GCU
ECONOMIC JOURNAL

CONTENTS

VOLUME LIV **2021** **No. 1**

ARTICLES

GCU Economic Journal, Volume LIV (1&2), 2021, pp. 1-23

Investigating the Factors Affecting Export Potential of Sports Goods Industry in Sialkot City: A Pestle Analysis

*Adeel Akram and **Khizra Safdar Khan

Abstract: The aim of this study is to analyze the factors influencing the exports of sports goods in Sialkot. In order to explore these factors, a survey was conducted through questionnaire, focusing on human resource available on the part of firm, their training, the role of taxes in this industry, technical collaboration and business development characteristics along with characteristics of the owner. 40 firms were surveyed through convenient sampling technique. Information was collected by the firm's managers or any other top management employee regarding all the factors affecting performance of export-oriented firms. CAGR (Compound annual growth rate formula) was used in order to explore the growth experience of the export-oriented sports goods firms. PESTLE analysis was conducted to evaluate the Political, Economic, Social, Technological, Legal and Environmental factors affecting the growth performance of sports goods firms. The results indicate that firms experiencing growth employ more skilled labor as compared to those undergoing negative growth. Owner's characteristics also had an impact on the firm's performance as growing firms had more educated owners. From the analyses of the data some recommendations have been mentioned including establishment of skill development centers for the work force, Common testing facilities, improvement in labor laws, establishment of R&D departments, government interventions regarding the policies of infrastructure, trade, and import tariffs should be managed in favor of manufacturers.

Keywords: Sports, training, business development, skilled labor, R&D

1. Introduction

Economic development is one of the major and foremost objectives of all the countries. Almost all the countries strive in the best possible way to achieve economic growth. Among all the contributors of economic growth, exports are one of the main factor while promoting economic growth. Different studies are conducted to establish the relationship among exports and economic growth by different authors from different countries including Balassa (1985), Ram (1987), Alam (1988) and many others.

*M.Phill Student, Department of Business & Commerce, GIFT University Gujranwala
**Assistant Professor, Department of Business & Commerce, GIFT University Gujranwala

2 Investigating the Factors Affecting Export Potential of Sports Goods Industry in Sialkot City: A Pestle Analysis

Pakistan is following Export oriented industrialization (EOI) in 1970's. In 2019, Pakistan exported US$ 17.07 billion and imported US$ 45.471, resulting in a negative trade balance of US $28.38 billion. Major exports of Pakistan comprise of different categories including food, textile, petroleum and other manufactured products. Exports of sports goods are included in the other manufactured category. Sports goods industry has played an important role in establishing international trade market. Because of better quality of Sports goods, Pakistan has gained international fame. The percentage of Pakistan sports goods export from the total export of Pakistan is only 1.51 percent (2018-19)[1]. Pakistan has been one of the major exporters of sports goods especially football which contributes about 49 percent of the total sports good's exports.

The sports goods manufacturing division of Pakistan has a rich history and a dynamic manufacturing base. At first ascending as a cottage industry, the area now consists of developed manufacturing units in and around Sialkot city of Punjab. Over the time, Sialkot and its adjacent zones have developed into a cluster for manufacturing sports goods, counts on record learning and accessibility of skilled labor. The leader product for this cluster is the inflatable ball (for the most part soccer ball) which has had a huge influence in picking up the territory international recognition. Pakistan takes into account very nearly 70 percent of the worldwide interest for inflatable balls[2]. Different products being created in Sialkot area are cricket bats, hockey sticks, tennis rackets, indoor recreations and defensive rigging including sports apparel, gloves, and pads etc.[3]

Sialkot has been specialized to outsource world prestigious brands including Nike and Adidas generating employment to many skilled and non-skilled professionals from everywhere throughout the nation. It is proved to be a significant supporter of annual exports of Pakistan. In 2018-19, sports goods exports from the nation surpassed US$ 312 million[4]. Considering the commitment of the business to the employment market and export competitiveness of Pakistan, it has established a unique position.

[1] TDAP (trade and development authority of Pakistan)
[2] PSDF Request for Proposal 2016
[3] PSDF Request for Proposal 2016
[4] Monthly Bulletin of Statistics October 2019; Pakistan Bureau of Statistics.

Regardless of the considerable number of milestones and achievement of this sector, the sports goods manufacturing industry of Sialkot is still a labor intensive one. Producers depend on customary knowledge and have over the time included just couple of semi mechanized processes to their work. The dependence on labor to work, diminishes their advantage. Most manufacturing exists in informal and unregistered set ups utilizing physical work and minimal skilled input. While Pakistan has been confronting rivalry from nations like India, Bangladesh, China and Taiwan are quick getting up to speed and giving extreme rivalry. These business sectors depend on their mechanized processes to convey affluence and particular items in bulk.

Considering all this, supporting local manufacturers and workforce is a need of hour to develop in global competitiveness perspective. Interventions featuring the upgradation of the technical skills of workforce in the industry to set assemble guidelines are required. These interventions can best be connected after a basic appraisal of the present and future needs of the industry, which will point out the key necessities for the sector.

In Pakistan there are few cities which contribute intensively towards exports goods production and exports. Sialkot is ranked third after Karachi and Lahore in terms of export revenue. Sialkot city is Pakistan's highest per capita income city ($1200+)[5]. As Sialkot being one of the most efficient cities in terms of export, it also contributes towards the employment and growth of the economy. Sialkot sports goods industry has the ability to supply their products worldwide. Pakistan has been able to give a tough competition to its neighboring countries because of these major exporting cities. Major exportable product of Sialkot is Football in which Forward sports, Vision technologies, Capital sports have major participation as forward sports client is Adidas. The Brazuca Ball was manufactured solely by Forward Sports which was used in FIFA world cup 2014. There have been many milestones and achievement of this industry but despite all the success and hard work there is still room for improvement. Other than few companies of this sector most of the other firms face many problems. Several of them are as follows Human resource, adoption of new technology, Tariffs on imports and business development. Data for the total exports of sports goods for the year 2016, 2017 and 2019 have been shown in the Table below.

[5] Punjab portal All about Punjab in one place, https://www.punjab.gov.pk/sialkot.

Table: 1.1: **Total exports of sports goods in Pakistan**

Year	2017-18	2016-17	2015-16
Sports Goods			
(I) Foot Balls Complete	152,987	138,303	158,243
(II) Gloves (Sports)	110,771	98,808	84,075
(III) Other (Sports)	48,785	43,069	53,904
Total	312,543	280,180	296,222

Source: Trade and development authority of Pakistan (2019) TDAP.

The firms of Sialkot are all exporting their product to different countries. As the firms of Sialkot are manufacturer plus exporter so their growth is based on their exports as all of them are focusing and relying on exports. It is evident from study of Wang et al (2008) about the exporting and productivity, leading a positive impact on the growth of the firms.

There are some issues which affect the sports goods manufacturer as they have the potential to grow but due above-mentioned constraints, they do not have the means to grow effectively. Because of these issues the cost of the production becomes high leading to high selling price. The cost related problems include tariffs, labor issues and infrastructure, technology advancement or coping up with the world's technology are crucial for future sustainability. As this industry is still relying on traditional methods for the production of their goods. The neighboring countries are keeping up with the world in terms of technology which gives them a competitive advantage for attracting clients. Also lack of government support and unstable political system discourage the foreign investment are very crucial for this industry.

The sports goods industry is well established in Sialkot. As this city is identified as the city of exporter and it has vast number of companies whether small, medium or large exporting sports goods all over the world. Statistics of recent years have shown that there has been a decrease in the overall exports of sports goods from Pakistan. This paper identifies that the factors which influence the growth of exports of sports goods.

1.1: Objectives of the study

The study is based on investigating the factors that are influencing the growth of sports goods industry in Sialkot. Following are the objective of the study.

- To evaluate the impact of human resource on the exports of sports goods in Sialkot.
- To assess the influence of new technology on the exports of sports goods in Sialkot.
- To analyze the role of tariff on imports on the exports of sports goods in Sialkot.
- To investigate the role of business development on the exports of sports goods in Sialkot.
- To assess the role of owner's characteristics on the exports of sports goods in Sialkot.

This study is organized in six sections. First section describes brief introduction of the study, which include purpose of this research. In second section literature review regarding factors affecting firm's efficiency is presented. Third section presents the theoretical framework. In forth section data collection, research design, methodology and data analysis are presented. Fifth section presents the findings of this study, instruments and analysis. Sixth section presents conclusion and policy recommendation.

2. Literature Review

The study has reviewed the related literature by carefully examining the earlier conducted in relevance to export performance of firms exploring the factors influencing the export potential, presented in a chronological order. Harvey and Germain (2001) analyzed the trade of sports goods and international division of labor regarding unequal hierarchy of nations. 28 countries on the part of NAFTA were selected for the time period of 20 years. Trade statistics of these countries were analyzed and concluded that the theories regarding dependency and regulations provides no appropriate acceptance. For regulations theory, social and cultural systems were not suitable to discuss the amalgamation of capital and labor explaining the structure of hierarchy of nations.

Khara and Dogra (2009) examined the constraints affecting the export performance of the Indian sports goods industry. Globalized advertisement, firms; particularly smaller ones, confront various boundaries to trading are the factors examined in the study. The paper offers an investigation regarding price improvement hindrances observed by firms in the Indian setting. This examination focussed on flourishing products exporters situated in the Northern territory of Punjab, through personal contacts. The consequences of the tentative findings proposed that the exporters confront imperatives grouped into monetary (accessibility and cost of financing),

advertising (promoting, trade bundling and imagination), mechanical (access and quality administration) and sources of information (skilled labor and raw materials). In this manner, conclusions and suggestions are inferred for policy makers and stake holders.

Khalid Nadvi et al (2011) analyzed that Global value chains and labor standards in the international sports industry and explored that China is becoming a global producer by attracting all of the global brands. The study explored that the relationship between China's economic growth and international labor standards and how these standards have affected the geography and organization of global football production. It was found that compliance with labor standards alone is insufficient for competing against China.

Sharma and Sharma (2010) conducted a research on analysing the technical and scale efficiency of small industries state wise clusters in India. The purpose of this paper was to analyse the relative production proficiency of state-wise bunches in the enrolled small-scale sector in India. For this, information development analysis based on BCC model is utilized. Specialized and scale efficiencies for 23 states and three union domains were assessed. Seven states including, Delhi, Meghalaya, Uttranchal, Haryana, Punjab, Andaman and Nicobar and Tamilnadu were observed to be in fact efficient while Delhi and Meghalaya turned out to be the main scale efficient states. Large portion of the states were observed to work at diminishing scale, depicting notch for venture and further business development. Since the outcome demonstrates enormous degree for development in miniscule ventures in India, producers can utilize it as a device to accomplish the objective of comprehensive development. Scale productivity analysis for small scale businesses in India mirrors the execution effectiveness of the state level arrangements for the small-scale ventures.

Athar Iqbal, et al (2012) investigated the relationship among exports and economic growth of Pakistan by using secondary data of exports, GDP and real terms of trade from 1960 to 2009. The data was taken from World Bank Indicators. The paper utilized the granger causality test, depicting that there is a unidirectional causality from GDP to exports and not from exports to GDP. Results suggested that in Pakistan, export led growth is not

applicable. So, the policy makers should focus on increasing the overall GDP rather than going for increased export.

Aggarwal et al (2012) examined the productivity improvement of sports goods industrial cluster in Meerut India. The article focused on SME's potential to grow and essential knowledge needed for development needed on the part of their owners. Due to lack of knowledge these owners do not get the benefits of technology and market dynamics. Moreover, they do not know source of the required funds for the establishment of the industry, hindering the growth of SME's. Establishment of a common facilitation center (CFC) can resolve these issues and can also cover limitations faced by the owners of SME's.

Poonam Chauhan (2013) studied the factors affecting the exports of sports goods in India. Sample size selected for this study was 60, 30 from Meerut and 30 from Jalandhar. For the analyses, questionnaires were prepared and being filled by the managers of the firms. CAGR (Compound annual growth rate formula) was used in order to estimate which firm was growing and which one is experiencing negative growth. The study has found that are affecting the export performance of sports goods firms, including human resource, business development, Innovation and technology upgradation and commercial collaboration.

PSDF (2016) conducted a study on sports goods manufacturing sector of Sialkot, to find the current skill levels and the skill gap among the labor. Desk reviews, explanatory reviews and quantitative survey of firms were done to explore the issue. The study revealed about the lack of awareness on part of small and medium enterprise about the formal training courses offered by TSP (training service provider). The reason is that these training centers offers few courses which are related to the sector and also the trainers were not qualified.

Asif and Waqas (2017) studied export performance of Pakistan in terms of structural constraints. Their aim of the study was to find the reasons behind slow export performance of Pakistan. Secondary data was used from government websites depicting that taxation, labor policy, institutional development and firm specific factors are the reason of the poor performance of Pakistan in terms of exports.

3. Theoretical Framework

3.1 Introduction

This section introduces the design, and particular methods utilized for the fulfillment of the objectives of the study. The procedure involves

measurement of comprehensive information, tools used to gather data, questionnaire development, organization of the test for accumulation of the information and statistical analysis.

3.2 Theories

3.2.1 Definition of variables

For this study several variables are used to analyze the factors affecting the growth of exporting sports goods firms.

Human Resource

HR is the most fundamental element of the sports goods industry as it is heavily based on the operations. Human resource includes skilled labor, semi-skilled labor and unskilled labor required to carry out the operations of the company. This variable will be analyzed on the bases of their commitment to the organization, their training, wages, learning and other development activities.

Technology Development

It is complimentary for the companies to form alliance with international experts regarding the any type of new technology for the production of their goods. These includes workshops with the experts, introduction to the new technology, research for further development and technology adaptation.

Tariffs on import

Raw materials are required for the production of goods in any industry. If these raw materials are costly then the finished product would also get high priced in comparison to other countries with low level of tariffs on import. But this is not same for all the industries and it differs for small, medium and large enterprises. As there are government incentive which cannot be availed simply including EOU (export-oriented unit) and EPZ (export processing zone).

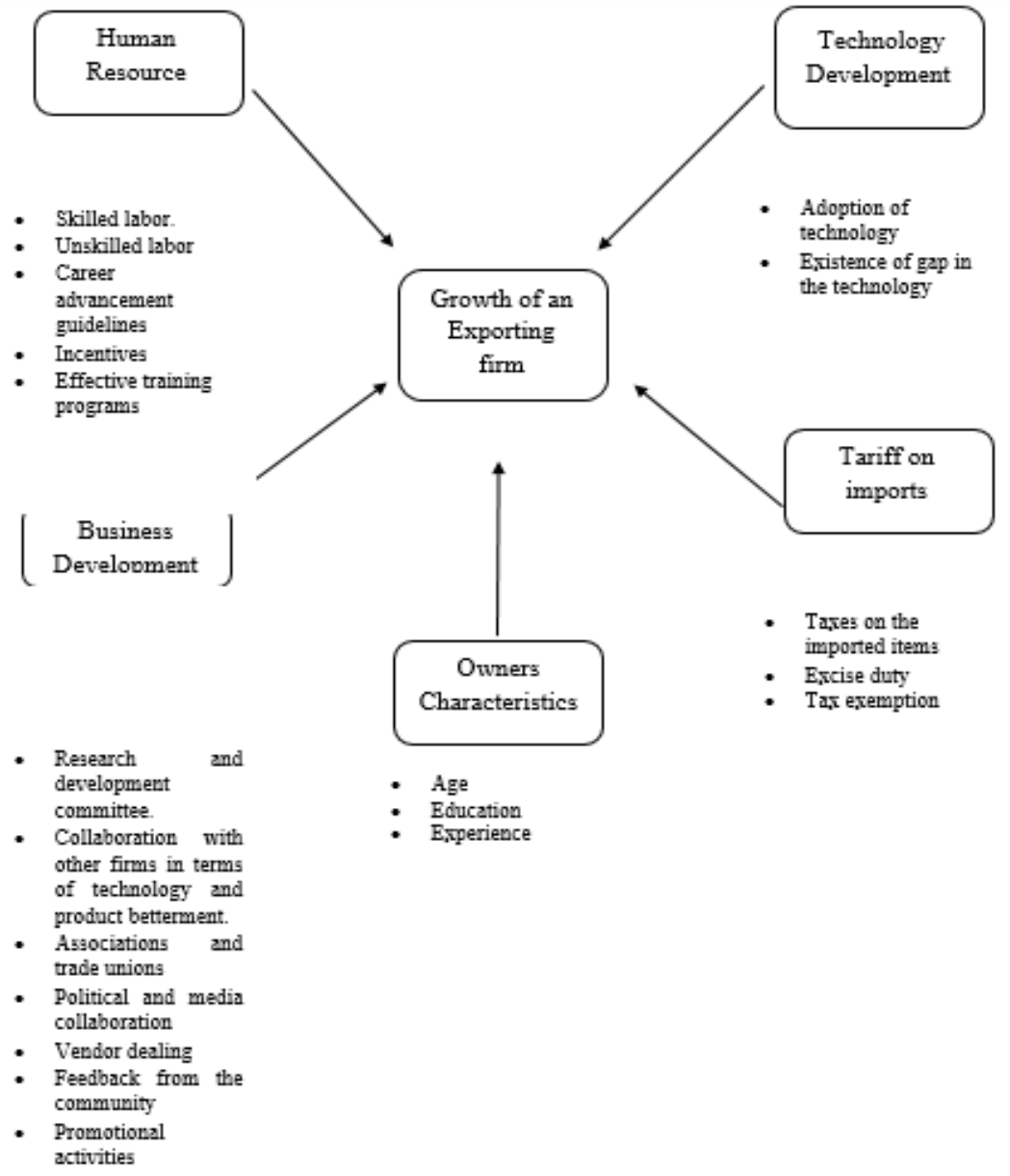
Business development

Business development is seen as all the opportunities that are adopted including new product design, business model, expansion and marketing. Business development is an ongoing process which is to recognize and adapt the opportunities that would be the result of growth of the business. In this fast era of technology new market access and technology adaptation is very crucial.

Owner Characteristics

There are numerous personality traits that define the owner and their business. The traits that will be discussed comprising of the education of the owner and his/her age and the experience regarding the firm's operations.

Fig 3.1 Theoretical Framework



Source: Author's own conceptual framework

3.3 Data collection

3.3.1 Target Population and Data source.

Target population for this study is sports goods manufacturers plus exporters in Sialkot. Data was collected from them in the form of questionnaires. As the selected firms were manufacturers/exporters so their growth is based on their exports earnings It is evident from study of Wang (2008) that exporting has a positive impact on the growth of the firms.

3.3.2 Sample size selection

For the conduction of this study convenient sampling was used as there are a lot of sports goods manufacturer in Sialkot. Sports goods manufacturer were selected with whom the author has a direct contact with because of working in custom clearing agency in Sialkot. The survey was conducted from 40 companies. Questionnaires were prepared and filled by the managers of department or from top management or middle management.

3.3.3 Estimation Technique

To assess the company's growth, CAGR (Compound annual growth rate) formula was used to be applied on number of labor. It is used to represent the growth/decline of the firm in terms of investment, returns, employees, unit delivered, revenue etc.

$$CAGR = \left[\frac{\text{Ending Value}}{\text{Beginning Value}}\right]^{\left[\frac{1}{\text{\# of years}}\right]} -1$$

PESTLE analysis is a framework used by marketers to explore the macro environmental factors that have an impact on the organization.

4. Data Analysis

Table number 4.1 represents the overall number of employees in the last 3 years in surveyed firms, depicting that whether the employees in a firm has increased or decreased over last 3 years.

Table. 4.1Number of employees during the last three years with respect to growth experience. (Average)

	2014-15	2015-16	2016-17
Growing	87.57	113.38	139.76
Declining	116.26	110.95	99.95
Total	101.2	112.26	120.85

According to the survey the firms which are in the phase of growth has increased their overall number of employees in the last three years and the firms whose employees has decreased in the last three years are in the phase of decline Das and Kalita (2009).

Table. 4.2 Total number of firms with respect to growth experience.

	Number of firms	Percentage
Growing	21	52.5
Declining	19	47.5
Total	40	100

According to the analysis of the data in terms of CAGR of employees. It has been found that among the 40 firms there are 21 firms which are in the growing phase and the remaining 19 firms which are in the declining phase.

4.1 Owner characteristics with reference to Growth Experience

Table number 4.2 shows the average age of the owners of the sports good's firms. Data reveals that the growing firms have younger owners than those experiencing negative growth (Amran, 2011).

Table. 4.3 Owner's characteristics with respect to Firm's growth experience.

Firm's experience	Growing	Declining	Total
Age (average years)	46	52	49
Education (frequency)			
Inter	10	13	23
Graduate	6	5	11
Post Graduate	5	1	6
Experience (years)	7.14	7.36	7.25

Survey reveals that firms who are undergoing growth are managed by more graduates and post graduates owners than those experiencing negative growth According to table 4.2, average number of years in terms of experience does not show any difference in regarding firm's growth (Chiliya and Roberts, 2012)**.**

4.2 Human Recourse characteristics with reference to Growth Experience

According to the survey, on average number of skilled labor in the growing firms is 109.7 as compared to 65 skilled workers among those firms experiencing negative growth. Career advancement guidelines are different measures that the company uses for the employee's promotion/demotion on the basis of their performance annually. Some of the advancement guidelines have been analysed in present study are provision of provident funds, and training in order to improve labor productivity.

Table. 4.4 Human Recourse characteristics with respect to Firm's growth experience.

Firm's experience	Growing	Declining	Total
Total number of labor			
Skilled	109.7	65	88.48
Unskilled	30	34.67	32.18
Total	139.76	99.95	120.85
Career advancement guidelines for the employees			
Provident Funds (CAG1)	71.4	52.6	62.5
Training (CAG2)	90.5	84.2	87.5
Bonus (CAG3)	95	84	82.5
Leaves and wages increment (CAG4)	90.5	73.6	82.5
Incentive schemes offered to employees (Percentage)	71.4	52.6	62.5
Effective training Program offered (Percentage)	90.5	73.7	82.5

Bonuses are in the form of cash and company's stock that is given to the employees annually based on their performance. Leaves and wages increment differ in every company as some of them uses annual percentage for the wages increase and some define a specific amount that may be increased after a year. And leaves are based on monthly bases that how many off days an employee can get monthly. Table 4.4 shows the career advancement guideline that are devised by the company for their employees. The survey shows that the firms in the phase of growth are

actually taking care of their employees in the form of career advancement guidelines, this is the reason for their increased number of employees in the last 3 years.

This shows that in order for a company to grow in terms of its employees and to retain them they must advise career advancement guidelines which will help them increase the overall satisfaction of the employees and also their willing to work for that particular firm. The results are similar to that of Poonam Chauhan. (2013).

