.

Table 1: Cronbach's alpha Values of Different Variables under Study.

Sl. No:	Description	Cronbach's Alpha	No. of Items
I	Dimensions of EPS		
i	Security	0.773	5
ii	Acceptability	0.719	5
iii	Speed	0.803	5
iv	Ease of Payment	0.834	5
v	Convenience	0.690	5
vi	Control	0.744	5
II	Monetary Policy Measures		
i	Exchange Rate Stability	0.699	5
ii	Money Supply	0.711	5

iii	Price Stability	0.767	5
iv	Interest Rate	0.689	5
III	Fiscal Policy Measures		
i	Budgetary Policies	0.788	5
ii	Revenue & Taxation	0.793	5
iii	Public Debt	0.702	5
iv	Public Expenditure	0.817	5
IV	Economic Performance		
i	GDP Growth	0.748	5
ii	FDI	0.771	5
iii	Balance of Payment	0.882	5
V	General Questions	0.691	5

The table shows that the Cronbach's alpha values of all the variables are nearer or above 0.700 which is the minimum threshold value stipulated for confirming the validity and reliability test.

9.3.2. Descriptive Statistics Values of Different Variables in the Study

In order to describe the data, the mean and standard deviation values of different variables under study is derived. This is shown in table 2.

Table 2: Mean and Standard Deviation Values of Different Variables

Mean and Standard Deviation Values of Different Variables				
Sl No:	Description	Mean	Standard Deviation	No. of Items
I	Dimensions of EPS			
i	Security	3.88	0.229	5
ii	Acceptability	3.97	0.486	5
iii	Speed	3.69	0.548	5
iv	Ease of Payment	4.02	0.497	5
v	Convenience	4.23	0.398	5
vi	Control	3.99	0.566	5
	Aggregate Mean Values	3.96	0.454	
II	Monetary Policy Measures			
i	Exchange Rate Stability	4.11	0.562	5
ii	Money Supply	3.98	0.457	5
iii	Price Stability	4.02	0.551	5
iii	Interest Rate	4.55	0.398	5
	Aggregate Mean Values	4.165	0.492	
III	Fiscal Policy Measures			
i	Budgetary Policies	4.22	0.447	5
ii	Revenue & Taxation	3.99	0.568	5
iii	Public Debt	4.33	0.551	5
iv	Public Expenditure	4.27	0.477	5
	Aggregate Mean Values	4.200	0.510	
IV	Economic Performance			
i	GDP Growth	3.75	0.631	5
ii	FDI	4.11	0.476	5
iii	Balance of Payment	4.29	0.448	5
	Aggregate Mean Values	4.05	0.518	5
IV	General Questions	3.88	0.449	5

Table 2 shows the details of the mean and standard deviation values for all the variables of EPS, monetary policy, fiscal policy and economic performance of the country. The mean values of the mean for all the variables are either approximately nearer to the value of 4 or more than 4 which

implies that there is high degree of agreement among the respondents concerning the response to the various questions. The standard deviation values are relatively low which shows lesser degree of variability of the data from its mean values.

9.3.3. Relationship between Different Variables of Research Study

As per the conceptual framework and the objective of the study, the analysis focus on the relationship between dimensions of EPS and monetary policy and fiscal policy and the impact of these variables upon the economic performance of the country. The tables 3, 4 and 5 shows the relationship between these variables measured in terms of Karl Pearson's Correlation Coefficient values.

Table 3: Relationship between Dimensions of EPS and Elements of Monetary Policy

Dimensions of EPS	Monetary Policy Parameters			
	Exchange Rate Stability	Money Supply	Price Stability	Interest Rate
Security	0.651	0.339	0.336	0.335
Acceptability	0.237	0.312	0.317	0.227
Speed	0.578	0.785	0.553	0.559
Ease of Payment	0.661	0.665	0.566	0.511
Convenience	0.212	0.476	0.661	0.331
Control	0.559	0.553	0.553	0.227

