# Apprehending Factors Influencing in the Adoption of Electronic Government Services in Pakistan: A Critical Investigation

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## Abstract

*The intention of this research paper is to discover the constituents that affect an underdeveloped state such as Pakistan in e-Government services' adoption in public sector specifically of Federal Board of Revenue (FBR), Pakistan. This research provides the basic contributing factors such as supply and demand perspectives to apprehend implementation influences that are responsible for e-Government services acceptance in emerging countries. Therefore, the UTAUT model examines the challenges, barriers and perceptions of both sides. The obstacles are also studied in acquisition regarding features of e-Government in Pakistan public sector organizations. The investigative methods are conducted with the help of survey questionnaire for qualitative and quantitative data with open and selective coding along with sample size. People from various milieus are probed. Factor analysis, reliability, and validity, correlation test, ANOVA, and regression analysis are applied in order to help test the hypotheses associated to the supply and demand-side elements.*

**Keywords:** e-Government Pakistan, ICT Infrastructure, UTAUT Model, Supply Perspectives, Demand Perspectives

## 1. Introduction

The practice of technological developments and its sub-structure is the utmost concrete means for Pakistani government to implement e-Government in the public division, which enhances scope of accountability and transparency within the public sector administrations. The ventures in the infancy stages comprises of various related actions, civil computerized state databases, and modern universities to offer a plan for ICT in four provinces of Pakistan (Bohari, 2013). Thus, for improving public sector in Pakistan such as the national database and registration authority, State Bank of Pakistan, FBR, Civil Aviation Authority, etc., the government of Pakistan has launched numerous projects like government web-portals and enforced computer training schemes at all stages for regional and national personnel (Wicander, 2011). ICT developments are intensifying the practice of latest technologies and ushering this era as a symbolic representation of

scientific innovation. There are numerous challenges and obstructions which the public sector is in line while adopting e-Government services with supply and demand perspectives. Mostly, the elements that impact on public sector in demand and supply notions are financial resources, government policies, e-Government deployment, users' willingness, citizen support, etc. (Hussein, Mohamed, Rahman Ahlan, & Mahmud, 2011) and are discussed in this research study.

The ICT has empowered the world towards internet services and turn the technology boom easier in the technological revolution (Bohari, 2013). Pakistani government is too initiating key efforts in increasing the practice of ICT in each arena like agriculture, textile, education, etc. Many ventures of e-Government and its consequent execution is a wide-reaching event to offer an impactful improvement in diverse fields. The performance of the government in the public sector is to deliver such a platform electronically, monetary, and morally to develop a knit relationship with the government, which is based on the developments in ICT arena (Jaeger, 2009). Ministry of Information Technology in Pakistan was launched in 2000 and introduced e-Government executive underneath auspices of this ministry. The government has spent vast exchequer money in executing these electronic initiatives for the betterment of the country. Hence, the emphasis of current investigation is to point out those fundamental constituents that are leading as the important obstacles to the adoption of e-Government (Rehman, Esichaikul, & Kamal, 2012) (Bertot, 2010). Thus, variables for hypotheses in the current study lies on the basis of demand and supply notions keeping the public sector of Pakistan in mind (Rehman et al., 2012).

## 1.1 Research Questions

**Q1:** What are the fundamental challenges and barriers in demand-side perspectives that affect e-government adoption in the public sector i.e. FBR?

**Q2:** What are the fundamental challenges and barriers in supply-side perspectives that affect e-government adoption in the public sector i.e. FBR?

## 2.1 Research Hypotheses

**H$_1$:** The improvement in the demand side will positively impact e-Government adoption in public sector, Pakistan.

**H$_2$:** The improvements in the supply side will positively impact e-Government adoption in public sector, Pakistan.

## 2. Review of Literature

It is observed that ultimate performance analysis for public sector in the adoption of e-Government is always difficult for any government around the world hence requires spirited endeavors to turn into a realism (Bonsón, 2012). According to the worldwide e-Govt. ranking 2014, the Republic of Korea constitutes the first and Australia as the 2nd rank(UN, 2014). However, Pakistan is in the middle EGDI (e-Govt. Development Index)

and among the bottom 30 countries worldwide in e-government ranking (Khan, Khan, & Zhang, 2010). The programs have been commonly used in the public sectors of different countries including Pakistan and worldwide since 2000 to ameliorate the service quality as faster and accessible to all citizen. The vast number of researches are nowadays conducted in various areas in order to investigate the achievement statement from the government and public's point of view as well (Belanger, 2008). The e-Government adoption in public sector such as FBR provides freedom of choice to Pakistani citizens that comprises all kinds of information available online at ease (Elbahnasawy, 2014). Like, different public sectors of Pakistan, FBR, is indulged in reforming the services provided to professional firms and different organizations through the web (Tax, 2012). The public sector is also reconstructing the system of tax collection to the taxpayers with the major facilities countrywide.

For this purpose, the major target has been achieved in the initial phases by providing the services to the taxpayers through a web-based e-Portal linked with (http://e.fbr.gov.pk). The management was assigned to manage these e-portals to Pakistan revenue automation private ltd. (PRAL) as per the policies of FBR. The Taxpayers can pay their taxes online with the help of this e-Portal while there is a combined service for this e-portal carrying out under the CAP-II Project by PRAL and (National Bank of Pakistan, 2015), (Mujahid, 2002). According to the Economy Profile 2015 of Pakistan, Pakistan stands at the rank of 161 (44.46%) out of 189 countries on the ease of paying taxes from figure 1-a. It demonstrates that the use of e-Government adoption in Pakistan public sector; FBR can bring a change to reach on the top level in the ranking. In Pakistan, the situation of paying tax is worse as only 2% (approx 3,640,000) of Pakistanis pay their income tax, and approximately half of them pay the tax online. (Shahzad & Sandhu, 2007). e-Govt. can be explained as involving citizens digitally with its government to provide services with efficacy of various e-services especially in government of Pakistan and the organizations of the public sector of Pakistan such as FBR, National Bank of Pakistan, etc. (The Official Web Gateway to Pakistan, 2015).

