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Socio-Economic Factors of Differences in Public Health-Related Variables among Women: A Cross-Sectional Study

Muhammad Ramzan Sheikh[1], Hadees Akhtar[1], Irfan Hussain[2]

Affiliations
1. School of Economics, Bahauddin Zakariya University Multan, Pakistan
Corresponding Author Email: ramzansheikh@bzu.edu.pk

2. Department of Economics, G.C. University Faisalabad, Pakistan

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Abstract
This study examines the association of living areas (slum and non-slum) with the selected public health-related variables in the presence of socioeconomic variables among married women and also having a child. A total of 150 women aged 18 to 49 are selected of which 50 women from slums and 100 women are from non-slum areas of Multan by applying the cluster and random sampling techniques. The cross-tabulation method is used to find the results. The dependent variable is Body Mass Index (BMI) and it is analyzed with the socio-economic variables such as mass media index, household characteristics and education. The findings exhibit that the BMI of the women living in the slum areas is low due to a low level of education, lack of mass media access, bad household structures, and poor or ignorant area. The women of the slum area have fewer mass media access, poor status of household characteristics and less education as compared to the women living in the non-slum areas. BMI is significantly affected by area, women's education and household characteristics except for physical work, job status, mass media access and husband education. The findings of this study suggest that to provide health facilities or to reduce the gap in public health, education, mass media access and households characteristics might be considered while making any decision related to the slum and non-slum areas.

Keywords: BMI, Job Status, Education, Media Access, Slums

JEL Classification: I18, H51

1. Introduction
The world population is growing day by day and at present, about 7.8 billion people are living in the world. In developing countries like Pakistan, the urban areas are becoming more populated because of migration from rural areas to urban areas to find employment. The annual growth rate of the urban population is 2.53% in Pakistan. There is another community called the slum community that covered a large part of the urban population. More than 50 per cent of the major cities' population lives in slums and squatter settlements. Many of them are migrated from the rural poor for surviving their life and support their families but are unable to find an appropriate source of income that's why they are forced to live a life as slum dwellers. With the total population, the slum population is growing at high rates all over the world, especially in developing countries. Total1 billion people live in slums and are expected to grow to 2 billion by 2030 all over the world. This increases the slum population creating a big challenge for the health authorities. The main reason behind the emergence of the urban slum is poverty as they cannot afford houses to live in and settle themselves like other people living in the same place with a good standard of living. They are ignored by the high society of the urban population (UN, 2004). The slum population is increasing due to social exclusion and inappropriate policies of the government. The slum dwellers are characterized by some of the following stressful conditions i.e. insecurity of occupation, poorly structured houses crowded together, insufficient living area,

no access to safe drinking water or sanitation, severe overcrowding, poor or no lighting in their areas, no toilet facility, poor drainage system with excessive open sewers, lack of transport facilities, and the excessive amount of garbage around their areas (Padda and Hameed, 2018; Unger, 2007).

Being a developing country, Pakistan is suffering a lot of health issues. The slum community in urban areas of Pakistan has suffered from adverse health problems due to its socio-economic status. These health issues are listed for example fever, under-nutrition, diabetes, sexually transmitted diseases, low birth weight, lungs problem due to smoking, skin infections, eyes infection, premature birth and less vaccination coverage. These diseases were spread due to poor environmental management and less nutrition. The continuous negligence in the increase of the slum population leads to the diversion of health care resources and higher expenditures to the management of preventable diseases (Khan and Kraemer, 2009, 2008). In Pakistan, the slum community is ignored by the Pakistan Demographic and Health Survey (PDHS).

Despite the absence of infirmity or disease, good health is a state of the social, mental and physical well-being of a person (WHO, 1948). There has been a growing interest and main concern about women's health and well-being in developing countries. Women's health is different as compared to men's in many ways. Women bear the burden of inadequate health facilities living in different areas due to many factors.

The women of slum areas are unsure about their health status and diseases not due to unavailability of education but also because of the least diagnostic facilities. Their income was very low which is insufficient for basic needs so they are unable to get those diagnostic facilities. There is a huge gap in health between these two groups (slums and non-slums) of the society. Women were at a high risk of being obese and overweighted even they were belonging to both poorer and richest and also had a higher level of education (Tanwi et al, 2019). Wealthier women were more likely to be obese, and this association was stronger in rural areas. Conversely, more educated women were less likely to be obese, especially in urban areas. The distribution of obesity in Peruvian women is strongly related to socioeconomic position and differs whether measured as possession assets or by the level of education (Poterico et al, 2012).

Although various studies regarding slum communities are available in Pakistan those studies cover just one aspect. The objective of this study was to examine the socio-economic factors that create health differences between the selected public health-related variables among married women also having a child from non-slum urban society and livelihood slum dwellers in Multan. Public health-related variable Body Mass Index was compared with socio-economic variables such as area, mass media access, education level, physical work, job status and household characteristics.

2. Review of Literature

This section is related to the various empirical studies conducted in different countries. Many researchers worked on many variables that are in some way related to this study and presented their results and interpretation according to the method they had chosen. Table 1 exhibits studies on socio-economic factors of public health-related variables among women.

Table 1: Studies on socio-economic factors of Public health-related variables among Women

Author(s)	Country	Observations	Methods	Main Results
Tanwi et al.	Bangladesh	1701 ever-married non-	Descriptive analysis,	The study assessed the prevalence and socioeconomic determinants of

(2019)		pregnant urban women aged 15–49 years	multiple binomial logistic regression analysis	overweight and obesity among urban women in Bangladesh.
Poterico et al (2012)	Peruvian	a multistage random sample of women aged 15–49 years and children aged 0–5 years	a multistage random sample of women aged 15–49 years and children aged 0–5 years	Wealthier women were more likely to be obese, and this association was stronger in rural areas. Conversely, more educated women were less likely to be obese, especially in urban areas. The distribution of obesity in Peruvian women is strongly related to socioeconomic position and differs whether measured as possession assets or by the level of education.
Laillou et al (2012)	Montpellier, France	2010 / 1526 reproductive-aged women and 586 children with the age of 7	Univariate Logistic regression models	Twenty per cent's women experienced a higher body mass index which highlighted a double load of starvation. Children had deficiencies of zinc, iron and anaemia and a high prevalence of marginal Vitamin A levels. The poorest groups had a high risk of iron, zinc and anaemia deficiency
Khan and Kraemer (2009)	Bangladesh	120 women living in slums (as cases) and 480 age-matched women living in other areas	Multiple regression analysis	Unadjusted results indicated that a significantly higher percentage of women living in slums came from the countryside, had a poorer status by household characteristics, had less access to mass media, and had less education than women not living in slums
Soares et al (2007)	Sweden	3591 observations	univariate analyses	Women with high burnout were faring poorly financially, emotionally and physically
Molarius et al (2007)	Sweden	36 048 observations	Multivariate odds ratios	The main findings were that lifestyle factors, material and psychological conditions were related to the low self-rated health statuses
Gordon-Larsen et al (2003)	United States	13,113 adolescents	logistic regression model	Adolescents in their same environments had a limited effect on the disparities in overweight prevalence. Ethnicity–SES–overweight differences were greater among females than males. The disparity was lessened at the highest SES for white, Hispanic, and Asian females. Among males, the disparity was lowest at the average SES level.
Wróblewska, (2002)	Poland	20,000 women	multivariate analysis	Economic status, lack of employment and low educational level obesity, lack of physical exercise and smoking create the adverse health problem
Wamala et al (1999)	Sweden	300 women	ANCOVA performed for univariate and	The associations of carbohydrate, protein and total fibre intake with hemostatic profile were not statistically

			multivariate analyses	significant. A poor social status engaged with poor health status
Matthews et al (1999)	England, Wales and Scotland	The 1958 birth cohort includes all children born in England, Wales and Scotland during one week in March 1958	logistic regression models	gender differences in the magnitude of health inequality were inconsistent across age and health measures and the social status effect these differences

The above-mentioned studies have revealed that many factors influence public health and create differences in health in different communities in which education, population, employment, socio-economic status of a person, access to mass media and households characteristics are the more important factors. According to the studies, due to the lack of education and mass media access people are unaware of many harmful diseases.

Similarly, the problem of depression is increases due to the low level of socio-economic status. And unemployment and population are the joint problems of an unhealthy society because when the population increases more people will become unemployed, especially in developing countries so due to this issue people cannot take necessary nutrition for the betterment of their health. These health issues may be overcome through some appropriate health policies and interventions. To reduce health differences most of the studies suggest that educational programs should be introduced.

They also suggest that employment opportunities should be created so that people will improve their lifestyle and live a healthy life. Mass media access must be provided to people so that they can be aware of health issues and also their effects on their physical as well as mental health. After the comprehensive review of various studies we have found that there are many studies on the slum and non-slum communities but according to our knowledge, this is the first study on the factors of differences in public health and the related variable among married women having children both in slum and non-slum communities in Multan city.

Table 2: Construction of Variables

Dependent Variables	**Abbreviations**	**Coding**	**Explanation**
Body Mass Index	BMI	1 for Underweight 2 for Normal weight 3 for Overweight 4 for Obesity	BMI stands for Body Mass Index and it is an indicator of body fat based on the weight and height of a person either a man or woman. We can calculate it by **kg/m2** where kg is the weight of a person in kilogram and m2 is mass in meters squared. **Ranges of BMI:** below 18.5 = Underweight between 18.5 and 24.9 = Normal weight between 25 and 29.9 = Overweight between 30 and 39.9 = Obesity
Area	AREAD	0 for Non-slum 1 for Slum	

Education	EDU	0 for illiterate 1 for primary 2 for middle 3 for matric 4 for intermediate 5 for graduation 6 for masters and above	
Physical work	PHYW	0 for No 1 for Yes	
Job Status	JOBS	0 for housewife 1 working women	
Husband Education	HUSEDU	0 for illiterate 1 for primary 2 for middle 3 for matric 4 for intermediate 5 for graduation 6 for masters and above	
Total Mass media composite Index	TMMCI	0 for No accessible mass media 1 for accessible mass media	The composite variable of mass media accesses is determined by adding three variables. The total score for the composite variable of mass media access varied from 0 to 3, where score 0 indicated that the women have not at all access to mass media while the score 1 to 3 indicated that women have access to at least one mass media
Watching TV	WATTV	0 for No 1 for yes	
Reading Newspapers	REDNEWS	0 for No 1 for yes	
Listen to Radio	LISRAD	0 for No 1 for yes	
Total Household Characteristics Composite Index	THCCI	0 for poor characteristics 1 for non-poor characteristics	The composite variable of household characteristics determined by adding six small variables. The total score for the composite variable of household characteristics varied from 0 to 6. Where score 0 indicated that the variable of household characteristics considered as poor, otherwise it considered as non-poor
Cooking fuel	COOKF	1 for gas (LPG) 0 for else	
Floor material	FLOM	1 for cement/concrete 0 for else	
Wall material	WALLM	1 for cement/brick 0 for else	
Roof material	ROOFM	1 for cement 0 for else	
Toilet facility	TOILF	1 for modern/sceptic 0 for else	
Piped water facility	PIPWF	1 for Inside dwelling 0 for else	

3. Data and Methodology

For this study, we have used a primary source of data. Both cluster and random sampling techniques are used to analyze the socioeconomics determinants of differences in public health-related variables among married women having. These clusters are selected from the different locations of Multan. The data are collected through a questionnaire survey from a sample of 150 (50 slum women and 100 non-slum women) married women aged 18 -50 and also had a child. To collect information from the women of slum areas, we have made 5 clusters from different slum areas of Multan and then interviewed 10 randomly selected women from each of the clusters. Similarly, we have made 10 clusters for collecting information from women of non-slum areas and then interview 10 randomly selected women by the house to house visits.

Further, information has been gathered about the household characteristics such as cooking fuel, whether the household is located in a slum area or not, which material is used for the construction of the house, and whether they have a toilet facility and source of water. The information about women's characteristics has also been included in this questionnaire such as religion, age, education, height & weight, mass media access.

The construction of independent variables and the construction of dependent variables have been explained in Table 2.

4. Results and Discussions

As we have discussed earlier, the dependent variable is BMI (Body Mass Index) and we have compared it with the other six independent variables (socioeconomic variables) such as area, education level of women, physical work, job status, husband education, mass media access and households characteristics. Following are the outcomes of our study.