Table 3 shows the correlation between various dimensions of EPS with different parameters of monetary policy measures such as exchange rate stability, money supply, price stability and interest rate variations. The dimension of security shows high correlation with exchange rate stability of the currency in the country. This implies that the security features of the EPS positively influence the exchange rate of the currency of the country. This is due to the fact that the foreign currency transactions are more secured under the EPS due to the constant monitoring and follow up by the government by using real time information. In addition to this, the country is having strong foreign exchange reserves and the international transfer of currencies are more secured under the system due to the technological capability of the system adopted by the central bank of the country. Other variables such as money supply, price stability and interest rates are strongly correlated with security features. In the case of acceptability, the relationship between all the variables under monetary policy parameters fail to show any strong correlation. When we consider the speed of making transactions, there is positive correlation with exchange rate stability, money supply, price stability and interest rate. Due to the adoption of the EPS, the speed of transactions have improved which has positively impacted all the variables of monetary policy elements in the country. The same is the case with ease of payment also, which shows strong degree of positive correlation with all the parameters of monetary policy elements. The dimension of convenience has got strong positive correlation with price stability as it is possible for routing the payment transactions any time by overcoming the delay of manual payment system. The variable, control shows relatively high degree of correlation with exchange rate stability, money supply and price stability, but its impact on interest rate is relatively weak.

Table 4: Relationship between Dimensions of EPS and Fiscal Policy Measures

Dimensions of EPS	Fiscal Policy Measures			
	Budgetary Policies	Revenue and Taxation	Public Debt	Public Expenditure
Security	0.559	0.533	0.567	0.551

Acceptability	0.332	0.557	0.570	0.508
Speed	0.661	0.679	0.598	0.605
Ease of Payment	0.668	0.589	0.661	0.590
Convenience	0.550	0.598	0.660	0.569
Control	0.598	0.661	0.595	0.661

Table 4 illustrates the relationship between various dimensions of EPS with the different fiscal policy measures adopted by the Government of UAE. The major fiscal policy measures chosen are budgetary policies, revenue and taxation, public debt and public expenditure. The security aspect of EPS shows fair degree of positive correlation with all the components of fiscal policy measures. This implies that the fiscal policy measures have proven to be more effective due to the security offered by the system in routing the financial transactions and money flow. The acceptability dimension is fairly correlated with all components of fiscal measures except budgetary policies. This implies that the system is acceptable and helpful to the government in matters related to taxation, public debt and public expenditure. It is less correlated with budgetary policies as these policies are not linked to the security aspect as budgetary policy measures are adopted by giving priority to various other macro-economic objectives. It is obvious from the table that the third dimension of EPS, which is speed, shows high degree of positive correlation. The speed of monetary transactions on the part of the government has enabled it to frame and implement realistic policies in connection with budgetary activities, taxation and revenue, raising public debt as well as adopting effective public expenditure policies in the country. In the case of ease of payment, convenience and control also, the degree of correlation with all the variables of fiscal measures are found to be highly positively correlated. It can be stated that ease of payment, convenience of payment and control over monetary transactions have improved the fiscal measures related to budgetary activities, taxation and revenue, public debt and public expenditure. Thus, from the analysis on the relationship between the different components of EPS and fiscal policy measures, it can be concluded that the overall effectiveness of the fiscal policy measures has improved after the implementation of EPS. This is primarily due to the fact that the economy is relatively smaller in size, central bank's control over the financial transactions are relatively stronger, the economic policy measures are subordinate in controlling the economy as export revenue is very high as compared to the outflow of money and the country has got relatively higher level of foreign exchange reserves as compared to the size of the economy. So, the policy measures can be found to be subordinate to the management of balance of payment and current account surplus which depends upon the international prices of crude oil. It can also be found that the policy measures gather more importance only during the period of decline in oil prices globally as the Government faces decline in current account surplus during this period.