The government of Pakistan as a public sector could incorporate the demand-side elements highlighted by figure 2-b in the supply side factors to adopt e-government in attaining the targets of better performance in the public sector; FBR, Pakistan (Alshehri, 2012). In this regard, the challenges and barriers in the demand and supply-side factors can be described separately in figure 2-b.
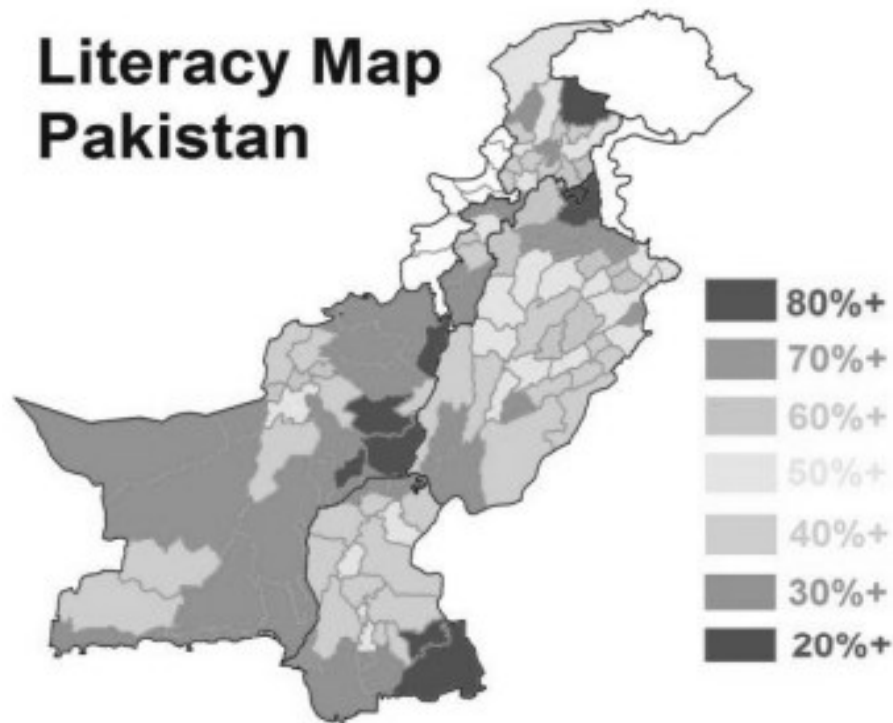
**Figure 2-a:** Comparison of Pakistan to other economies in the ease of paying taxes



Source: https://www.doingbusiness.org/content/dam/doingBusiness/media/Profiles/
Regional/DB2020/SA.pdf

**Figure 2-b:** Literacy Rates Comparison

| Country | Literacy rate |
|---|---|
| United Kingdom | 99% |
| United States | 99% |
| Canada | 99% |
| Qatar | 96% |
| Australia | 96% |
| Singapore | 96% |
| China | 95% |
| Bahrain | 95% |
| Libya | 94% |
| Kuwait | 94% |
| Tunisia | 88% |
| Saudi Arabia | 87% |
| United Arab Emirates | 78% |
| India | 74% |
| Pakistan | 55% |
| Afghanistan | 28% |
| Bhutan | 53% |

Source:  UNESCO Institute for Statistics

**Figure 2-c:** Literacy Map of Pakistan



Source:   http://nhdr.undp.org/wp-content/uploads/2015/02/Taimur-Rahman-Internet-
Youth-Education-in-Pakistan.pdf

From figures, 2-b and 2-c, it can be observed that Pakistani literacy ratio than other contemporary nations is at rock bottom level. The literacy rate in Pakistan is hovering around 55% which is only above two poorest countries of the south Asian region such as Afghanistan and Bhutan (Rehman, 2011). Hence, there is also the requisite for exercising awareness programmes  with relation to e-Govt. adoption amongst the public sector. Karachi being the biggest towns around the globe and yet it is an absence of technology responsiveness prevalent among people of Pakistan which disrespects technological innovation (Bwalya, 2012). The websites are neither friendly nor designed in the reginal or national language. Public are reluctant to contribute in online business due to a lesser trust.

**2.1 Study UTAUT Model**

According to the UTAUT model which is applied to construct and behavioral expectations concerning the demand perspective for e-Government adoption. Venkatesh et al., (2003) established that there are various factors after conducting influence analysis on technology questionnaires for e-Government overview therefore, the UTAUT model is transformed for the demand perspective of e-

Government. The supply of any product will be raised as demand increases, thus, the aspects associated to the consumer of e-Government is necessary i.e., people cooperation to e-Government. As the e-Government deployment, performance and determination prospects are also found to be associated with the demand factors. Additionally, other factors that are related to the societal impact as level of e-Government services, economical resources, government strategies, and ICT setup are also found which influences the supply side factors of e-Government. The below figure 2-b shows the conceptual model of both demand and supply-side perspectives bringing the e-Government system in public sector of Pakistan i.e. FBR, majority of such constituents are implicated.