4.1 Body Mass Index and Area

In Table 3, cross-tabulation of BMI and Area is shown. Total 100 women (66.70 % in total) from the non-slum area in which 14 women (14.00% in total) are underweighted, 45 women (45.00% in total) are normally weighted. Similarly, a total of 50 women (33.30% of the total) from the slum area in which 1woman (2.00% in total) is underweighted, 33 women (66.00% in total) are normal weighted, 11 women (22.00% in total) are overweighed and 5 women (10.00% in total) are in obesity.

Table 3: Body Mass Index and Area

			AREAD		
			Non-slum	**Slum**	**Total**
BMI	**Underweight**	Count	14	1	15
		Expected Count	10	5	15
		% within BMI	93.30%	6.70%	100%
		% within AREAD	14.00%	2.00%	10.00%
		% of Total	9.30%	0.70%	10.00%
		Std. Residual	1.3	-1.8	
	Normal weight	Count	45	33	78

		Expected Count	52	26	78
		% within BMI	57.70%	42.30%	100%
		% within AREAD	45.00%	66.00%	52.00%
		% of Total	30.00%	22.00%	52.00%
		Std. Residual	-1	1.4	
	Overweight	Count	35	11	46
		Expected Count	30.7	15.3	46
		% within BMI	76.10%	23.90%	100%
		% within AREAD	35.00%	22.00%	30.70%
		% of Total	23.30%	7.30%	30.70%
		Std. Residual	0.8	-1.1	
	Obesity	Count	6	5	11
		Expected Count	7.3	3.7	11
		% within BMI	54.50%	45.50%	100%
		% within AREAD	6.00%	10.00%	7.30%
		% of Total	4.00%	3.30%	7.30%
		Std. Residual	-0.5	0.7	
	Total	Count	100	50	150
		Expected Count	100	50	150
		% within BMI	66.70%	33.30%	100%
		% within AREAD	100%	100%	100%
		% of Total	66.70%	33.30%	100%

In this table, eight standardized residuals of BMI categories (underweighted, normal weighted, overweighed, and obesity) are insignificant both for the slum and non-slum areas. The plus or minus values of the standardized residuals and “counts and expected counts" in this table show that in the non-slum area, there are more women than expected are underweighted and overweighed while fewer women than expected are normal weighted and in obesity. In the slum area, more women than the expected are normal weighted and in obesity while less than expected women are underweighted and overweighed.

Chi-Square test statistics of BMI and area are represented in Table 4. Pearson Chi-Square statistic value indicates that there is a significant association between Body Mass Index and area. Table 5 shows the symmetric measures of Body Mass Index and Area. The value of Cramer’s V statistics shows that there is a moderate association of two variables BMI and Area.

Table 4: Chi-Square Test of BMI and Area

	Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
.	10.191a	3	0.017	0.015	---	---
Likelihood Ratio	11.564	3	0.009	0.013	---	---
Fisher's Exact Test	10.522	---	---	0.013	---	---
Linear-by-Linear Association	.282b	1	0.595	0.65	0.338	0.078
N of Valid Cases	150					

Table 5: Symmetric Measures of BMI and Area

	Symmetric Measures			
		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	0.261	0.017	0.015
	Cramer's V	0.261	0.017	0.015
	Contingency Coefficient	0.252	0.017	0.015
N of Valid Cases		150		

4.2 BMI and Education

Cross Tabulation of BMI and Education is shown in Table 6. In this table, there are 68 illiterate women (45.30% in total) in which 4 illiterate women (5.90% in total) are underweighted, 39 illiterate women (57.40% in total) are normal weighted, 18 illiterate women (26.40% in total) are overweighed and 7 illiterate women (10.30% in total) are in obesity. As in the case of Primary education, a total of 20 women (13.30% in total) fall in this category which of these 3 women (15.00% in total) are underweighted, 9 women (45.00% in total) are normally weighted, 8 women (40.00% in total) are overweighed and there are no obese women.

Likewise, the number of women with middle education is 8 (5.30% in total) which of these there are no underweighted women, 3 women (37.50% in total) are normal weighted, 3 women (37.50% in total) are overweighed and 2 women (25.00% in total) are in obesity. In the case of matriculation, there are 9 women (6.00% in total) which of this one woman (11.10% in total) is underweighted, one woman (11.10% in total) is normally weighted, 7 women (77.80% in total) are overweighed while there no women in obesity. Similarly, there are a total of 9 women who studied up to intermediate which of these 2 underweighted women (22.30% in total), 4 women (44.40% in total) are normally weighted, 3 women (33.30% in total) are overweighed and no women in obesity.

In the case of Graduation level study, there is a total of 9 women (6.00% in total) who studied up to graduation which of these there are no underweighted women while there are 7 normal weighted women (77.80% in total), 2 women are overweighed (22.20% in total) and no women in obesity. There are 27 women (18% in total) whose education is master and above which of these 5 women (18.50% in total) are underweighted, 15 women (55.60% in total) are normal weighted, 5 women (18.50% in total) are overweighed and 2 women (7.40% in total) are in obesity.

Table 6: Body Mass Index and Education

			EDU							
			Illiterate	**Primary**	**Middle**	**Metric**	**Intermediate**	**Graduation**	**Master & above**	**Total**
BMI	Under weight	Count	4	3	0	1	2	0	5	15
		Expected Count	6.8	2	0.8	0.9	0.9	0.9	2.7	15
		% within BMI	26.70%	20.00%	0.00%	6.70%	13.30%	0.00%	33.30%	100%
		% within EDU	5.90%	15.00%	0.00%	11.10 %	22.20%	0.00%	18.50%	10.00%
		% of Total	2.70%	2.00%	0.00%	0.70%	1.30%	0.00%	3.30%	10.00%
		Std. Residual	-1.1	0.7	-0.9	0.1	1.2	-0.9	1.4	
	Normal weight	Count	39	9	3	1	4	7	15	78
		Expected Count	35.4	10.4	4.2	4.7	4.7	4.7	14	78
		% within BMI	50.00%	11.50%	3.80%	1.30%	5.10%	9.00%	19.20%	100%
		% within EDU	57.40%	45.00%	37.50 %	11.10 %	44.40%	77.80 %	55.60%	52.00%
		% of Total	26.00%	6.00%	2.00%	0.70%	2.70%	4.70%	10.00%	52.00%
		Std. Residual	0.6	-0.4	-0.6	-1.7	-0.3	1.1	0.3	
	Over weight	Count	18	8	3	7	3	2	5	46
		Expected Count	20.9	6.1	2.5	2.8	2.8	2.8	8.3	46
		% within BMI	39.10%	17.40%	6.50%	15.20 %	6.50%	4.30%	10.90%	100%
		% within EDU	26.50%	40.00%	37.50 %	77.80 %	33.30%	22.20 %	18.50%	30.70%
		% of Total	12.00%	5.30%	2.00%	4.70%	2.00%	1.30%	3.30%	30.70%
		Std. Residual	-0.6	0.8	0.3	2.6	0.1	-0.5	-1.1	
	Obesity	Count	7	0	2	0	0	0	2	11
		Expected Count	5	1.5	0.6	0.7	0.7	0.7	2	11
		% within BMI	63.60%	0.00%	18.20 %	0.00%	0.00%	0.00%	18.20%	100%
		% within EDU	10.30%	0.00%	25.00 %	0.00%	0.00%	0.00%	7.40%	7.30%
		% of Total	4.70%	0.00%	1.30%	0.00%	0.00%	0.00%	1.30%	7.30%
		Std. Residual	0.9	-1.2	1.8	-0.8	-0.8	-0.8	0	
	Total	Count	68	20	8	9	9	9	27	150
		Expected Count	68	20	8	9	9	9	27	150
		% within BMI	45.30%	13.30%	5.30%	6.00%	6.00%	6.00%	18.00%	100%
		% within EDU	100%	100%	100%	100%	100%	100%	100%	100%
		% of Total	45.30%	13.30%	5.30%	6.00%	6.00%	6.00%	18.00%	100%

In Table 6, there are a total of 28 standardized residuals that are significant for overweighed women whose education is up to matriculation while other standardized residuals for all categories of education are insignificant. In this table less, underweighted women than expected are illiterate and are also for those who are educated up to the middle, matric, intermediate, and graduation. The plus or minus values of the standardized residuals and "counts and expected counts" in this table shows that there are more underweighted women than expected who are primarily educated and up to masters and above education. More normal weighted women than expected fall in the education category of illiterate, graduation and masters or above while less normal weighted women than expected are in the education category of the primary, middle, matric and intermediate. Less over weighted women than expected fall in the education category of illiterate, graduation and masters or above while in the education category of the primary, middle, matric, and intermediate there are more overweight women than expected. More obese women than expected are illiterate and studied up to middle while less obese women than expected are in the education category of primary, metric, intermediate, and graduation, and the case of masters and above education counts and expected counts of women in obesity are equal.

Table 7: Chi-Square test of BMI and Education

	Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	28.551a	18	0.054	.b	---	---
Likelihood Ratio	31.164	18	0.028	.b	---	---
Fisher's Exact Test	.b		---	.b	---	---
Linear-by-Linear Association	2.229c	1	0.135	0.137	0.07	0.006
N of Valid Cases	150					

Table 7 exhibits the chi-square test of BMI and education. In this table, it is shown that either there is an association between two variables or not. The results show that these two variables are significantly associated with each other and are in some way related. These results indicated that education has a significant effect on BMI.

Table 8: Symmetric Measures of BMI and Education

	Symmetric Measures			
		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	0.436	0.054	.a
	Cramer's V	0.252	0.054	.a
	Contingency Coefficient	0.4	0.054	.a
N of Valid Cases		150		

Symmetric Measures of Body Mass Index and Education are shown in table 8. Cramer's V test value shows that there is moderate strength of association between BMI and education.

4.3 BMI and Job Status

Table 9 shows the cross-tabulation results of BMI and job status. The results display that there are 92 women (61.30% of the total) who are not doing any job which of these 12 housewives (13.00% of the total) are underweighted, 45 housewives (49.90% of the total) are normal weighted, 27 housewives (29.30% of the total) are overweighted and housewives in obesity are 8 in numbers (8.70% of the total).

Correspondingly, there are 58 working women (38.70% of the total) and of these 3 women (5.20% of the total) are underweighted, 33 working women (56.90% of the total) are normal weighted, 19 working women (32.80% of the total) are overweighted and in obesity there are only 3 working women (5.20% of the total).

Table 9: BMI and job status

			JOBS		
			Housewife	**Working woman**	**Total**
BMI	**Underweight**	Count	12	3	15
		Expected Count	9.2	5.8	15
		% within BMI	80.00%	20.00%	100%
		% within JOBST	13.00%	5.20%	10.00%
		% of Total	8.00%	2.00%	10.00%
		Std. Residual	0.9	-1.2	
	Normal Weight	Count	45	33	78
		Expected Count	47.8	30.2	78
		% within BMI	57.70%	42.30%	100%
		% within JOBST	48.90%	56.90%	52.00%
		% of Total	30.00%	22.00%	52.00%
		Std. Residual	-0.4	0.5	
	Overweight	Count	27	19	46
		Expected Count	28.2	17.8	46
		% within BMI	58.70%	41.30%	100%
		% within JOBST	29.30%	32.80%	30.70%
		% of Total	18.00%	12.70%	30.70%
		Std. Residual	-0.2	0.3	
	Obesity	Count	8	3	11
		Expected Count	6.7	4.3	11
		% within BMI	72.70%	27.30%	100%
		% within JOBST	8.70%	5.20%	7.30%
		% of Total	5.30%	2.00%	7.30%
		Std. Residual	0.5	-0.6	
	Total	Count	92	58	150
		Expected Count	92	58	150
		% within BMI	61.30%	38.70%	100%
		% within JOBST	100%	100%	100%
		% of Total	61.30%	38.70%	100%

In this table, there are a total of eight standardized residuals that are insignificant for both working women and housewives. The plus or minus values of the standardized residuals and "counts and expected counts" in this table tells us that more housewives than expected are underweighted and in obesity while fewer housewives than expected are normal weighted and overweight. Furthermore, less working women than expected are underweighted and in obesity while more working women than expected are normal weighted and over weighted.