Table number 4.4 shows the Incentive schemes which are followed by owners offered to employees including salary increment, hospital funds, school funds, gift and in the form of cash in order to improve their performance. It is to be noted that the firms who are providing their employees with different incentive schemes they are on a growing pattern (71.4 percent).

Effective training programs are annually based for the employees in the upgradation of their skills and in some cases it is required by the government for certification as in dangerous goods handling program that needs to be attended by the firm's operation managers after every 2 years in order to get certified that they do know how to handle the dangerous goods effectively. Data shows that among growing firms, 90.5 percent sports goods industries use various training methods to upgrade the skills of their employees from time to time including firefighting, HR training programs, first aid usage, machinery, awareness to react on certain emergencies, seminars and training of security personnel.

As mentioned in the above paragraph that effective training programs are needed to enhance the abilities of the employees, this can be seen that the firms who are training their employees are gaining more from them and they are prospering. The study about productivity improvement of sports goods in Meerut shows that common facilitation centres and training centres should be made for the industry of sports goods Aggarwal (2012).

4.3 Technology Development with reference to growth experience.

Table number 4.5 reveals that the 80 percent of the 40 firms are adopting new technology but the firms. It has been found that the recent researches in technology upgradation have been found useful. The table shows that the firms in the growing phase are adopting new technology more often than the firms in the declining phase.

Table. 4.5 Technology Development Characteristics with respect to growth experience. (Percentage)

Firm's Experience	Growing	Declining	Total
Adoption of new technology (Percentage)	85.7	73.7	80
new technology adoption in the past three years (Percentage)	76	58	67.5
Adoption of capital-intensive technology (Percentage)	76.2	73.7	75
New strategy for launching products in the market (Percentage)	85.7	63.2	75
Existence of technological gap (Percentage)	62	63	62.5
Existence of Research & development committee (Percentage)	76	26	52.5

Among the 40 firms, 76 percent from the growing firms have adopted new technology in the last 3 years. The firms who are adopting new technology are on a growing pattern, studies relating to the adoption of technology regarding its importance in the industry is crucial as it is required for gaining opportunities (Gandhi et al, 2014).

Result shows the adoption of capital-intensive technology, depicting that majority of firms in the Sialkot sector has replaced their workers by adopting labor saving technologies. Data reveals that sports goods industry of Sialkot do adopt new strategies for the promotion of their products, which clearly indicates that 75 percent of sports goods firms of Sialkot are adopting new strategies for launching products in the marketing in the form of fun fares, social media, word of mouth, advanced billboards, sponsorships, starters pack etc..

According to the survey it has been found that the element of growth can be achieved by utilizing different strategies for launching new products in the market (Gandhi et al, 2014). Data reveals that there do exist a gap in terms of technology that is being used in Pakistan with reference to that

being operating in foreign countries regarding operations and selling techniques. The firms of Sialkot require the technology gap to be reduced to achieve growth. The study of declining market share of Pakistan in football industry is just because of old operations system and use of outdated technology (Tanveer et al, 2012). The purpose of research and development department is essential for manufacturing companies as it will explore innovative ways for the operations and will find ways for the product improvement. It is revealed that 76 percent of sports goods industries in the growing phase had the Research and Development Committee that suggested them the technology development, product design and other operational activities that require enhancement.

4.4 Business Development characteristics with reference to Growth Experience

Collaboration among the firms includes the sharing of resources and knowledge for the betterment of the product and for their own exposure and experience. Table 4.6, reveals that 62 percent of the firms in the growing phase wish to have this collaboration for the betterment of their firm so they can fight against the global competition. Reason for this collaboration is that they need to exchange knowledge

Table. 4.6 Business Development Characteristic's with respect to Firm's growth experience.

Firm's Experience	Growing	Declining	Total
collaboration with other firms for product betterment (Percentage)	62	52	57.5
Technical collaboration with other firms (Percentage)	62	26	45
Member of sports goods association (Percentage)	59.14	84.2	70
Member of trade unions (Percentage)	43	37	40

Professional relation with other companies (Percentage)	76.2	79	77.5
Measures employed by the firm against calamities			
CL1 (Theft prevention)	85.7	68.4	77.5
CL2 (Terrorism)	80.9	57.8	70
CL3 (Bio mechanical risk)	80.9	57.8	70
CL4 (Fire)	90.5	78.9	85
CL4 (Fire)	90.5	78.9	85
Political and media collaboration (Percentage)	14.3	26.3	20
Clarity in vendor dealing (Percentage)	66.67	57.8	62.5
Utilization of feedback from community and employees for service improvement (Percentage)	71.4	68.4	70
Difficulties that are restricting Firm's performance			
RES1 (taxes)	95	89	92.5
RES2 (excise duty)	95	89	92.5
RES3 (raw material)	85	89	87.5
RES4 (Technology)	71	73	72.5
RES5 (Finance)	62	73	67.5
Policy interventions urgently required enhance the productivity			
Low income tax (PL1)	71	58	65
labor law (PL2)	76	63	70
Government support (PL3)	81	52	67.5
Less import duty (PL4)	90	63	77.5
Loans at low interest rate (PL5)	71	58	65
New technology (PL6)	66.7	52	60

For the better performance of the firm one must collaborate with other in order to improve themselves. It has been found that those who are willing

to collaborate with others are actually growing (Alonso and Bressan, 2017). Technical collaboration is specified to the sharing of software's and websites for the handling and promotion of their products. 62 percent of the respondents experiencing growing phase are in the technical collaboration with other firms.

Trade associations play a crucial role in promoting best practice, helping companies become more competitive and formulating effective public policy. They have tremendous potential to act as coordinated voice of business when talking to government and great value in terms of quickly disseminating messages about government policy to their members. Productive engagement between associations and government is very important for the policy makers. Table 4.6 shows that majority of the sports goods firms in Sialkot are associated with association council (Aggarwal, 2012**).** Results show that most of the firms did not received any impact from the trade unions. But the growing firms have much more impact from the trade unions in comparison to the declining firms.

Professional relations are the relations that the firms have with each other in terms of their operations which includes the custom clearing agencies, forwarding agents and suppliers. In this context this relation is shared by some companies. Table shows that the 77.5 percent of the firms in the Sialkot have professional relations with their counterparts.

Table 4.6 shows the safety measures that the growing firms employ in their organization in terms of theft, terrorism, mechanical risk, guidelines and precautionary measures to make employees aware of the bio mechanical risks that is associated with their work and provision of firefighting equipment's and trained employees in case of any fire.

Political and media collaboration is important for sports goods industry as media is the best way for communicating and broadcasting messages. Only 14.3 percent of growing sports goods manufacturers are using the media for the promotion of their products. Political collaboration is required in such a way that it is used for the change in policies that will be beneficial for the industry and to change such policies government has to be involved.

Results show that out of 40 firms, 25 firms that constituting 62.5 percent, stated that they are clear in terms and conditions with all of their vendors, whereas only 37.5 percent firms do not have clear understanding of the terms and condition and it may change with respect to the conditions they

face. 70 percent of manufacturers from Sialkot obtain feedback both from employees and as well as from their customers for enhancing their product and operations among them. According to the firms, taxes, excise duty, raw material availability and technology are the factors restricting their performance. Results conclude that from the 40 firms, 92.5percent of the firm's view taxes and excise duty as the top difficulty that is restricting their performance (Khara and Dogra, 2009; Asif and Waqas, 2017 and PSDF, 2016**).** According to the firm's, the policy that needs to be changed for the betterment of their performance includes low income tax, less import duty on raw materials leading to reduced cost of production. Provision of loans at low interest rate, and adaptation of new technology are considered as important factors for firm's growth.

4.5 Taxes with reference to growth experience

Table 4.7 shows the status of taxes that are experienced by the firms of Sialkot. According to the survey 42.5 percent of the firms answered that status taxes are high in Sialkot. 47.5percent of the firms answered the taxes are medium in Sialkot and only 10 percent of the firms declared that the taxes are low in Sialkot (Asif and Waqas, 2017).

4.7 Taxes with reference to growth experience.

Firm's Experience	Growing		Declining	Total
Status of taxes experiencing (Percentage)				
High	43		42	42.5
Medium	52		42	47.5
Low	4.7		15.7	10
Tax Exemption received (Percentage)	42.8		36.8	40

From the analysis of tax exemption in the city of Sialkot, it was revealed from table number 4.29 that 40percent of firms of Sialkot do get tax exemption for developing and producing sports goods items for the purpose of export. The table 4.7 also shows that 60 percent of surveyed firms, do not get any exemption from tax for the production and exports of sport goods. The firms in Sialkot sector who are growing do want exemptions form tax, as it will increase their overall productivity and profit ratio.

PESTLE Analysis

PESTLE (Political, Economic, Sociological, Technological, Legal and Environmental) analysis for the firms of Sialkot shows that most of the firms have a common answer to all the aspects of PESTLE. For the political statement it has been observed that the Sialkot industry considers exchange rate, taxes and government funding requirement which have an impact on their operations and it is seen as a problem for them.

Economic analysis for this industry states that the industry of Sialkot considers labor cost, interest rate, inflation and raw material as the factors that are influencing their operations.

Social analysis was difficult for this industry as they did not forecast this factor having any impact on their operations, but some of them answered it as the requirement of skilled labor and attitude of the local community towards the preference of imported products. Technology analysis in this perspective was same for all the firms as they all require new technology and do feel the need for research and development centres. Legal factor for this analysis states that all the firms require labor laws to be made, as then they will be able to work efficiently. The last is the environmental analysis, which according to the Sialkot industry is the ISO certification, and the documentation of wastage material, these documentations are essential for their exports.

5. Conclusion

- Career Advancement guidelines are given by the firms of Sialkot in different forms and is divided among four categories, which includes 62.5 percent for providing funds, 87.5 percent for training, 82.5 percent for bonus, 82.5 percent for leaves and wages increment. The growing firms are facilitating their employees with more guidelines in comparison to the firms which are declining.
- Import duties and taxes has been observed to be increasing over the years. Which increases the overall cost of production and lowers the profitability of the firms.
- Research and Development centers should be made by the government in order to facilitate the industry in terms of innovation and coping up with the changing trends in the foreign market.
- Common testing facilities should be made in order to provide the basic and required testing and certification which is required by the foreign buyers.

- Availability of raw materials in Pakistan is scarce, which is why the manufacturers have to import those materials and bear heavy duty on those imported items leading to high cost of production.
- International market focuses on the certification of the firms and the manufactured product. Agencies should be made in order to facilitate the firms to easily access these certifications.
- Firms of Sialkot are adopting various methods to deal with different calamities that might occur. These calamities have been categorized in four dimensions; 77.5 percent for theft prevention, 70 percent for terrorism, 70 percent for bio mechanical risk, 85 percent for fire.
- Almost all of the firms in Sialkot sector are facing some difficulties that are restricting their overall performance. 92.5 percent for taxes, 92.5 percent for excise duty, 87.5 percent for raw material availability, 72.5 percent technology and 67.5 percent finance.

6. Recommendations

Some recommendations are given on the basis of obtained results.

- Skill development centres should be made in order to facilitate the work force with the changing needs of this industry.
- Skill development center should be made for proper training of work force, so that new machinery or any kind of new product can be handled by Sialkot industry.
- Common testing facilities and certification institutions should be made.
- R&D centre for better operations and betterment of the current product should be made.
- Research should be done on sports goods industry of Sialkot, which will help this industry in collecting information about themselves and also the policies that can enhance their overall productivity and profitability.
- The government should review their policies regarding the infrastructure, facilities, funding's and taxes so that the firms can have a better output and more profit.
- Managers of these firms can use this as a guideline to train their employees and educate them about the sports industry.
- PESTLE analysis should be analysed carefully as it incorporates the political, economic, social, technological and legal environment. The strengths of these firms should be made even better, their weaknesses should be discarded as it will give them an upper hand

in the foreign market, their opportunities should be realized and threats should be dealt with.

- This paper will be help for those who seek knowledge in terms of research and development formation for the product enhancement, innovation, Human resource and their current issues, raw materials and taxes.

References

Alam, M.I. (2003), "Manufactured exports, capital goods, imports, and economic growth, experience of Mexico and Brazil" International economic journal, 17(4): 85-105.

Alonso, A. D., & Bressan, A. (2017). Collaboration among micro and small firms in a traditional industry. Journal of Small Business & Entrepreneurship, 29(1), 57-75.

Aggarwal, T. G. Garg, T. K. and Wani, V. P. (2012). Productivity Improvement of Sports Goods Industrial Cluster in Meerut India. *Journal of Mechanical Engineering Research*, 4 (1): 28-35.

Amran, N. A. (2011). The effect of owner's gender and age to firm performance: A review on Malaysian public listed family businesses. Journal of Global Business and Economics, 2(1), 104-116.

Asif, M. & Ahmad, W. (2017). Export Performance of Pakistan: Role of Structural Factors

Balassa, B. (1985), "Exports, policy choices, and economic growth in developing countries after the 1973 oil shock" *Journal of Development Economics,* 18,: 23-35.

Chiliya, N., & Roberts-Lombard, M. (2012). Impact of level of education and experience on profitability of small grocery shops in South Africa. International Journal Business, Management, Economic Research, 3(1), 462-470

Das, D. K., & Kalita, G. (2009). Do Labor Intensive Industries Generate Employment?: Evidence from firm level survey in India.

Gandhi, A., Magar, C., & Roberts, R. (2014). How technology can drive the next wave of mass customization. *Business Technology Office*, 1-8.

Harvey, J., & Saint-Germain, M. (2001). Sporting goods trade, international division of labor, and the unequal hierarchy of nations. *Sociology of Sport Journal*, *18*(2), 231-246

Hameed, I., Iqbal, A., & Devi, K. (2012). Relationship between exports and economic growth of Pakistan.

Khara, N., & Dogra, B. (2009). Examination of export constraints affecting the export performance of the Indian sports goods industry. *European Journal of International Management*, *3*(3), 382-392

Nadvi, K., Lund-Thomsen, P. E. T. E. R., Xue, H., & Khara, N. (2011). Playing against China: global value chains and labour standards in the international sports goods industry. *Global Networks*, *11*(3), 334-354.

Chauhan, P. (2013). A study of factors promoting sports goods industries in India.

PSDF (2016). Sports goods manufacturing sector skills study, Pakistan.

Pakistan Bureau of Statistics (2019). Monthly Bulletin of Statistics; Government of Pakistan, Islamabad

Ram, R. (1985), "Exports and economic growth: some additional evidence" *Economic Development and Cultural Change,* 33, 415-25.

Sharma, S., & Sharma, M. (2010). Analyzing the technical and scale efficiency of small industries in India: state-wise cluster study. *Measuring Business Excellence*, *14*(2), 54-65

Tanveer, M. A., Rizvi, S., & Riaz, W. (2012). Declining market share of Pakistan in football industry. *Asian Journal of Business and Management Sciences*, *1*(11), 33-42

TDAP (2019). Trade and development authority of Pakistan, Government of Pakistan, Islamabad.

Tsou, M.-W., J.-T. Liu, J. K. Hammitt, and K.-H. Wang (2008). "Exporting and Productivity Growth: Evidence from the Taiwan Electronic Plants." Scottish Journal of Political Economy, 55, 190–208.

GCU Economic Journal, Volume LIV (1&2), 2021, pp. 25-46

The Impact of Health Expenditure on Economic Growth: A Case Study of Pakistan

*Khalid Mustafa and **Muhammad Afzal Ansari

Abstract: A financial crunch has been a continual factor throughout the history of Pakistan. Hence, Pakistan has been restricted to the expenditure of limited resources on growth. Most governments have a better cushioned to allocate for growth, especially on human capital because of less resources, side by side rising defense and surviving expenditure. The study is based on a skillful inquiry of health on economic growth in Pakistan. Time series data for the period 1971 to 2016 has been obtained while; ARDL co-integration technique has been applied. Economic growth is influenced and brought about, directly by Health indicators in the long run as well as in the short run. This shows that health has far-reaching effects on economic growth. Moreover, education spending by the government is also improving economic activities as it enhances the quality of human resources. Inflation is also positively related to economic growth of Pakistan. According to the major policy implications, a steep level of growth can be obtained by enhancing and making better the stock of human capital; particularly, if available stocks are going to exhaust. In addition, the policy indicates a tiny act of expenses on public health inconclusive economic growth.

Key words: Economic growth, Health expenditure, Defense expenditure

1 Introduction

Health and Education of the masses are two considerable resources for the formation of human capital. Human capital is based on the thing that abound knowledge, skill, experience, the characteristics of work ethic and motivation. Among these, health (physical & mental) is a vital factor that has a significant contribution to enhance the quality of an individual productivity.

*Professor, Department of Economics, University of Karachi
**Assistant Professor, Government Degree College Korangi

26 The Impact of Health Expenditure on Economic Growth: A Case Study of Pakistan

Health is argued to be an engine of economic growth and productive asset that a human possesses (Barro, 1996). Therefore, health can be a critical factor for human capital formation. Health is an asset that nature has endowed with human being. Health has a significant economic value because of its role in the individual's welfare and for economic development (WHO, 1999).

The situation is different and unique in Pakistan. The health expenditures in Pakistan remains really low and insufficient resources in order to give better health to the masses, exclusively in rural areas. 87 infants die and mortality rate below the age of 5 years is 10.1% out of 1000 infants. The development expenditures for the year 2010-11 was Rs.19 billion and the current expenditures were Rs. 23 billion, which is only 0.23% of GDP. However, the GDP (current US$) was $ 177 billion as well as total population was 173 million in the same period[1].

National Health Accounts of Pakistan showed that US$ 20 per capita (around) was spent on health in Pakistan in 2005-06, which is very low as compared to other developing countries. The statistics of WHO of 2009 states that total expenditures on health care were about 2.4 percent of total GDP, while private health spending was 83.6 percent of total health expenditures which is very low in comparison to the South Asian's other countries. Furthermore, insufficient private expenses on health are near about 98 %, comparing Pakistan with the countries having the largest share of out-of pocket payments relative to total health expenditure. The 6 percent allocation of GDP on health has recommended by the World Health Organization in order to abridge the atrophy health conditions of the country.

In Pakistan, health indicator shows improvement over time, but has a much lower rate. Per hundred thousand births, the maternal mortality rate is also high i.e. 260. The births appear under the conventional birth attendance is the major reason of maternal mortality. The low birth weight babies share was 31.6 percent, the rate of child mortality was 86

[1] World Development Indicator

per thousand. The share of under 5 years children suffering from malnutrition was 39 percent, approximately ten million children under 5 years of age suffering from malnutrition due to this 61 percent do not survive, 9 percent out of 39 percent died due to underweight. The health indicators show depressive / dreadful picture when it compares with other countries at the same level.

The less expenditure on health and at the same time poor productivity of labour in Pakistan indicates that economic development and growth is very low. Two argumentative ideas (a) health affects the economic growth which is a long-run aspect (b) whether casualties or casualty between health and per capita Gross Domestic Product is two ways or unidirectional has been examined.

The objectives of this study are to investigate the existence of a trend in health expenditure and economic growth on Pakistan's economy over the period of 1971 to 2016, time series data of Pakistan. Last but not the least it is aimed to find the evidence of health indexes of economic growth and underlying factors for this phenomenon.

The rest of the paper is organized as follows: review of literature is given in section two, section three explains the research methodology, analysis of the relation between economic growth and health expenditure given section four, and conclusions, suggestions and recommendations are given in section five.

2: Review of Literature

Although, studies are contrary to estimating the relationship of health with development nevertheless, a cyclical relation is assumed to exist between health and level of income. Important effect of mortality reduction on economic growth was explained by Sorkin (1977) during the early 20th century, while magnitude of this effect depended on level of development. Developed country has relatively less impact on its growth by improvements in health while improved health has a strong positive relation with economic development in case of low income countries. Grossman (1972) and Bloom and Canning (2000) explained that healthy

individuals are more efficient and therefore highly productive because they are better able to seek knowledge and skills. Bloom and Canning (2000) in cross country analysis, used life expectancy as a variable of health capital. Their objective, using production function framework, is to measure the effect of health on labor efficiency. This approach ensures the robust estimation of the growth determinants rather than overestimating the contribution of one component. The impact of increase in health expenditures in developing health might be justified through the impact on labor efficiency Bloom, Canning and Sevilla (2001). Mason and Miller (2000) and Ainsworth and Over (1994) concluded that life expectancy might be influenced life cycle savings and capital accumulation. Therefore, improvements in health not only increase productivity, but also capital accumulation. Life expectancy appears to be a consistent and a strong predictor of economic growth than any other variable related to health human capital (WHO, 1999) and helps poverty ridden disease prone countries to come out of the trap and can offer better quality life to the majority of its population examples are: East Asia, Ireland and other wealthy developed countries Steckle and Floud (1977) and Bloom et.al (2001).

The study of Rivera and Currais (2004) aimed at estimating the effect of health investment in labor productivity as a significant variable of human capital formation. Direction of interrelationship between health and income is also explored in this study for OECD countries using the augmented Solow model. Studies like Wheeler (1980); Rivera and Currias (1999); Behrman et.al, (1990) and Bloom et.al, (2000) concluded that health status improvements affects labor productivity significantly and positively. Fogel (1994) argued that better health status increases living standard directly and is consistent with increases in income. But Cullis and West (1979) and Easterly and Rebelo (1993) found negative effect of health investment on income per capita. While Cullis and West (1979) suggested that health expenditures should not be considered investment in developed countries. Because, the advantages of investment on health are noticeable only in the long run and simple interrelationship may prejudice the results regarding the relation of health investment and production.

Nevertheless, the function of health status with respect to production is positive.

Life expectancy is a commonly used variable to illustrate the health status of the population as argued by Grossman (1972); Mankiw et.al, (1992) and Barro, (1996). Bhargava et.al, (2001) and Evans et.al, (1994) criticizes that life expectancy does not show the labor productivity accurately and is not reflected by the innovation needs of the labor force.

The study by Rico et.al., (2005) used model based on Bloom, Canning and Sevilla (2001) and tried to improve the specification by including ordinal health index variable, rather than life expectancy, that is a cumulative index of; health services, socioeconomic conditions, life style and environment using panel data from 1970, 1980 and 1990. They concluded that aggregate health index performed better than life expectancy. The inclusion of investment in health as a macroeconomic policy is, therefore, important measure to keep countries out of poverty trap (WHO, 1999). Granger causality test is applied by Mayer (2001) on annual time series data from 18 Latin America countries to estimate the causality between health and income. It is concluded that a conditional Granger causality from health to income in exist. Instead of using common measure of health status i.e. life expectancy this study used a part of health status, which is probability of survival. Brinkley (2001) used data from USA for GNP, expectancy of life (LE), Infant mortality rates (IMR) and investment in medical research and concluded that impact of health on income is important in framing public policies for better health status. It is suggested that increasing health expenditures will definitely increase productivity income and wealth.