**Figure 2-b:** Conceptual model to understand demand and supply-side perspectives
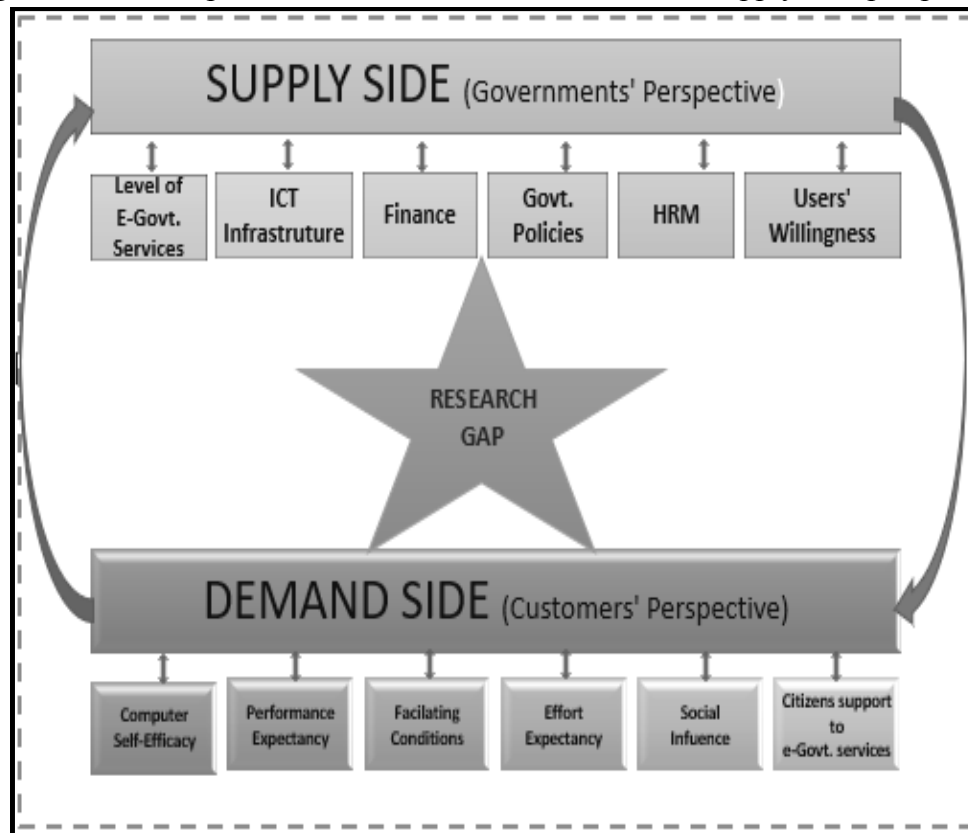


## 2.2 Challenges and Barriers (Supply and Demand Perspectives)

The constituents that causes barriers and the problems which are encountered by the e-Government espousal are problems and challenges associated to the monetary possessions, higher ratios of illiteracy, and prevalence of lower computer literacy amid majority in the public sector of Pakistan. Some other elements are also creating

problems for the government such as policies and related political issues following the leadership and administration (Kessides, 2013). The Pakistani government is facing huge issues in e-Government adoption largely in the public sector; FBR. Further, there is dearth of skilled manpower and the power of human resources in such organizations is very weak. The FBR working for different organizations, firms, and governmental institutions is preferred to provide satisfactory results. The atmosphere is riddled with massive misconduct and sleaze (Rahman, 2014). Pakistan, by all its means, is a lower economical, agrarian state as its great amount of money is consumed on the defense.

To develop a proper ICT infrastructure, Pakistani citizens adjure the primary amenities and solutions to issues like load shedding, etc. (Kessides, 2013). Pakistan being an atomic nation, it leaves serious obligations on the country that it failed to resolve the problems concerning loadshedding crisis until now (Bhutto, 2013). Pakistani government must handle these issues and provide solutions to e-government adoption within the public doamin; FBR, (Schaupp, 2010). The government of Pakistan, administration of firms, leaders, and researchers, shall make solid and constant initiatives in enhancing the policies and strategies keeping organizational behaviors in errand for e-Government embracing. Government polices making priorities are based on law and order circumstances of country which is required for state to overcome battle against terror so that Pakistanis may have a strong perspective. Thus, uncertainty is observed in the present circumstances and strategies of Pakistani government (Rehman, 2012). The motive of positive execution is unable to be accomplished until communal division, administrative interventions are filled with professional and skilled personnel employees.

There are various obstacles and constituents that are tackled by different Pakistani public sectors. The key issue for public in the country is electricity (Bhutto, 2013). If the load shedding issue may be resolved, it can support ICT formation, intensely (Kaul, 2014). Pakistani nationals' reliability upon Pakistani government is minimal (Mahmood, 2014). The amenities provided by government of Pakistan last year as internet or online facilities, inauspicious attitude of web, language hindrances, additional rates of internet, and safety matters have unsatisfactory impression on its public (Manzoor, 2013). Only 10% Pakistanis are using internet if compared to the whole world (UN, 2014). Public chooses manual exertion as compared to e-Government milieu due to distrust upon the government (Shah, 2011). Such issues lead to less generation of online taxes which can produce problems for the public sector of Pakistan such as FBR, Pakistan.

## 3. Research Methodology

Mixed method as qualitative and quantitative analysis are selected for this research study (Liou, 2008). The required data is used to analyze components that has direct or opposite link with the operation of e-Government services in the public sector; FBR. The varied

statistical methods to check hypotheses for this research are ANOVA and regression (Bonsón, 2012). Normality, reliability and validity of the data are checked. For the present research study, performance analysis of public sector; FBR in e-Government adoption, the technique of coding is employed after obtaining the answers of survey questionnaire (Islam, 2012). This technique includes open and selective coding questions with many possible meanings within interpretations.