Table 10: the Chi-Square Test of BMI and Job Status

	Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3.377a	3	0.337	0.351	---	---
Likelihood Ratio	3.618	3	0.306	0.323	---	---
Fisher's Exact Test	3.231	--	---	0.364	---	---

Linear-by-Linear Association	.110b	1	0.74	0.743	0.412	0.083
N of Valid Cases	150					

Table 10 shows the chi-square test of BMI and the job status of women. Pearson Chi-Square shows that there is no association between Body Mass Index and job status because the job does not affect Body Mass Index significantly.

Table 11: Symmetric Measures of BMI and Job Status

	Symmetric Measures			
		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	0.150045	0.337065579	0.350557996
	Cramer's V	0.150045	0.337065579	0.350557996
	Contingency Coefficient	0.148384	0.337065579	0.350557996
N of Valid Cases		150		

In Table 11, the symmetric measures of Body Mass Index and Job status are shown. For this data set Cramer's V statistics has the value 0.15out of the maximum conceivable value of 1which represent the weak association between BMI and job status.

4.4 BMI and Physical Work

Table 12 is the cross-tabulation of BMI and physical work which shows how much BMI is affected by physical work. In this table, we can see that in total 90 women who are not doing physical work (60.00% of the total) which of these 11 women are underweighted (12.20% of the total), 45 women are normally weighted (50.00% of the total), 25 women are overweighted (27.80% of the total) and 9 women are in obesity (3.30% of the total). Further, 60 women who are doing physical work (40.00% of the total) which of these 4 women are underweighted (6.70% of the total), 21 women are overweighted (35.00% of the total) and only 2 women are in obesity (3.30% of the total). In this table, there are eight residuals: one for each combination of BMI categories (underweight, normal weight, overweight, and obesity) and whether the women doing physical work or not. Standardized residuals in the case of all categories of BMI are insignificant for both those who do physical work or do not do any physical work because all values are less than 1.96 even by ignoring the minus sign.

Table 12: BMI and physical work

			PHYWORK		
			No	**Yes**	**Total**
BMI	**Underweight**	Count	11	4	15
		Expected Count	9	6	15
		% within BMI	73.30%	26.70%	100%
		% within PHYW	12.20%	6.70%	10.00%
		% of Total	7.30%	2.70%	10.00%
		Std. Residual	0.7	-0.8	
	Normal Weight	Count	45	33	78
		Expected Count	46.8	31.2	78
		% within BMI	57.70%	42.30%	100%
		% within PHYW	50.00%	55.00%	52.00%
		% of Total	30.00%	22.00%	52.00%
		Std. Residual	-0.3	0.3	
	Overweight	Count	25	21	46

		Expected Count	27.6	18.4	46
		% within BMI	54.30%	45.70%	100%
		% within PHYW	27.80%	35.00%	30.70%
		% of Total	16.70%	14.00%	30.70%
		Std. Residual	-0.5	0.6	
	Obesity	Count	9	2	11
		Expected Count	6.6	4.4	11
		% within BMI	81.80%	18.20%	100%
		% within PHYW	10.00%	3.30%	7.30%
		% of Total	6.00%	1.30%	7.30%
		Std. Residual	0.9	-1.1	
	Total	Count	90	60	150
		Expected Count	90	60	150
		% within BMI	60.00%	40.00%	100%
		% within PHYW	100%	100%	100%
		% of Total	60.00%	40.00%	100%

Table 13: Chi-square Test of BMI and Physical Work

	Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	4.078a	3	0.253	0.251	---	---
Likelihood Ratio	4.376	3	0.224	0.235	---	---
Fisher's Exact Test	3.889			0.264	---	---
Linear-by-Linear Association	.002b	1	0.965	1	0.527	0.087
N of Valid Cases	150					

Table 14: Symmetric Measures of BMI and physical work

	Symmetric Measures			
		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	0.16489	0.253129703	0.250742065
	Cramer's V	0.16489	0.253129703	0.250742065
	Contingency Coefficient	0.162693	0.253129703	0.250742065
N of Valid Cases		150		

Table 13 is drawn for the chi-square test of BMI and physical work of women. Pearson Chi-Square value of 0.253 shows that the physical work of women has no significant effect on BMI. In Table 14 the symmetric measures of Body Mass Index and physical work are shown. For this data set, Cramer's V statistics has the value of 0.164out of the maximum possible value of 1 which represent the weak association between BMI and physical work.

4.5 BMI and Husband Education

In table 15 the cross-tabulation of BMI and husband education is shown. In this table, there are 71 women (47.30% of the total) whose husbands are illiterate which of these 5 women are underweighted (7.00% of the total), 39 women (54.90% in total) are normal weighted, 20 women (28.20% in total) are overweighted and 7 illiterate women (9.90% in total) are in obesity. As in the case of husband's Primary education, a total of 16 women (10.70% in total) fall in this category which of this 1 woman (6.20% in

total)is underweighted, 7 women (43.80% in total) are normally weighted, 7 women (43.80% in total) are overweighted and there is only 1 woman (6.20% of the total) in obesity. Likewise, the number of women with middle education of their husbandis9 (6.00% in total) which of these there are 1 underweighted women (11.10% of the total), 5 women (55.60% in total) are normal weighted, 3 women (33.30% in total) are overweighted and zero women in obesity. In the case of husband's education up to matriculation, there are 7 women (4.70% in total) which of this one woman (14.30% in total) is underweighted, 3 women (42.90% in total) are normally weighted, 3 women (42.90% in total) are overweighted while there no women in obesity.

Similarly, there are a total of 10 women whose husbands studied up to intermediate (6.70% of the total) which of these 5 underweighted women (50.00% in total), 4 women (40.00% in total) are normally weighted, 1 woman (10.00% 0f the total) are overweighted and no obese women. In the case of husband's Graduation level study, there is a total of 15 women (10.00% in total) of these there is only one underweighted woman (6.70% of the total) while there are 8 normally weighted women (53.30% in total), 4 women are overweighted (26.70% in total) and 2 women in obesity (13.30% of the total). There are 22 women (18% in total) whose husband's education is master and above which of this one woman (4.50% in total) are underweighted, 12 women (54.50% in total) are normally weighted, 8 women (36.40% in total) are overweighted and 1 woman (4.50% in total) is in obesity. In table 15 there are 28 standardized residuals: for each combination of all categories, (underweighted, normal weighted, over-weighted, and obesity) of BMI of women and education. These residuals are insignificant for all 7 categories of education. This table tells us that the women whose husbands are illiterate are less underweight than expected and are also those women whose husband's education is intermediate, graduation and master and above.

There are more underweighted women than expected are those women whose husband's education is primary, middle, and matriculated. More normal weighted women than expected fall in the husband's education category of illiterate, middle, graduation, and masters or above while less normal weighted women than expected are the women whose husband's education is primary, metric, and intermediate. Less over weighted women than expected are those women whose husbands are illiterate, intermediate, and graduated while in the education category of the primary, middle, matric, and, master and above these women are more overweighted women than expected. Women whose husband education category is illiterate and graduation are more obese women than expected while less obese women than expected are those women whose husband education category is primary, metric, intermediate, and masters or above education.

Table 15: BMI and Husband Education

			HUSEDU							Total
			Illiterate	primary	middle	metric	intermediate	graduation	master & above	
BMI	Under Weight	Count	5	1	1	1	5	1	1	15
		Expected Count	7.1	1.6	0.9	0.7	1	1.5	2.2	15
		% within BMI	33.30%	6.70%	6.70%	6.70%	33.30%	6.70%	6.70%	100%
		% within HUSEDU	7.00%	6.20%	11.10%	14.30%	50.00%	6.70%	4.50%	10.00%
		% of Total	3.30%	0.70%	0.70%	0.70%	3.30%	0.70%	0.70%	10.00%
		Std. Residual	-0.8	-0.5	0.1	0.4	4	-0.4	-0.8	
	Normal Weight	Count	39	7	5	3	4	8	12	78
		Expected Count	36.9	8.3	4.7	3.6	5.2	7.8	11.4	78

		% within BMI	50.00%	9.00%	6.40%	3.80%	5.10%	10.30%	15.40%	100%
		% within HUSEDU	54.90%	43.80%	55.60%	42.90%	40.00%	53.30%	54.50%	52.00%
		% of Total	26.00%	4.70%	3.30%	2.00%	2.70%	5.30%	8.00%	52.00%
		Std. Residual	0.3	-0.5	0.1	-0.3	-0.5	0.1	0.2	
	Over weight	Count	20	7	3	3	1	4	8	46
		Expected Count	21.8	4.9	2.8	2.1	3.1	4.6	6.7	46
		% within BMI	43.50%	15.20%	6.50%	6.50%	2.20%	8.70%	17.40%	100%
		% within HUSEDU	28.20%	43.80%	33.30%	42.90%	10.00%	26.70%	36.40%	30.70%
		% of Total	13.30%	4.70%	2.00%	2.00%	0.70%	2.70%	5.30%	30.70%
		Std. Residual	-0.4	0.9	0.1	0.6	-1.2	-0.3	0.5	
	Obesity	Count	7	1	0	0	0	2	1	11
		Expected Count	5.2	1.2	0.7	0.5	0.7	1.1	1.6	11
		% within BMI	63.60%	9.10%	0.00%	0.00%	0.00%	18.20%	9.10%	100%
		% within HUSEDU	9.90%	6.20%	0.00%	0.00%	0.00%	13.30%	4.50%	7.30%
		% of Total	4.70%	0.70%	0.00%	0.00%	0.00%	1.30%	0.70%	7.30%
		Std. Residual	0.8	-0.2	-0.8	-0.7	-0.9	0.9	-0.5	
	Total	Count	71	16	9	7	10	15	22	150
		Expected Count	71	16	9	7	10	15	22	150
		% within BMI	47.30%	10.70%	6.00%	4.70%	6.70%	10.00%	14.70%	100%
		% within HUSEDU	100%	100%	100%	100%	100%	100%	100%	100%
		% of Total	47.30%	10.70%	6.00%	4.70%	6.70%	10.00%	14.70%	100%

Table 16: Chi-square of BMI and Husband Education

	Chi-Square Tests					
	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	25.198a	18	0.12	.b	---	---
Likelihood Ratio	19.705	18	0.35	.b	---	---
Fisher's Exact Test	.b	---	---	.b	---	---
Linear-by-Linear Association	.511c	1	0.475	0.482	0.246	0.014
N of Valid Cases	150					

The Chi-square test of BMI and husband education is represented in table 16. The value 0.12 of Pearson chi-square shows that the BMI and husband education are independent of each other and unrelated because the p-value is greater than our chosen significance value which is 0.10.

Table 17: Symmetric Measures of BMI and Husband Education

	Symmetric Measures			
		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	0.41	0.12	.a
	Cramer's V	0.237	0.12	.a
	Contingency Coefficient	0.379	0.12	.a
N of Valid Cases		150		

Symmetric Measures of Body Mass Index and husband education are shown in table 17. Cramer's V has a value near 0 indicating the weak association of BMI and husband education.

4.6 BMI and Total Mass Media Composite Index

Cross-tabulation of BMI and total mass media access composite index is drawn in table 18. In total 47 women have no access to mass media (31.30% of the total) which of these 3 are underweighted (6.40% of the total), 28 are normally weighted (59.60% of the total), 13 are overweighted (27.70% of the total), and 3 are obese women (6.40% of the total). Correspondingly, in total 103 women (68.70% of the total), and of these 12 are underweighted (11.70% of the total), 50are normally weighted (48.50% of the total), 33 are overweighted (32.00% of the total), and 8 are in obesity (7.80% of the total).