Bhargava et.al, (2001) tries to measure the effects of health indicators like survival rate of adult on GDP growth rates at 5 years interval in panel of countries. The relation of life expectancy to income is integrated with economic growth model of Barro and Sala-i-Martin (1995).

Eggoh, Houeninvo and Sossou (2015) searched concerning the association between human capital and economic growth in forty nine African countries for the time span between 1996 and 2010. Education and health

related variables are used as indicators of human capital in this study. Additionally, traditional cross-sectional and dynamic panel techniques are employed in order to investigate the association between variables. The results recommended that economic growth is negatively affected by education and health expenditures. Hence, the authors concluded that since corruption, bureaucracy and underinvestment exist in these countries, and conjointly the expenditures are inefficient, education and health expenditure will have a negative impact on the growth.

Bedir (2016) investigated the link between economic growth and health care expenditure in emerging markets within the region of Europe and Middle East African and Asian countries. He concluded that human accumulation is extremely crucial for growth in an exceedingly country as a result of in endogenous growth models capital accumulation is crucial, and so as to be to boost capital accumulation, healthcare expenditure is sort of authoritative

Halıcı-Tülüce, Doğan and Dumrul (2016) investigated the influence of health expenditure on economic growth. This study contains panel data analysis of low-income and high-income economies between 1995-2012 and 1997-2009.

Atılgan, Kılıç and Ertuğrul (2017) examined whether or not growth and health expenditure are co-integrated or not by using bound test approach, autoregressive-Distributed Lag Approach

Gizem ERÇELİK (2018) investigated the association between both private and public health expenditure on output level in Turkey. The results of bounding test to co-integration represent that the variables are co-integrated, there is a significant relationship between them in the long-run.

Several studies have been conducted for Pakistan to investigate role of health expenditure and economic growth. Zakir and Wunnava (1999) estimated coefficient of health. Data from 117 countries was the study

based and they hypothesized that a positive relation exists between fertility and infant mortality.

Nasir and Nazli (2000) on Mincerian equation, established a human capital model for Pakistan, it was analyzed the return to education at different education level like Primary, Middle, Matric, HSC, Graduation and Professional. It was scrutinized so an added year of education increased seven percent returns for wage worker, and positive relationship between higher education and higher earning was found. The effect of human capital on the regular earning was explored by

For the growth strategy the efficient strategies for human development are essential factors. Poverty may be diminished by using a pro-poor growth strategy and improving human development Kemal (2002). Increase in investment in industrial sector, social (health & education) sector is necessary for high living standards as well as expedite economic growth. Economic growth and human development retaliate and invigorate each other; economic growth build-up human development and human development build-up economic growth. Better health results in increase economic growth and at the same economic growth leads to develop health quality.

Nasir (2002) the data of Pakistan Integrated Household Survey made in 1995-96 was the base of the results. All human capital variables having positive dimension and statistically significant was revealed by the study. Nasir (2002) suggested immediate attention to enhance education mathematics skill, technical education and approach of market orientated to the literacy by means of formal and informal procedure.

Akram, Padda, and Khan (2008) investigated that health indicators have a long run impact on economic growth. They suggested that impact of health is only a long run phenomenon and in the short run there is no significant relationship exists be between health variables and economic growth.

Malik (2006) evaluating health condition by infant mortality rate, rate of expectation of life, rate of natural state of health and Gross National

Income for every person consider of the sign of development of an economy, and a significant relationship is found among the development in economy and status of health, if there is the application of OLS. Thus, significant impact of the indexes of health is examined by the study for the development of economy when 2SLS is used. Abbas and Peck (2007) estimated that during 1990s, 18 percent of the growth in Pakistan economy was attributed to human capital which was more than physical capital growth.

By using primary date of 494 individuals Faridi (2010) studies the effect of health & education on employment in Pakistan. By using the Logistic regression technique, statistical investigation of employment was done in the structure of conventional theory of utility maximization. Direct interrelationship with employment was exhibited by education and health, It was suggested that better education and better health techniques be provided on all levels as without investment economic growth may not be boosted.

Hassan and Kalim (2012) tested a long run relationship and triangular causality among education, health and economic growth for Pakistan by conducting time series analysis from 1972 to 2009, and therefore the variables employed in this study are per capita education expenditures and per capita health expenditures and real GDP per capita. They found no Granger causality between per capita health expenditures and real GDP per capita in the short-run. However, they found two-way causality among real GDP per capita, per capita education expenditures and per capita health expenditures in the long-run.

Conclusively, the health expenditure is a fairly significant effect on economic growth specially a diminutive role of public health expenditure in determining the per capita GDP.

3: Theoretical Model and Econometric Methodology

Loening in 2004 don't forget human capital as an impartial aspect of production that is offered in Cobb-Douglas manufacturing characteristic with constant returns to scale as:

$$Q_t = AK^{\alpha}L^{\beta} \quad (1)$$

Where Q_t is defined as output: A is the state of technology used in capital and Labor used in education and health respectively K is physical capital, L is labor. The logarithmic conversion of equation (1) above yields the structural shape of the production characteristic as:

$$LnQ_t = LnA + \alpha LnK + \beta LnL + \varepsilon_t \quad (2)$$

This examination empirically determines the nexus among growth and health. (Lutkepohl 1982) multivariate version was used to keep away from the causality inference because of lost the concern variable. Theory suggests, if growth rate (Q_t), health expenditure (A_t) is studied to be imaginary traits and if they comply with an unusual long term equilibrium courting, therefore, Q_t and A_t must be co-integrated. A test for equilibrium between non-stationary variable unified similar orders is Co-integration. In 1987, Engle and Granger, co-integrated variables required.

The Long Run Economics growth rate is measured as the parentage change in real gross domestic product (lER) over the constant period of time. Long run real GDP growth rate is assumed as a best indicator of economic performance of a country like Pakistan because in developing countries external sector is not consisting of major part of economy. To assess the impact of public health on country's economic performance and welfare a model is developed which contain the public health expenditure(HE), national defense expenditure(ME), public education expenditure (EE) and average annual price index or inflation rate (P) as explanatory variables. Gross domestic product (GDP) is used as a proxy for income and growth in prices for inflation. These variables are articulated in natural logarithms with the purpose of having their elasticities.

The traditional approach to determining long run and short run relationships among variables has been to use the standard Johansson Integration and VECM framework, but this approach suffers from serious flaws as discussed by Psarian et al. (2001).

The standard Johansson Integration and VECM framework was intensively used to determine the short run and long run relationships among variables but after the invention of autoregressive distributed lag (ARDL) approach all conventional methods are discouraged. ARDL framework is adopted which is popularized by Pesaran and Shin (1995, 1999), Pesaran, et al. (1996), and Pesaran (1997) to establish the direction of causation between variables. The ARDL method has consistent and robust results both for the long-run and short-run relationship among economic growth rate and public expenditures. This approach does not involve pretesting variables, which means that the test for the existence of relationships between variables is applicable irrespective of whether the underlying repressors are purely I (0), purely I (1), or a mixture of both. In order to obtain robust results, we utilize the ARDL approach to establish the existence of long-run and short-run relationships. ARDL is extremely useful because it allows us to describe the existence of an equilibrium/relationship in terms of long-run and short-run dynamics without losing long-run information. The ARDL approach consists of estimating the following equation.

$$\Delta Ln(LGR)_t = \alpha_t + \sum_{i=1}^{n} \partial_i \Delta Ln(LGR)_{t-1} + \sum_{i=1}^{n} \beta_i \Delta Ln(HE)_{t-1} + \sum_{i=1}^{n} \delta_i \Delta Ln(EE)_{t-1} + \sum_{i=1}^{n} \psi_i \Delta Ln(ME)_{t-1} + \sum_{i=1}^{n} \phi_i \Delta Ln(P)_{t-1} + \lambda_1 \Delta Ln(HE)_{t-1} + \lambda_2 \Delta Ln(EE)_{t-1} + \lambda_3 \Delta Ln(ME)_{t-1} + \lambda_4 \Delta Ln(P)_{t-1} + \varepsilon_t \quad (3)$$

The first part of the equation with $\partial_i, \beta_i, \delta_i, \psi_i$, and ϕ_i represents the short-run dynamics of the model whereas the parameters λ_1, λ_2, λ_3 and λ_4 represents the long-run relationship. The null hypothesis of the model is H0: $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = 0$ (there is no long-run relationship) H1: $\lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq 0$

This starts by conducting a bounds test for the null hypothesis of no co-integration. The calculated F-statistic is compared with the critical value tabulated by Pesaran (1997) and Pesaran et al. (2001). If the test statistics exceeds the upper critical value, the null hypothesis of a no long-run

relationship can be rejected regardless of whether the under lying order of integration of the variables is 0 or1. Similarly, if the test statistic falls below a lower critical value, the null hypothesis is not rejected. However, if the test statistic falls between these two bounds, the result is inconclusive. When the order of integration of the variables is known and all the variables are I (1), the decision is made based on the upper bound. Similarly, if all the variables are I (0), then the decision is made based on the lower bound.

The ARDL methods estimates (p+1) k number of regressions in order to obtain the optimal lag length for each variable, where p is the maximum number of lags to be used and k is the number of variables in the equation. In the second step, if there is evidence of a long-run relationship (integration) among the variables, the following long-run model (Equation 2) is estimated,

$$\Delta Ln(LGR)_t = \alpha_t + \sum_{i=1}^{n} \partial_i \Delta Ln(LGR)_{t-1} + \sum_{i=1}^{n} \beta_i \Delta Ln(HE)_{t-1} + \sum_{i=1}^{n} \delta_i \Delta Ln(EE)_{t-1} + \sum_{i=1}^{n} \psi_i \Delta Ln(ME)_{t-1} + \sum_{i=1}^{n} \phi_i \Delta Ln(P)_{t-1} + \varepsilon_t \quad (4)$$

If the evidence of a long-run relationship is found then estimate the error correction model (ECM), which indicates the speed of adjustment back to long-run equilibrium after a short-run disturbance. The standard ECM involves estimating the following equation.

$$\Delta Ln(LGR)_t = \gamma_t + \Omega_t \Delta Ln(ECM)_t + \sum_{i=1}^{n} \partial_i \Delta Ln(LGR)_{t-1} + \sum_{i=1}^{n} \beta_i \Delta Ln(HE)_{t-1} + \sum_{i=1}^{n} \delta_i \Delta Ln(EE)_{t-1} + \sum_{i=1}^{n} \psi_i \Delta Ln(ME)_{t-1} + \sum_{i=1}^{n} \phi_i \Delta Ln(P)_{t-1} + \varepsilon_t \quad (5)$$

To ascertain the goodness of fit of the ARDL model, diagnostic and stability tests are conducted. The diagnostic test examines the serial correlation, functional form, normality, and heteroscedasticity associated with the model.

Moreover, VDCs and IRFs for further inferences serve as tools for evaluating the dynamic interactions and strength of causal relations among variables in the system. The VDC indicates the percentages of a variable's forecast error variance attributable to its own innovations and innovations in other variables. Thus, from the VDC, it can measure the

relative importance of the Defense expenditure (ME), inflation rate, and national health expenditure fluctuations in accounting for oscillations in the real economic growth rate. Moreover, the IRF traces the directional responses of a variable to a one-standard deviation shock to another variable. This means that we can perceive the direction, magnitude, and persistence of economic growth are to variations in the explanatory variables.

The variables of economics growth rate (LGR), Public Health Expenditure (HE), Public Education Expenditure (EE), National Defense Expenditure (ME) and inflation Rate are taken from World Development Indicators. Data on National Defense Expenditure (ME) is taken from various issues of the Pakistan Economic Survey. The data are annual and spans the time period 1971 to 2016.

4 Empirical Results

Before testing the cointegration relationship, a test of order of integration for each variable using the Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) tests are conducted. Even though the ARDL framework does not require the pre-testing of variables, the unit root test could help in determining whether or not the ARDL model should be used. The results in Table-1 and 2 are the unit root test results of the Augmented Dickey-Fuller and Phillip Perron tests, respectively, showing that there is a mixture of I(1) and I(0) of underlying regressors and that, therefore, we can proceed with ARDL testing. Table 1 and 2 same.

Long run economic growth (LGR), Health Expenditure (H.E) and National Defense Expenditure (M.E) are integrated to the order of one I(1), while the inflation rate (P) and Education Expenditure [E.E] is integrated to the order of zero I(0).

Table 3 contains long run estimated output for ARDL using Schwarz Bayesian Criterion. This is found that health expenditures have positive and significant impact on economic growth. This implies that quality of labour or human capital is a catalyst for vigorous economic activities. Moreover, education is also a pivotal indicator for quality of human capital; it also has a constructive effect on economic growth. Inflation is another factor that enhances economic activities in the country. When

inflation increases due to increased demand of commodities; this results in higher production of that commodity, thus increasing economic growth. Military expenditures have negative and insignificant effect on GDP. It is also found that lag of economic growth and differenced economic growth exerts negative and significant impact on current economic growth.

Goodness of fit is 7.68 indicating that 76 percent of variations in the economic growth are described by these variables in the model. Durban Watson is 2, which indicates no evidence of autocorrelation in the model. Although, when lagged series of the independent variable is taken then it is unimportant to check for auto correlation. In other words, the existence auto correlation may be ignored. F-statistics is 59.46 indicates that model is significant.

ARDL test is applied on the model based on the Akaike Information Criterion and given in table 4. Results indicate that health expenditures increase economic growth. This implies that physically fit human resources are capable of greater economic activities in the long run.

Education expenditures are also positively associated with economic growth in the long run. Inflation, in the long run has equilibrium relationship with growth rate of Pakistan. Military expenditures negatively and insignificantly related to GDP. As military expenses are a great chunk of GDP, because of which budget for development expenditures shrinks, thus results in negative impact of defense budget economic activities are adversely affected.

Goodness of fit is 7.68 which indicate that GDP growth is 70% described by these variables in the model. Overall significance of the model is connoted by F-statistics. For a model to be significant it value must be greater than 10, in our model F statistics is 62.546, it implies that model is highly significant. DW is 1.781 which indicates that no evidence of autocorrelation in the model.

The short run model is captured by error correction representation and exhibit in Table 5. It shows that health expenditures, education expenditures and inflation are positively and significantly related with

economic growth. Defense expenditure is negatively and insignificantly associated with growth rate of Pakistan in the short run as well. R-squared is 7.68 implying that model is good fit. Variables employed in the model 70% describe GD4P in the short run. Overall model is also significant with F statistic of 7.546.

5 Conclusion

The aim of this study is to investigate the impact of health expenditures on economic growth of Pakistan. The ARDL and Cointegration are used to establish the empirical relationship between economic growth and health expenditure, defense expenditure, education expenditure, and inflation, using annual data from 1971 to 2016. The results indicate that the long run and short run estimates are in line with the objective of the research i.e. healthy human capital increases economic growth in the context of Pakistan. It is concluded that a very significant role is played by health in the determination of long term growth. Moreover, education spending of the government is also improving economic activities as it enhances the quality of human resources. Inflation is also positively related with economic growth of Pakistan. Results of The outcome of the study recommend that government and concerned authorities should pay due attention and increase health and education spending so that economic activities could be triggered.

References

Abbas, Q. and Peck, J. F. (2007), "Human Capital and Economic Growth: Pakistan, 1960-2003. Retrieved from www.cardiff.ac.uk/carbs/econ/workingpapers/ papers/ E2007_22.pdf.

Ainsworth, M. and Mead, O. (1994), "AIDS and African Development". World Bank Research Observer, 9(2): 203-40.

Akram, N., Haq, I. U. and Padda, M. K. (2008), "The Long Term Impact of Health on Economic Growth in Pakistan". Pakistan Development Review, 47(4): 487-500

Atilgan, E., Kilic, D., and Ertugrul, H.M. (2017), "The Dynamic Relationship between Health Expenditure and Economic Growth: is the Health-led Growth Hypothesis valid for Turkey"? European Journal of Health Economics, 18(5), 567-574.

Barro, R. J. (1996), "Determinants of Economic Growth: A Cross-Country Empirical Study". Working Paper Series, Working Paper No.5698, National Bureau of Economic Research, Massachusetts

Bedir, S. (2016), "Healthcare Expenditure and Economic Growth in Developing Countries". Advances in Economics and Business, 4(2), 76-86.

Behrman, J. R., Pollak, R.A. and Taubman, P. (1990), "The Wealth Model: Efficiency in Education And Distribution In The Family". Discussion Papers in Economics at the University of Washington 90-16, Department of Economics at the University of Washington.

Bhargava, A., D.T. Jamison, L., Lau, J. and Murray, C.J.L. (2001), "Modeling the Effects of Health on Economic Growth". Journal of Health Economics 20: 423-440.

Bloom, D. E., D. Canning.,& P. N. Malaney., (2000), "Population Dynamics and Economic Growth in Asia". Population and Development Review, 26, 257-290.

Bloom, David E., David C. and JaypeeSevilla(2001), "The Effect of Health on Economic Growth: Theory and Evidence". NBER Working Paper No. 8587

Brinkley, G. H. (2001), "The macroeconomic impact of improving health: investing the r. causal direction". http://www.euractiv.com/en/health/health-expenditure-economy/article-153271

Brown, R.L., Durbin, J., & Evans, J.M. (1975), "Techniques for testing the consistency of regression relations over time". Journal of Royal Statistical Society, 37(2), 149–192. Retrieved from http://www.jstor.org/stable/2984889

Cullis John G. and Peter A. West (1979), "The Economics of Health: An Introduction", Martin Robertson, Oxford, 1979.

Easterly, W., and S. Robelo. (1993), "Fiscal policy and growth: An empirical investigation". Journal of monetary economics 32(3), 417-458

Eggoh, J., Houeninvo, H., & Sossou, G.A. (2015), "Education, health and economic growth in African countries". Journal of Economic Development, 40(1), 93–111.

Faridi M. Zahir (2010), "The socio-economic and demographic determinants of women work participation in Pakistan". Journal of Social Sciences (PJSS) 30 (1), 17-29,

Fogel, Robert (1994), "The Relevance of Malthus for the Study of Mortality Today: Long-Run Influences on Health, Mortality, Labor

Force Participation, and Population Growth". NBER Historical Working Papers 0054, National Bureau of Economic Research, Inc.

Gizem ERÇELİK (2018), "The Relationship between Health Expenditure and Economic Growth in Turkey from 1980 to 2015". Journal of Politics, Economy and Management 1(1) 1-8

Grossman, Michael (1972), "On the Concept of Health Capital and the Demand for Health". Journal of Political Economy 80: 223-55.

Halıcı-Tülüce, N.S., Doğan, İ., & Dumrul, C. (2016), "Is income relevant for health expenditure and economic growth nexus"? International Journal of Health Economics and Management, 16(1), 23-49.

Hassan, M. S., & Kalim, R. (2012), "The triangular causality among education, health and economic growth: A time series analysis of Pakistan". World Applied Sciences Journal, 18(2), 196–207.

Josef Ludger Loening(2004), "Time Series Evidence on Education and Growth: The Case of Guatemala, 1951-2002". Revista de Analisis Economico, Vol. 19, No. 2, 2004 pp 3-40

Kemal, A. R. (2002), "Macroeconomic policies and poverty in Pakistan", chapter 3 in Pakistan human condition report 2002. Centre for poverty reduction and income distribution (CRPRID) Islamabad, Pakistan.

Lutkepohl (1982), "Non-causality due to omitted variable". Journal of Econometrics vol. 19, issue 2-3, pages 367-378.

Mankiw, N.G., D. Romer and D.N. Weil (1992), "A Contribution to the Empirics of Economic Growth. Quarterly Journal of Economics 107: 407-37.

Mason and T. Miller (2000), "Dynasties, Intergenerational Transfers, and Lifecycle Income," in A. Mason and G. Tapinos, eds., Sharing

the Wealth: Demographic Change and Economic Transfers between Generations Oxford University Press, 2000

Nasir, Z., M. and H. Nazli (2000), "Education and Earnings in Pakistan". Research Report No 177. Pakistan institute of Development Economics, Islamabad.

Nasir, Z.M. (2002), "Returns of human capital in Pakistan: A Gender disaggregated analysis". The Pakistan development Review, 4(1), 1-28.

Pesaran, M.H Y. Shin (1998), "Generalized Impulse Response Analysis in Linear Multivariate Models". Economics Letters, Vol.58, pp.17-29.

Pesaran, M.H. and Shin, Y. (1999), "An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis." Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium, Strom, S. (ed.) Cambridge University Press.

Pesaran, M.H. R.P. Smith (1995), "Estimating Long-Run Relationships from Dynamic Heterogeneous Panels". Journal of Econometrics, 1995, Vol.68 pp.79-113.

Pesaran, M.H. Y. Shin (1996), "Cointegration and Speed of Convergence to Equilibrium". Journal of Econometrics, 1996, Vol.71 No.2, pp.117-143.

Rico, A. A., Guerra-Turrubiates, I. A. and De Oca-Hernandez R. M. (2005), "Empirical evidence of the impact of health on economic growth". Issues in Political Economy, Vol. 14, pp. 40-57.

Rivera, B., Currais, L. (2004), "Public Health Capital and Productivity in the Spanish Regions: A Dynamic Panel Data Model". World Development, 32(5), 871-885.

Sorkin, Alan.L. (1977), "Health Economics in Developing Countries". Lexington, MA: Lexington Books.

Steckel, R. H. and Floud, R. (1997), "Health and Welfare during Industrialization (Eds.)". The University of Chicago Press, Chicago, USA

Wheeler, D. (1980), "Basic needs fulfillment and economic growth". Journal of Development Economics, 7, pp. 435–51.

World Health Organization (1999), "WHO on Health and Economic productivity". Population and Development Review 25.2: 396-401.

Zakir, M and Wunnava, P. V. (1999), "Factors Affecting Infant Mortality Rates: Evidence from Cross-sectional Data". Applied Economics Letters, 6, 271-273.

Appendix

Table 1
Unit-Root Estimation (ADF Test)

VARIABLES	LAG1	LAG2	LAG3
LGR	-4.320*	-3.3202	-4.3202
D LGR	-3.323***	-4.323*	-4.323*
H.E	-5.411*	-3.411***	-2.811**
E.E	-3.131***	-2.812	-3.131**
P	-3.343***	-1.343	-1.343
M.E	-6.232*	-2.232	-3.232***
Notes:*,**,*** represents significant at 1%, 5%,10%.			