This research applied a method with the explanation which will be used in study for collecting the qualitative and quantitative data with the means of conducting interviews based on factors of demand and supply side perspectives. The viewpoints of such research will be helpful in restricting respondents' perceived notions. The procedure with reference to the explanations of respondents are essential in choosing for sorting out the e-government issues and its implementation for this substantial research.

## 4. Research Participants

The selection of the respondents for this specific research comprises of students, staffs in public and private sectors, ICT professionals, FBR, lower, middle and higher socio-economic status along with physical and digital taxpayers etc. from various established and under privileged areas of Pakistan. The current examination is planned in a way that it consists of the sequence of several preliminary tests (Ahmad, 2013). The arrangement of participation consists of five various groups and by conducting interviews, qualitative and quantitative data has excerpted. In order to apply statistical analysis, survey was conducted initially through open-ended questions and afterwards, coding is applied so that the data is adapted into diverse statistics (Kazmi, 2010).

In the primary phases, the interviews were held with public workforces like line ministries to carry preceding information regarding the present circumstances of e-Government structure in Pakistan. The scholarly work considered a sample of 275 participants and out of which, 200 participants were aggressively involved in the research project. Hence, amount of response was 72.2%. Thus, the number of dependent and independent variables are 18 and 1, respectively taken for this study.

**Table 1:** Questionnaire for the survey study

| 1 | How could the government adopt e-services easily in Pakistan to improve its public sector; Federal Board of Revenue, Government of Pakistan? |
|---|---|
| 2 | Highlight the different uses of ICT infrastructure in public sector of Pakistan? |
| 3 | Do people support perseverance ease ICT usage in e-government adoption in Pakistan? |
| 4 | Is there perseverance in usefulness of ICT in Pakistan public sector? |
| 5 | Is there an actual use of e-government system by citizens of Pakistan in its public sector? |

| 6 | Do majority of employees in public sector of Pakistan involve in computer self-efficacy? |
|---|---|
| 7 | Is there a continuous usage of e-government applications in Pakistan public sector? |
| 8 | What is the level of willingness in the users of ICT in Pakistan public sector? |
| 9 | What is the level of e-government services in Pakistan public sector? |
| 10 | Does the government of Pakistan have enough financial resources to adopt e-government system in Pakistan public sector? |
| 11 | Do the citizens of Pakistan support in adoption of e-government system in public sector of Pakistan? |
| 12 | Does the e-government adoption bring advancements in the field of ICT in Pakistan public sector? |
| 13 | Are the policies of government in the favor of e-government adoption in Pakistan? |
| 14 | Does the deployment of e-government in Pakistan public sector bring positive changes in field of ICT? |
| 15 | Does the expectancy of performance of e-government adoption carry constructive changes in field of ICT? |
| 16 | Does the expectancy of efforts of e-government adoption bring positive changes in field of ICT? |
| 17 | Do the social values are influenced by adopting e-government in Pakistan public sector? |
| 18 | What are the challenges and hurdles related to facilitating conditions in adopting e-government in Pakistan public sector? |

There are 18 questions asked from respondents for this research which can be seen in Tab.1. The questions related to the open coding are 1, 2, and 18. The questions related to selective coding are 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17 with the possible answers "yes", "no", "maybe" and "do not know". The remaining questions 8 and 9 are related to e selective coding with the possible answers "high", "moderate", "low", and "do not know". Both dependent and independent variables for present study depends on survey concerning the public sector of Pakistan. The survey questionnaire is answered by 200 respondents with diverse age clusters as mentioned in Table 2.

**Table 2:** Age of Participation

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| | 16- 21 years | 65 | 33.0 | 33.0 | 20.0 |
| | 22- 25 years | 32 | 16.0 | 16.0 | 49.0 |
| Valid | 26- 35 years | 45 | 23.0 | 23.0 | 71.0 |
| | 36- 49 years | 40 | 20.0 | 20.0 | 91.0 |
| | 50- 59 years | 18 | 9.0 | 9.0 | 100.0 |
| | **Total** | 200 | 100.0 | 100.0 | |

## 5.  Analysis and Discussions

### 5.1 Reliability and Validity

The subjects associated to reliability and validity shall be measured to link projected data and applied methods for carrying out specific study. Therefore, certain methods are applied here in order to enhance and enlarge reliability and validity of data (Joseph, 2009). The research is concerned with the implementation of the e-Government services to improve applied methods and persistence practice of ease at public sector. From the Table 3, it is observed that Cronbach's Alpha is 0.709 which is an adequate to approve reliability and validity of collected data for the public sector; FBR. The scholar through this figure can deduce the higher level of internal uniformity is noticed in data accumulated from survey of a designated sample. The responses given by the sample are constant and this stability proves the reliability and validity of data.

**Table 3:** Reliability statistics

| Cronbach's Alpha | No. of Items |
|---|---|
| 0.709 | 18 |

### 5.1 Factor Analysis

Factor analysis is conducted to see whether the relationships are found between various elements linked with data and along with loadings. The investigation is conducted applying oblique rotation as it is a obligation of factor loadings that lies on the supposition of the elements to be interrelated. The KMO (Kaiser Meyer Olkin) and Bartlett's test important values are taken before factor analysis as can be seen from Table 4. The appropriateness of sampling in the KMO is 0.717 that is almost an indication for suitable sampling; therefore, data collected for public sector organization; FBR, is appropriate for the research (Cohen, 2013). The outcome for Chi-square with 66 degrees of freedom is 59.819 with the p-value of 0.060 and is a little larger as compared to level of significance 0.05.  The null hypothesis is supposed to be excluded and scholar can deduce positive outcomes derived on this supposition. However, spearman's rho coefficients may provide important links between supply and demand-side variables rendering to Bartlett's test (Cohen, 2013).