Table 18: BMI and Total Mass Media Composite Index

			TMMCI		
			Not at all	**Accessible Media**	**Total**
BMI	**Underweight**	Count	3	12	15
		Expected Count	4.7	10.3	15
		% within BMI	20.00%	80.00%	100%
		% within TMMCI	6.40%	11.70%	10.00%
		% of Total	2.00%	8.00%	10.00%
		Std. Residual	-0.8	0.5	
	Normal Weight	Count	28	50	78
		Expected Count	24.4	53.6	78
		% within BMI	35.90%	64.10%	100%
		% within TMMCI	59.60%	48.50%	52.00%
		% of Total	18.70%	33.30%	52.00%
		Std. Residual	0.7	-0.5	
	Overweight	Count	13	33	46
		Expected Count	14.4	31.6	46
		% within BMI	28.30%	71.70%	100%
		% within TMMCI	27.70%	32.00%	30.70%
		% of Total	8.70%	22.00%	30.70%
		Std. Residual	-0.4	0.3	
	Obesity	Count	3	8	11
		Expected Count	3.4	7.6	11
		% within BMI	27.30%	72.70%	100%
		% within TMMCI	6.40%	7.80%	7.30%
		% of Total	2.00%	5.30%	7.30%
		Std. Residual	-0.2	0.2	
	Total	Count	47	103	150
		Expected Count	47	103	150
		% within BMI	31.30%	68.70%	100%
		% within TMMCI	100%	100%	100%
		% of Total	31.30%	68.70%	100%

In this table, there are eight residuals: one for each combination of BMI categories (underweight, normal weight, overweight, and obesity) and whether the women have mass media access. Standardized residuals in the case of all categories of BMI are insignificant for both who have mass media access or not because all values are less than 1.96 even by ignoring the minus sign. The signs (plus or minus) and counts and expected counts within the cells of the table tell us that more women (without mass media access) than expected are normally weighted, while fewer women (without mass media access) than expected are underweighted, overweighted and obese. Likewise, fewer women (with mass media access) than expected are normally weighted while more women (with mass media access) than expected are underweighted, obese, and overweighted.

Table 19: Chi-Square Test of BMI and Total Mass Media Composite Index

	Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	1.937a	3	0.586	0.598	---	---
Likelihood Ratio	2.002	3	0.572	0.576	---	---
Fisher's Exact Test	1.769	---	---	0.637	---	---
Linear-by-Linear Association	.020b	1	0.888	0.909	0.492	0.091
N of Valid Cases	150					

Table 19 is drawn for Chi-square test statistics of BMI and total mass media composite index. The value 0.59 of Pearson chi-square shows that the BMI and mass media index has not a statistically significant association because the p-value is greater than our chosen significance value of 0.10.

Table 20: Symmetric Measures of BMI and Total Mass Media Composite Index

	Symmetric Measures			
		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	0.114	0.586	0.598
	Cramer's V	0.114	0.586	0.598
	Contingency Coefficient	0.113	0.586	0.598
N of Valid Cases		150		

Symmetric Measures of Body Mass Index and mass media composite index are shown in table 20. Cramer's V has a value of 0.11which indicates that there is a weak strength of association between BMI and mass media access.

4.7 BMI and total household characteristics composite index

Table 21 explained the relationship between BMI and household characteristics. In this table there are 51women (34.00% of the total) who belongs to the poor category which of this 1 woman is underweighted (2.00% of the total), 34 (66.70%of the total) are normal weighted, 11 are overweighted (21.6% of the total) and 5 are obese women (9.80% of the total). Further, there are 99 women (66.00% of the total) who belongs to the not poor category, and of these 14 women (14.100% of the total) are underweighted, 44 women (44.40%of the total) are normally weighted, 35 women (35.40% of the total) are overweighted and in obesity, there are only 6 women (6.10% of the total).

Table 21: BMI and Total Household Characteristics

			THCCI		
			Poor	**Not Poor**	**Total**
BMI	**Underweight**	Count	1	14	15

		Expected Count	5.1	9.9	15
		% within BMI	6.70%	93.30%	100%
		% within THCCI	2.00%	14.10%	10.00%
		% of Total	0.70%	9.30%	10.00%
		Std. Residual	-1.8	1.3	
	Normal Weight	Count	34	44	78
		Expected Count	26.5	51.5	78
		% within BMI	43.60%	56.40%	100%
		% within THCCI	66.70%	44.40%	52.00%
		% of Total	22.70%	29.30%	52.00%
		Std. Residual	1.5	-1	
	Overweight	Count	11	35	46
		Expected Count	15.6	30.4	46
		% within BMI	23.90%	76.10%	100%
		% within THCCI	21.60%	35.40%	30.70%
		% of Total	7.30%	23.30%	30.70%
		Std. Residual	-1.2	0.8	
	Obesity	Count	5	6	11
		Expected Count	3.7	7.3	11
		% within BMI	45.50%	54.50%	100%
		% within THCCI	9.80%	6.10%	7.30%
		% of Total	3.30%	4.00%	7.30%
		Std. Residual	0.7	-0.5	
	Total	Count	51	99	150
		Expected Count	51	99	150
		% within BMI	34.00%	66.00%	100%
		% within THCCI	100%	100%	100%
		% of Total	34.00%	66.00%	100%

In this table, there is a total of eight standardized residuals that are insignificant for both poor and not poor women because all these values (in case of underweight, normal weighted, over-weighted, and women in obesity) are less than 1.9 even ignoring the minus. The signs (plus or minus) and counts and expected counts within the cells of the table tells us that more poor women than expected are normal weighted and in obesity while fewer women from the poor category than expected are underweighted and overweighted. Furthermore, fewer not poor women than expected are normal weighted and in obesity while more not poor women than expected are underweighted and overweighted.

Table 22: Chi-square of BMI and Total Household Characteristics Composite Index

	Chi-Square Tests					
	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	10.920a	3	0.012	0.011	---	---
Likelihood Ratio	12.352	3	0.006	0.009	---	---
Fisher's Exact Test	11.279	--	---	0.009	---	---
Linear-by-Linear Association	.201b	1	0.654	0.735	0.368	0.081
N of Valid Cases	150					

The Chi-square test of BMI and household characteristics are represented in table 22. The value 0.012 of Pearson chi-square shows that the BMI and household characteristics have a statistically significant association because the p-value 0.01 is less than our chosen significance value which is 0.10. Thus, BMI is significantly influenced by household characteristics.

Table 23: Symmetric measures of BMI and Total Household Characteristics Composite Index

	Symmetric Measures			
		Value	Approx. Sig.	Exact Sig.
Nominal by Nominal	Phi	0.27	0.012	0.011
	Cramer's V	0.27	0.012	0.011
	Contingency Coefficient	0.26	0.012	0.011
N of Valid Cases		150		

Symmetric Measures of Body Mass Index and household characteristics are shown in table 23. For these data, the moderate value of Cramer's V statistics indicates that there is moderate strength of association between BMI and household characteristics.

5. Conclusions and Policy Implications

In the cross-sectional study of married women living in slum and non-slum, many factors create differences in the health of these two groups. Women in slum areas face adverse health issues than women in the non-slum area because all slum areas are surrounded by rubbish which produces germs that adversely affect their health. By considering the factors of health differences, the area show insignificant results for non-slum women while significant results showed for slum women. The level of education is very low in women living in slum areas than those women living in the non-slum area and BMI is significantly affected by education level. Similarly, the husband education of women is very low in slum areas than women in non-slum areas. Household characteristics of women living in both slum and non-slum areas show that women of slum areas had lower BMI than women of non-slum areas because of the bad structure of their houses, no access to toilet facility, cooking fuel, lack of access to safe drinking water which may lead to lungs infection and other harmful diseases. Mass media access indicated by watching TV, listening to the radio and reading newspapers is significantly lower in slum women than non-slum women.

The socio-economic status of women living in slum areas remains the same even if the economy goes up. There is a huge gap between the women of slum areas and non-slum areas. When we combine the selected dependent variable Body Mass Index (BMI) with socio-economic variables, unadjusted differences were shown in our results. BMI of the women living in slum areas was affected low level of education, lack of mass media access, bad household structures, and poor or ignorant area while BMI does not affect by physical work and job status. Day by day increase in slums weakens the roots of the economy because they are not participating in the economic growth and here are many reasons behind the increasing number of slum and lack of their participation in which health is one of them. During the visit to the slum area, we observed that the women of the slum area are most dedicated than men if they have gotten the best opportunities and special guides regarding employment and health, they can be a good part of the society. The women's health in the slum as well as in non-slum areas is an important factor for a strong economy so there is a need to adopt some necessary steps to improve women's health. This study concluded that the slum women had lower BMI status as compared to the non-slum women. As a part of the society, they also needed health care and attention so there should be proper planning and programs to be aware of the current health issues. Following are some policies to overcome these issues and help to become slum women a stronger part of the economy.

- As we have discussed earlier the slum areas are full of rubbish or garbage which is the main cause of dangerous germs so the cleanliness of those areas may reduce the health problems. The government may promote organizations for check and balance regarding health issues in slum areas.
- Awareness programs are the optimal strategies to overcome the health issues so they should be promoted.
- Mass media campaigns are another way to aware people in non-slum women so they can improve their lifestyle.
- Inequalities in health policies may be controlled by government interventions

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The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Impact of Women Empowerment on Fertility Preferences in Pakistan

Naeem Akram

Affiliation
1. Assistant Chief
Ministry of Economic Affairs,
Islamabad, Pakistan
Email: naeem378@yahoo.com

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Abstract

Reproduction is an important aspect of a women's life, unfortunately in Pakistan fertility rates are quite high in comparison to other developing countries as well as in comparison to the other South Asian countries. Different studies have suggested that women empowerment can help reduce fertility rates. The present study has attempted to analyze the role of women empowerment along with other socioeconomic indicators on three different dimensions of the fertility behavior i.e. number of children born (current fertility status), ideal number of children and birth intervals (future fertility status. Data of Demographic and Health Survey (PDHS) 2012-13 has been used. The analysis consists of two levels, at level one a descriptive analysis is carried out. As three different aspects of fertility are the count data. Therefore at the next stage models will be estimated by using poison regression technique and Incidence Rate Ratios (IRR) are reported. It has been found that women's being empowered in financial matters, seeking health care and in household decision making are helpful in reducing fertility. Furthermore, participation in job by women, living in urban areas, having secondary or higher education, access to awareness created by the media, married at higher age are also significant factors in reducing fertility. However, women facing incidence of miscarriage or death of a child tends to increase the fertility. Study had found that wealth of the household, education of husband and having sons have very limited role on the fertility behavior.

Keywords: Women Empowerment, Education, Awareness, Fertility

JEL Classification: J16, I26, D83, J13

1. Introduction

During the latter half of the 20th century, world population has increased alarmingly, mainly in the developing countries of Sub Saharan Africa and South Asia (United Nations, 2015). The significance of women's empowerment in demographic transition in developing countries has been recognized by many development agencies. The fertility started to decline in South Asian countries, because of the empowered status of women in households and society (Phan, 2016).

Over the years there is an improvement in the outcomes of maternal health care in Pakistan. The Maternal Mortality Ratio (MMR) was reduced to 276 in 2006-07 (latest available figure) from 533 during the 1990-91. A significant increase in the contraceptive prevalence rate (CPR) is also been recorded. The CPR was only 12% during 1990-91, which doubled after 10 years and in 2001-02 it was 28%. But this growth slowed down in preceding years and the CPR was 35.4 % in 2012-13. Pakistan has also registered a decline in Total Fertility Rate, it was 5.4 average childbirths per woman over her lifetime in 1990-91; this had gradually reduced to 3.8 in 2012-13 (PMDGR 2010 and 2013). However, in comparison to other developing countries of the region like India (2.5), Sri Lanka (2.35), Bangladesh (2.21) and Nepal (2.39) the total fertility rate is very high. Hence in order to develop policies for fertility control, there is dire need that we may analyze the factors that determine fertility in Pakistan.

The United Nations had recognized the importance of gender equality in the efforts of fertility reduction as early as in 1975 (UN 1975). Latter on during the Cairo International Conference on Population and Development 1994, it was asserted that: "Improving the status of women also enhances their decision-

making capacity at all levels in all spheres of life, especially in the area of sexuality and reproduction" (UN 1994: 25).

McDonald (2000) is of the view that women's empowerment in decision making alone can reduce the fertility without any major change in other spectrum of a women's lives. Because extent to which women get equal rights has very significant impact on the couple's choice of family size and utilization of family planning methods. In this regards women economic empowerment become even more important, lacking economic resources results in minimizing the women's power within family, it make it easy for the husband to impose his decisions regarding family size on the wife (Folbre, 2002). In brief, women empowerment has strong relationship with couples' behavior and intentions regarding reproduction and family planning, which is extremely helpful in reducing fertility rates (Hindin 2000; Mason and Smith 2000).