Table 2
Unit-Root Estimation (Philips Perron Test)

VARIABLES	LAG1	LAG2	LAG3
LGR	-4.112*	-3.102**	-4.202*
D LGR	-1.923*	-1.823*	-2.323**
H.E	-3.411**	-1.411	-1.112*
E.E	-4.531**	-4.112**	-4.331**
P	-3.343***	-3.343***	-3.343***
M.E	-3.132***	-3.131***	-3.023***
Notes:*,**,*** represents significant at 1%, 5%,10%.			

Table3
Estimated Long Run Coefficients using the ARDL Approach
Selected Model: ARDL (1, 0, 1,0) based on Schwarz Bayesian Criterion
Dependent Variable LGR

VARIABLES	coefficient	T-test	Prob-Values
LGR	-6.565*	-4.343	0.001
D LGR	-2.562*	3.224	0.003
H.E	2.343*	5.232	0.004

E.E	4.312**	2.232	0.016
P	1.611**	3.123	0.019
M.E	-2.234	0.134	0.232
R^2= 8.89 F-statistics (5,23) = 59.546 [0.000]			
Adjusted-R^2= 7.68 Durbin-Watson Stat= 2.001			
Notes:*,**,*** represents significant at 1%, 5%,10%.			

Table 4
Estimated Long Run Coefficients using the ARDL Approach
Selected Model: ARDL (1, 0, 1,0) based on Akaike Information Criterion
Dependent Variable LGR

VARIABLES	Coefficient	T-test	P-Values
LGR	-8.565*	-5.343	0.001
D LGR	-3.562*	2.224	0.003
H.E	1.934**	3.232	0.044
E.E	3.312**	4.232	0.036
P	2.611**	2.923	0.017
M.E	-4.234	2.341	0.223
R'= 8.89 F-statistics (6,28) = 62.546 [0.000]			
Adjusted-R'= 7.68 Durbin-Watson Stat= 1.781			
Notes:*,**,*** represents significant at 1%, 5%,10%.			

Table 5
Error Correction Representation for the selected ARDL-Model
Selected Model: ARDL (1, 0, 1,0) based on Akaike Information Criterion
Dependent Variable LGR

VARIABLES	Coefficient	T-test	Prob-Values
LGR	-5.565	-3.343	0.001

D LGR	-4.562	2.224	0.003
H.E	3.934	3.232	0.044
E.E	4.312	4.232	0.036
P	3.611	2.923	0.017
M.E	-2.234	2.341	0.223
R'= 8.89 F-statistics (5,98) = 7.546 [0.000]			
Adjusted-R'= 7.68 Durbin-Watson Stat= 1.891			
Notes:*,**,*** represents significant at 1%, 5%,10%.			

GCU Economic Journal, Volume LIV (1&2), 2021, pp. 47-65

Health Policy and Women Development in Ondo State, Nigeria: A Critical Assessment of the Mother and Child Hospital, Akure

*Tolu Lawal and **Alonge Opeyemi. M

Abstract: Women all over the world particularly in Nigeria occupy a very significant position. This is because of their laudable role in the society. For instance, child bearing and other domestic activities that are naturally attached to them. However, these roles technically subject and expose women folk to more dangers than the men, particularly during child labour when most women face serious pains, and struggle between life and death. At this critical stage, the survival of mothers depends on the availability and quality of health facilities and services. In Nigeria, particularly in Ondo State, many women have lost their lives in the course of child bearing while some have developed one ailment or the other making them unfit to actively participate in the development process. As a result, the Ondo State Government initiated a policy which led to the establishment of mother and child hospital, primarily designed to handle pregnant women for the purpose of safe delivery and good health to further enhance women capacity for sustainable development. The paper adopted both primary and secondary methods of data collection to source its information. It was observed from the paper that mother and child Hospital impacted positively on women, although, majorly from the urban areas of the state. The findings also showed that the policy could not be sustained for various reasons ranging from funding problem, inadequate health personnel to inadequate drugs. The paper suggested that the policy of mother and child hospital be reviewed and redefined to ensure sustainability.

Keywords: Child, Development, Health, Hospital, Mother, Policy and Women

1. Introduction

As part of the globalization and development agenda going on across the world, the clamour has been for the empowerment of women. All over the

*Department of Public Administration, Rufus Giwa Polytechnic, Owo, Nigeria.
**Department of Public Administration, Rufus Giwa Polytechnic, Owo, Nigeria.

world today, the quest by most stakeholders, governments, policymakers, women leaders, women organizations, non-governmental organizations (NGOs) etc has been for gender sensitive policies such that would guarantee participation and involvement of women in development process. To this end, countries of the world have become signatories to many International agreements intended to boost the status of women and make them relevant in development process (Lawal, *et al*, 2016).

According to Anifowose (2004), women constitute half of the world's population and have contributed significantly to the well-being of the human race. In Nigeria, particularly, in Ondo State, women have played roles of mother, producer, home manager etc. Also, many women have lost their lives in the course of child bearing, while some have developed one ailment or the other making them unfit to actively participate in the development process. Little wonder the National Demographic Health Survey of 2008 put Ondo State as having the worst maternal and child care indices in the southwestern zone of Nigeria. The result of 2006 census in Nigeria put women at 48.78% of the national population, with this numerical strength, the women folk must be prevented from avoidable and preventable death and infirmity to enable them participate actively in development process.

In view of the foregoing, Ondo State Government in 2009 observed that majority of women in the state patronizes the Traditional Birth Attendant (TBA) otherwise called *Agbebi* who could hardly manage complications in the course of childbirth. And all pregnant women stand the risk of developing complications at any time, it could be during pregnancy or delivery or even after delivery. Therefore, the need for referral centre, adequately equipped with necessary facilities, medications and competently trained health workers becomes imperative. It was also observed that most prefer to patronize TBA based on poor income and high level of poverty, which was also responsible for high maternal mortality rate in the state prior to 2009.

To this end, government came up with a policy that could actually address this problem of maternal mortality and ensures quality care and qualitative life for Ondo State women. Consequently, Mother and child Hospital, Akure was established in 2010 as best alternative to the challenges of poor maternal mortality and childcare in the state.

1.1: Objective of the Study

The major objectives of this study is to assess through empirical investigation, the impact of Mother and Child Hospital, on women development in Ondo state with specific focus on Mother and Child Hospital, Akure.

1.2: Research Questions

1) Has Mother and Child Hospital, Akure impacted positively on women in Ondo State?
2) Has the performance of Mother and Child Hospital, Akure, improved the maternal health in Ondo State?
3) What are various challenges constraining the effective performance of Mother and Child Hospital, Akure?

1.3: Scope of the study

The study covered the period of 2009 to 2018 with specific focus on health policy and women development in Ondo State, Nigeria, a study of Mother and Child Hospital Akure. Albeit, some pieces of information that are not within the purview of the scope were utilized in the course of analysis.

1.4: Understanding the concepts

Mother and Child Hospital: This is a health institution that takes care of the welfare of women in pregnancy and offers free health care to their children from delivery till they are five years old (Akinmade, 2011).

Public policy is perceived as a well thought out statement and coordinated plan of action by government to address and solve identified problems facing members of the public (Olaoye, 2013).

Maternal health is described as the health of women during pregnancy, child birth, and the post partum period. It encompasses the health care dimensions of family planning, preconception, prenatal and post natal care in order to reduce maternal morbidity and mortality (World Health Organization, 2014).

Development according to Gboyega (2003) implies improvement in material well being of all citizens, not the most powerful and rich alone, but everybody in the society. It demands that poverty and inequality of access to the good things of life be removed and drastically reduced. It seeks to improve personal physical health, security and livelihood and expansion of life chances (Lawal and Ogunro, 2012).

2: Theoretical Framework

Based on the nature of this study, the attainment of objective model is employed as a framework of analysis for adequate, deeper and scientific understanding of the study. This model was specifically designed for programme and policy evaluation. The model assumes that the success of a programme or policy can be determined by measuring policy outcomes against its own goals and objectives.

According to Deshler (2006) a major proponent of the model, submitted that an evaluation of a programme or policy begins with clarifying measurable objective and gathering of data that validate the extent to which these objectives have been realized. He sees objectives as efforts or actions that are intended to attain or accomplish in nearest future. Deshler describes goal as purpose toward which an action or endeavour is directed. Outcome, according to him, is the end result or consequence that follows from an action, that is event that is produced as a result of a plan, effort, process or action.

In his submission, he came up with the basic tenets or principles of the attainment of objectives model, he insists that for the model to be credible, the following tenets must be present; that the objectives must be clearly stated; that the objectives should be measurable; there must be field collection of data that will enable the outcome and objective to be measured and validated; the appropriateness of goals and objectives must be evaluated given the circumstances and needs of the beneficial or and users of such programme (Deshler, 2006).

This model is relevant to this study in the sense that the mother and child hospital was established to achieve some objectives in Ondo State. These objectives range from safe delivery, reduction in maternal mortality rate, access to modern health facilities to general development of women folk. To this end, the study is set to measure the performance or outcome of the mother and child hospital against its goals and objectives to determine its success or otherwise.

2.1: Historical Overview of Mother and Child Hospital, Akure (MCHA)

Consequent upon the high maternal mortality rate in Ondo State prior 2009, the need for a well structured and functional 2-way referral system, from the basic and comprehensive health facilities became practically

exigent. This attendantly led to the establishment and construction of the Mother and Child Hospital, Akure (MCHA) as the apex referral centre, commissioned in February 27, 2010 to run an integrated maternal and child care facility fully promised to offer qualitative and critical interventions when required (Mimiko, 2013).

As at the time of its creation in 2010, it was only tertiary maternity facility in Nigeria offering free health services including free consultations, admissions, medication, blood transfusions and surgical operations to the teeming masses irrespective of social status, ethnicity or place of residence. It also served as the busiest maternity centre in the southern part of Nigeria and one of the busiest in the whole country (Mimiko, 2013). Within six months 11,175 under-five were been registered and treated and 8,119 antenatal patients, 3,727 deliveries including over 585 surgeries. An average of 20-25 deliveries were recorded per day making the mother and child Hospital the busiest hospital in the state and in neighbouring states (Sunrise Ondo, 2012). Within 15months of its operation, the Mother and Child Hospital in Akure attracted 10,315 pregnant women and had a safe delivery of 14, 216 babies in a qualitative medical environment where such services are rendered free of charge.

As at June, 2012, (40 months of operations) 75,305 registered patients including 41,885 under 5 and 35,420 pregnant women. 16, 467 safe deliveries including 2,993 caesarean sections and 9,582 pediatric admissions. Between 2010 and 2012 there was 589 increases in patient registrations 96% increase in number of births, 47% reduction in maternal mortality ratio and corresponding 48% decrease in health care financing per patient. Similarly, 26% increase in children admissions resulted in corresponding 26% reduction in child mortality (Mimiko, 2013).

It recorded more than 7,000 safe births in 2013 and produced an average of 20 babies per day making Ondo State the largest baby producing state in Nigeria as at 2014 (Fayeun, 2014). Table 1 and 2 below show the Health statistics of Mother and Child Hospital, Akure between 2010 and 2016.

Table 1: MCHA Maternal Health Statistics 2010-2012

Year	Total Registration	Maternal Mortality Rate
2010	7,378	742

2011	8,376	638
2012	11,665	390
Total	27,419	1,770

Source: Ondo State Ministry of Health, 2013

Table 2: MCHA Maternal Health Statistics 2013-2016

Year	Total Registration	Maternal Mortality rate
2013	7639	521
2014	6,197	428
2015	5,421	370
2016	4,860	299
Total	24,117	1,618

Source: Mother and Child Hospital, Akure, 2017.

From the tables, it can be inferred that Mother and child Hospital actually attracted patients particularly, the pregnant women from the nook and cranny of the state. It is to be noted at this juncture that the large number of patients often recorded on regularly basis at the Mother and Child Hospital, Akure, facilitated the establishment of another Mother and child Hospital, in Ondo City, Ondo State in 2012. This might actually explain the steady reduction of patients' registration at the MCHA from 2013 to 2016 as shown in table 2. Presently, Mother and Child Hospitals in Ondo State no longer offer free medical services as a result of dwindling economy.

3: Research Methodology

The study utilized both primary and secondary sources of data collection. The primary sources (Survey type) included oral interview and questionnaire while texts, documentaries and the internet served as sources for secondary data. This mixed method approach was employed based on the fact that the strength of one method often offset the weakness of another. Also, data that is available via one of the methods may not be available through any other approach, therefore, a wide data base is assured and guaranteed as it will uncover the viewpoints of different stakeholders thereby increasing and enriching the validity and accuracy of the findings.

In the course of generating relevant data, two local governments each were purposively selected from each senatorial zone. This was done to

ensure adequate and equal representation. The selected local governments were; Akure South and Idanre from Central Senatorial District, Ose and Akoko North East from Northern Senatorial District while Ese Odo and Okitipupa were selected from the southern Senetorial District. Both rural and urban local governments were considered in the selection process to ensure the participation of both rural and urban women in the study.

The sample frame for the study included women who were patients at Mother and Child Hospital, Akure, such as (pregnant Women, Nursing Mothers), Health workers (the staffers of the Mother and Child Hospital, Akure), and Government Officials (political office holders both former and present), Public Servants from relevant Ministries, Agencies and Parastatals). These groups were selected because they are all stakeholders. Some are providers of health infrastructure and services, some are implementers of health policy or programme while some are end users or beneficiaries of the health services in the state. As such, they are in a much better position to know the state and activities of the Mother and Child Hospital, Akure, since its inception and provide accurate, valid and reliable information.

Questionnaires were distributed, administered and retrieved in each selected local government area accordingly. Population of these local governments was taken to cognizance in the process of questionnaires distribution and administration, which also accounted for variation in numbers (see table 1). Indepth interview was equally conducted with the identified groups in the sample frame to complement the questionnaires earlier administered (see table 2). Simple percentage analysis was used and the analysis was also descriptive in nature.

Table 3: Outlay for Distribution, Administration and Retrieval of Questionnaire in the Sampled Areas.

Senatorial District	Selected Local Government	No Of Questionnaire Distributed And Administrated	No of Questionnaire Retrieved	Total
Ondo North	Ose Akoko North East	38 36	33 30	63
Ondo	Akure South	150	144	180

Central	Idanre	48	36	
Ondo South	Ese Odo Okitipupa	56 65	42 51	93
Total		393	336	336

Source: Field Survey, 2018.

Table 4: Outlay for Interview Selection

S/N	Local Government Area/Ministry Agency / Parastatal /Others	No of Respondent
1.	Ose LGA	4
2.	Akoko North East LGA	4
3.	Akure South	15
4.	Idanre	4
5.	Ese Odo	5
6.	Okitipupa	5
7.	Mother and Child Hospital, Akure	10
8.	Ministry of Health, Akure	2
9.	Health Management Board, Akure	2
10.	Governor's Office	3
11.	Others (Former Political Office Holder)	3
Total:		57

Source: Field Survey, 2018

4: Data Presentation and Analysis

This section shows the data collected through questionnaires and interview. The aim of this section is to show the performance and impact of Mother and Child Hospital, Akure, particularly on women development.

Table 5: Demographic Information of the Respondents

Characteristics	Akoko North East		Ose		Akure South		Idanre		Okitipupa		Ese Odo		Sample Average	
Age	F	%	F	%	F	%	F	%	F	%	F	%	F	%
18-20	4	13.3	2	6.1	15	10.5	4	11.1	7	13.8	8	19.0	40	11.9
21-29	17	56.7	21	63.7	92	63.9	18	50.0	22	43.1	14	23.4	184	54.8
30-39	6	20.0	9	27.2	25	17.3	10	27.8	12	23.5	12	28.6	74	22.0
40 and above	3	10.0	1	30.0	12	88.3	4	11.1	10	19.6	8	19.0	38	11.3
Occupation														
Public service	3	10.0	7	21.3	22	15.2	3	8.3	8	15.7	2	4.8	45	13.7
Private service	2	6.7	3	9.1	18	12.5	3	8.3	2	4.0	-	-	28	8.3
Self employed	10	33.3	10	30.3	46	32.0	10	27.8	20	39.2	18	42.9	114	34.0
Unemployed	15	50.0	13	39.3	58	40.3	20	55.6	21	41.1	22	52.3	149	44.3
Education														
Primary	15	50.0	10	30.3	28	19.4	13	36.1	21	41.1	16	38.0	103	30.7
Secondary	8	26.7	15	45.5	85	59.1	11	30.5	19	37.3	10	23.9	148	44.0
Tertiary	3	10.0	5	15.1	25	17.3	6	16.7	2	4.0	4	9.5	45	13.4
None	4	13.3	3	9.1	6	4.2	6	16.7	9	17.7	12	28.6	40	11.9
Income														
High	2	6.7	4	12.1	31	21.6	4	11.1	3	5.9	1	2.4	45	13.4
Low	24	80.0	23	69.7	74	51.3	30	83.3	41	80.0	30	71.4	222	66.1
Medium	4	13.3	6	18.2	39	27.1	2	5.6	7	13.8	11	26.2	69	20.5
Marital Status														
Married	28	93.3	33	100	130	90.3	36	100	48	94.1	38	90.5	313	93

														.2
Single	2	6.7	-	-	12	8.3	-	-	2	3.9	4	9.5	20	5.9
Divorce	-	-	-	-	2	1.4	-	-	1	2.0	-	-	3	0.9

Source: Field Survey, 2018

From Table 3, it is observed that respondents within the ages of 21-29 and 30-39 have 54.8% and 22% respectively, serving as highest and second highest percentages. This clearly shows that 76.8% of the respondents fall within an active age of child bearing. It therefore implies that reasonable number of respondents would give reliable and accurate information on the subject matter.

The Table also indicates that 44.3% respondents that participated in the study were unemployed, while 66.1% were low income earners. This clearly shows that most women, particularly those within the ages of child bearing with low income would possibly and unavoidably patronize the Mother and child hospital because of its free services. It can also be observed from the table that 30.7% had primary education and 44% had secondary education. The implication of this is that 74.7% of women that were involved in the study had formal education and could conveniently respond to questions.

The marital status of the respondents as shown in the table indicated that 93.2% were married. It therefore implies that majority of the respondents were once or presently involved in child bearing and as a result, are mothers who could authoritatively respond to questions.

Table 6: The responses frequencies and percentage of the respondents.

S/N	Questions	Frequencies			Percentage		
		Yes	No	Don't Know	Yes	No	Don't know
1.	Were you given the necessary drugs during your stay at the Mother and Child Hospital, Akure?	332	1	3	98.8	0.3	0.9
2.	Were you given free medical services?	335	-	1	99.7	-	0.3

3.	Were you given adequate attention and treatment during labour?	301	28	7	89.6	8.3	2.1
4.	Did you believe Mother and Child Hospital, Akure has prevented you from unnecessary stress and cost?	322	8	6	95.8	2.7	1.8
5.	Has mother and Child Hospital, Akure improved you maternal health?	330	2	4	98.2	0.6	1.2
6.	Do you believe that Mother and Child Hospital, Akure has impacted positively on women in Ondo State?	312	16	8	92.9	4.8	2.3
7.	Will you visit mother and child again?	55	270	11	16.4	80.4	3.2

Source: Field Survey, 2018.

From the Table, 98.8% agreed to have received necessary drugs during delivery periods. It was also shown that free medical services were offered to patients as over 99% respondents claimed to have been given free medical services.

The Table also shows that 95.8% agreed that Mother and Child actually prevented them from unnecessary stress and cost. In similar vein over 98% respondents said that their maternal health has greatly improved through the intervention of Mother and Child Hospital Akure. The Table also confirmed that adequate attention and treatment were received by the patients from the mother and child Hospital as more than 89% indicated in the Table.

From the Table, large number of respondents above 90% agreed that Mother and Child Hospital, Akure has impacted positively on women in Ondo State.

However, the table shown that only 55% of the respondents were willing to visit the Mother and Child Hospital again, while 80.4% were not willing to patronize the Mother and Child Hospital again.

Interviews were also conducted with the respondents. From the interview conducted, a question was raised on whether the Mother and Child Hospital was doing well in terms of performance. The respondents agreed that the Hospital has been performing greatly since its establishment. The respondents averred that the services of the hospital remain one of the the

best in terms of quality and quantity. According to one of the respondents "The Hospital attends promptly to patients, gives adequate drugs, works round the clock and responds to emergencies without discrimination". However, the respondents explained that since 2016, the services at the mother and child Hospital have greatly reduced both in quality and quantity with low patronage. The respondents said that women were no longer interested in visiting the Hospital for Maternal care, and now prefer to visit a nearby hospital since the mother and child Hospital no longer offer free services.

Another crucial question was asked on whether the mother and child hospital has contributed positively to women development in Ondo State. All the respondents agreed that the Hospital has contributed immensely to women development in the state. One of the respondents who was also a staffer in the mother and child Hospital claimed that many lives have been saved through the benevolent services rendered by the hospital. The services bills that would have been difficult if not impossible for most women, especially the low income earners to pay were shouldered by the Hospital. The respondents explained that women were delivering babies with less or no injuries as a result of prompt response to cases and emergencies.

A question was raised on the challenges faced by the Mother and Child Hospital. The respondents mentioned inadequate personnel as a critical problem confronting the Hospital. Because of large number of patients on regular basis, the ratio of medical personnel to patients is very low, the available staffers are not enough for the busy job of the Hospital. According to the respondents, funding is another critical area that obstructs the efficiency of Mother and Child Hospital. Funding is inadequate most facilities that require regular maintenance are not maintained due to inadequate funds. The respondents also complained of the refusal of government to pay the staffers of the Hospital their special allowances. Another problem that was mentioned by the respondents was inadequate drugs. Since the free medical services were no longer available, government had stopped free supply of drugs to the hospital, presently, the hospital buys drugs with the little money made from charges for its services and these drugs are not meeting the needs of the hospital.

5: Discussion of Findings

It was revealed from the study that the Mother and Child Hospital Akure, performed creditably well between 2010 and 2016. It was observed that maternal mortality rate in the state was drastically reduced within these periods. According to one of the respondents from Idanre town, "I thanked Mother and Child Hospital, Akure for giving me free medical treatment, if not for this free services I received from the Hospital, the whole of my business money and my savings would have gone for my treatment." The implication of this is that MCHA had saved many women from both health and economic crises.

The findings also revealed that women were attracted to MCHA because of its qualitative and free services offered. Therefore, it would not be out of place to state that many women in Ondo State would have lost their lives during child birth but for MCHA, particularly those who would have found it difficult to pay huge bills based on their poor income. The study revealed that establishment of MCHA greatly reduced patronage to traditional birth attendants who neither acquire nor possess the necessary skill to handle cases of delivery and emergencies.