**Table 4:** KMO and Bartlett's Test

| Kaiser- Meyer- Olkin Measure of Sampling Adequacy | | 0.717 |
|---|---|---|
| Bartlett's Test of Sphericity | Approx. Chi-Square | 59.819 |
| | Df | 66 |
| | Sig. | 0.060 |

## 5.2 Test of Normality

Several statistical tests essential for suppositions to be accomplished, the statistics for the normality test is necessary as in the parametric testing, the information is underlying the suppositions. Two approaches are used in SPSS (Statistical Package for Social Sciences, V.20) in order to check the normality of the data. However, recent research practices, two approaches; numeric and graphic to check the normality of the data (Islam, 2012). Table 5 illustrates the Kolmogorov Smirnov and Shapiro Wilk p-values in the column of importance.

However, sample taken for this study is 200, therefore, (Shapiro Wilk test is of no issue in completing the hypothesis of normality of the data (Wicander, 2011). The variables applied in the research are linked to the mixed methodology of both demand and supply perspectives of public sector; FBR. The p-values are lower than 0.05 which depicts that the data is typically disseminated.

**Table 5:** Tests of Normality

|  | Kolmogorov- Smirnov[a] | | | Shapiro - Wilk | | |
|---|---|---|---|---|---|---|
|  | Statistic | df | Sig. | Statistic | df | Sig. |
| ICT_Infra | 0.182 | 200 | 0 | 0.903 | 200 | 0.001 |
| PER_EASE_USE | 0.156 | 200 | 0.004 | 0.885 | 200 | 0 |
| PER_USEFUL | 0.171 | 200 | 0.001 | 0.89 | 200 | 0 |
| Actual_Usage | 0.199 | 200 | 0 | 0.864 | 200 | 0 |
| Comp_SE | 0.228 | 200 | 0 | 0.866 | 200 | 0 |
| Cont_Usage | 0.231 | 200 | 0 | 0.857 | 200 | 0 |
| Users_Will | 0.169 | 200 | 0.001 | 0.865 | 200 | 0 |
| E_GOV_Serv | 0.203 | 200 | 0 | 0.841 | 200 | 0 |
| Fin_Res | 0.243 | 200 | 0 | 0.853 | 200 | 0 |
| E_GOV_Adopt | 0.171 | 200 | 0.001 | 0.897 | 200 | 0 |
| Citizen_Supp | 0.191 | 200 | 0 | 0.845 | 200 | 0 |
| E_GOV_ADV | 0.243 | 200 | 0 | 0.867 | 200 | 0 |
| GOV_POL | 0.164 | 200 | 0.002 | 0.857 | 200 | 0 |
| E_GOV_DEP | 0.156 | 200 | 0.004 | 0.899 | 200 | 0 |
| PERF_EXPEC | 0.181 | 200 | 0 | 0.861 | 200 | 0 |
| EFF_EXPEC | 0.157 | 200 | 0.003 | 0.869 | 200 | 0 |
| SOC_INF | 0.201 | 200 | 0 | 0.849 | 200 | 0 |
| FAC_CONDI | 0.166 | 200 | 0.001 | 0.897 | 200 | 0 |

## 5.3 Lilliefors Significance Correction

Normality of the data is tested as seen in Histogram figure 5 through geographical means and by figure 6 with NPP (Normal Probability Plot). Histogram in figure 5 is

displaying the symmetric curve which is E-government Adoption with reference to the other variables of demand and supply perspectives (Joseph, 2009). The symmetric curve is indication for the normality of the data. This is also observed that the dotted points lie close to the line in NPP plot in figure 6, pointing out that the data is typically disseminated. However, in accordance to the test of normality, the information applied in present investigation is dispersed that helps in assembling suppositions of numerical tests for hypotheses concerning the present study.
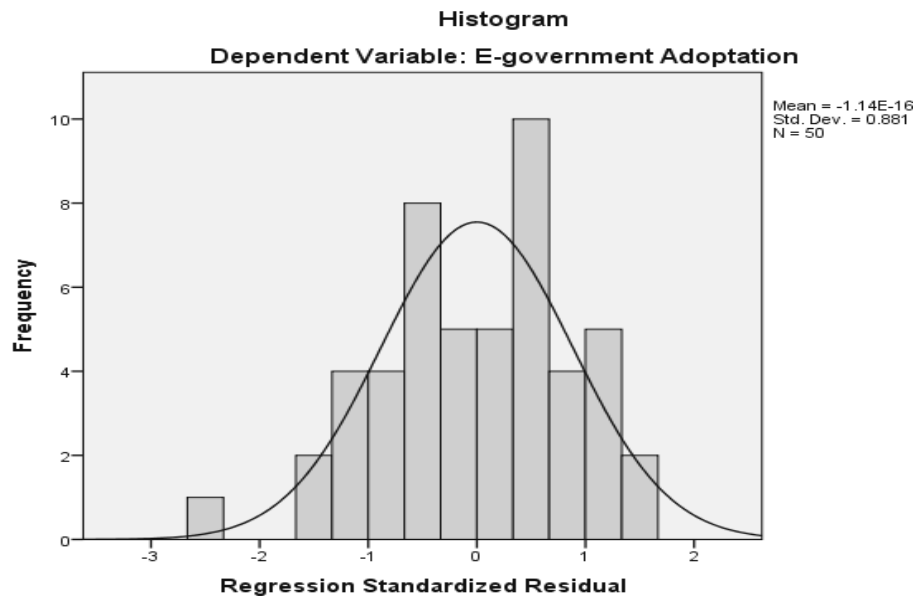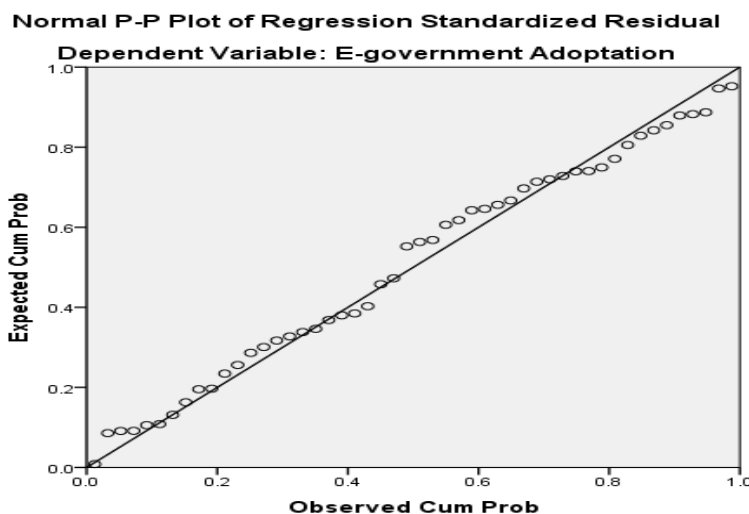
**Figure 5:** Histogram for Test of Normality