Practically no society had given the women equal status with men inclusively. Mostly, women have limited economic opportunities and numerous restrictions are imposed in their participation in social activities. Even within the household, the status of the women is determined by her relationship with husband or other household members. Most of Pakistani women had a subordinate position in different aspects, mostly they are lacking in access to economic resources, technology, knowledge and they are mostly restricted to their homes (Jejeebhoy and Sathar 2001; Sathar and Casterline 1998). In these circumstances, it is extremely hard for women to take independent fertility related decisions like number of children, use of contraceptives and utilization of maternal healthcare facilities.

Despite the significance of women empowerment in reducing fertility very little research has been carried out in the context of Pakistan. The present study is an attempt to fill the existing gap in literature by analyzing the role of women empowerment and other socio economic factors in determining fertility preferences in Pakistan. The results of the study will help policymakers in making effective population control policies.

2. Literature Review

Numerous studies have been conducted on the relationship between women empowerment and fertility, the present section provide a brief overview of the latest available studies.

Khan and Raeside, (1997), Bhattacharya (1998, 2006), Hindin (2000) and Kabir et al. (2005a, 2005b) comes to the conclusion that women's empowerment negatively and significantly affects the number of children. However, according to Adak & Bharati, (2011) and Yabiku et al.,(2010) there is no significant relationship exists between women's empowerment and number of children. Abadian (1996) found that education and age at marriage of the women have a negative impact on the total fertility rates. However, study finds that there exists no significant impact of spousal age difference on fertility rate. Sathar and Jejeebhoy (2001) concluded that education, employment status and age at the time of marriage plays significant role in defining the women's status in Pakistan, they also come to the conclusion that these factors also have significant impact on the fertility.

Studies also demonstrated that empowerment has a positive role in fertility preferences like desire for more children. Empowerment by creating more spousal communication regarding fertility related issues gives women more authority and it leads towards less desire for the children. In this regard Gwako, (1997) and Mason and Smith (2000) found empowerment increases the likelihood of women's making fertility related decisions. Hogan et al., (1999), Woldemicael (2009) and Upadhyay and Karasek (2012) found a negative relationship between empowerment of women and the couple's desire for more children.

However, Steele et. al. (1998) found that women's empowerment in the household's purchasing decisions has a negative impact on the desire for more children; however, study is unable to find any relationship between women's empowerment in the mobility and desire for the children. However, Moursund and Kravdal (2003) comes to the conclusion that in India; women living with greater mobility are having more desire of the children. Kritz et al. (2000) found that in case of Nigeria, in areas with comparatively low gender equity, education, labor force participation, women's autonomy, financial contribution in the household income have a negative impact on the desire for more children. However, in areas with more gender equality, women autonomy does not have significant impact on desire for

more children. Hence, along with the women empowerment the socio economic context of the area are extremely crucial in determining the desire for the children.

Zafar (1996), El- Zeini (2008), McAllister et al. (2012) and Upadhyay and Karasek (2012) comes to the conclusion that women's empowerment have a positive and significant impact on the preference of a small family size. According to Woldemicael (2009) households where husband is the authority in household purchasing decisions are likely to desire for the five or more children in comparison to the households wherein women have some say. However, households where husband is the authority in deciding wife's visit to family or friends are less likely to desire large families in comparison to the households wherein women can visits independently. Furthermore, households where wife-beating is considered as justified are more likely to have large families in comparison to the ones that consider wife-beating unjustified.

Odedina, (2016) found that women experiencing domestic violence are less likely to have large family. Similarly, Stieglitz et al. (2018) also found that violence have a significant impact on average number of children. However domestic violence results in many other critical aspects of fertility i.e. miscarriages, abortion etc (Titilayo & Palamuleni, 2015).

According to Hogan et al. (1999) in Ethiopia, higher education, age at time of marriage and empowerment in decision making increase the chances of women to discuss the preference for the optimal family size with their husbands. Similarly, Hindin (2000) found that in Zimbabwe women with no empowerment in household purchases are unlikely to have discussions related to size of the family with their husbands.

Women autonomy in decision making also lengthens the birth intervals, however, in some aspects it results in shortening of birth intervals. Al Riyami and Afifi (2003a, 2003b), Nath et al., (1999) comes to the conclusion that women empowerment in the household results in increasing the birth intervals. Saleem & Bobak (2005) found that in Pakistan, women's autonomy has significant impact on the usage of contraceptives. However, Upadhyay and Hindin (2005) and Fricke and Teachman, (1993) finds that first birth at older ages results in shorter birth intervals because these couples try to catch up with others similarly, women's paid job also shortened the birth intervals. Feldman et al. (2009) concluded that in Mexico the conditional cash-transfer program results in increasing the women's autonomy. However it has no significant impact on the birth intervals. Due to the conditional cash-transfer program, men had reduced the migration for work and they remained at home, that resulted in increased fertility. Drioui,& Bakass (2021) also found that in Morocco, women's empowerment helped in reducing the women's choice for ideal number of children by increasing their bargaining power and appropriate communication with spouse and independence from social norms.

Manzoor (1993) finds that, women's autonomy results in enhanced discussion on the optimal size of family in the couples. However, the study finds that women autonomy has insignificant impact on discussion on family size in the women with limited or medium level autonomy. The women with high level of autonomy can take independent decisions about the family size and hence women autonomy helps in reduction in fertility. Ali et al (1995) finds that women empowerment do not have any significant impact on the number of children. The authors are of the view that most of women in Pakistan do not plan their families and prefer to have more children because of the socio-cultural influences. Ali and Fernando (2010) found that women with empowerment in household financial decision making and mobility, living in urban areas and having exposure to media have significant role in increasing the status of women and it will also results in reduction in fertility rate of women through better access and utilization of contraceptives.

3. Methodology

The present study has used the data of Pakistan Demographic and Health Survey (PDHS) 2012-13. It is nationally representative survey and provides information related to various health aspects. In PDHS 2012-13 a total of 12,943 households were selected. In these households, 13,558 ever married women of age 15-49 were interviewed. An overview of the variables used in the present study is as under:

In order to measure the fertility, literature has suggested that number of children born, preferred waiting time for another child (Birth Interval) and Ideal number of children are the major dependent variables. Hence in present study we used three dependent variables for three different models.

Dependent Variables:

i. **Number of children born**

It is an indicator to gauge the existing situation of fertility, variable can take any value. In the present study the variables range from 1 to 19.

ii. **Birth Interval**

This measures the preferred waiting time for the birth of another child. In the present study it can take any value. In the present study it took value from 0 to 6 where 0 represent if birth interval is less than 12 months and 6 if birth interval is more than 6 years.

iii. **Ideal number of children**

It illustrates the women's fertility preferences and future level of fertility. In the present study this variable had took values from 0 to 27.

Independent Variables:

i. **Urbanization**

A binary variable has been constructed for the locality of the household, it take value of 0 for urban areas and 1 for rural areas. It is expected that living in urban areas had a negative impact on the fertility in Pakistan.

ii. **Level of education of women and her husband**

The education is divided into three categories i.e. no education, primary education and secondary or higher education. Similarly, another variable the education of husband is also created. We expect that more educated women couple like to have fewer children and prefer small families.

iii. **Wealth of household**

The wealth index can take value from 1-5 where 1 indicate poorest and 5 for the richest household. The effect is hard to predict because there are two opposite impacts of wealth on fertility. At one hand due to affordability more wealthy people can afford more children on the other hand poor are least interested in family planning and consider more children as a way out of poverty.

iv. **Awareness about family planning**

In the original data set, there exist three questions related to awareness about family planning. Heard family planning on radio, watched any TV program or advertisement regarding family planning and read about family planning in newspapers. A binary variable named as awareness about family planning has been constructed by using the available information. It is binary variable where 0 represent that responded had not heard, watched or read about family planning in any form of media. We expect that awareness has a positive impact on reducing the fertility and promotion of birth control policies.

v. **Relationship with the household head**

In the data we have considered the relationship to household head as a binary variable. It takes values of 1 if the household head is she herself or her husband and takes value of 0 for all other relationships.

vi. **Age at Marriage**

The women who got married at early age are more likely to have high fertility rates as compared to women married at higher ages.

vii. **Desire of children by husband**

Mostly in Pakistan it is hypothesized that husbands desires for more children that results in increasing the fertility. This is a binary variable where 0 represent that husband do have desire for more children and 1 represent that husband like to have more children.

viii. **Women Empowerment**

There exists questions related to four areas of empowerment i.e. 1) empowerment in healthcare, 2) empowerment in household purchases, 3) empowerment in visiting relatives/friends and 4) empowerment in utilization of husband earning respectively. In order to simplify the analysis we clubbed the responses into three broader categories i.e. i) respondent alone ii) Jointly iii) husband/someone else.

ix. **Nature of Employment**

Our employment variables has three options i.e. 1) not working 2) employed for cash and 3) employed not for cash.

x. Experience of loss of a child

It measure whether a women had experienced a miscarriage or death of a child. We constructed two separate variable one for women experiencing miscarriage and second women experiencing death of a child. These are binary variable where 0 represent no miscarriage/death of a child and 1 represent experienced miscarriage /death of a child

xi. Have Sons

It is also hypothesized that more children were born for the desire of male baby. And birth of son results in limiting the desire of more children to some extent. This is a binary variable where 0 represent that women have no son and 1 represent that women gave birth of a son.

The analysis consists of two levels, at level one a descriptive analysis is carried out. As three different aspects of fertility i.e.1) number of children born 2) Ideal number of children and 3) birth interval are the count data. Therefore at the next stage models will be estimated by using poison regression technique.

4. Results

4.1 Descriptive analysis

The table 1 provides the overall descriptive position of the selected indicators.

Table 1 Descriptive Analysis

Background Characteristics	Proportion of the women (%)	Background Characteristics	Proportion of the women (%)
Birth Interval		**Employment**	
<12 Months	41.91	Not Employed	79.86
1 Year	10.54	Employed not for cash	16.29
2 Years	21.81	Employed for cash	3.85
3 Years	14.33	**Husband Desire for More Children**	
4 Years	5.22	Do not want more	59.37
5 Years	5.11	Wants more	40.63
6+ Years	1.07	**Have sons?**	
Education		No	24.74
No Education	56.24	Yes	75.53
Primary	13.50	**Relationship with Household Head**	
Secondary or Higher	30.26	Self /Husband	61.34
Education of the Husband		Others	38.66
No Education	31.44	**Empowerment in healthcare**	
Primary	13.42	Respondent Alone	10.48
Secondary or Higher	55.15	Jointly	37.51
Wealth		Partner/Someone else	52.01
Poorest	18.34	**Empowerment in household purchases**	
Poorer	19.07	Respondent Alone	7.03
Middle	19.10	Jointly	36.00
Richer	19.60	Partner/Someone else	56.97
Richest	23.90	**Empowerment in visiting relatives/friends**	
Region		Respondent Alone	8.89
Urban	46.84	Jointly	38.11
Rural	53.16	Partner/Someone else	53.01
Incidence of Miscarriage		**Empowerment in utilization of husband earning**	

No	66.40	Respondent Alone	6.59
Yes	33.60	Jointly	33.62
Incidence of Death of a Child		Partner/Someone else	59.80
No	76.25	**Awareness about family Planning**	
Yes	23.75	Never Heard of family planning on radio, TV, or Newspaper	67.57
****		Heard family planning on radio, TV, or Newspaper	32.43

The table 1 suggests that majority of women prefer to have birth interval of less than 12 months i.e. 41 % while only 25% of women like to have birth interval of more than 2 years. Most of the women are having no education (56%). However, situation in education of spouses is relatively satisfactory as 55% are having education of secondary or higher wherein 31% of the husbands have no formal education. In the survey, 53% of the respondent womenn belongs to urban areas. The majority of the women are not formally working (80%), and only 4% of the women are working for monetary benefits.

It has also been revealed that among women, there is very limited awareness family planning because only 32% of women had heard about family planning through media. Furthermore, 76% of the women had sons. Only 34 % of women had faced the incidence of miscarriage and only 24% of women had faced the incidence of death of a child. It has also been observed that majority of women i.e. 61% are either herself household head or household is headed by their husbands.