Further findings show that MCHA had impacted positively on women, particularly, the pregnant women and nursing mothers through free medical services, safe deliveries, free drugs, free surgical operations etc. it was found that most women from rural areas could not access MCHA as a result of long distance. The Hospital was located in urban centre, Akure, the capital city of Ondo State, so, majority in remote areas could not enjoy the free health services of the state government. Hence, these people are part of electorate and citizens who are supposed to be affected by government policies and decisions.

It was obvious from the study that MCHA was confronted with various challenges ranging from inadequate staff, inadequate funding to inadequate drugs. Although, the findings shows that the problem of inadequate funding and inadequate drugs surfaced at the later stage of the institution, which actually made government to commercialize its activities and services.

6: Conclusion and Recommendations

As observed from this study and based on its results, it could be concluded that the policy that established the Mother and Child Hospital,

Akure was a good policy in right direction. Obviously, the policy was designed to solve the increasing rate of maternal mortality in the state, it was discovered from this study that after the establishment of the Mother and Child, Hospital, Akure, the maternal mortality rate started to decrease gradually until 2016, when the policy contents were changed by the government. This change abruptly ended the hitherto free services offered by the institution and introduced compulsory payment for all services including drugs acquisition.

Significantly, the Mother and Child Hospital, Akure performed effectively and impacted positively on women, especially within the periods of 2010 to 2016.

However, from the analysis, it was observed that the policy that established the Mother and Child Hospital, Akure, did not consider future exigencies as the policy was shortsighted and elitist in nature. This was further resulted to sustainability problem and consequently policy reversal. The great lesson from this study, particularly, to governments and policy makers is the need to put into cognizance, the various variables or factors that ensure sustainability when designing public policy and to carry citizens along in the process of public policy making.

Presently, as noted from the study, not many women were willing to visit the mother and child hospital again as observed in table 6. This was basically caused by the change in policy contents, that is, the introduction of payment (high cost) for all services by MCHA contrary to the initial policy design. To be sure, if affordable charges had been attached to services and drugs offered by the MCHA at the outset, it would have been easy for government to maintain and also convenient for people to continue to patronize the institution, thereby ensuring its sustainability. Most women do not see any significant difference again between the mother and child hospital and other health institutions in the state. As a result, some may go back to Traditional Birth Attendants for their ante-natal care and delivery purposes, which tends to jeopardize the purpose of creating Mother and Child Hospital in the state.

In view of the foregoing, the following recommendations were adduced.

The policy of the mother and child hospital needs to be revisited and redesigned to ensure affordability, accessibility and sustainability.

Government should reduce the charges (high cost) placed on its services to enable the low income earners continue to patronize the hospital. Mother and child hospitals should also be created in rural or remote areas of the state to enable rural women access the services. The present two in the state are located in urban areas of Akure and Ondo city, the same senatorial district, called Ondo Central. The people of other senatorial district, Ondo North and Ondo South should be considered in the creation of the hospitals. The policy should be redesigned to accommodate future exigencies, it must therefore be a long time and inclusive policy framework that can be sustained.

In addition, government should ensure that the required number of personnel, particularly, health personnel are employed into the services of the institution with motivating allowances and other fringe benefits. Government should try and increase the funds of the institution, since health is wealth, it is therefore important for government to adequately fund health institution, especially, this one that is specially created to safe lives of mothers, babies and children. Adequate funding will definitely make possible and available the essential drugs require for effective functioning.

References

Akinmade, K. (2011). Health Revolution in Ondo State. *Sunrise Ondo*. Akure: Ondo State Ministry of Information.

Anifowose, R. (2004). Women Political Participation in Nigeria: Problems and Prospects. In a. Akinboye (Ed.), *Paradox of Gender Equality in Nigerian Politics*. Lagos: Concept Publication.

Deshler, D. (2006). Evaluating Extension Programmes. Retieved from https://www.fao.ord/docrep/w58306w58030ed.htm. Accessed 10th August, 2014.

Fayeun, T. (2014). The Punch, July 28 2014.

Gboyega, A. (2003). Democracy and Development: the Imperative of Local Governance an Inaugural Lecture 2003, University of Ibadan.

Lawal, T & Ogunro, V. (2012). Democracy and Development in Nigeria. *International Journal of Development and Sustainability* 1(2). Pp448-445.

Lawal, T., Ogunbodede, N., & Siyaka, M., (2016). The Impact of Maternal Health Programme on Women Development in Ondo State. *Journal of Strategic and Development Studies* 1 (1), pp 273-279.

Mimiko, O. (2013). Govt. Mimiko, Ondo State Discusses Infant Maternal Health Programmes with U.S. Media. Retrieved From http://www.amipnewsonline.org. Accessed 9th September, 2014.

National Population Commission (2006). The 2006 Census. Abuja.

Olaoye, E.G. (2013). Public Policy as Dividends of Democracy: an Appraisal of the Abiye Safe Motherhood Programme in Ondo State, Nigeria. *Journal of Developing Countries Studies.* 3 (8) pp150-162.

Sunrise Ondo (2012). Away From our Shores, Maternal and Infant Mortality. Ondo State Ministry of Health Publication.

World Health Organization (2004). International Classification of Diseases ICD, 10th Revision. Geneva, W.H.O. Publication.

Appendices

Appendix A

Questionnaire

Dear respondents,

These research questions are purely for academic purpose. It is intended to elicit information on the Mother and Child Hospital, Akure. Any information volunteered shall be treated confidentially.

Please indicate your answer below.

Tick (✓) where appropriate

Section A.

a. Age: 18-20 [ ], 20-29 [ ], 30-39 [ ], 40 and above [ ]
b. Occupation: public service [ ], private services [ ], self-employed [ ], unemployed [ ]
c. Highest education attainment: Primary [ ], secondary [ ], tertiary [ ], none [ ]
d. Level of income: high [ ], medium [ ], low [ ]

Section B

1. Have you visited the Mother and Child Hospital, Akure for antenatal care? Yes [ ] No [ ] don't know [ ]
2. Were you given the necessary drugs during your stay at the Mother and Child Hospital, Akure? Yes [ ] No [ ] don't know [ ]
3. Did you enjoy free services? Yes [ ] No [ ] don't know [ ]
4. Can you describe the nature of the free services? Yes [ ] No [ ] don't know [ ]
5. Were you given adequate attention during labour? Yes [ ] No [ ] don't know [ ]
6. Do you believe Mother and Child Hospital, Akure has prevented you from unnecessary cost and stress? Yes [ ] No [ ] don't know [ ]
7. Has Mother and Child Hospital improved your maternal health? Yes [ ] No [ ] don't know [ ]
8. Did you believe that mother and Child Hospital, Akure has impacted positively on women in Ondo State? Yes [ ] No [ ] don't know [ ]
9. Will you visit Mother and Child Hospital again? Yes [ ] No [ ] don't know [ ]

Give reasons for your answer……

10. What are the problems you observed during your stay in Mother and Child Hospital, Akure?
11. How can these problems be solved?

Appendix B

Interview guide for the respondents.

1. As a worker in the Mother and Child Hospital, do you believe in the free health services rendered to the public?
2. Can this policy be sustained?
3. As an insider, are there adequate drugs in the Hospital?
4. Are there adequate trained medical personnel?
5. What is the ratio of patients to a Doctor?
6. As a professional health worker, what is the state of the health facilities and equipments in the hospital in terms of quality and quantity?
7. In your assessment, what makes mother and child hospital different from other health related institutions in the state?
8. Do you think Mother and Child Hospital is doing well in terms of performance?
9. As part of the implementation team of this initiative, do you think the hospital has contributed positively to women development in Ondo State?
10. What are the challenges facing this Hospital?
11. From your own view, how can these challenges be tackled?
12. As a patent, how would you describe the performance of Mother and Child Hospital, Akure?
13. In what ways has the Hospital contributed to Women Development in Ondo State?

Appendix C

Interview guide for government officials

1. What informed the establishment of the Mother and Child Hospital, Akure?
2. How is the Mother and Child Hospital funded?

3. As part of the major initiators of this Hospital, what are its basic fundamental objectives?
4. From your own perspective, do you think the Hospital is fulfilling its purpose?
5. Judging from the activities of the Hospital in the past years, do you think it has impacted positively on women development in Ondo State?
6. Based on your judgment, has the facilities in the Hospital be regularly maintained?
7. As part of government, do you think this free Health Services is sustainable?
8. What are the various challenges faced in running of this institution?
9. How can these challenges be surmounted?

GCU Economic Journal, Volume LIV (1&2), 2021, pp. 67-88

Whether there is an Impact of Money Supply and Exchange Rate on Agricultural Prices in Pakistan

*Muhammad Sajid Iqbal, **Muhammad Hassam Shahid, ***Hamid Haroon ur Rashid

Abstract: This study analyzed the long-run neutrality of money supply and exchange rate on the agricultural prices of Pakistan by using the Least Square Estimator (LSE) and Johansen & Jusileius from 1975 to 2016. The result shows that the neutrality of exchange rate does not hold in the long-run while the coefficient of money supply is insignificant in the long run emphasized the neutrality of money. There are some unobservable factors such as demand and supply empirically include in the model shows those prices of agricultural influenced by other factors in the short and long run. Therefore, result suggests that the monetary authorities can control the exchange rate through proper policies to overcome the overshoot problem of agricultural prices in Pakistan.

Keywords: Money Supply, Exchange Rate, Agricultural Prices, Error Correction, Pakistan

1: Introduction

Agriculture, since independence, has been one of the major productive sectors in Pakistan. Even though there have been decades of efforts to reforms and shift towards a higher value industry and service-centric production, agriculture still holds a huge impact on our economy. One cannot shy away from the significance of the agriculture sector because it contributes a sizeable 20 percent to our Gross Domestic Product (GDP) and employs 43.7 percent of the total labor force. Major chunk of that labor force, about 90 percent, hails from the low -income and fixed income households of the rural areas of Pakistan whereas 62 percent of the whole population is dependent upon this sector for their livelihood. [Government of Pakistan, 2014]

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

Standard theory dictates that prices are the lubricant that keeps the economic wheel moving. For the purpose of this study, we are focused exclusively on the agricultural sector and are primarily interested in agricultural prices and their dynamics. To put the problem in perspective we argue that since a significant portion of the population attached to this sector is middle to low income households [GoP, 2014], any change (instability) in prices whether direct or indirect can have significant impacts of their standard of living as well as the rest of the population. Therefore, it is of reasonable interest to find what are the major macroeconomic factors that impact agriculture prices and develop reasonable predictability for future periods.

There is a good amount of literature investigating into the instability of agricultural prices due to changing exchange rate and monetary policy. Pakistan also trades agricultural products internationally so it is reasonable to believe that domestic agricultural prices are affected by any changes in its exchange rate, especially for an economy operating under the floating ER system because at times it is possible for the nominal exchange rate to overshoot out of bounds and cause severe distress on prices and subsequently the domestic purchasing power of the households. The relationship between relative long-term agricultural prices and exchange rate has been empirically examined for other countries.

The overshooting model argues that monetary policy changes carry short run effects that are real on agricultural prices also that money in the short run is non-neutral because it can change relative prices. Without the intervention of government policies, the prices of agricultural commodities are flexible as they are determined in competitive circumstances. While the prices of manufacturing goods are mostly sticky as there is presence of some sort of monopoly power [Barnet, *et al*. (1983)]. Since monetary policy does carry effects for agricultural sectors in both short and long run, it becomes very important from a perspective of analysis because the income of farmers is susceptible to changes in market prices. Even if the money supply is neutral in the long run having no long-term effects on income of farmers still in the short run it has tremendous impact on the farmer's income. Any change in the prices of agricultural commodities is a concern to the public and policy makers because fluctuations in prices affects productivity of agricultural sector. Fluctuations in prices increase

uncertainty related to farmers and effects the business of agriculture. Before 2007, agricultural prices were comparatively low but after 2007, there was a pickup in prices of crops in Pakistan. Several internal and external factors are responsible for this factor. In Pakistan, the agricultural policy mainly focuses on increasing farmer's income along with providing cheap food items for urban consumers, and availability of raw materials on low prices for industrial sector. Saghian, *et al.* (2002) and Siftain, *et al*. (2016) suggested that expansionary monetary policy can boost up the agriculture prices which leads to an increase in income, uplifting the farmer's living standard and increasing their investment capacity.

To support the urban population and to decrease domestic inflation, a rather tight monetary policy can be drafted to keep agricultural prices in check. Support price is used for controlling the prices of major commodities. Thus, the agriculture pricing policy plays a pivotal role in boosting crop production and farmer's income. It is also important to understand the supply response price mechanism [Nerlove & Bachman (1960)].

Ejaz (2007) and Hye (2009) conducted the study in Pakistan about the monetary impacts of agricultural sector. In these studies, exchange rate is not incorporated. As Pakistan is a small open economy, therefore, it would be better to include exchange rate. Siftain, *et al.* (2016) incorporated the monetary variables with exchange rate to investigate the impacts of monetary policy on food prices in long and short run by using Saghaian, *et al.* (2002) model.

However, Siftain, *et al.* (2016) did not focus on the long-run neutrality of exchange rate on the movement of relative agricultural prices in Pakistan and showed the only long-run relationship. In this study, we have tried to find out the impact of monetary policy and exchange rate on the relative prices of agriculture sector in Pakistan and to find out the long-run neutrality of these on the movement of relative agricultural prices.

There is also an additional long-run relationship that would not be ignored and that is the relationship of agricultural prices or food prices with overall because the long-run relationships could be explained by unobservable

*Pakistan Institute of Development Economics, Islamabad

**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

relative movements of factors. First time Friedman (1975) notes that expansionary monetary policy affects the overall prices of the economy and demand and supply of the commodities determined the relative prices of the products. This shows that in the long run agricultural prices move differently than the overall price level even if the money supply does not change.

The factors that influence the prices of agriculture are important to study for a developing country like Pakistan. In the historical context, relative prices are mostly determined by real demand and supply factors. Nominal money factors have lesser role to play in determining relative prices as it affects only the general price level. The money supply and demand only determine the general price level and have less concern about relative prices. Schuh (1974) was the first who suggested that the exchange rate significantly affects the agricultural prices. Later, the interest is developed to find out implication of several other nominal variables e.g. money supply and discount rate with agricultural prices. Studies of different areas show that there is ambiguity about the relationship among agricultural prices and monetary variables. Lapp (1990) shows that money supply does not significantly affect food prices. However, the later studies such as [Saghain, *et al*. (2002); Asfaha & Jooste (2007), and Ejaz, *et al*. (2007)] investigated that monetary policy has significant impact and strong implications for agriculture sector. Agricultural and food prices are significantly impacted by several macroeconomic variables and money. Policies and changes in relative prices have impact on investment decision of the farmer, farm's productivity and farmer's income. Now the need is to understand which factors affects agricultural prices because it is important to sustain productivity in this sector as well as the whole economy also.

1.1: Objectives:

The current study will achieve the following objectives:

i. To ascertain whether there is any short run impact of money supply and exchange rate on agricultural prices.
ii. To find out whether in the long-run money supply and exchange rate are neutral in determination of the relative agricultural prices.
iii. To find out the relationship of overall prices with the agricultural prices.

2: Data & Methodology

In this section, we will discuss the theoretical foundation of our proposed empirical model. The chapter also includes the econometric specification of the model and data sources and variables information.

2.1 *Theoretical Framework*

Since Schuh's (1974) seminal work on the issue related to the agricultural sector and its relationship between monetary and other macroeconomic variables. This issue is important because impact of monetary directly affects the prices of agriculture and that prices influence the living standard of every person. Our main problem is to check whether agricultural and nonagricultural prices respond to monetary changes in long run or not. Further, we want to check the hypotheses of money neutrality for the short run. Observational data suggest that agricultural prices are more competitive in nature than any other sector so the prices are less sticky. Consequently, expansionary monetary policy favors the agriculture sector while contractionary monetary policy has reverse effect. Ferto I. & Bakucs L. Z. (2005). Many studies conducted in this regard showed that prices of agriculture adjust faster than the non-agriculture sector to changes in monetary policy in short-run but money neutrality does not hold in the long run [Saghaian, *et al.* (2002); Jooste A. & Asfaha T. (2007)]. We will test whether this holds for Pakistan or not.

Referring to Dornbusch's (1976) model above mentioned studies explain the linkage among exchange rate, money supply, and prices. According to the Saghaian, *et al.* (2002) model which is an extended version of Dornbusch's model with incorporation of international trade, nominal exchange rate deviation may be possible in the short run when prices are sticky. So, this overshooting may cause the short-run variation of real exchange rate even if it in the long run.

Prices of agriculture and exchange rate are assumed flexible as they have their own separate and different adjustment paths and adjust quickly to shocks in monetary policy. In contrast, prices of non-agriculture sector

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

assumed to be sticky. They assumed the economy to be a small open economy, the study asserted that with monetary shocks the prices of agricultural and services sector are far from their long-run equilibrium. Study concludes that when the monetary shocks occur the burden of adjustment of the sector where prices are sticky is also shared by the flexible prices sector. The economy which has floating exchange rate system is less prone to agricultural price hike due to monetary shocks.

2.2 Model Specification

The goal is to test for money neutrality in the long run and for that, we follow in the footsteps of [Zanias (1998); Grennes & Lapp (1986); Saghaian *et al.* (2002) and Robertson & Orden (1990)]. We set up the equations for nominal prices of food and agriculture, money stock, real exchange rate, and aggregate price level as

$$\ln P_t^A = \alpha_0 + \alpha_1 lnM_t + \alpha_2 lnR_t + \varepsilon_t \quad (2.1)$$

$$lnP_t = \beta_0 + \beta_1 lnM_t + \beta_2 lnR_t + v_t \quad (2.2)$$

Where;

$\ln P_t^A$ denotes the log of agricultural food/product prices

lnM_t denotes the log of the money supply

lnR_t denotes the real exchange rate in log form

lnP_t denotes the log of manufacturing products prices

If one percent increase in the money supply generates the same percentage increase in the general price level as well as agricultural prices this would be indicative of long-run neutrality of money. In older studies $\alpha_1 = \beta_1$ has been taken as a condition to test this hypothesis. However, if percentage increase in money supply translates into a higher average price level, also argued by Friedman (1975), then it becomes imperative that relative prices between commodities, in the long run, be determined by the changing in the existing supply-demand conditions. Through Friedman's argument it is, therefore, possible for agricultural prices do not always move in coherence with the general prices regardless how stock of money changes. Conversely, if stock of money changes, where agricultural and general prices are moving disproportionately, its impact on both will be quite different. As per our hypothesis, the impact of money supply on agricultural would be different as compared to the overall prices and in this case α_1

should be smaller than β_1. This empirical model is not proper to test the money neutrality.

Another relationship of significant importance is among prices for food and agriculture and prices in general. Now, there is unobservable relative movement of factors to explain long-run relationships, as noted by Kliesen & Poole (2000) in favor of elasticity of demand and income, however, it is not possible to include all such structural variables in the analysis. We have incorporated the relationship between prices for agriculture and food and prices, in general, using the rational expectation approach. The approach suggests that in the long run, relative movements of demand and supply over time is realized in variation of relative prices.

Assuming the given below long-run association between General and agricultural prices, which is determined by the real factors.

$$lnP_t^A = \gamma_0 + \gamma_1 lnP_t + \eta_t \quad (2.3)$$

Multiply equation (2.2) by -γ_1 and add equation (2.1) & (2.2) for following long-run relationship:

$$lnP_t^A - \gamma_1 lnP_t = \alpha_0 - \gamma_1\beta_0 + (\alpha_1 - \gamma_1\beta_1)lnM_t + (\alpha_2 - \gamma_1\beta_2)lnR_t + (\varepsilon_t - \gamma_1 v_t) \quad (2.4)$$

Or, equivalently

$$lnP_t^A = \delta_0 + \gamma_1 lnP_t + \delta_1 lnM_t + \delta_2 lnR_t + \xi_t \quad (2.5)$$

If agricultural prices reacted more than overall prices in the reaction of change in money supply, $\delta_1 > 0$ and $\alpha_1 > \gamma_1\beta_1$; $\delta_1 < 0$ and $\alpha_1 < \gamma_1\beta_1, otherwise$. If agricultural price respond more sensitively in response to real exchange rate $\delta_2 < 0$ and $\alpha_2 < \gamma_1\beta_2$; $\delta_2 > 0$ and $\alpha_2 > \gamma_1\beta_2$, otherwise. If we take money and exchange rate to be neutral i.e., δ_1 and δ_2 equal to zero then $\alpha_1 = \gamma_1\beta_1$ and $\alpha_2 = \gamma_1\beta_2$.

The model (2.5) contains three possible cases. Formally, expressed below;

Case-1: if the long-run relationships signified in equation (2.1), (2.2) and (2.5) holds and also if exchange rate and money are neutral in the long run,

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

then the estimated coefficients δ_1 and δ_2 in model (2.5) should be zero. Under given innovations, ξ_t should be a stationary process implies that the coefficient γ_1 should be a cointegration vector.

Case-2: If true long-run relationships hold in (2.1), (2.2), and (2.3), but without holding long-run neutrality either in money or in the real exchange rate, the coefficients δ_1 and $\delta_2$should be zero. However, the coefficients in model (2.5) represent a long-run co-integration vector under hypothesis of given inventions.

Case-3: If residual ξ_t is a non-stationary process means that the coefficients of model (2.5) are not a co-integration vector. Hence, either there should be no true long-run relationships existed in estimated equations (2.1), (2.2), and (2.3) or, it might be that we are not able to detect the relationship, with the variables. Since here could be features that are unobservable causing cyclical variations in long-run equilibrium path of prices for food and agriculture.

Note that the δ_2 coefficient indicates how much food and agricultural prices are sensitive to respond against movements in real exchange rates and aggregate prices relatively. Simply we can say that even when δ_2 is zero, it does not imply exclusion of any real effect of real exchange rate either on exports related to agricultural and food or on domestic agricultural or food prices. Instead, real exchange rate variability cause food and agricultural prices as well as aggregate price level in long run.

We followed a proper econometric procedure to get our estimates. We started with a very basic model OLS, which definitely gives us an insight into the econometric problems like endogeneity, autocorrelation as expected. The further procedure incorporates the tests to cater these problems. Augmented Dicky Fuller test used for the purpose of unit root analysis. Secondly, we used co-integration based on unit root analysis for long-run relationship. For checking the long-run relationship, we have used Least Square Estimator [Engle & Granger (1987)]. LSE is good for its consistency property in estimating long-run relationship. For comparison, we have used another technique known Johanson and Juselious (JJ) (1990) cointegration technique.

