

The Impact of e-Health on Socio Economic Development A case study of Pakistan

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Abstract

The goal of this study is to investigate the significance of eHealth and its influence on the Socio-Economic Development of Pakistan in order to determine its relevance. Because of recent technological developments and innovation in the field of electronic tools, the relevance of eHealth employing these technologies is expanding dramatically. As a result, it is critical to investigate the role of eHealth in enhancing the socio-economic growth of the country.

Key Words: Socio-Economic Development, eHealth, innovation.

1. Introduction

The provision of better healthcare is the primary priority of government authorities in order to better serve their citizens' fundamental needs in a timely manner. As a result, it has been determined that the modernization of healthcare presents a number of obstacles for government organisations. Among the obstacles that the government of Pakistan faces in implementing free advanced level e-health services are cost management, the growing burden of chronic patients

and the growing proportion of the ageing population in the context of healthcare services, the increased adoption of an unhealthy lifestyle by the residents, a shortage of healthcare professionals at the internal level, resulting in a lack of access to primary care, and a need to improve the efficiency of the system. In order to meet these issues, the Pakistani government has placed a strong emphasis on the use of information and communication technologies (ICTs) in order to improve the country's healthcare system.

However, there is a discussion raging in the literature over whether information and communications technology (ICT) approaches have the potential to improve the accessibility of healthcare services to inhabitants of a specific nation. Jin and Kim (2018) present evidence to this effect, stating that nations have been utilising information and communications technologies (ICTs) to improve healthcare services for people for more than a decade. The effects have also been quite beneficial, as they have assisted the nations in becoming substantially more effective in the provision of basic healthcare to their citizens. However, it has also been demonstrated that the cost of failures has remained substantially larger than in the past, causing grave worry. Specific to Pakistan, where a significant amount of money has been invested to assist its residents by providing them with free healthcare services through the use of electronic health records (e-health). As a result of the high expenses associated with e-health adoption, Pakistan may experience an economic slowdown as a result of the adoption. Even while the research on e-health services shows a mixed picture, it does point to certain beneficial as well as some bad features for both governments and consumers. As a result, the purpose of the current paper is to assess the socio-economic impact of electronic health records in Pakistan. In this context, the following research questions have been developed:

- To explore the challenges faced by the Pakistan in rendering healthcare facilitation
- To identify the nature of e-health services rendered by the Saudi government to its citizens
- To analyze the impact of e-health services on socio economic development of the Pakistan

2. Literature Review

eHealth is a relatively new word that might be associated with the field of health informatics (Hasanain, 2014). For the same reasons that every other country is adopting eHealth, Pakistan is also adopting it as a means of improving its health care services so that the demands of patients can be better met without the problems associated with traditional clinic visit systems, and so that doctors and clinicians can perform their tasks of providing health services more effectively. Multiple studies have been undertaken in Pakistan that have demonstrated its widespread use as well as its influence on the socio-economic development of the country as a whole and the local community in particular. An analysis of the SWOT (strengths, weaknesses, opportunities, and threats) factors was carried out to determine the significance of implementing health ATMs (eHealth) in Pakistan, and the findings revealed that a high number of consumers had simple

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access to these machines. It was possible for the personnel to retain the anonymity of consumers, and security concerns were addressed. One disadvantage of these health ATMs, as demonstrated by this study, is the lack of a defined strategy or policy to support and guide the procedures associated with health ATMs. The operating room crew have very rudimentary grasp of medical terminology. There was also a lack of participation among stakeholders in the health ATM system, as well as a resistance to change among the providers.

According to a survey performed by Kuwaiti (2018), it was shown that 84 percent of patients believe that electronic health records are essential in monitoring their health. Patients utilise the application 40 percent of the time, websites 44 percent of the time, and social media 41 percent of the time. In addition, 24 percent prefer to consult with a doctor through the internet. In addition, 81 percent of clients stated that they received better treatment when doctors used electronic health records.

Aldebasi et al. (2020) did a study to determine the level of knowledge of eHealth among medical students in Pakistan on the development of information and the desire to assist in the provision of health care. The knowledge of eHealth was rated as bad by 71 percent of respondents and good by 43 percent. However, with 81 percent of respondents expressing a good attitude toward eHealth, the general attitude toward eHealth was positive. Also noted was the use of eHealth in general, with around 84 percent of the population doing so.