As far as empowerment indicators are concerned it is evident that only 7-10 % of women are sole decision-makers in four different aspect of empowerment (i.e. empowerment in healthcare, household purchases, visiting relatives/friends and in utilization of husband earning). However, around 33-38% of women are involved in decision making as jointly decision-maker, while in around 52-59% of the households decisions are made solely by partner or someone else without the involvement of the women.

4.2 Estimation Results

The results of three models estimated by using the poison regression are summarized in table 2.

Table 2 Estimation results of models analyzing the determinants of fertility of Pakistani women (values are Incidence Rate Ratios)

Name of the Variables	Children Born	Ideal Number of Children	Birth Interval
Urbanization			
Urban	1	1	1
Rural	1.04*	1.01**	0.86*
Education			
No Education	1	1	1
Primary	0.87*	0.76*	1.21*
Secondary or Higher	0.77*	0.72*	1.30*
Wealth of the Household			
Poorest	1	1	1
Poorer	1.02*	0.98	1.02
Middle	1.05*	1.03	0.97
Richer	1.04*	1.06	0.93
Richest	1.06*	1.04	0.89
Awareness			
Never Heard family planning on radio, TV, Newspaper	1	1	1
Heard family planning on radio, TV, Newspaper	0.99	0.94*	1.18*
Relationship with Household head			
Self or Husband	1	1	1

Others	0.71*	0.89*	1.17*
Age at marriage	0.97*	0.97**	1.06*
Husband's Desire of more children			
No	1	1	1
Yes	1.06*	1.29*	0.90*
Education of the Husband			
No Education	1	1	1
Primary	0.95**	1.01	1.04
Secondary or Higher	0.96*	1.00	1.06
Empowerment in Seeking Healthcare			
Respondent alone	1	1	1
Jointly	0.96**	0.89**	1.07**
Partner/ Someone else	0.98*	1.14*	1.07
Empowerment in Household purchases			
Respondent alone	1	1	1
Jointly	0.97	0.98	1.02*
Partner/ Someone else	0.96	1.09*	0.96*
Empowerment in utilization of husband earning			
Respondent alone	1	1	1
Jointly	1.02	0.90*	1.19*
Partner/ Someone else	1.01**	1.02**	0.96*
Empowerment to visit relatives/friends			
Respondent alone	1	1	1
Jointly	1.01	0.99	1.03
Partner/ Someone else	1.00	0.97	0.99
Employment			
Not Employed	1	1	1
Employed not for cash	0.99	0.93*	0.82*
Employed for cash	0.94*	0.97	0.82*
Incidence of Miscarriage			
No	1	1	1
Yes	1.07*	0.98	0.89*
Incidence of Death of a Child			
No	1	1	1
Yes	1.54*	1.11*	0.91*
Have Sons			
No	1	1	1
Yes	1.11	0.98	1.69*
Constant	2.23	5.41	0.98
***p < 0.05; **p < 0.10**			

The results indicate that urbanization is having significant impact on fertility behaviors as women living in rural areas are having higher incidence ratio for the number of children born and ideal family size. However, women living in rural areas having less incidence ratio for birth interval. It reflects that in comparison to rural women, urban women are higher birth intervals but less number of children and they prefer to small family size.

It was also evident from the results that women education has significant impacts on her fertility behavior. Women with secondary or higher education are having less incidence ratio for more children/ ideal number of children in comparison to women with no education. Similarly, women with higher education are having significantly higher incidence ratio for birth interval. It reflects that education has significant impact on lowering the women fertility rates. However as far her husband's education is concerned it has been found that except for the number of children (wherein educated husbands are having significantly less incidence ratio of having more children) in all other dimensions (ideal number of children or decision regarding birth intervals), husband's education do not have significant impact.

Wealth of the household has significant impact for the number of children born. It has been found that wealthier household are having higher incidence ratio for higher number of children in comparison to poor. Similarly, richest households (Top 20%) are having less incidence ratio of birth interval. However, for other distribution of the wealth the impact is insignificant.

It has also been found that awareness created by media is having significant impact on the ideal number of children and birth intervals. Women who got awareness from media about family planning are having less incidence ratios for the larger ideal family and are having higher incidence ratios for the birth interval.

Age at marriage is also having significant impact on the number of children, ideal number of children (smaller incidence ratio i.e. less than 1) suggesting that women married at higher age are less likely to have more children. While age at marriage is having higher incidence ratio for the birth interval indicating that women married at higher age are more likely to have higher birth interval.

In line with expectations husband desire for the more children increases the birth of more children and ideal number of children (having significantly higher incidence ratio) while it tends to reduce the birth interval (having significantly smaller incidence ratio).

Similarly if women had suffered from the incidence of a miscarriage or death of a child then it has significantly higher ratios of number of children born and ideal number of children. However, in case of birth interval it has significantly smaller ratios. It suggests that death of a child or miscarriage tends to increase the chances of higher fertility.

Having son does not have any significant impact on number of children born or ideal number of children. However, having sons result in increasing the incidence ratio of birth interval. It reflects the common psyche of Pakistani women that after giving birth to sons they start thinking of birth control.

As far as indicators of women empowerment are concerned it has been found that except for the empowerment to visit friends and relatives, all other dimensions of empowerment have significant impacts on the number of children born, ideal number of children and birth intervals. It has been found that households, where women are not involved in decisions regarding seeking health care, have significantly higher incidence ratios for number of children born, ideal number of children, however, in case of birth interval the impact is insignificant. It has also been found that in the households where husband/ someone else are the sole decision makers for the household purchase have significantly higher incidence ratio for the ideal number of children and significantly less incidence ratio for the birth interval. Similarly households where husband/someone else are the sole decision maker for utilization of family earnings there are more higher incidence ratio for number of children born and ideal number of children, while having less birth intervals. It can be summarized that more empowered women in terms of finance, household decision making and seeking health care tends to have smaller family size and high birth intervals. Furthermore employed women (either for cash or not for cash) have significantly less incidence ratio for children born and ideal number of children in comparison to the unemployed women and higher incidence ratio for the birth interval.

5. Results and discussion

Reproduction is very important aspect of a women's life. In most of the societies childbearing plays pivotal role and women's status is linked with the number of children. Studies have suggested that women's autonomy in decision making has strong relationship with the couples' behavior and intentions regarding reproduction and family planning, which is extremely helpful in reducing the fertility rates. However, in Pakistan very limited research has been conducted to analyze the role of women empowerment on the fertility behavior. The present study has attempted to analyze the role of women empowerment along with different other socioeconomic indicators in fertility behavior in Pakistan.

The major finding of the study is that the three dimensions of women empowerment i.e. financial empowerment (proxied by utilization of husbands earnings), empowerment in seeking health care and empowerment in household decision making (proxied by decision making in household purchase) have significant impacts on the fertility indicators. However, social empowerment (proxied by decision making to visit family members/relatives) does not have significant impact on fertility indicators. The results suggest that women empowerment is helpful in reducing the fertility because more empowered

women have fewer children born an indicator of current fertility and tends to have smaller family as ideal, indicator of future fertility preferences and higher birth intervals also an indicator of future fertility preferences. Furthermore, participation in job by women is also helpful in increasing the birth interval and reducing the number of children born and ideal family size. In view of that there is dire need that to achieve the target of reduction in fertility the government must take necessary steps to empower the women. In this regard provision of more job opportunities will not only result in increasing the status of women but it will also helpful in controlling the fertility rates in Pakistan.

Study also found that urbanization is helpful in reducing the number of children born and ideal family size and increasing the birth interval. However, this finding must not be considered as promotion of migration to cities rather it is suggested that better health, education, transportation facilities be provided in the rural areas so that rural areas may come closer to urban areas in terms of health and education and level of awareness that will ultimately reduce the fertility in rural areas.

The education of women emerges as an important factor in determining the fertility of women as women having secondary or higher education tends to have smaller families and larger birth intervals. However, the education of husband does not have significant impact on the birth interval as well as family size. It reflects the importance of girls' education in Pakistan. As provision of education to women will not only improve their status in the society and minimizes the gender inequality but it will also results in achieving other development goals.

Similar to education awareness created by the media is also having significant impacts on the ideal family size and birth intervals. Women that are able to get awareness about family planning from media tends to have smaller family sizes and higher birth intervals. So there is need that more family planning programs may be telecasted on the TV, Radio and Print media.

It has been found that wealth of household is having limited impact on the fertility behavior. The results indicate that wealthier household tends to have slightly higher number of children. However, in other aspects i.e. ideal family size and birth interval wealth of household do not have significant impact.

Study also found that women married at higher age are less likely to have more children while having higher birth intervals. It indicates that marriages at early age must be discouraged. In this regards legislative action and awareness among masses will be helpful.

The study also comes to the conclusion that women facing incidence of miscarriage or death of a child tends to have larger family sizes and smaller birth intervals. It reveals the need of provision of better maternal health care facilities to the women and child health care facilities. Contrary to the expectation having sons do not have any significant impact on the family size although it significantly increases the birth interval. It suggests that women tend to have smaller birth intervals as long as it had not given birth of a son however, after the birth of son the women prefer to have larger birth intervals.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Impact of Institutional Quality on Trade Performance of Small and Medium Enterprises in Pakistan

Muhammad Fahad Khan[1], Muhammad Imran Khan[2], Kamran Abbas Naqvi[2]

Affiliation
1. School of Economics Jilin University Changchun, China
Email: fahdafridi@icloud.com

2. Applied Economics Research Centre University of Karachi, Pakistan

Corresponding author email:
imran14pide@gmail.com

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Abstract
The trade economy is dependent upon the institutional quality of the country. It affects the ease of doing business in the economy. It is plausible to think that, how institutional quality can affect the trading performance of Pakistan. Small & medium enterprises (SMEs) are playing the role of the backbone of the trade sector in Pakistan. Contribution SMEs can be significantly improved, by improving the supporting macroeconomic indicators. This paper studies the short-run and the long-run association between SME trade growth and cost of production, relative prices, and Institutional quality in Pakistan. It also examines the Environmental Kuznets curve (EKC) hypothesis, between SME trade growth and institutional quality in Pakistan. This study utilizes secondary data, which is taken from multiple secondary sources, including the SMEDA, Pakistan Economic Survey, and world development indicators. The biannual data is assembled up for 38 observations from (2000 to 2019). This study uses Auto Regressive Distributive Lag (ARDL) bound testing method to examine the short run and long run connections between SMEs' trade growth and macro-economic variables, like; relative prices, Cost of production. Gross Domestic Product, exchange rate, and institutional quality. These variables are selected from the available literature. The study finds that the short-run response of SMEs trade is not significant, but it significantly responds to macro-economic indicators in long run. The institutional quality has a non-linear relationship with SMEs trade growth. This indicates that the pollution heaven hypothesis holds valid even for the case of institutional quality and SMEs trading performance. The study focuses on the optimality of institutional quality for the optimal performance level of SMEs in Pakistan.

Keywords: Institutions, Economic growth, SMEs enterprise, Trade

JEL Classification: F10, F19, O43

1. Introduction
Institutional quality is important for the economic growth of any economy. Institutional quality reinforces economic growth and vice versa. Good quality institutions can help in regulating smooth economic transactions at a lower cost (Acemoglu, 2012). Institutional quality indicates laws enforcement, individual rights, and good quality of government. It also indicates regulations and services. It is essential to understand the association between institutional quality and economic development through the proper mechanisms. The quality of institutions can show a significant role in driving the productivity of an economy (Shahbaz et al. 2013). There is a significant statistical relationship between small &medium enterprises (SMEs) growth and institutional quality improvement. It will be interesting to empirically examine, whether or not institutional-quality growth affects the trading performance of SMEs in Pakistan. Studies have shown that SME's trading performance is associated with multiple factors: cost of production, relative prices, exchange rate, industrial GDP, and other explanatory variables like institutional quality and political instability.