**Figure 6:** NPP Plot for Test of Normality

## 5.4 Hypotheses Testing

The hypotheses of the current research study are tested by various numerical studies like correlation test, ANOVA, and regression analysis (Bwalya, 2012). Subsequently, data seems to be absolute and valid, performing such tests may offer reliable outcomes for this present research. Two hypotheses are concerned with this research, so to test such hypotheses, it is very imperative to carry out such tests in SPSS V.20.

## 5.5 Correlation Test

The correlation check is proper test to perform statistical analysis that originates connection among two or more variables (Preziosi, 2011). The correlation analysis stated by table 6, reveals that every variable is tested with the means of correlation analysis are positively linked to e-Government adoption excluding two variables i.e. actual usage of e-Government applications and Computer self-efficacy (Cohen, 2013). Above are noticed to be negative due to few constituents. Primarily, level of e-Government application practice in Pakistan is to a smaller level, hence in accordance to the interviews conducted; the sample defined adverse perceptions. Secondly, the literacy rate of Pakistan regarding computer is poor and the personnel in the government sector are less skilled (Kessides, 2013). The computer literacy rate is 55%. Therefore, these two components may be the hindrance for Pakistani government and a challenge to adopt the e-government supply-side perspective.

The correlation quantity between demand and supply is highlighting an upright portion i.e. 0.82 which explains affiliation of e-Government adoption regarding provision of citizens to adopt such system is 82% that seems to be strong. This association occurred because of two factors (Gil-García, 2005), such as people are interested to adopt e-Government in public sector, hence, they are very ineffective to run the systems related to e-Government. This reveals the positive as well as the negative influence of the demand viewpoints. The correlation analysis is ideal for the present research investigation to test $H_1$ and $H_2$. The correlation factor of ICT infrastructure, ease of ICT utilization, and perceived usefulness of ICT from the supply side standpoints are detected to be positive i.e. 0.137, 0.218, and 0.152 correspondingly that offer adequate indication to demonstrate developments in these perceptions.

In table 6, considering three elements i.e. social influence, effort expectancy, and performance expectancy from the demand perspectives that have a positive relationship with e-Government adoption with correlation coefficients 0.051, 0.152, 0.061, correspondingly. Hence, academic investigator can deduce that improvements in these constituents may influence on e-Government adoption in the public sector; FBR. Such correlation shows that it is an account for taking the e-government acceptance and resulting anticipation of principal initiatives and much improved effort from the people of Pakistan. Correlation between e-Government policies and e-Government deployment from demand perspective is negative i.e., -0.145. Negative

value arose rendering to perception about people of Pakistan, governmental strategies are not much ideal supportive for e-Government acceptance in Pakistan.

Hence, scholar states that government must accumulate such strategies which supports e-Government adoption in the public sector; FBR from the demand perspectives. These elements could create a great barrier and may prove to be a huge challenge in demand perspectives.