2.3 Data and Variables

This study used the real exchange rate, money supply, agricultural prices, and overall prices. CPI of food is used as a proxy for agricultural prices and

index of all commodities for overall prices. Money stock (M1) data is used for Money variable and real effective exchange rate data is used for exchange rate. All variables are transformed into logarithm form. Annual Time series data is used from 1977 to 2018. Data of money supply is used from data source of SBP. IFS database is used to collect exchange rate data. Index of food and overall price are collected from the data source of Pakistan Bureau of Statistics.

2.4 Estimation Method

For the purpose of our analysis, of relationships amongst the series, in the long run, we use the most successful technique i.e., the "Engle & Granger Two-Step Estimation Method" as used by [Engle & Granger (1987)]. Error Correction Model is castoff to check the short-run relationship of the variables. This method, however, is not asymptotically efficient because of non-existent dynamic short-run adjustments and is only consistent under a few regularity conditions for estimating long-run co-integrating vectors. JJ technique also allows us to test the hypothesis on the cointegrating relationship themselves, which "Engle and Granger" doesn't [Brooks (2008)]. "Engle and Granger" also cannot find the cointegrating vectors if there are more than one cointegrating vectors so JJ method is applied to find if there are more than one cointegrating vectors.

We start the discussion with the explanation on the least square method. Let Z_t be a $n \times 1$ vector of a variable that is both random and stationary at first difference (ΔZ_t denotes stationary). Under the condition, where there is a non-zero vector of real number $\boldsymbol{a}$ such that $a'Z_t$ is stationary, then it is consider to be associated with a co-integrating vector $\boldsymbol{a}$. normalizing one element with one is expedient most of the time. Assuming the first component of $\boldsymbol{a}$ is zero, then partition Z_t by $Z_t = (y_t, X_t')$ and stabilize $\boldsymbol{a}$ by $\boldsymbol{a} = (\mathbf{1}, -\boldsymbol{c})$. Now, y_t is a stationary process, X_t is a vector difference stationary process, and $\boldsymbol{c}$ is a stabilized associating vector.

The cointegration system (2.5) can be written as

$$y_t = X_t'c + \varepsilon_t \tag{2.6}$$

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

$$\Delta X_t' = v_t \tag{2.7}$$

Here $y_t = lnP_t^A, X_t' = [1,\ lnP_t, lnM_t, lnR_t], and\ c' = [\delta_0, \gamma_1, \delta_1, \delta_2]$ are in our case. The $y_t\ and\ X_t$ are stationary at first difference. While $\varepsilon_t\ and\ v_t$ are stationary and their mean is zero.

Now

$$Wt\ =\ (\varepsilon t, V\mathrm{t})' \tag{2.8}$$

Let $\Phi(i) = E(w_t w_{t-i}'), \sum = \Phi(0)$, $\Gamma = \sum_{i=0}^{\infty} \Phi(i)$, and $\Omega = \sum_{0=-\infty}^{\infty} \Phi(i)$. In detail, the $\boldsymbol{\Omega}$ is the long-run variance matrix of $\boldsymbol{w_t}$. Further $\boldsymbol{\Omega}$ is explained in matrix form as

$$\Omega = \begin{bmatrix} \Omega_{11} & \Omega_{12} \\ \Omega_{1221} & \Omega_{22} \end{bmatrix} \tag{2.9}$$

Whereas Ω_{11} is a scalar, and where Ω_{22} is $(n-1) \times (n-1)$ matrix, and partition likewise.

Defining,

$$\Omega_{11.2} = \Omega_{11} - \Omega_{12}\Omega_{22}^{-1}\Omega_{21} \tag{2.10}$$

$$and\ \Gamma_2 =\ (\Gamma_{12}', \Gamma_{22}')'.$$

The LSE is used to correct the short-run movements and error term in the model, the example of this correction technique is maximum likelihood estimation presented by [Johnson (1988)]. As we are more interested in a long run association of variables in the model rather than short-run estimates, therefore, "Johanson and Juselious (1990)" cointegration technique is also used in this study. The "Johanson and Juselious (1990)" method follows the "Maximum Likelihood" (ML) method and finds the cointegrating equation in a non-stationary time series "Vector Autoregressive (VAR)" with restrictions imposed, known as a "Vector Error Correction Model" (VECM). This is measured as one of the efficient technique for estimation. For more brief understanding, take into account following equations:

$$y_t^* = y_t + \Pi_y' w_t \tag{2.11}$$

$$X_t^* = X_t + \Pi_x' w_t \tag{2.12}$$

As w_t is stationary, y_t^* and X_t^* are cointegrated of the same order. When y_t^* is regressed on X_t^*. The matrices for the purpose are

$$\Pi_y = \Sigma^{-1}\Gamma_2 c + (0, \Omega_{12}\Omega_{22}^{-1})' \tag{2.13}$$

$$\Pi_x = \Sigma^{-1}\Gamma_2 \tag{2.14}$$

Practically, through these equations, long-run covariance parameters can be estimated, and then these Π_y and Π_x transformed in to y_t and X_t.

3: Results and Discussion

This section presents the estimation results and detailed discussion on these results. Ongoing part of study is separated into different segments. Section 4.1 provides descriptive statistics and whereas section 4.2 gives results of unit root test. The long-run analysis discussed in later sections of this chapter.

3.1 Unit Root Test

"Augmented Dicky Fuller" (ADF) and "Dicky Fuller" (DF) test have been widely used to check the existence of unit root in data set. DF captures only AR (1) process whereas the ADF test captures higher-order process also. ADF is an improved version of DF and three different forms of DF test was used to amend the ADF test. The Null hypotheses $\delta = 0$ is used in ADF against the alternative hypotheses $\delta < 0$. If critical value is greater than the alternative value, alternative hypotheses are accepted $\delta < 0$ whereas the null hypotheses is rejected $\delta = 0$ so, the series is stationery and unit root does not occur.

We also applied the ADF test to check the stationarity of the series. The results are presented below in tables.

Table 3.1: Unit Root Test at Level

Variable	1% critical	5% critical	10% critical	t-Statistic	Prob.*
ln Food Prices	-3.606	-2.934	-2.607	-0.082	0.945
ln General Prices	-3.606	-2.937	-2.607	-0.210	0.929
ln M1	-3.600	-2.935	-2.606	0.343	0.978
ln Real Effective ER	-3.601	-2.935	-2.606	-1.946	0.309

The above Table 3.1 presents the unit root results at the level. According to the probability value of all variables, we cannot discard the null hypothesis and concluded that all of the variables are not stationary at level. Therefore,

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

we are checking the unit root again after taking first difference and the results are described in below table.

Table 3.2: Unit Root Test of Variables at 1st Difference

Variable	1% critical	5% critical	10% critical	t-Statistic	Prob.*
ln Food Prices	-4.212	-3.531	-3.196	-4.281	0.0084
ln General Prices	-3.610	-2.934	-2.608	-3.669	0.0080
ln M1	-3.610	-2.934	-2.608	-5.624	0.0000
ln Real Effective ER	-3.610	-2.934	-2.608	-4.741	0.0004

Graphical representation of the series suggests that the log of food prices has time trend so we apply the ADF test accordingly. From the above table, it can be seen that the ADF test rejects the null hypotheses that Food price variable has a unit root. Probability value clearly specifies that after taking first difference, the variable is stationary.

In case of the General Prices and M1, ADF test rejects both of the null hypotheses that $\delta = 0$ which means both variables are stationary at first difference. The last Unit Root test was applied to check the presence of stationarity at the Real Effective Exchange Rate. The ADF test rejects the null hypothesis and indicates that the series is stationary. Thus, the conclusion can be drawn from the above results that all are the variables are stationary after taking first difference.

3.2 Engle-Granger Results

Two-step Engle-Granger Cointegration approach has been applied to analyze the relationship among the series suggested by [Engle & Granger (1987)]. Long Run Results are specified below in 3.3 Table.

The value of the coefficient for the 'general price' comes out to be 0.870 which is also significant which can be interpreted as one percent growth in general prices will raise the food prices by 0.870 percent which is close but still lower than a one-to-one increase. The difference, however, is significant enough to prove the disproportionate movement in general prices and food prices. The reason why this happens is explained extensively in Kliesen & Poole (2000) on why food prices have a descending movement. The proposed reasons are comparatively lower-income elasticity (Engel's Law) and inelastic Demand & Supply Functions

of food products. Engel's law points that due to increase in income, food and agricultural products consumption will increase but less proportionately than income. The lower-income elasticity and inelastic demand for consumption of food are the reasons for disproportionate increasing movement in food prices.

Table 3.3: Least Square Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.995	0.176	-5.657	0.000
Ln General Price	0.870	0.033	26.049	0.000
Ln M1	0.009	0.0136	0.674	0.504
Ln Real Effective Exchange Rate	0.103	0.038	2.694	0.010
R^2	0.993	**Adjusted R^2**	0.992	

The coefficient Ln M1 estimated value is 0.009 and it is statistically insignificant which explains the long-run money neutrality of the said variable. The money supply coefficient indicates a one percent increase in money supply causes a 0.009 percent increase in food prices although it has no impact on our model. Money supply growth rate is positive during the sample period.

Real Effective Exchange Rate coefficient is 0.103 in our results and explains that a 1 percent appreciation of the currency leads to a 0.103 percent increase in the food prices. The variable is explaining that the real effective exchange rate movements are not neutral in terms of explaining the overshooting the food prices in the long run.

Adjusted R^2 has a value 0.992, shows the goodness of fit, through this value we can explain that 99 percent variation in explanatory variables is explained by this regression.

Table 3.4: Augmented Dicky Fuller Test of Co-integration

Variable	**1% critical**	**5% critical**	**10% critical**	**t-Statistic**	**Prob.***
Residuals	-3.616	-2.941	-2.609	-3.013	0.0426

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

Augmented Dicky Fuller (ADF) test has been utilized to analyze the presence of co-integration. The given stats indicate the rejection of null hypothesis of at 5 percent level.

3.3 Error Correction Model (ECM)

We know that the benefit of using ECM method to find the presence of long-run association is that it takes care of the spurious regression. Table 3.5 offers sufficient evidence on the long-run association between the said series. The value of probability is 0.043 which specifies the denial of the null hypothesis. This condition has formed a foundation to regress ECM. The results are presented in below given table 3.5.

Table 3.5: Error Correction Model Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLGP	1.451	0.074	19.702	0.000
DM1	0.004	0.013	0.330	0.744
DRER	0.089	0.037	2.356	0.024
U (-1)	-0.365	0.084	-4.351	0.000
C	-0.030	0.007	-4.617	0.000
R^2	0.929	**Durbin-Watson stat**		1.825

According to the Durbin Watson and R-squared values, the ECM regression is not a spurious regression. The co-efficient DLGP represents the short-run equilibrium coefficients and has a positive sign, which indicates a positive association among general price level and food prices. This coefficient is also statistically significant at 1% level. Both DM1 and DLRER are also the short-run coefficients and have positive relationship with food prices but money supply variable is statistically insignificant in our model whereas the real effective exchange rate has a positive and significant role in our study. The coefficients U (-1) is the coefficient of error correction which is as well as known as long-run coefficients and it has negative sign as required. The value of U (-1) coefficient is -0.36 which explains that the shock in previous period will adjust in this period by 36%. This variable has the probability value is 0.0001 which confirms the significance and the long-run relationship.

3.4 Diagnostic Test

In order to diagnose the above regression, we further applied test for autocorrelation and normality test. Both tests results are specified below in Tables.

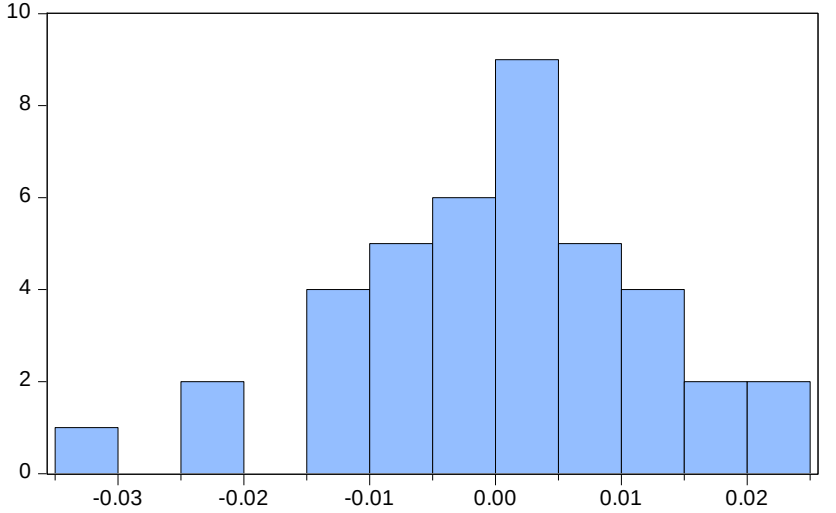
Table 3.6: LM Test for Serial Correlation

F-stat	1.064	**Probability F (2,33)**	0.357
Observation * R-squared	2.424	**Probability Chi-Square (2)**	0.298

"Breusch-Godfrey serial correlation LM test" has been applied to detect the auto-correlation. Table 3.6 shows the results which highlighted not presence of autocorrelation in our model. The Chi-Square value is 0.298 that rejects the null hypothesis and confirms the no autocorrelation in our regressed model.

Further, we applied the Histogram Normality test to check the distribution of errors. The graph and the statistics of the normality test are provided below in figure 3.1.

Figure 3.1: Normality Test



The above graph shows a normal distribution of error terms further we can also check the statistics provided in the above graph. The Jarque-Bera value is 0.466 so this study does not negate the null hypothesis. The Null Hypothesis of the above test is that the errors are normally distributed.

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

3.5 Johanson and Juselious Co-Integration

There are some testing method to implement the Johansen's Cointegration technique like the time series data must be I (1). ADF test is utilized to find the presence of unit root in data and we found that all of our series are first difference stationary. ADF results are specified above in table 3.1 and 3.2. The JJ method tells us the cointegrating equations by following the "Maximum Likelihood" method in a series which have unit root "Vector Autoregressive" (VAR) with limits levied, also recognized as a "Vector Error Correction Model" (VECM).

To obtain the optimal lag length for JJ procedure, we prefer the "Akaike Information Criteria" (AIC) over the "Schwarz Bayesian Information Criteria" (SBIC) because the AIC gives the efficient results [Brooks (2008)]. Lag length criteria results are given in table 3.7.

Table 3.7: Lag Length Criteria

Lag	Log L	LR	FPE	AIC	SC	HQ
0	38.472	NA	1.91e-06	-1.814	-1.642	-1.753
1	287.087	431.804*	9.29e-12*	-14.057*	-13.195*	-13.751*
2	299.352	18.721	1.17e-11	-13.861	-12.309	-13.309
3	316.763	22.909	1.17e-11	-13.935	-11.693	-13.138
4	329.057	13.588	1.66e-11	-13.740	-10.809	-12.697

Johansen (1991) proposed the tests to check the cointegration that are: the "Maximum Eigenvalue Test" and the "Trace Test". The trace test follows the alternative hypothesis that is no cointegration. The "Maximum Eigenvalue" test check the hypothesis that the number of cointegrating vectors are $r + 1$ or equals to r [Brooks (2008)].

After checking the unit root, we applied the JJ cointegration method to find out the association between variables in the long-run. As per the result of trace test, this study negates the null hypothesis of no cointegration equation because the value is lesser than 0.05. The next hypothesis is at most one cointegrating equation and according to the probability value, we are unable to negate the null hypothesis. Trace and maximum eigenvalue tests are giving the same results. We conclude that in VECM one cointegrated vector (long-run equilibria) will be added with one lag.

Table 3.8: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**

None *	0.692	74.038	47.856	0.000
At most 1	0.360	29.254	29.797	0.057
At most 2	0.221	12.266	15.495	0.144
At most 3	0.069	2.732	3.841	0.098

Table 3.9: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	**Eigenvalue**	**Max-Eigen Statistic**	**0.05 Critical Value**	Prob.**
None *	0.692	44.784	27.584	0.000
At most 1	0.360	16.988	21.132	0.173
At most 2	0.221	9.534	14.264	0.244
At most 3	0.069	2.732	3.841	0.098

3.6 VECM Results

After the detection of a number of cointegrating equation, we proceed for the "Vector Error Correction Model" (VECM). Table 3.10 illustrates the VECM results. From table 3.10 given below, the long-run speed of adjustment back to its equilibrium is denoted by c(1) which is also recognized as the adjustment factor. The VECM coefficient is -0.464 and it is also statistically significant which implies that the system will come back to its equilibrium by 46% in the long run.

Table 3.10: Results of VECM

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	Prob.
C(1)	-0.464	0.216	-2.149	**0.038**
C(2)	0.441	0.605	0.728	**0.471**
C(3)	1.924	0.860	2.237	**0.031**
C(4)	0.086	0.057	1.491	**0.145**
C(5)	-0.272	0.228	-1.192	**0.241**
C(6)	-0.146	0.041	-3.498	**0.001**
Adjusted R-squared	0.4793	**F-statistic**	**2.636**	
Durbin Watson stat	1.973	**Prob (F-statistic)**	**0.040**	

The results are obtained after estimating the VECM, we also applied different test for diagnostics to figure out how fit is our mode. If our

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

estimated model clears all of the diagnostics then we can conclude that the obtained results are efficient.

3.6.1 Wald Test

We conducted a test named WALD to check the combined influence of the variables and the results show that all of the variables are jointly influence our dependent variables. The hypothesis of test is that the selected variables are equal to zero but we rejected the null hypothesis because the probability value is 0.0126 which is less than 0.05.

Table 3.11: Wald Test

Test Statistic	**Value**	**df**	**Probability**
F-statistic	3.187056	(4, 34)	0.0251
Chi-square	12.74823	4	0.0126

3.6.2. Serial Correlation LM Test

Lagrange-Multiplier test which is commonly known as the LM test is utilized to capture the autocorrelation and the below tables 3.12 shows no autocorrelation.

Table 3.12: Breusch-Godfrey Serial Correlation LM Test

F-statistic	0.024	Prob. F(2,32)	0.976
Obs*R-squared	0.060	Prob. Chi-Square(2)	0.970

4. Conclusion & Policy Implication

4.1 Conclusion

Instability is a severe issue in the agriculture sector of the economy and long-term volatile prices are the most vital variable in the contribution of this instability. Agriculture economists found severe instability issue after unexpected dollar variation while Bretton wood era, the association between exchange rate, relative food, and agricultural prices has been ignored in the long-run due to stringent impact of the monetary economic review of flexible exchange rate system.

In this study, long term neutrality of the local money and the exchange rate on the long run variations with relative prices of agriculture in Pakistan is tested. A simple derivation of new empirical model to examine the long-term neutrality of supply of money and exchange rate has been conducted. We have used the Johansen and Juselious method and we used Least Square Estimator (LSE) to check our results.

We observed the association among food prices and other variables that are described above by using the annual data from 1975-2016. In this study, we estimate the short-run coefficients and find the long-run equilibrium

relation. We also find the evidence that increase in general price level cause increase in food prices. However, we find that the money neutrality holds in our study. The real effective exchange rate also grounds a rise in food prices.

On the other side of results, it is being argued by certain economists that only stable monetary policy is not enough to avoid the problem of volatility in the future as money supply plays a neutral role as it is insignificant. Since misalignment of the exchange rate is the reason up to some extent in the market of foreign exchange.

4.2 Policy Recommendations

Instability in any sector of the economy is the major problem for any country. The money supply does not the main factor to create disturbance in the prices of the agricultural sector as we see it plays a neutral role in the long run because the money supply variable found insignificant. However, the exchange rate overshoot causes changes in the prices of agricultural sector. Therefore, the monetary authorities can control the exchange rate through proper policies to overcome the overshoot problem. There are some other unobservable factors exists which cause the problem such as demand and supply problems. These problems can be overcome through crop support prices. Only the wheat support prices are given by the government to control the illegal export of the wheat. However, the support prices will provide the stability of prices of agricultural sector.

*Pakistan Institute of Development Economics, Islamabad
**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad
***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

References

Amatov, A., & Dorfman, J. H. (2017). The Effects on Commodity Prices of Extraordinary Monetary Policy. *Journal of Agricultural and Applied Economics*, *49*(1), 83-96.

Akbar, M., & Jamil, F. (2012). Monetary and fiscal policies' effect on agricultural growth: GMM estimation and simulation analysis. *Economic Modelling*, *29*(5), 1909-1920.

Ardeni, P. G., & Ardeni, P. G., & Freebairn, J. (2002). The macroeconomics of agriculture. *Handbook of agricultural economics*, *2*, 1455-1485.

Asfaha, T. A., & Jooste, A. (2007). The effect of monetary changes on relative agricultural prices. *Agrekon*, 46(4), 460-474.

Azeem, M. M., Munawwar, S., & Mushtaq, K. (2012). An empirical analysis of factors affecting food (wheat) inflation in Pakistan. *Pak. J. Agri. Sci*, *49*(2), 199-203.

Bakucs, L. Z., & Fertő, I. (2005, August). Monetary impacts and overshooting of agricultural prices in a transition economy. In *presentation at the XIth International Congress of EAAE, Copenhagen, Denmark*.

Ball, L., & Mankiw, N. G. (1995). Relative-price changes as aggregate supply shocks. *The Quarterly Journal of Economics*, *110*(1), 161-193.

Barnett, R. C., Bessler, D. A., & Thompson, R. L. (1983). The money supply and nominal agricultural prices. *American Journal of Agricultural Economics*, *65*(2), 303-307.

Bowles, T. J., & Biswas, B. (1992). Government Intervention and the Impact of Monetary Factors on Agricultural Commodity Prices and Stocks. *Economics Research Institute Study Paper*, *92*(11), 1.

Burakov, D. (2016). Elasticity of Agricultural Prices in Russia: An Empirical Study of Energy and Monetary Channels. *International Journal of Energy Economics and Policy*, *6*(3), 551-562.

Chambers, R. G. (1984). Agricultural and financial market interdependence in the short run. *American Journal of Agricultural Economics*, *66*(1), 12-24.

Chambers, R. G., & Just, R. E. (1981). Effects of exchange rate changes on US agriculture: a dynamic analysis. *American Journal of Agricultural Economics*, *63*(1), 32-46.

Choe, Y. C., & Koo, W. W. (1993). Monetary impacts on prices in the short and long run: further results for the United States. *Journal of Agricultural and Resource Economics*, 211-224.

Cho, G. D., Kim, M., & Koo, W. W. (2004). The relative impact of national monetary policies and international exchange rate on long-term variations in relative agricultural prices. Center for Agricultural Policy and Trade Studies, Department of Agribusiness and Applied Economics, North Dakota State University.