Alsulame et al. (2015) used theme analysis to claim and investigate the present state of eHealth in Pakistan (current trends and obstacles). According to the findings of the survey, participants' perspectives on current eHealth trends were taken into consideration, as were disparities in eHealth adoption among Pakistani healthcare institutions. The attendees went on to discuss problems such as cultural and organisational concerns, a scarcity of professionals to execute eHealth programmes, and end-user attitudes toward eHealth initiatives in further detail.

3. Methodology

The current paper employs a systematic review technique, in which the available literature would be assessed through the use of the PRISMA methodology, as described above. It is necessary to use this strategy to the primary data bases of the health management organisation, PubMed, and science direct, in order to be successful. In addition, additional database sources, such as Google Scholar, are being investigated in order to extract research studies in the appropriate field of study. In order to search for papers, key terms such as e-health, socioeconomic development, e-health economics, Pakistan, obstacles and benefits of e-health advancements are being utilised, among other things. Furthermore, the whole study subject is also provided to the search box, which aids in the identification of pertinent publications.

The inclusion and exclusion criteria are also set in order for the articles to be screened to the most suitable level and to those that are most suited for the present study's needs. To be more

specific, papers published prior to 2016 are omitted from the study, and only the most current articles are included in the analysis. Moving forward, items with geographical mismatches are excluded from the study, for example, articles describing a geographic region that does not contain Pakistan. Furthermore, publications that are not dissertations or journal articles, as well as those that are not published in the English language, are removed from consideration. Furthermore, in addition to the reasons identified in the title and abstract, the articles are excluded on the basis of themes in which no socio-economic perspective is discussed, in which there is no access to the full text, and/or in which the e-health agenda is not specifically addressed, among other reasons.

Following the selection of seven publications, the report conducted a thematic analysis, in which the results of the articles are given one by one and then the themes are derived from the findings of the articles. In the end, the research questions are addressed in the results and analysis section, which is based on the data collected throughout the study. Following that, the report's conclusion and suggestions are presented, which are based on the results of the investigation.

3.1. Source of Data and Estimation

The main objective of our study is the impact of the Ehealth on the economic growth of Pakistan. The ehealth is measured by electronic expenditures of health and economic development by the level of GDP of the Pakistan. Other proxy variables are foreign direct investment and trade volume. Dataset from 2010 to 2020 is collected from World Development Indicator (WDI) and World Health Organization (WHO).

2.1 Econometric Estimation

Model Specification

Our econometric model is given below,

$$Y_{i,t} = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \mu_t$$

Where the subscripts t denotes time series, respectively. μ is a disturbance term. α are parameters. Our estimated model is,

$$\text{TRADE} = \alpha_0 + \alpha_1 \text{FDI} + \alpha_2 \text{GDP} + \alpha_3 \text{TV} + \mu$$

GDP growth rate is used to measure economic growth because it considers the best indicator as a proxy of economic growth. Many studies such as those (Anser et al. 2020a) used GDP growth to represent economic growth. The ehealth, total health expenditures (% of GDP) used as an independent variable in our study. The variable FDI is taken in foreign direct investment and net inflows (% of GDP), also important explanatory variables. All these variables are collected from world development indicators. There are always possibilities of error in the estimation and construction of the model so, the Error term is also included in our model.

Table 1: Description and Measurement of Variables

Variables	Description	Measurement	Hypothetical Relationship
E-health	(EH)	E-health as a % of GDP.	

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Trade Volume	(TV)	Trade Volume as a % of GDP	Positive
Gross Domestic Product	(GDP)	Gross Domestic Product Growth rate	Positive
Foreign Direct Investment	(FDI)	Foreign Direct Investment inflow %	Positive

3. Estimation of Results

3.1. Results and Discussion

To determine the impact of the ehealth on the economic growth of Pakistan. TFollowing different estimation techniques OLS and ARDL is given below. The computed wald statistics F value is 27.11 that is confirmed the long run cointegration. The results of these techniques are given below in the table

Table 2: Regression analysis of different estimation techniques

Variables	OLS	ARDL
TV	0.05* (0.30)	0.04* (0.19)
GDP	0.23* (0.00)	0.16* (0.00)
FDI	0.21* (0.00)	0.34* (0.03)
R²	0.65	0.61
Adjusted R²	0.61	0.57
D.W	2.44	2.02

Note: *, **, & *** show significant at 1, 5, & 10 percent, respectively.