According to Hall & Jones (1999), weak institutions or governance involve undesirable externalities, which are associated with negative effects on economic growth and development. Weak institutions lead to higher transaction costs and reduce the exports of SMEs Enterprises because of high price tails in the markets. According to Shah & Syed (2018), there exist 3.2 million business SME enterprises in working Pakistan, which accounts for 99 percent of total businesses and adds up to 33 percent to the total value-added to the economy. Akhtar & Malik (2000) argued that Pakistan's trade performance is stagnant because of relatively lower price elasticity in the region. Now, it is possible to logically extend the argument to global trade. According to Wei & Shleifer (2000) institutions play important role in re-organizing the internal trust to deal with multiple governing systems. The efficiency of institutions can help in getting and implementing domestic property rights, which is an important factor of internal trade in terms of cost. (Acemoglu, 2012) in his book, "why nation Fails" argued that institutions are the backbones of an economy. It reduces the uncertainty of information asymmetry and exchange rate, which is important to enhance trade across borders. Trade across borders is faced with incomplete information and weak institutions intensify it further. Milgrom et al. (1990) argued that institutions are humanly designed constraints that rearrange human interactions, within the country as well as across countries. Institutions are rules set for interaction in society for any specific kinds of transactions or dealings, which help to reduce the unobservable uncertainties. The concept of institutional quality and economic growth relationship is increasingly becoming important to improve human life.

This research specifically investigates the short-run association and long-run relationship between institutional quality index score growth and SMEs' contribution toward trade as a percentage of total trade volume in Pakistan. Since each variable is not static at the level and first difference but the level of integration is different, the study uses the ARDL bounds testing approach to test Environmental Kuznets Curve type hypothesis between institutional quality and SMEs' contribution toward trade. The study included a squared term of institutional quality score to see whether the relationship between institutional quality and trade performance of SMEs is linear or nonlinear.

The motive behind the testing nonlinear relationship is to explore, how far institutional-quality growth is better for SMEs trading because highly strict institutional rules may reduce the influence of SMEs in the market and thus reduce the excitement of businessmen to invest. It is also debated that strict institutions reduce the ease of doing business by implementing environmental quality standards and other health quality standards, which increases the cost of production and prices of goods in the market. This indicates that according to the law of demand high prices reduce the demand for goods in the market while keeping other variables constant. Relative prices are included in the model to explore the perspective of the supply-side and this study is based on supply-side factors analysis for SMEs performance in association with other factors including institutional quality and cost factors.

Institutional quality is considered the most important variable for the economic growth of any country. The small and medium enterprises' trade performance and institutional quality can be tested for Pakistan with time series econometric models. This can be an addition to the existing literature, by adding a case study of Pakistan, which presents the long-run and short-run dynamics of SME trade and institutional quality nexuses in Pakistan. This is an empirical study, which reveals the econometrical logic behind the non-linear relationship testing between Institutional quality and SME growth in terms of trade and commerce in Pakistan. It is quite clear that SMEs are contributing a significant amount of output in the production, trade, and employment sections of the economy. It is predicted that highly strict institutions also reduce the performance of SME firms. Therefore, it is important to examine the unsolved puzzle of the empirical relationship between institutional quality growth and SMEs' growth or performance. Solving this puzzle will help us to understand what level of strictness and rules implementation the SMEs can absorb for a positive influence. The study focuses on the estimation of the relationship between SMEs growth and the Institutional quality index score of Pakistan and studies the determinants of SMEs' trade performance in presence of good governance and institutions. The study has also attempted to test the EKC hypothesis between institutional-quality growth and SMEs' performance growth over time in Pakistan. This paper is organized in a way that section one provides an introduction and background of the topic, followed by the literature in the section carried out under specific themes. The third section is

the theoretical background of the given topic and the section for is the explanation of the data and methods of this research. Section 5 is about results with some discussions and section 6 is the conclusion and policy implications.

2. Literature Review

2.1. Institutional quality and economic growth

There are tons of studies available, which indicate a strong affiliation between institutional quality and economic growth. The study by Valeriani & Peluso (2011) established a strong relationship between a country's institutional growth and economic development. The study used panel data and conducted a pooled regression analysis, focusing on the trade potential of the economy. The study of James & Halit (2006), explored the association between Institutional quality and economic growth with a specific focus on the Maintenance of the rule of law or democratic institutions. The study found a significantly positive association between institutional quality and Economic growth, through trade improvement mechanisms.

Another study used the panel data approach focusing on trade openness, where the study of (Nawaz et al. (2014) verified that institutional quality and economic growth are positively and significantly associated in developing and developed countries. This indicates that institutional quality improvement is better for economic growth no matter whether the economy is underdeveloped or developed. Low violence, good law, and order situation, democratic with a high score, and other institutional implementations have shown a positive association with trade growth of small and medium enterprise trading capacity and growth. In the case of Pakistan, policymakers are still struggling with the quality of institutions. The scores of the institutional quality index in Pakistan are below the average score of all the Asian countries. The paper of Chong & Calderon (2000) estimated the bidirectional Causality between institutional measures and economic growth and establish a significant association between economic growth and improved institutional quality across the different income groups and countries. Reporting all these studies indicates that it is a long-established, existence of a statistically significant relationship between economic growth and institutional quality and vice versa. In previous literature institutional quality has been advocated for the growth of a country. It is important to explore the mechanism, which increases economic growth with the help of improved institutional quality. How institutional quality brings in the input factors that improve the economic growth of different sectors in the economy along with ultimately increasing the aggregate economic growth of an economy.

2.2 Institutional quality and trade growth

The literature on the implications of institutions for trade growth is quite diversified in terms of different methods used for the analysis conducted on time series, panel, and cross-sectional data sets. The author came across different approaches while reading the literature on institutional quality and trade relationships for an instance, a published study of LiPuma et al. (2013) examined the effect of institutional quality on exports in emerging world economies. The study specifically explored the exporting performance of firms working in emerging economies. This study used a panel data approach with fixed effect and random effect models. The study used the housemen test to determine, which model should be the best fit in the case of a given data set and a random effect model was preferred.

Theoretically, this study used a contingency model of firm age and size effects in presence of good institutions. The study found a significant association between institutional-quality growth and export growth of larger-scale firms. Shah et al. (2011) also explored the association between SMEs' exporting performance and economic growth in Pakistan, which indicates that SMEs are significantly contributing to the Pakistan economy. The study of Méon & Sekkat (2008) specified the importance of Institutional quality in terms of the specification of institutions and products association. The study further focused on what type of institutions and which type of trade policy for further development should be preferred.

The study of Bankole et al. (2015) examined the impact of telecommunication infrastructure and institutional quality on trade efficiency in Africa, which indicates the importance of telecommunications for trade efficiency. The study established a partially significant relationship between institutional quality and telecommunication for the efficiency of the trade sector in African countries. The study of Maruta (2019) added an important factor of trade aid along with institutional quality to explore the effects on trade. The interaction term of aid and institutional quality has positive implications for the growth trade. The study found that quality institutions bring in additional aid to develop trading capacity and hence increase the trade of the economy.

The study of Lin et al. (2020) added that the role of institutional quality on the performance in the export of coconut products has been a significant example of SME products trade can be observed. Better institutions will make and ease for doing small businesses and will improve the quality of products through monitoring and evaluation. It is thus very obvious that institutional quality and trade are positively associated in developing countries. Stronger institutions lead to expansion of trade, which can be either due to productivity growth or it can be because of per capita income growth. The productivity growth will increase the exports of an economy and income growth will increase the imports of the economy.

2.3 Institutional quality and SMEs growth

Many departments and institutions are working for the development and growth of SMEs sector in Pakistan, which include the Government of Pakistan at the top position, followed by the State Bank of Pakistan, SME Finance Department, Financial Stability Department, International Monetary Funds (IMF), World Bank, Asian Development Bank (ADB), US-AID, and others include commercial banks and national saving centers. It is argued that better institutions lead towards a good economy, where every sector is expected to grow with a proportional rate of investment, with possible struggles and opportunities in the economy. It is also argued that good institutional quality increases SMEs and their contribution to the economy. In this case institutional quality is the quality of rule of law, law and order situation, polity score and governance quality and other indictors of formal institutions. The researchers have also explored SMEs growth and institutional quality in different contexts. The study of Deng & Zhang, (2018) examined the role of Institutional quality and internationalization of emerging market firms, also known as SMEs. The study was conducted on the Chinese SMEs sector, which found that institutional quality with innovations has led the SMEs growth and sustainability in China. The findings can be replicated for Pakistan, where weaker institutions are restricting SMEs growth in the international markets.

The argument of resources distributions is dominated while arguing about SMEs and their contribution to the economy. It is argued that the institutions are developed form of cooperative and supportive ideas that fosters the growth of SMEs in the economy. The study Manolopoulos et al. (2018) explored the mechanism behind the resources distribution and the role of home institutions for the growth of SMEs exports and their relationships with stakeholders. The study found that institutions are working for the reallocation of state resources among other sectors and SMEs to enhance the growth of the trade sector. Krasniqi and Mustafa (2016) added that a small firm's growth in a post-conflict environment has only been the reason, where human capital and institutional quality have played an important role to sustain and develop it. The role of managerial capacities cannot be denied, which are subjected to the availability of human capital on a firm level. The implications of human capital for SME growth and development can be seen in terms of semi-skilled and skilled workers in the sector. This has become possible due to good quality institutions and their wise approach to reallocating such types of resources to increase the efficiency of the SMEs sector in Pakistan.

2.4 Small & Medium Enterprises trade growth and its influencing factors

There are many factors, which influence the role and losses of SME enterprises in the economy. These factors are investment, profitability, ease of doing business, taxes, and security in the region. Some other factors include the cost of production, demand for SME products indicated through relative prices, and Institutions' development can be very helpful to improve the productivity of SMEs in Pakistan. SMEDA

is collaborating with development organizations working across the world. The government of Pakistan has connected SMEDA with Japan international Cooperation agency also known as JICA to develop training programs for SME employees and managerial authorities to develop skills and market approaches in the Pakistan SMEs sector. The major partner's list also includes the Training and Development Centers of the Bavarian Employers Association Germany and local experts (Pakistan Economic Survey 2018-19). According to Akram et al. (2011), access to loans and financial support can be enhanced through institutional-quality growth and cooperation across different sectors in Pakistan. Studies have identified some of the influencing factors on a micro level, using primary data; collected through a survey. Other studies have shown that innovation led to growth, access to markets also leads to SMEs trade growth, and finally, the cost of production is important for the trading decision on SMEs level businesses in Pakistan.

3. Theory behind the trade, institutional quality, and economic growth

The theory of trade and economic growth explains the mechanism and channels which lead to the economic growth of an economy through trade or restrict the real economic growth of people of the economy. There are two sides to this discussion, one side is positive and the other side negative in terms of the relationship between these important economic variables. It is a conventional view about trade and economic growth relationship, that trade plays a role as an engine of economic growth (Maneschi, 1992). Because it reduces the cost of production due to the exchange of much-needed inputs at lower prices as compared to the cost required for the production of those inputs for the hosting economy.

It is argued that trade helps to provide raw materials and semi-finished goods to industries, which helps the sector to grow faster as compared to the same industry in the close economy. It helps the industry to adopt new technologies from all across the world, which are economically feasible. Point no second to note that trade also helps to transfer the information about the use and utilization of new technology, it helps in the transmission of new ideas, new skills, and qualities of entrepreneurship. And last but not the least, trade helps economies to gain capital gains. It is the transfer of capital from developed countries to developing countries in many different forms Farahane & Heshmati, (2020).

This is the basic channel through which trade is expected to have positive effects on economic growth in the long run. In the short run, the returns on product sales determine the economic gains from trade. Some other studies indicate that trade can reduce the local supply of products and thus increase the prices in the economy, which ultimately reduces the purchasing power parity of a household in the economy. However, the positive view strongly dominates the debate. Now that it is established that trade expansion has positive effects on the economy, through the flow of ideas and innovation skills across borders Grossman & Helpman, (2015). There must be some specific factors, which influence the trading infrastructure of the economy. The author of "why nations fail" argued that Institutions are the most important tools to develop economies (Acemoglu, 2012).