**Table 6:** Correlations

|  |  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| e-Govt. Adoption (1) | Pearson Correlation | 1 |  |  |  |  |  |  |  |  |  |  |  |
|  | Sig. (2-tailed) |  |  |  |  |  |  |  |  |  |  |  |  |
|  | N | 200 |  |  |  |  |  |  |  |  |  |  |  |
| Actual usage of e-Govt. application (2) | Pearson Correlation | -.100 | 1 |  |  |  |  |  |  |  |  |  |  |
|  | Sig. (2-tailed) | .490 |  |  |  |  |  |  |  |  |  |  |  |
|  | N | 200 | 200 |  |  |  |  |  |  |  |  |  |  |
| Computer self-efficacy (3) | Pearson Correlation | -.063 | .147 | 1 |  |  |  |  |  |  |  |  |  |
|  | Sig. (2-tailed) | .663 | .308 |  |  |  |  |  |  |  |  |  |  |
|  | N | 200 | 200 | 200 |  |  |  |  |  |  |  |  |  |
| Citizen Support to e-Govt. (4) | Pearson Correlation | .820 | .207 | .159 | 1 |  |  |  |  |  |  |  |  |
|  | Sig. (2-tailed) | .090 | .149 | .271 |  |  |  |  |  |  |  |  |  |
|  | N | 200 | 200 | 200 | 200 |  |  |  |  |  |  |  |  |
| ICT infrastructure availability in Pak. (5) | Pearson Correlation | .137 | .018 | .054 | .106 | 1 |  |  |  |  |  |  |  |
|  | Sig. (2-tailed) | .342 | .899 | .709 | .466 |  |  |  |  |  |  |  |  |
|  | N | 200 | 200 | 200 | 200 | 200 |  |  |  |  |  |  |  |
| Perceived Usefulness of ICT in Pak. (6) | Pearson Correlation | .152 | .084 | .178 | .153 | .084 | 1 |  |  |  |  |  |  |
|  | Sig. (2-tailed) | .292 | .560 | .216 | .290 | .561 |  |  |  |  |  |  |  |
|  | N | 200 | 200 | 200 | 200 | 200 | 200 |  |  |  |  |  |  |
| Perceived Ease of Use of ICT (7) | Pearson Correlation | .218 | -.113 | -.010 | -.118 | -.064 | .100 | 1 |  |  |  |  |  |
|  | Sig. (2-tailed) | .128 | .434 | .947 | .415 | .659 | .489 |  |  |  |  |  |  |
|  | N | 200 | 200 | 200 | 200 | 200 | 200 | 200 |  |  |  |  |  |
| Social influence (8) | Pearson Correlation | .051 | .177 | -.062 | .014 | .003 | .137 | .028 | 1 |  |  |  |  |
|  | Sig. (2-tailed) | .728 | .218 | .671 | .925 | .981 | .342 | .845 |  |  |  |  |  |
|  | N | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |  |  |  |  |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Effort expectancy (9)** | Pearson Correlation | -.152 | -.251 | .168 | -.051 | -.223 | -.031 | .047 | -.054 | 1 | | | |
| | Sig. (2-tailed) | .293 | .078 | .243 | .727 | .120 | .832 | .745 | .712 | | | | |
| | N | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | | | |
| **Performance expectancy (10)** | Pearson Correlation | .061 | .077 | .110 | .124 | -.272 | -.218 | -.180 | .060 | .002 | 1 | | |
| | Sig. (2-tailed) | .673 | .594 | .447 | .392 | .056 | .129 | .211 | .679 | .990 | | | |
| | N | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | | |
| **Govt. Policies (11)** | Pearson Correlation | -.018 | -.043 | .117 | .138 | -.061 | .009 | -.156 | .005 | -.010 | -.007 | 1 | |
| | Sig. (2-tailed) | .902 | .766 | .416 | .341 | .673 | .951 | .280 | .970 | .947 | .963 | | |
| | N | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | |
| **e-Govt. deployment (12)** | Pearson Correlation | -.248 | .000 | .000 | -.129 | -.037 | -.011 | -.114 | -.157 | .097 | -.075 | -.145 | 1 |
| | Sig. (2-tailed) | .082 | .998 | .998 | .371 | .799 | .937 | .432 | .277 | .502 | .604 | .315 | |
| | N | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |

## 5.6 ANOVA

ANOVA is employed in present investigation, to check both hypotheses. As conventions of test concerning the normality, reliability and validity of the data have previously deliberated. Thus, it is only the prerequisite in the light of value R-square before conducting test of ANOVA as revealed in table 7. Subsequently, R square, also known as coefficient of determination represents contribution of variance, as 0.58 that elaborates 58% of variation that is enlightened in dependent variable by independent variables.

**Table 7:** Model Summary [b]

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .761 [a] | .58 | .031 | 1.38165 |

a.  Predictors: (Constant), Perceived Ease of Use of ICT, Perceived Usefulness of ICT in Pakistan, Govt. policies, e-Govt. advancement, Facilitating condition, Citizen support to e- govt., e-Govt. deployment, Computer self efficacy, ICT infrastructure availability in Pakistan, level of users willingness

b.  Dependent Variable: e-Government Adoption

The table 8, F-stat is 2.45 and p-value is 0.02 that is less in comparison to the level of importance 0.05. The p-value provide the evidence that null hypothesis linked to e-Govt. adoption as dependent variable and other variables as independent, is excluded. While performing ANOVA test, scholar used all aspects from the demand as well as from

the supply viewpoints and used ANOVA. Hence, the findings are drawn for complete hypotheses and it is not indicating the complete picture of research hypotheses. Thus, the usage of  regression analysis will offer the suitable findings for both hypotheses individually and it will be helpful in accomplishing the necessities of academic endeavour (Bonsón, 2012).

**Table 8:** ANOVA[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 18.179 | 11 | 1.653 | 2.4507 | .020 b |
| | Residual | 72.541 | 38 | 1.909 | | |
| | Total | 90.720 | 49 | | | |

**a.** Dependent Variable: e-Govternment Adoption

**b.** Predictors: (Constant), Perceived ease of use of ICT, Perceived usefulness of ICT in Pakistan, Government policies, e-Govt. advancement, Facilitating condition, Citizen support to e-Govt., e-Govt. deployment, Computer self efficacy, ICT infrastructure availability in Pakistan, and Level of users willingness.

**5.7 Regression Analysis**

Regression analysis is exercised to test hypotheses, individually. The ANOVA test shown in table 8 gave results of complete hypotheses that did not elucidate  of adoption e-Govt. in Pakistan public sector with supply and demand elements (Cohen, 2013). The predictive or regression equation with means of table 9 can be developed. In table 9, coefficients and intercept of the regression equation are revealed, that aid scholar to detect positive or negative impacts of independent variables to dependent variables (e-Govt. adoption in public sector of Pakistan).

From supply perspectives, the perceived ease of websites usage could impact on e-Govt. adoption in public sector. In table 9, there is a constructive coefficient of the perseverance ease of websites usage and e-Govt., and it is stated that nature of relationship between these two variables is straight. Hence, the p-value may recognize that null hypothesis is not true, and scholar can summarize that more people are perceived of web and applications. Another factor of level of user's willingness from the supply side perspective may directly impact on the intentions to engage e-Govt. From table 9, again coefficients and p-value of user willingness from the supply side perspective may lead to reject the null hypothesis.