Dornbusch, R. (1976). Expectations and exchange rate dynamics. *Journal of political Economy*, *84*(6), 1161-1176.

Economic Survey of Pakistan 2014-15.

Fulginiti, L. E., & Perrin, R. K. (1993). Prices and productivity in agriculture. *The review of economics and statistics*, 471-482.

Hand Book of Statistics 1990-2015.

Hossain, A. A. (2008). Responses of Agricultural Prices, Industrial Prices and the Agricultural Terms of Trade to Money Supply Shocks in Bangladesh, 1973M1 -2006M6. *Indian Economic Review*, 287-316.

Hye, Q. M. A., & Ali, A. (2009). Money Supply, Food Prices and Manufactured Product Prices: A Causality Analysis for Pakistan Economy (No. AIUB-BUS-ECON-2009-03). American International University-Bangladesh (AIUB), *Office of Research and Publications (ORP)*.

Ibrahim, M. H. (2005). Sectoral effects of monetary policy: evidence from Malaysia. *Asian Economic Journal*, *19*(1), 83-102..

Kaabia, M. B., & Gil, J. M. (2000). Short-and long-run effects of macroeconomic variables on the Spanish agricultural sector. *European Review of Agricultural Economics*, *27*(4), 449-471.

*Pakistan Institute of Development Economics, Islamabad

**Corresponding Author, Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

***Ph.D. Economics scholar, Pakistan Institute of Development Economics, Islamabad

Kargbo, J. M. (2000). Impacts of monetary and macroeconomic factors on food prices in eastern and southern Africa. *Applied Economics*, *32*(11), 1373-1389..

Kargbo, J. M. (2005). Impacts of monetary and macroeconomic factors on food prices in West Africa. *Agrekon*, *44*(2), 205-224.

Muroyiwa, B., Sitima, I., Sibanda, K., & Mushunje, A. (2014). Monetary policy actions and Agricultural sector outcomes: Empirical Evidence from South Africa. *Mediterranean Journal of Social Sciences*, *5*(1), 613.

Mushtaq, K., & Dawson, P. J. (2003). Yield Response In Pakistan Agriculture: A Cointegration Approach Iaae, Reshaping Agriculture's Contribution to Society, International Convention Centre, Durban, South Africa, 16-23 August 2003.

Mushtaq, K., Ghafoor, A., & Ahmad, F. (2011). Impact of Monetary and Macroeconomic Factorson Wheat Prices in Pakistan.

Robertson, J. C., & Orden, D. (1990). Monetary impacts on prices in the short and long run: some evidence from New Zealand. *American Journal of Agricultural Economics*, *72*(1), 160-171.

Orden, D., & Fackler, P. L. (1989). Identifying monetary impacts on agricultural prices in VAR models. *American Journal of Agricultural Economics*, *71*(2), 495-502.

Saghaian, S. H., Reed, M. R., & Marchant, M. A. (2002). Monetary impacts and overshooting of agricultural prices in an open economy. *American Journal of Agricultural Economics*, *84*(1), 90-103.

Salman, H., Aftab, F., & Lodhi, R. N. (2014). Macroeconomic Variables and Rising Food Prices: Empirical Evidence from Pakistan.

Siftain, H., Nadeem, N., Javed, M. I., Ayub, M., & Ali, A. (2016). Impact of Monetary Policy on Food Prices: A Case Study of Pakistan. *Pakistan Journal of Social Sciences (PJSS)*, *36*(2), 835-842.

Taylor, J. S., & Spriggs, J. (1989). Effects of the monetary macro-economy on Canadian agricultural prices. *Canadian Journal of Economics*, 278-289.

GCU Economic Journal, Volume LIV (1&2), 2021, pp. 89-103

An Analysis of Road Infrastructure on Physical and Human Development of Metropolitan Cities of Punjab

*Ali Hassan

Abstract: Social infrastructure is the backbone of any country's economy. The Pakistan's major metropolitan cities which lie in Punjab province Faisalabad, Lahore, Gujranwala, Sialkot, Rawalpindi and Multan have major industries. For enhancing interaction of goods and services between these cities, metalled roads and highways are required. Roads will also link big cities with rural areas and this will help smooth flow of social and economic infrastructure to every part of the country will come into being. Communication gap will decrease and reduction in transportation cost will promote industrial development. As low type roads and farm to market roads can increase growth so government should look upon their maintenance. National highways and motorways reduce the time of travel so they should also be considered as a priority. These kinds of activities generate employment opportunities, so it should be regulated. This study attempts to explain the impact of road infrastructure on regional connectivity and poverty reduction of Punjab province in Pakistan by using time series data of variables national highways, farm to market roads, motorways, sugar cess roads, provincial roads and low type roads of Punjab province between 1990 and 2015. Literacy rate is used as an indicator of human development index (HDI) and Maternal mortality rate as an indicator of physical quality of life index (PQLI) of Punjab province. The findings of the study showed that road infrastructure is affecting positively to both physical and human development indicators in the province Punjab. Econometrics analysis also showed that the variables like farm to market roads, sugar cess roads and low type roads have both short run and long run impact upon increasing literacy rate whereas provincial roads have their impact only in short run impact on the economic development and prosperity of the province. In case of maternal mortality rate Model, the variables i.e. all the independent variables showing negative impact of on dependent variable but farm

*Graduate of Department of Economics, Govt. College University, Lahore

to market roads and provincial roads in short run and sugar cess roads and low type roads it in long run.
Keywords: Infrastructure, Roads, Poverty, Human Development.

1: Introduction

We live in a world characterized by incredible economic inequality and extreme poverty and this poverty is the grave concern for the whole world. From the last two decades the economic conditions of the world are diverting from decreasing trend to increasing trend so poverty is decreasing. Poverty is the lack of certain capabilities which ill-treated, hungry, depressed and inferior people can manage and bear with patience and these are 1. Economic capabilities (income and assets), 2.Human capabilities (health care, nutrition, education, clean water and hygienic living conditions), 3.Political capabilities (human rights participation in policy making and decision making), 4.Socio-cultural capabilities (participation as the valued member of the community with social status and dignity), 5.Protective capabilities (food insecurity, crime, war and conflict). Lack of all above mentioned capabilities are the multidimensions of poverty. According to the UN Development reports more than 1.6 billion people are living in multidimensional poverty and out of them 52% live in South Asia. Up to 2030 the world will have to spend at least $57 trillion to build roads, rails, power plants, ports and telecommunication infrastructure which the world economy need. This all building is required to sustain high growth and poverty reduction.

If we talk about Infrastructure than we will come to know that it is the basic physical system required by a nation. It constitutes road networks, communication, sewage, water and electric, educational and health systems. These systems need high-cost of investments; however, they are vital for a country's economic development and prosperity. Projects related to infrastructure improvements are funded publicly, privately or through public private partnership.

Investments on infrastructure are deployed in the belief that they will inevitably lead to poverty reduction and income generation. Among infrastructure, roads are considered of first interest to reduce poverty due to the widely accepted consensus that transport infrastructure has a significant, positive and substantial impact on economic growth and poverty as it enhances the connectivity of isolated and remote areas. Gachassin (2009) found in his studies that road infrastructure has a direct impact upon the labor activity and it reduces poverty by giving jobs to the poor. The study also emphasizes upon the positive impact on the probability to get involved in farming activities and lack of developed and dense roads cannot kill poverty. To have an excess to other institutions of the country and to markets which is necessary for growth and development they will have to focus on road infrastructure otherwise that country will only restricted to the agriculture and no industrial activity will be done. However, the poor's share in infrastructure is often not large enough to significantly reduce poverty and the benefits from road extension could be greater for landholdings or the rich than poor. The relevant question to ask is whether the benefits of a hypothetical road project are sufficiently large and distributed progressively enough to reduce overall poverty, with benefits accruing more to the poor than the non-poor. Though, rural roads are usually regarded as more important in creating job opportunities, facilitating empowerment, and enhancing security. Thus, an efficient road network could reduce the time and cost of movement of goods within a country and equally facilitates connection among the different parts of the country which enhances interaction.

Pakistan lies in South Asia and its ever first multidimensional poverty report was launched on June 2016. According to this report almost 39% of Pakistan lives in multidimensional poverty, with the highest rate of poverty in FATA and Baluchistan. This report showed a strong decline in poverty rates from 55% to 39% from 2004 to 2015. Poverty in urban areas is 9.3% as compared to 54.6% in rural areas. In Punjab, poverty rate is 31%. Lack of

education, lack of health facilities and poor income in rural areas are somehow controlled and decreased.

With the collaboration of ADB Pakistan signed a project on October 2002 for Punjab province and this project consists of construction of roads included 302 km of rehabilitated provincial highways and 1100 km of rehabilitated and improved Rural Access Roads (RARs). This project was done mostly in lower and middle Punjab, where the poverty ratio was about 38%. According to poverty impact assessment undertaken in connection with the project, the project was to directly benefit about 2.6 million road users of which an estimated 1 million were poor. ADB provided a loan $150 million from its capital resources and from which $82.8 million was disbursed. In those days the Punjab province did not have proper connectivity and many sections of the provincial road networks were in poor condition. The provincial government of Punjab took measures to minimize institutional constraints and give attention to some key road sector policy issues, especially road maintenance and private sector involvement. The project targeted to facilitate trade by improving important provincial highways, providing employment opportunities, improvement in rural roads for better access to markets and reduce rural poverty, create funding mechanism for road maintenance, increase private sector involvement in road maintenance, improve asset management by increasing budgeting and planning capacity and support of organizational reforms and strengthening of institutions of Punjab communication and works department (CWD).

During this project Pakistan was in macroeconomic instability and improvement to physical infrastructure were expected to help reduction in Pakistan high trade cost. Up to 2008 50% progress had been done and by mid-2011 CWD had managed to complete 92% of the original provincial road component and about 29% of RAR component.

This report found that expected improvement in sustainable economic development and poverty reduction would be done

because these projects would increase gross regional product by 2015.

Seven provincial highways were constructed which were following.

1.	Pindi Bhatia - Chiniot	36 km
2.	Jhang - Shorkot	37 km
3.	Kabirwala – Shorkot	7 km
4.	Kabirwala - Mahni sial	14 km
5.	Kamal pur-Chiniot-Sargodha	73 km
6.	Sargodha - Khushab	44 km
7.	Jhang-Toba tek singh – Chichawatni	91 km

These were the 29% of the total project. It is also shocking that this project takes place in Punjab which has country's provincial road network accounted for about 54% of Pakistan's total share. Similarly, Pakistan signed CPEC with china in 2013. To fulfill this project china firstly gave 46$ billion. 11$ billion were invested on the construction of highways and motorways in whole of Pakistan which connect Pakistan internally and with china. Now the investment in the form of loan from china has reached $62 billion. We will have to return this loan in 20 years but if we fail to do so than we will have to pay interest on it.

1.1: Research Questions and Problem Statement

It is said that poverty reduction is directly related to the provision of social infrastructure so how this research will test this issue. Punjab government focuses upon providing metro buses and road networks more than educational and health infrastructure, so is this satisfactory to invest in these projects more than others. Are road infrastructures exerts direct impact on economic development by increasing literacy rate and decreasing maternal mortality rate of the people? If yes than how? It is to find the link between road infrastructure and poverty reduction. Is there any link between roads and decreasing poverty trend? Different projects initiated by Punjab government are not feasible for the people at that particular time because there is a need of necessity not luxury. Education and health are the necessities of the people so government should invest more in these institutions. Here jobs opportunities and

positive linkages are also necessities. Will these kinds of projects create positive linkages and provide atmosphere for education, health and other businesses? In Pakistan these kinds of researches and menus are essential to expose the main aim of investments which are mostly deployed by politicians to get political fame not to achieve the public rights. Planning and development department of the Punjab must conduct these researches for proper channelizing funds issued by government.

1.2: Objectives of the study

The main objectives of this research are:

- To check out the role played by road networks on poverty reduction and economic growth of Punjab.
- To find that how much these metalled roads facilitate microeconomic indicators of growth including business efficiency, domestic and international trade and global mobile activity.

1.3: Hypothesis

H_1: Road infrastructure contributes to economic development.

H_2: There is a nexus between road infrastructure, regional connectivity and poverty reduction.

2: Literature review

Oliva (2017) explained that road networks are the main pillars of regional connectivity and provide the link between national markets, sustain economic growth, promote trade and fulfill the basic needs of the people. It focuses on the good transportation which requires good governance, competency and availability of funds. According to the policy and research perspectives the transport infrastructure is a big push to drive economic growth, structure transformation and urbanization. It creates positive externalities and leads to reduction in transport cost. These impacts lead to an increase welfare and income which lowers poverty. It also creates negative externalities which are

deforestation and biodiversity loss. Increased traffic on new roads leads to air pollution and detrimental health impacts.

Emerson at al. (2017) estimated and proved the direct link of investment in infrastructure with poverty reduction in Brazil. It is proved that investment and transport sector has a positive effect on the Brazilian economic performance by contributing in income inequality reduction. There is a long term relation between infrastructure and economic growth.

Noyolitzin (2015) showed that on average every additional kilometer of highway ($km/100km^2$) poverty reduces in 0.4% points. This study on transportation infrastructure shows that those countries which has greater rate of urbanization, highways are important for rural development and poverty reduction. It also shows that highways have more impact during periods of economic contraction. Some models shows that when there is an economic contraction then highway becomes more important in reducing poverty.

Le-Jie (2013) found from the economy of China that the transportation infrastructure has a positive impact upon poverty reduction. It increases the income of poor and alleviates poverty. In this article net PCI of poor villages is a dependent variable whereas road infrastructure is an independent variable.

Rudra and Tapan (2012) examined the impact of transportation infrastructure on Indian economy by using Vector Error Correction Model (VECM). By using the period 1970-2010 they found bidirectional causality between road transportation and economic growth and same between GPCF (gross domestic capital formation) and economic growth and concluded that sustainable transport policies can sustain Indian economic growth.

Mehmet and Hakan (2012) investigated the relationship between transportation and per capita income of EU-15 countries. By using panel data of the period 1970-2008, they found that per capita income causes change in transportation and transportation cause change in per capita income of low per capita income countries of Europe. The low income countries were Portugal, Greece and Italy. They proved that both are directly related to each other.

Seetanah et al., (2009) concludeded that transport infrastructure and communication infrastructure are the best and worth taking tools to fight urban poverty. Education, road infrastructure and health services have a 5% impact upon poverty reduction.

Chinese (2008) conducted a study based on panel data and time series data of 1994-2002 and 1978-2002 of china. They examined that transport infrastructure increased growth level and alleviate poverty in East and Central china. By using granger test they found that investment on transport especially provision of roads in poor areas has a positive impact upon growth and poverty reduction, it should be the priority of government.

Pravakar and Ranjan (2008) examined output capability of infrastructure by using Pedroni's panel cointegration method for four south Asian countries which are India, Pakistan, Bangladesh and Sri Lanka for the period 1980-2005. The results of this study shows that fixed capital formation, export, labor force and expenditure on human capital has a positive impact on output of the countries. This proves that infrastructure contributes positively to increase output and vice versa. Results show that there is a bidirectional causality between infrastructure and output but a unidirectional causality found from infrastructure to per capita income. It means that infrastructure is considered a main component of increasing per capita income.

Fan and Chan-Kang (2005) showed the positive link between road infrastructure, economic growth and poverty reduction. The results showed that low quality roads which are mostly in villages contribute much greater than high quality roads in economic growth. Low quality roads generate agricultural GDP and reduce poverty by providing access to the market. So, government should invest more on low quality roads than on high quality roads. There raise poor above poverty line per Yuan invested than on high quality roads.

Research Methodology

3.1 Data and methodology

The data on the following variables have been collected to find the desired relationship: literacy rate, maternal mortality rate, roads length in which there are farm to market roads, national highways, motorway, sugar cess roads, provincial roads and low type roads from 1990-2016 of Punjab. The data of roads and maternal mortality rate is collected from Punjab bureau of statistics whereas data of literacy rate is collected from economic survey of Pakistan. By using Vector Error Correction Methodology (VECM), which is a causality analysis, to check the causal relationship between variables and also their long run and short run impact upon dependent variables. Firstly, unit root test using dickey-fuller, augmented dickey-fuller and Philips Peron tests are applied to justify the stationarity status. After checking stationarity status it is able to test the models. If all the variables are stationary at level then OLS is used for estimation. If all the variables are stationary of order "1" than it will be applied cointegration tests. If study find cointegration among variables than it will be applied VECM methodology. If there will be no cointegration than it will be applied VAR methodology. Study found cointegration among variables so it is applied VECM technique.

3.2 Statistical Analysis

This section explains the model used in the study for finding the impact of roads upon economic development using literacy rate an as indicator of development.

Model 1

$$Lr = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

$$X_1 = farm\ to\ market\ roads$$

$$X_2 = provincial\ roads$$

$$X_3 = \text{Sugar cess roads}$$

$$X_4 = \text{Low type roads}$$

$$e = error\ term$$

Here in this equation Lr (literacy rate) is the dependent variable and it is going to analyze the impacts of different types of length of roads on literacy rate of Punjab. These roads are high type roads including farm to market roads, provincial roads, motorways, national highways, sugar cess roads and low type roads. Here α is

the constant and $\beta_{1,}\beta_2, \beta_3\ and\ \beta_4$ are the slop effects of independent variables.

Similarly, there is another equation through which will test the impact of roads on per capita income of the people. This model will tell about the better living standard of the people because if the effect will be positive than it means infrastructure decreases maternal mortality rate (Mm) and directly increases the living standard.

Model 2

$$Mm = \partial + \mathrm{C}_1 X_1 + \mathrm{C}_2 X_2 + \mathrm{C}_3 X_3 + \mathrm{C}_4 X_4 + e$$

In this equation the dependent variable is Mm and independent variables are the same as above the length of different types of roads. Here ∂ is the constant and $\mathrm{C}_1, \mathrm{C}_{2,} \mathrm{C}_3\ and\ \mathrm{C}_4$are the slope effects of the independent variables. By applying VECM causality analysis and then Wald tests, the long run as well as short run impact over dependent variables has been found.

3.3 Description of variables

In this statistical analysis there are many variables. Literacy rate is an indicator of HDI (human development index) and Maternal mortality rate is an indicator of PQLI (physical quality of life index) of Punjab province. Both these indexes are used to determine the economic development and reduction in poverty. That's why literacy rate and maternal mortality rate are used to determine development and poverty reduction. There are independent variables used in model equations and are following: Farm to market roads, motorways, national highways, provincial roads, sugar cess roads and low type roads. Thus farm to market roads are the roads which link rural areas to markets and mandis of the districts. Motorways are the luxury roads which links major cities of the province. Currently, motorway is only connected Islamabad to Lahore and to Faisalabad. The projects initiated under CPEC also has the construction of motorways throughout the region. National highways are the highways through which

transport of certain goods takes place in whole Pakistan e.g. GT road. Sugar cess roads are the roads built for sugar can transportation to the mills. Provincial roads are all the public roads which are maintain for public flow. All these above mentioned are the high type roads. Low type roads are the roads of low category. These types of roads are mostly present in rural areas. This study has not used the data of motorways and national highways because of singular matrix.

4. Estimation of Model 1

All the variables are non-stationary at level but stationary at 1st difference. So Johansson co-integration test will be applied because the variables are stationary at 1st difference.

Results shows that there are 2 co-integrated equations which proves that variables are co-integrated with each other. So VECM methodology will be applied because there is co-integration among variables. If there will be no cointegration among variables than according to rules VAR model is apply. The R-square value is 66.03% which is showing the accuracy of the model.

4.1.1 Coefficient diagnostics test results

Table 01: Wald test results where literacy rate is dependent variable

Independent variables (length in km)	**p-chi-square value**
Farm to market roads	19.94%
Provincial roads	0.23%
Sugar cess roads	83.12%
Low type roads	88.92%

If the p-chi square value of the Wald test is more than 5% than it has a long run relationship otherwise it has a short run relationship with the dependent variable. According to coefficient diagnostics test (Wald test), results shows that farm to market roads, sugar cess roads and low type roads have long run positive relationship with literacy rate whereas provincial roads have short run positive

relationship with it. Wald tests proved their long run as well as short run impact upon dependent variable.

4.1.2. Residual diagnostics test results

After all of this, to check out the correctness of model hetroskedasticity test having p chi-square value is 49.30%, serial correlation test having p chi-square value is 48.07% and jarque bara test having p-value is 0% and jarque bara value is 50.28% are applied to check the specification. They shows that the model is correct because their values are more than 5%. It is obvious that the roads share is low but exist and also has an indirect impact. Literacy rate has an increasing trend and the roads investment is also increasing day by day. This whole scenario is explained in blew mentioned figure. It is explaining that transportation investment has an indirect impact upon economic growth and development. It creates positive externalities and have socio economic impact over wellbeing. This will initiate better living standard.

4.2. Estimation of Model 2

This is another equation in which maternal mortality rate is dependent variable and farm to market roads, provincial roads, sugar cess roads and low type roads are independent variables.

After applying Johansson cointegration test, because the data is stationary at 1st difference, there are 2 cointegrating equations. Because of rules there is required to apply VECM methodology. Wald tests will prove the long run and short run impact of independent variables.This model is 94.98 % correct according to R-square value.

4.2.1. Coefficient diagnostics test results

Table-02: Wald test results where maternal mortality rate is dependent variable

Independent variables (length in Km)	**p-chi-square value**
Farm to market roads	2.85%
Provincial roads	0.07%

Sugar cess roads	5.67%
Low type roads	78.12%

According to Wald test results the variables which has p-value more than 5% has long run relationship with the dependent variable. So, farm to market roads and provincial roads have short run relationship with decreasing maternal mortality rate whereas. Sugar cess roads and low type roads have long run relationship with it.

4.2.2. Residual diagnostics test results

After applying heteroskedasticity test the p chi-square value is 99.60%. Serial correlation test p chi-square value is 0.23%. jarque bera test p-value is 65.73% and jarque bera value is 83.91%. All these tests proved the appropriateness of the model. All these values are more than 5% which prove that there is no serial correlation, no heteroskedasticity and there is normality in the model. All the above mentioned values are saying that the model is perfect. So results show that maternal mortality rate is also depending upon the road infrastructure. With the construction of different types of roads maternal mortality rate is decreasing and the decrease in it increases the living standard of the people.