Source: Author's calculations based on EViews 9.0

The primary intention of this study is to find the impact of the ehealth on the economic growth of Pakistan. The results indicate that ehealth has a significant impact on the economic growth of these countries but this relationship is positive (Hanif et al. 2019). That shows due to higher ehealth, Pakistan economic growth increases. It indicates that if 1% increases in GDP then 16% increase in a ehealth. These results are in line with (Iqbal et al. 2020b), (Ahad and Anwar. 2020). The ehealth has a significant and positive impact on the trade volume of Pakistan. That shows due to higher exports, the country's ehealth volume increase. It indicates that if 1% increases in trade volume then 4% increase in a ehealth. The results indicate that ehealth has a significant impact on foreign direct investment of Pakistan, but this relationship is positive (Qayyum et al. 2019). That shows due to higher ehealth, the country's FDI increase. It indicates that if 1% increases in FDI then 34% increase in a ehealth (Anser et al. 2020b)

4. Findings and Discussion

A comprehensive analysis of the selected papers identifies overarching themes that indicate how the development of electronic health records (EHR) in Pakistan is contributing to the country's overall socioeconomic development. Concerning this issue, the report's findings are presented in the context of the research questions, with a detailed discussion of the findings being provided under the headings of the pertinent research questions.

- How is the e-health sector assisting Pakistanis in overcoming the challenges associated with healthcare access and delivery systems?

In the papers that were reviewed, it was revealed that the healthcare sector in Pakistan is confronted with a variety of difficulties. First and foremost, there are organisational and behavioural challenges to contend with. In this regard, it is stated that, because of the strong presence of bureaucratic organisational culture in Pakistan, healthcare organisations and individual patients have faced difficulties in making independent decisions and gaining access to healthcare resources, as well as in accessing healthcare services. The challenge of bureaucracy is being addressed to the greatest extent possible because, thanks to e-health, healthcare systems are being centralised and individuals are being provided with direct access to healthcare facilitation services. Moving forward, there are also technical and professional challenges that must be overcome in order to provide quality healthcare services to patients in Pakistan. As a result of the invention of e-health services, infrastructure is being upgraded, and many new projects are being introduced by the Saudi government and IMIA, which has resulted in overcoming the issue of technology shortages for the improvement of healthcare services and improvements in primary healthcare provision.

Moving forward, the Pakistani healthcare system is confronted with a new problem, which is centred on the need to maintain patient privacy and confidentiality. In this regard, the investigation revealed that patients were concerned about being able to see their medical-related records, which was previously not feasible owing to electronic reports that were only accessible to hospital staff. As a result, patients were dissatisfied with the adoption of the electronic system in healthcare organisations as a result of their inability to obtain information. The development of e-health services, on the other hand, provided patients with access to their information, reports, and all other required components, which they were able to access while just sitting at their desks at work. The e-health system has grown in strength, and it is now able to provide advantages to both people and healthcare organisations.

At the end of the day, the Pakistani government was confronted with the most serious issues of the socio-economic issue since the expense of manual therapy was so much greater there. In addition, due to the increased number of patients in the hospitals, whether or not the needed services are being given at the hospital, the management of the patients was difficult. Since a result of the use of e-health services, the costs of providing those services have decreased, as a significant amount of work has been moved to the e-health system.

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The influence of electronic health care services on Pakistan's socio-economic growth is yet unknown.

From the data, it can be concluded that Pakistan is benefiting from a variety of socio-economic gains associated with electronic health records. First and foremost, the Pakistani government is committed to providing its citizens with a sense of social well-being. Specific to this, the government is now able to assist residents in improving their lives by making them healthier through a change in their way of life through the use of electronic health facilitation. This is accomplished by the provision of information to inhabitants and the modification of their behaviour as a result of increased awareness and knowledge. Moving forward, the deployment of e-health services has made it easier and more effective to diagnose ailments, which is beneficial from an economic standpoint. In particular, the prices of diagnosis have decreased significantly, and patients have been given the opportunity to supply samples for illness diagnoses by just sitting at home and contacting for e-health services. Once the analysis is completed, the findings are made available on the internet. It is a source of convenience for patients, hospitals, and the entire community and economy, as health is the most important necessity of individuals.

The use of e-health services has improved the efficiency of treating and monitoring patients. Prior to the arrival of e-health, people were had to attend hospitals for even the smallest of issues, but today they may take use of mobile health services to address their needs on the go. Furthermore, via the use of e-health systems and other technological aids, frequent monitoring of patients might be carried out as well. Individuals will save both time and money as a result of this arrangement. In addition, the government of Pakistan benefits from the growth of a healthy and effective society that is more active in contributing to the country's economic and social development and development. The deployment of e-health services has resulted in patients having more convenient and effective access to the healthcare system, while the government is putting in place improved healthcare infrastructure.

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