Appropriate usage of ICT infrastructure from the supply perspective could impact positively on e-Govt. adoption. The p-value of ICT Infrastructure leads to reject the null hypothesis. Accordingly, scholar assumed that the appropriate usage of ICT infrastructure can have bearing on e-Govt. adoption in public sector; FBR from

the supply side perspectives. From table 9, coefficients of perceived effectiveness of application and public cooperation are optimistic, hence, it is also a direct relationship between e-Govt. adoption to comprehensive use of e-Govt. websites and citizen's support to adopt e-government system in FBR, Pakistan. The p-value displays that the null hypothesis is incorrect thus explains supply as well as demand perspectives enhancement in the performance of both factors could impact positively on e-Govt. adoption in public sector. The component of computer self-efficacy from the supply side perspective could impact on e-Govt. The coefficient is negative, and the p-value is greater as compared to level of significance 0.05 that tends to accept null hypothesis. Thus, scholar contended to found an adverse or poor computer literacy amongst citizens of Pakistan.

**Table 9:** Coefficients [a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | Sig. |
|---|---|---|---|---|---|
| | **B** | **Std. Error** | **Beta** | **t** | |
| (Constant) | 3.128 | 1.403 | | 2.230 | .032 |
| ICT infrastructure availability in Pakistan. | .105 | .177 | .102 | .594 | .046 |
| Computer self-efficacy | - .136 | .153 | - .146 | - .890 | .379 |
| Level of users willingness | .251 | .157 | .281 | 1.600 | .018 |
| Citizen support to e- Govt | .008 | .135 | .009 | .061 | .051 |
| e-Govt. advancement | - .045 | .152 | - .047 | - .295 | .769 |
| Government policies | - .012 | .137 | - .013 | - .087 | .931 |
| Perceived ease of ICT usage | .055 | .144 | .060 | .381 | .005 |
| e-Government deployment | - .364 | .162 | - .366 | - 2.251 | .030 |
| Perceived usefulness of ICT in Pakistan. | .029 | .139 | .032 | .209 | .036 |
| Facilitating condition | .268 | .172 | .252 | 1.559 | .127 |

**a.** Dependent Variable: e-Government Adoption

**Table 10:** Problems in Supply and Demand side  in e-Government Adoption, Pakistan

| Problems in Supply Side | Problems in Demand Side |
|---|---|
| People are less literate because of the un-fair and bad education system | The security and malware situation is not as good. |
| The security and malware situation is not as good. | People are not using computer with en-hanced skills personnel. |
| There is a shortage of electricity and load shedding problems are increasing day by day. | e-Government deployment situation is weak. |
| Government policies are not in the favor of e-Govt. adoption. | Literacy problem (low literacy rate) is found among the citizens of Pakistan. |
| There is no perceived ease of (e-Govt.) websites usage. | |
| The level of user's willingness in the use of ICT is low. | |
| ICT infrastructure is not much estab-lished. | |

**6.**

**7.  Conclusion**

Above reflections point out that adoption of e-Govt. system is still a challenging area in public sector in Pakistan unless these challenges are resolved. Concerning to have a larger perspective on the demand side, the UTAUT model can be crucial for the government. The chief reason for insufficient adoption of e-Govt. is dearth of electricity. Consequently, firstly, the issue of power shortage should be among most urgent priority for the government of Pakistan, in order to develop such system in public sector, else it would be hopeless cause. Furthermore, problems of ICT infrastructure must be considered to implement such structure for advancement of the country. Government endeavours must be in inclined with the e-Govt. disposition to assist consistent usage of Information Technology in Pakistan that will have a constructive transformation in FBR and other public sectors of Pakistan. Similarly, the people are not in favor of using e-services in the country and ignore to pay online taxes as they are not much literate due to unfair and poor education system (supply perspective).

The security and current malicious situation threat is not as good (demand perspective). Government policies are not in the approval of e-Govt. adoption (supply perspective). ICT infrastructure is less established (demand perspective). However, the question arises that what are the challenges and obstacles in supply and demand side notions which could impact upon e-Government adoption in public sector of Pakistan. The answer lies in the components such as government policies from demand side

perspective, computer self-efficacy from supply side perspective and literacy rate. On one hand, these elements are the barriers for Pakistan in e-Government adoption facilities (Alshehri, 2012). On the other hand, perceived ease of websites usage, level of user's willingness and ICT infrastructure from the supply side perspective, citizens support to e-Government from the demand side variables are hurdles for the government of Pakistan for e-government acceptance in public sector; FBR (Bohari, 2013). The performance of such constituents must be ensured to give 100% in contemplation of to achieve the aim for present research endeavour.

## 8.  Solutions and Recommendations

There is a dire need for both government and citizens of the Pakistan that they must consistent efforts on the both supply and demand perspectives to incorporate e-Govt. in FBR, Pakistan. The performance and efforts of Pakistani people are required to familiar themselves to computer self-efficacy for being entitled  among the most stabilized countries in the world (Gallant, 2007). Additionally, the Pakistani government, administration of the firms, leaders and researchers, must make serious efforts in refining the plans and strategies to deliver adequate monetary possessions in support of e-Govt. adoption (Ahmad, 2013). Regarding poor literacy of populace, serious initiatives need to be venture out by government and stakeholders in education to fulfil the possible motive of e-Govt. adoption in public sector of Pakistan. Majority of public sectors such as FBR and State Bank of Pakistan etc. have adopted such system in order to render  online and web services at governmental level to the people of this country (Carter, 2008). The government of Pakistan should consider reasons to offer resolutions for above mentioned difficulties in order to adopt e-Government services in public organization; FBR, Govt. of Pakistan.

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