Table 5: Relationship between Monetary Policy Measures and Performance of the Econom

Monetary Policy	Economic Performance		
	GDP Growth	FDI	BOP
Exchange Rate Stability	0.577	0.598	0.616
Money Supply	0.430	0.331	0.290
Price Stability	0.602	0.587	0.591
Interest Rate	0.516	0.509	0.550

Table 5 depicts the relationship between monetary policy measures adopted by the central bank of the country and its impact on the performance of the economy. The economic performance is measured by using the macro-economic variables such as GDP growth, foreign direct investment (FDI) flow and balance of payment (BoP) situation. All the fiscal

variables, except money supply are found to have relatively high degree of positive correlation with the economic performance of the country. The government has been giving relatively lesser attention to the exchange rate stability as the major factors that influence the stability of the exchange rate of UAE dirhams with dollar are factors such as fixed exchange rate system, single peg currency management and relatively higher level of foreign exchange reserves. But from the study, it can be found that the e-payment system has enabled the central bank to make economic transactions faster with better control. But as far as the money supply component is considered, it can be stated that the correlation is relatively weak with all the variables of economic performance. It can be stated that the EPS has got lesser influence on the money supply aspect as when the digital transactions are more, the control of the money supply become difficult for the government. Regarding price stability, it can be stated that there exists fair degree of positive correlation which implies that the EPS has enabled the government to maintain control over the price movements due to the real time information imparted by it. The real time information processing has enabled the government to adopt proper measures to manage price changes so that the inflation level can be maintained within the control of the government. In the case of interest rate, there exists fair degree of correlation as historically, the government has been maintaining a stable policy related to the interest rate variations.

Table 6: Relationship between Fiscal Policy Measures and Performance of the Economy

Fiscal Policy Measures	Economic Performance		
	GDP Growth	FDI	BOP
Budgetary Policy	0.667	0.578	0.551
Revenue and Taxation	0.612	0.667	0.558
Public Debt	0.589	0.508	0.552
Public Expenditure	0.669	0.433	0.398

Table 6 examines the relationship between fiscal policy measures and the performance of the economy. As compared to many countries of the world, the fiscal policy measures and its complex relationship were found to be of relatively lesser important in influencing economic performance in a country like UAE until the implementation of VAT in 2018. But after the implementation of VAT, the revenue and taxation measures and budgetary polices have acquired importance in influencing the economic performance of the country. From the table, it is obvious that all the variables of fiscal policy measures have got fair degree or high degree of correlation with all the variables of economic performance of the country, except the impact of public expenditure on FDI and BoP. The EPS system has enabled the government to manage and monitor tax collections easily. In addition to this, the public debt policies also become more effective due to the implementation of EPS. The government has successfully launched National Bonds with a view to borrow money from the market.

10. DISCUSSION

The study is done by giving priority to the government related monetary transactions through EPS in the country. From the study, it can be found that the various dimensions of EPS such as security, convenience, speed of transactions, ease of payment and control play a major role in contributing to the success of the implementation of EPS in the country. These factors have generated various benefits to the economy in the form of value driven benefits, citizen driven benefits, economic cost driven benefits and technology driven benefits. So the overall positive benefit of EPS to the economy is contributed by the various dimensions mentioned in the study. The benefits generated by the EPS system have enabled the central monetary unit, which is the central bank to have a strong control over the money transactions in the country. This is reflected in the relationship between the

various dimensions of EPS and the monetary policy components mentioned in the study. The only area where considerable impact is not felt is the total money supply in the country, as it is found that when more transactions are routed digitally, the central bank control over the money supply has been found to be weakened. Regarding the fiscal policy measures, it is proved that the EPS has fair degree of positive impact on various fiscal policy measures adopted by the government. Thus the policy measures such as monetary policy and fiscal policy have positively impacted the economic growth of UAE after the implementation of EPS.

11. Conclusion

Among many countries in the Middle East, UAE has been considered to be in the forefront of the implementation of e-payment system on a strong footing. The system got introduced by adopting a systematic and structured way by building a platform that comprises of knowledge management tools as well as a robust technological support system. Hence, the system has been proved to be beneficial to the society as well as to the government so far. The study focuses on exploring the effectiveness of various dimensions of EPS and its impact on monetary and fiscal policy measures adopted by the central bank as well as the government of the country. The study attempts to give a brief information on the influence of these policies on economic growth of the country. This study gives certain vital information about the relationship which can be taken as the basis for future studies by researchers and academicians.

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