5: Conclusion and Recommendations

Transportation have a positive impact upon microeconomic drivers of productivity. It increases business efficiency, business investment, labor market competition, domestic and international trade and globally mobile activity. These microeconomic drivers and externalities decreases poverty ratio by increasing job opportunities for unemployed and increasing literacy rate increases the living standard of the people. The results of the estimated model proved the alternative hypotheses:

1. Road infrastructure contributes to economic development by increasing literacy rate and decreasing maternal mortality rate.
2. There is a nexus between road infrastructure, regional development and poverty reduction

Econometrics analysis shows that farm to market roads, sugar cess roads and low type roads have long run impact upon increasing

literacy rate whereas provincial roads have only short run impact upon improving this indicator. In the case of maternal mortality rate, it is observed that farm to market roads and provincial roads have decreased maternal mortality rate in short run whereas sugar cess roads and low type roads decreases it in long run.

Overall on the basis of these findings the study recommends that infrastructure contributes to human and physical capital development therefore initiatives for building road networks should be taken to improve education and health facilities. A demand side theory of infrastructure says that commercial, public and social infrastructures are the demand of the public. Some are used for consumption purpose and are used nonrivalrously, others create social value and are the primary sources of social benefits and the third category is used as an input for getting massive output. One of the basic purposes of infrastructure is that it creates a spill over environment where new and unprecedented innovations, knowledge and social capital can be developed. The poverty trend of Pakistan is decreasing because of development. So it is concluded that roads are directly and indirectly decreasing poverty by increasing economic development.

References

Fan, S., & Chan-Kang, C. (2005). Road development, economic growth, and poverty reduction in China (Vol. 12). Intl Food Policy Res Inst.Gachassin, M., (2009), The Impact of Roads on Poverty Reduction: A Case Study of Cameroon.

Li Jie (2013).The effects of road infrastructure on poverty reduction in rural china.

Marinho, E., Campelo, G., França, J., & Araujo, J. (2017). Impact of infrastructure expenses in strategic sectors for Brazilian poverty. EconomiA, 18(2), 244-259.

Mehmet Aldonat, Muge Karacal and Hakan Yetkiner (2012). The granger causality between transportation and GDP: A panel data approach.

Noyolitzin, N., (2015), Does transportation infrastructure reduce poverty? Evidence from free federal trunk highway system in Mexico.

Oliva, J. C. M. (2017). On the road: Connectivity infrastructures in Southeast Asia. Journal of Infrastructure, Policy and Development, 1(1), 98-111.

Pravakar Sahoo and Ranjan Kumar Dash (2008). Economic growth in South Asia: Role of infrastructure.

Rudra, P. and Tapan, P. (2012). Effect of transportation infrastructure on economic growth in India: The VECM Approach; Research in Transportation Economics. www.elsevier.com/locate/retrec

Seetanah B, Ramessur Sand and Rojid S (2009). Does infrastructure alleviate poverty in developing countries?

GCU Economic Journal, Volume LIV (1&2), 2021, pp.105-120

Women Entrepreneurship and Problems of Rural Women Entrepreneurs in Punjab Province of Pakistan

*Sadaf Mubeen, **Dr Muhammad Abdul Quddus and
***Muhammad Hassam Shahid

Abstract: Of the total world population, rural women comprise of more than one quarter and world over they are an essential and major force in the development processes of the country and they are also the main factors for the socio economic progress. They have many serious problems like social and managerial, with the marketing and production restrictions. Different problems arises both from within and outside vary from enterprise to enterprise. This study was carried out in Punjab province of Pakistan. For this research study two districts of Punjab, Lahore and Faisalabad was selected out of the existing 32 districts. Multistage sampling techniques are used. From each district five villages were selected. From each village twenty women entrepreneurs were selected. Thus making a sample of 200 women was randomly selected for the study. To collect information from the women entrepreneurs on their personal and socio-economic characteristics and problem faced by them in entrepreneurship at field level, a wellstructured interview schedule was used. Statistical techniques like mean scores, percentages and binary logistic were used to analyze the data. Majority of the women39% where married. And 31% were single thy did not married.in the case of divorced and widow ,they were 27% .In case of experience most of the women58% were experienced and 40% were that who do not have any experience.52% women were in favor that they faced harassment problem and only 45 % said they did not face this problem. 61% women were in favor that lack of credit facility create problem. They face this problem and only 36 % gave argument against.

Key word: Entrepreneurship, Punjab, logistic Regression, Rural women. Primary data

1. Introduction

In the present age, entrepreneurship is considered as a significant driver of economic development by improving the core economic dynamics such as modernization, productivity as well as employment creation. In such a miracle, women are recognized as

*PhD scholar, NCBA&E
**Professor, Department of Economics, NCBA&E
***PhD Scholar, PIDE

successful entrepreneurs through their strong desire, qualities and competences for the healthy development of entrepreneurship. Soomro et al (2019).

The women who are involved in small ownership of business, they have increased their number expressively across the world (Hughes, 2003; Fielden and Davidson, 2010). Yet, different researches on the experiences of small business, remained attentive on a relatively small number of established marketplaces. At world level, entrepreneurship is acknowledged as the engine of growth in economies. Female owned businesses grew intensely in number, incomes and employment, over the past 20 years. The examples are of Norway and Canada where closely 60-65 per cent of the new businesses were started and sustained by women (Broehl, 1982; Comper, 1991; Gatewood, 2004). With the "glass ceiling", women are progressively running to entrepreneurship as a way of surviving that appears to stop them from reaching to controlling this process in administrations level(morrison et al.., 1987). Other researchers find that entrepreneurship affords them larger satisfaction and flexibility (Broehl, 1982; Belcourt et al., 1991). In many Asian countries like China, Indonesia, and Singapore, India as well, this extraordinary trend also has been seen (GEM, 2008 and ILO, 2012). Entrepreneurship is linked with both women position in society and the role in the same society. Women face many problems that may be related to their family or some social and cultural norms that must be overcome for the purpose to give them access to the same opportunities as men have in the society. Women might practice some difficulties with respect to ownership of assets and entering into different contracts that must be related to property or other issues, in some countries. The Increasing trend of participation of women in the business field is essential to improve the position of women in society and self-employed women. In the economic development of the country, the role of Women entrepreneur is very significant and it needs to be considered just for the sack of numerous reasons. In society, Women Entrepreneurship has been

mostly ignored both in theoretical perspective and practical perspective too. In entrepreneurship, Women have lower participation rates as compare to men and due to different difficulties in business field they did not intend more to come in this field, because they face a social problem that comes in their way to progress. Moreover, The businesses chosen by women are often observed as being less important to economic development (Madlani,2013)

1.1: Women Entrepreneurs in Global Economy:

With the progression in technology, lives are speeds up so, it is useful to take time to reflect on the dynamic forces that are essential for the global economy of the 21st century. Women are an emerging economic force to uplift the development of the country that policymakers cannot ignore them intentionally. It is a fact that democracy of any country and the world's modern economy both depends on the participation of both gender men and women. Frederick & Dzisi, (2008). The role of women is most significant as workers and job creators, in developing economies. In India, female entrepreneur's activity is limited in informal sector for growth in income and employment. Women entrepreneurs are powerless to grow their business from micro or small to medium or large productive enterprises with converted economic impact, In the Indian situation. It is estimation of World Bank that working-age population (15 to 59) will increase by more than 200 million in India in the next two decades, while it is expectations that the number will decline in most developing economies of the world including China too. (Shetty,&Hans, 2019).

1.2: Why Women Start Businesses:

From a desire for self-determination and for career challenge, women in Pakistan start their own businesses with the expectations that they will get respect in the society, acknowledgment, and self-esteem. Mainly, entrepreneurship is an existence character that a woman inspires to start a new business. Bruni, et al (2004).

Miserable economic conditions and high unemployment rates are considered main elements that a woman enters in the business field to uplift the status of her, around the world. Worried to put food on the table for their children and survive in the society, women are challenging societal norms. Entrepreneurship is a very extremely individual, particular process. Women who own and operate a business can have ability to move in the society and she can also survive are not a consistent group. Cultural and social norms also affect the women whether a woman can become an entrepreneur by her own struggle within her society or not. Some constraints affect directly and some indirectly in the process to become entrepreneurship (Anderson et al, 2010).

1.3: Females Contributions to Global Market:

Many assets are generating in the global market due to business women. Females have the ability to change nation especially female entrepreneurs have shown the ability to build and maintain in their field.

- To build a long term relations and networking among others.
- To communicate in operative way with other parties or in other field.
- To establish proficiently in the process of any commodity or on the sale of anything.
- To be conscious of the needs of their existing situation and background that what is going on in business field.
- To promote understanding about cultural differences. Because culture varies city to city, region to region and country to country as well as.
- Women's enterprises are qualitatively different from men. Different Studies specify that a clear culture is created by women business owners of their own. Female enterprises tend to focus on the provision of facilities returning to typically unsatisfied needs. Author Sally Hellenes commented that women bosses freely pursue information,

exchange ideas with others, and let information mature before making a final decision. Women entrepreneurs show a marvelous promptness to find business guidance and education to pay for perceived flaws.

2: Literature Review:

Entrepreneurship has been approached from various perceptions by scholars of different disciplines that include economics, sociology, psychology, historical and political science (Bjerke, 2007). The field of female entrepreneurship is in an early stage of paradigm development, On the other hand. Khan (2015), the individual different researches with the perspective of female entrepreneurship describe only small sections of the female entrepreneurial population.

Ama et al. (2014) investigated the challenges faced by women entrepreneurs in Botswana. They applied qualitative and quantitative methods to collect sample of 319 women. They used snowball techniques with systematic sampling method. The outcomes of the study show that the major problems faced by the women agents were time consuming on traveling, delays in the borders process and time away from their homes. In addition, informal across the border trade was considered to be extremely profitable for the women entrepreneurs.

Bianco et al. (2017), gender ideas were expressed in the shape of interrelated structural obstacles that defined women entrepreneurs' access to resources. Social connections suggested spaces in which gender philosophies were strengthened. In Pakistani perspective, the results established the major barriers observed by women entrepreneurs can be eliminated by only trained women. This approach may allow members to improve capabilities as well as investment. Larger clearness about learning effects preferred and attained by women entrepreneurs in an Islamic socio-cultural context that can be make a base for calculating better education and training programs, in the

perspective of economic empowerment of women (Roomi and Harrison, 2010).

Panda (2018), in case of developing countries, different restrictions put by women entrepreneurs are rising due to many reasons like, conflict in a work family , gender discrimination, lack of infrastructure, problem in floating capital, unstable business, economic and political environments, differences in personality and lack of training and education of women.

Danil & Septina (2019) claimed that over the past ten years, the frequency of women as the employer has not changed in Pakistan. Yet during the same time period the number of self-employed women has increased. Self-employed business is very famous in Pakistani society that's why it is very common in Pakistani women as compare to other countries of the region.

Yunisv et al (2019) Pakistan is a country where male controlled society and practices appear to be definitely fixed in the society and in the workplace, from the point of view of gender equality .Though, , the recognition of pakistani women as employees and business owners is just gaining ground in this society, despite such challenges. While recognizing the socio-cultural demographic and structural boundaries to females' small business ownership, this study focuses on the story of Pakistani women's success in order to overcoming such barriers. By categorizing relative problems with women entrepreneurs' stories related to their success, this study tries to show the degree of success achieved by that women by living in the male dominated society like Pakistan.

Tambunan (2017) over the past ten years, the proportion of women as the employer has not changed in Pakistan. Though, the share of self-employed women has improved during the same time period. Mostly Women in Pakistan are seen in self-employed business more as compare to other countries of the region".

Soomro & Rajar (2019). Entrepreneurship is dynamic process and it is observed as a significant driver of economic development that improves the main economic conditions like, innovation, production

of different products and employment creation in different sectors accordingly. In such a phenomenon, Due to their strong desire, in the present epoch, women are recognized as successful business women in the process of strong development of entrepreneurship. Some problems such as lack of decisionmaking experience, absence of access to technology and financial assistance as well .They further said that shortage of access to networking prospects, and lack of support to land, inadequate access to training and lack of government support are the main challenges for women entrepreneurs to start and run their business at small level, This study proposed these challenges. The consequences of the present research may be in support for policymakers and planners to control the major challenges related to women entrepreneurs.

3: Methodology:

This study was carried out in Punjab province of Pakistan. Pakistan's most populous province with an estimated population of 110,012,442 as of 2017. Forming the bulk of the transnational Punjab region. It is bordered by the Pakistani provinces of Sindh Baluchistan and KPK. It is a cultural, historical, economic and cosmopolitan center of Pakistan .Lahore and Faisalabad were selected respectively for the study purpose. For the purpose of this study 2 district were selected out of the existing 32 districts, from each district five villages were selected through multistage sampling techniques. Twenty women entrepreneurs were selected from each village. Thus making a sample of 200 women was randomly selected for the study. A well-structured questionnaire through interview schedule was used to collect information from the women entrepreneurs on their personal and socioeconomic characteristics and problem faced by them in entrepreneurship at field level. Statistical techniques like mean scores and percentages and logistic were used to analyze the data.

Table: 1: Odd Ratios for Marital Status

Independent variables	**Dependent variables**	
Covariate	**Do you want to continue the business?**	
Marital status	**Coefficient**	**Odd Ratios**
Single	……	……
Married	.735(.075)	2.085
Widow/divorced	-.021(.954)	.979

Source: Author Self-Calculation

Marital status matters a lot in every field of life. Especially in operating the business. P-value of married women entrepreneurs is less than 0.1 that is significant. It is significant at 10% level of significant. Significant role is played by married women. The positive value of coefficient that is .735 shows positive relationship with dependent variable .A unit changes in independent variable of married women will change the dependent variable by .735 and married women have more chances to continue the business. So it's an opportunity for married women to continue the business. This can be justified by the family cooperation. May be husband support them a lot and support in every aspects of life. p value of widow and divorced women entrepreneurs is greater than level of significance that is 5% (

0.05).so widow and divorced women play insignificant role in continuing the business. .

And logistic regression coefficient value is negative that is .021.this shows negative relationship to continue the business. A unit change in widow and divorced women entrepreneurs will change the dependent variable by -.021. Widow and divorced women entrepreneurs are less likely to continue the business. Its challenge for women entrepreneurs. And it is concluded that divorced and widow women entrepreneurs have more challenges then married

women entrepreneurs. problems that faced by divorced and widow women related to family or balancing family and business or some societal problems etc. sometimes families act as a major constrain in the career opportunities of females. If a divorced woman interact with male while moving the business. People certificate her to bad character .this this big phenomena of Pakistani society. Married women are more are more likely to continue the business as compare to unmarried women and Widow/divorced women are less likely to continue the business as compare to un married women.

Table: 2: Odds Ratios for the importance of experience profession

Independent variables	**Dependent variables**	
Covariate	**Do you want to continue the business?**	
Experience	**Coefficient**	**Odd ratios**
No	……..	……
Yes	-.667 (.037)	.513

Source: Author Self-Calculation

Experience plays a significant role in any business. In our model experience is also playing a significant role with dependent variable. And do not want to continue the business more in future. The value of coefficient is -.667 that means a unit change in the independent variable of women entrepreneurs that is Experience it will change the dependent variable (to continue the business) by 0.923units. And women entrepreneurs with experience are .513 times less likely to continue the business. Reason may be that to continue the business. They want to start any other business or they want to do some other job. There may their family issues that restrict them to continue the business. Those women who have experience of the business are less likely to continue the business as compare those who do not have any experience of business.

Table: 3: Odd ratios for credit facility in business

Independent variable	Dependent variable	
Covariate	**Do you want to continue the business?**	
Lack of Credit facility	**Coefficient**	**Odd ratios**
No	……	……
Yes	-.826 (.009)	.438

Source: Author Self-Calculation

To start a new business or for the purpose of establishing business, credit is very important factor in every aspect. Especially when women come out from the four walls of the house. And these results show that when lack of credit facility exists then it plays significant role to continue the business. The women who says that the face the problem of lack of credit facility they are .438 times less likely to continue the business. There are fewer chances to continue the business. Those women who faced the problem of credit facility they are less likely to continue the business than the women who did not faced this problem.

Table: 4: Odd Ratios for Harrasment

Independent variable	Dependent variable	
Covariate	**Do you want to continue the business?**	
Harassment	**Coefficient**	**Odd ratios**
No	…… ……..	…… ……..
Yes	.573 (.065)	1.773

Source: Author Self-Calculation

Harassment is very important factor in case of female especially who are doing some job at some places. According to these results the women who say that the face the problem of harassment they are more likely to continue the business .Reason may be that they don't

bother of this problem because they have such kind of responsibilities to performed their houses. And this variable is playing significant role to continue the business. Odd ratio shows that they are 1.773 times more likely to continue the business. Its great opportunity for them to continue the business. The women who faced the problem of harassment they are more likely to continue the business as compare those who did not faced this problem.

Table: 5 Descriptive analysis

Socio-demographic characteristics	**Frequency**	**Percentage**
Marital status		
Single	63	31
Married	81	39
Divorced/widow	27	27
Experience		
Yes	118	58
No	82	40
Credit facility		
Yes	125	61
No	75	36
Harassment		
Yes	107	52
No	93	45

This Table shows results in frequency and percentage. In case of marital status 31 % women are single and 39 % women are married .it means majority women are married. While 27% women are divorced /widow. Results also showing 58 % women have experience in the field of business and 40 % women do not have any experience they may have some sort of training in informal way. 61

% women said that lack of credit facility create problem to start or to continue the business while 36 % women said this problem does not create problem. Previous study also support the results up to some extent (Kuzilwa, 2005). Harassment is a social problem. In Pakistani society the women specially working lady face this problem more as compare to the that women who remain in the four walls of the house. Previous studies also support this result (Jabeen, et al 2017). Results also show that 52 % women are also facing this problem while 45 % women do not face this problem.

4: Conclusion

Results show that in our analysis mostly women were married. Women are more likely to continue the business. Our results also in accordance with up to some extent, Beutell, et al (2019). as compare to widow and divorced women. Women they have experience in the field of business. But they are less likely to continue the business. Reason may be that they may be educated and they want to do other Govt. or private jobs as comparison to business. When there was asked about credit facility to women then mostly women said, they faced this problem. Even then they are interested to continue the business. Even who are facing the societal problems one of them is harassment. The women who faced this problem they are more likely to continue the business by neglecting this problem and ignoring this traditional thinking and behavior of the society.

References:

Anderson, A. R., Dodd, S. D., & Jack, S. (2010). Network practices and entrepreneurial growth. *Scandinavian Journal of Management*, *26*(2), 121-133.

Azam Roomi, M., & Harrison, P. (2010). Behind the veil: womenonly entrepreneurship training in Pakistan. *International Journal of Gender and entrepreneurship*, *2*(2), 150-172.

Bianco, M. E., Lombe, M., & Bolis, M. (2017). Challenging gender norms and practices through women's entrepreneurship. *International Journal of Gender and Entrepreneurship*, *9*(4), 338-358.

Bruni, A., Gherardi, S., & Poggio, B. (2004). Entrepreneurmentality, gender and the study of women entrepreneurs. *Journal of Organizational Change Management*, *17*(3), 256-268. Broehl, W. G. (1982). Entrepreneurship in the less developed world. *Encyclopedia of Entrepreneuship, New Jersey: Prentice Hall, hh*, 103-112.

Bjerke, B. (2007). *Understanding entrepreneurship*. Edward Elgar Publishing.

Belcourt, M. L., Burke, R. J., & Lee-Gosselin, H. (1991). *The glass box: Women business owners in Canada*. Canadian Advisory Council on the Status of Women.

Brush, C. G. (1992). Research on women business owners: Past trends, a new perspective and future directions. *Entrepreneurship theory and practice*, *16*(4), 5-30.

Danil, L., & Septina, N. (2019, July). Entrepreneurship and small medium enterprises in ASEAN. In *Global Competitiveness: Business Transformation in the Digital Era: Proceedings of the First Economics and Business Competitiveness International Conference (EBCICON 2018), September 21-22, 2018, Bali, Indonesia* (p. 43). Routledge.

Frederick, H., & Dzisi, S. (2008). Entrepreneurial activities of indigenous African women: a case of Ghana. *Journal of Enterprising Communities: People and places in the global economy*.

Fielden, S. L., & Davidson, M. J. (Eds.). (2010). *International research handbook on successful women entrepreneurs*. Edward Elgar Publishing.

Hughes, K. D. (2003). Pushed or pulled? Women's entry into selfemployment and small business ownership. *Gender, Work & Organization*, *10*(4), 433-454.

Jabeen, M., Dur-e-Shawar, N. Z., Umar, M., Yameen, M. A., & Azhar, S. (2017). Harassment of working women in the public health sector of Abbottabad in socio-legal perspective. *JPMA. The Journal of the Pakistan Medical Association*, *67*(1), 37-41.

Kuzilwa, J. A. (2005). The role of credit for small business success: A study of the National Entrepreneurship Development Fund in Tanzania. *The Journal of Entrepreneurship*, *14*(2), 131161.

Khan, M. M. (2015). Sources of finance available for SME sector in Pakistan. *International Letters of Social and Humanistic Sciences*, *47*, 184-194.

Madlani, M. B. (2013). Women entrepreneurship and rural development. *Commerce and Management*, *2*(12), 94-98. Morrison, A. M., White, R. P., White, R. P., & Van Velsor, E. (1987). *Breaking The Glass Ceiling: Can Women Reach The Top Of America's Largestcorporations?*. Pearson Education.

O. Ama, N., T. Mangadi, K., & A. Ama, H. (2014). Exploring the challenges facing women entrepreneurs in informal cross-border trade in Botswana. *Gender in Management: An International Journal*, *29*(8), 505-522.

Panda, S. (2018). Constraints faced by women entrepreneurs in developing countries: review and ranking. *Gender in*

Management: An International Journal, *33*(4), 315-331.
Rahmatullah, M., & Zaman, F. (2014). Female Entrepreneurship in Bangladesh: Constraints, Motivation and Success. *Bangladesh e-journal of Sociology*, *11*(2).

Soomro, B. A., Anwar, S., & Rajar, A. H. (2019). Challenges for Women Entrepreneurs in Pakistan: An Empirical Approach. *The Women-Annual Research Journal of Gender Studies*, *11*(11).

Shetty, S., & Hans, V. (2019). Women Entrepreneurs in India: Approaches to Education and Empowerment. *International Journal of Research and Analytical Reviews (IJRAR), Forthcoming*.

Yunis, M., Hashim, H., & Anderson, A. (2019). Enablers and Constraints of Female Entrepreneurship in Khyber Pukhtunkhawa, Pakistan: Institutional and Feminist
Perspectives. *Sustainability*, *11*(1), 27.

Beutell, N., O'Hare, M., Schneer, J., & Alstete, J. (2019). WorkFamily Issues Among Self-Employed Married Women. *Available at SSRN 3326543*.