The theory behind the institutional quality and economic growth, which is driven by the SMEs can be explained through the linkages between investment, production, restrictions, trade opportunities, and institutional quality. The quality of institutions is an indicator of less corruption, less violence, good law and order situation with better governance in the economy. The good quality of these indicators creates a conducive environment for SMEs size businesses, which flourish to become more productive. Highly productive SMEs are expected to enter into trade and grow over the years with a good level of competitiveness. According to (North, 1981) institutions are the rules of the game and organizations are the players, which play the game inside the rules and regulations. The SMEs are expected to perform better as institutional quality increases, but it is also a matter of worry to consider that bureaucratic quality leads to stringent laws and regulations on businesses which can bounce back the performance level of those SMEs, which have limited investment capabilities.

The Institutions theory explains, why changes occur and why organizational arrangement and practices become embedded. A study by Greenwood et al. (2015) argued that institutional gravity is highly influential to cause changes. The emerging rules and new rules are presented with an enforcement mechanism, which creates pressure on organizations, directly and indirectly, leading to the changes. The example can be taken from simple market rules, where new rules can change the behavior of agents,

firms, and associations. The introduction of environmental standards can modify the growth potential of small organizations in the short run. In this case, institutional changes are expensive to adopt and will cause a decline in economic output because there is a tradeoff between reducing emissions and output growth.

In the second situation, rules changes are widely adopted and accepted, an example of trouser ban among female employees in Pakistani workers has removed and none of the women is required to resign upon marriage, which was once very common rule and accepted but now these new rules changes are accepted and appreciated. This way the institutions can change the path of economic growth. According to (North, 1981) institutions are human-made rules regulations, which restrict executive powers, support disciplinary actions, and define human interactions. Institutions work as engines of systematically controlled or stimulated growth. It helps the economy to work smoothly. The economic growth and Institutional quality interaction have been discussed by (Acemoglu, 2012). The author of "why nations fail" argued that institutions are the backbone of the economy. This indicates that the economy works with proper rules and regulations in a better way as compared to unregulated economies.

4. Data and methodology

The study is designed to examine the empirical relationship between institutional quality and exports growth of SMEs in Pakistan. It is important to understand to what extent the institutions matter for SMEs exports growth. Is there exist a linear relationship between SMEs exports growth and institutional quality? To answer all these policy-oriented questions, secondary data constructed methods and techniques are used. This chapter is designed to provide an insight into the detailed methodology of the study to readers and reviewers. The chapter includes Data details, sampling details, techniques, and model details used in this study to achieve the stated objective and answer the research questions.

4.1 Data of the study

The study is based on secondary data, which is taken from, statistical yearbooks ok Pakistan, SMEDA, SBP, and Pakistan Economic survey and reports of selected SMEs in Pakistan. The data of this study is a time series for all the selected variables. The data of the study are treated before the final estimation. The bi-annual data is taken from 2000- to 2019 because 2020 was abnormal crises year.

4.2 Important variables of the study

- Trade performance of SMEs is measured as a percentage of SMEs contribution towards trade, which is taken from SMEDA and State banks. This is a continuous variable and is treated as the dependent variable of the study. Which is indirectly the current value of aggregated and disaggregated exports of the SMEs sector in Pakistan (SMEDA) (SBP).
- Institutional quality is measured through an index score, developed by (WDI) world development indicators, which measures bureaucratic quality, law and order situation, democracy, better governance, corruption control, and violence. Reducing the negative terms intensity in the economy means goo institutional quality,
- Institutional quality squared term is included to track linearity of the relationship between institutional quality and SMEs trade growth in Pakistan. (Author's calculation)
- RP is relative prices which is the ratio of uniting value of SMEs exports to wholesale prices index of Pakistan (Hussain et al., 2020).
- Industrial GDP is used as an indicator proxy for the production capacity as we don't have direct data set available for the production capacity of SMEs (Hussain et al., 2020).
- COP is symbol which represents the cost of production. The producer price index is used as the cost of production of SMEs products (Hussain et al., 2020).
- Exchange rate is taken as an indicator of risk associated with unpredicted fluctuation in taxes and interest rate and other macroeconomic indicators of the economy (Shahbaz et al., 2013).
- Investment facilitation/Domestic investment is an indicator of capital formation domestically, which is a significant contributor to the economic growth of SMEs in Pakistan. Economic theory explains

investment as a driving factor of capital formation, which can be a good proxy in an econometric model when direct data for capital formation is not available for SMEs in Pakistan.

- Investment facilitation is taken from Pakistan Economic survey in PKRs Millions This study uses both indicators.

4.3 Model of the study

The study is based on the Auto-Regressive Distributive Lag (ARDL) model, because it helps readers and policymakers to provide an understanding of both, the long-run and short-run relationship dynamics of institutional quality and SMEs trading performance.

Exports' contribution towards trade as a percentage is taken as an indicator of the trading performance of SMEs' or export growth is taken as the dependent variable. SMEs' trade performance is the function of institutional quality, industrial GDP growth, cost of production, relative prices, and relative exchange rate and investment facilitation

The following model is given in the Cointegrating form,

$$\sum_{i=0}^{n} TpSME_t = \alpha_t + \beta INDGdp_t + \beta EXCR_t + \beta_4 ACoPU_t + \beta_1 RP_t + \beta_2 INSTQ_t + \beta_3 INSTQ_t^2 + \beta INVFC_t + e_t \quad (1)$$

ARDL form:

$$\begin{aligned}\Delta TPSME_t = \alpha_t &+ \sum_t \beta 1 \Delta\theta TPSME_{t-1} + \sum_t \beta 2 \Delta\theta INDGdp_t + \sum_t \beta 3 \Delta\theta EXCR_t + \sum_t \beta 4 \Delta\theta COP_t \\ &+ \sum_t \beta 5 \Delta\theta INSTQ_t + \sum_t \beta 6 \Delta\theta INSTQ_t^2 + \sum_t \beta 7 \Delta\theta lnRP_{t-1} + \sum_t \beta 8 \Delta\theta INVFC_t \\ &+ \lambda_{In} TPSME_t + \lambda_{In} INDGdp_t + \lambda_{In} EXCR_t + \lambda_{In} COP_t + \lambda_{In} INSTQ_t + \lambda_{In} INSTQ_t^2 \\ &+ \lambda_{In} RP_t + \lambda_{In} INVFC_{t-1} + \mu_t\end{aligned}$$

- $\beta\theta$ indicates the coefficient of short-run change dynamics
- ʎ indicates the long-run coefficients in the model
- $TPSME_{t-1}$ indicates the accumulative average trade performance of SMEs in Pakistan over the years on a Biannual frequency.
- $INDGdp_t$ indicates the industrial gross domestic product, which indicates the SME production capacity in Pakistan.
- $EXCR_t$ indicates the exchange rate, which is taken against the dollar value and this is taken as an indicator of risk for fluctuation in macroeconomic indicators in Pakistan
- COP_t the cost of production at time t, which is taken as a proxy for the producer price index in Pakistan.
- $INSTQ_t$ indicates an institutional quality index score for the country
- $INSTQ_t^2$ indicates the squared term of institutional quality score to track the linearity of the relationship between variables of the study.
- $lnRP_{t-1}$ relative average price growth rate of goods, exported every year by SMEs in Pakistan.
- $INVFC_t$indicates the investment facilitation taken from Pakistan economic survey.
- $\mu_t$is the error term

The data is first tested against all the required diagnostic, which indicates that some variables are stationary at a level and some at stationary at first difference. The literature suggests ARDL for time series data, panel data, and cross-sectional data in this type of situation. This model is the best fit suggested, for available data. The study has used Unite root test to determine level integration and stationarity of the data, which is followed by the tests for autocorrelation Augmented Dicky Fuller and Variance Inflation Factor test for multi-collinearity in the data. The study conducted used the autoregressive distributive lag ARDL Bound testing method to explore the long-run as well as the short-run association between institutional quality and trading performance of SMEs in Pakistan. The study has used a nonlinear ARDL because the association between institutional quality and trading performance of SMEs is predicted as non-linear in long run in the current study. The justification for the ARDL approach as previously discussed, the study has used this model because the integration of data

variables is not at the same level but different level. However, no variable was stationary at the second difference.

5. Results and discussion

This chapter includes the descriptive statistics of selected variable, empirical results of given variables in the short-run as well as the long-run, and finally some graphs and tables which supports the results of the study with respective objectives of the study. The study first explains the descriptive statistics with both statistical and economic interpretations, followed by the interpretation of empirical findings.

5.1 Descriptive statistics of institutional quality indicators

The results shown in table 5.1 of the study indicate that the average score of internal conflicts in Pakistan is comparatively high, which indicates a weak institutional quality indicator as the frequency of internal conflict is high enough in Pakistan. The quality of governance in Pakistan is moderate, which can increase to 4 points at maximum. The corruption score indicates a slightly higher than moderate corruption rate. High law and order score indicates a bad situation in the economy and Pakistan, the index score indicates that the law-and-order situation has exceeded the moderate threshold of 3.00 over the last few years on average and it is not a good sign for a developing economy. The last indicator of ethnic tension indicates that in Pakistan ethnicity has been a little bit brutal to each other, where the frequency of tensions remains above the moderate level.

Table 5.1 institutional quality disaggregated scores on average from 1990-to 2019

Ds	Internal Conflicts	Bioethical Quality	Corruption	Law and Order	Ethnic Tensions
Mean	9.4	2.5	3.1	4.07	4.10
Median	9.91	2.5	3	4	4.5
Maximum	12	4	6	6	6
Minimum	1	0	0	0.5	0
Std. Dev.	1.96	1.0	1.36	1.4	1.3

5.2 Descriptive statistics on SMEs distribution across provinces in Pakistan

The results shown in table 5.2 of the study show the distribution of SMEs across different provinces of Pakistan, where Punjab has the highest percentage of SMEs enterprises comparatively in Pakistan. A total of 55 percent of SMEs are found in Punjab province, which is because of the high population and other opportunities. An interesting outcome is that Punjab SMEs contribute 47 percent to the trade volume but ironically lower as compared to the percentage of SMEs working in the province. The efficiency of Punjab SMEs is still a question mark for many policymakers, but drawbacks are mostly reported from SMEs in South Punjab, which has problems accessing major exporters in the national markets.

Khyber Pakhtunkhwa is holding up to 19.2 percent of total SMEs in Pakistan, with a total trade contribution of 18 percent. The data shows that KPK SMEs have also lower contributions as compared to shareholding in the market. It is argued that northern areas like Chitral, Waziristan, and other remote areas find it hard to access exporters at reasonable prices, and high-quality handicrafts are made in these areas, which can be exported to many countries. The example of a handicraft design made by a girl from district Chitral in KPK was selected in the international fashion show, which can be taken as a piece of evidence for the export quality but away from the markets. These types of communication issues restrict SMEs to access the right place to get the right price and thus, remained undervalued in most cases. The SMEs growth in Baluchistan is stagnant for the last few decades and remains the second-lowest in the country. Only 5.7 percent of SMEs are recorded from Baluchistan, but the trade contribution of these

five percent SMEs is almost double the ratio of their market share. 10 percent of traded goods are coming from SMEs in Baluchistan. The secret behind the success of SMEs in Baluchistan is access to borders directly and most of the goods are still traded illegally in these areas around the Iran border and other adjacent countries' borders from Baluchistan.

Sindh owns 17 percent of SMEs directly established inside Sindh province. Out of 17 percent, SMEs more than 70 percent of SMEs are established in one city of Sindh known as Karachi. The city of combined eight districts in a row makes it the biggest city of Pakistan, which is a hub for business in terms of access to roads and waterways as well as to air transport. These factors have made it possible that fewer shareholder has a higher contribution to the trade. It is easy for Sindhi communities to transport goods to other countries at a low cost and gain higher prices in return. Gilgit Baltistan has the lowest percentage of SMEs but the most effective SMEs in Pakistan in terms of trade contribution. These SMEs from GB are mostly home base SMEs, producing verities of products, especially Fruits fusions and Handcrafts. The share in the trade market for GB SMEs is higher than the percentage of SMEs owned by GB province, however, it is still in the making stage, it will get flourished in a short period because of its efficiency and hardworking labor force. The distribution of SMEs in Pakistan is changing over time due to the increasing opportunities and redistribution policies of the government of Pakistan.

Table 5.2 provinces wise distribution of SMEs in Pakistan

Province	Percentage of SMEs owning	Trade contribution as a percentage
Punjab	55	47
KPK	19.2	18
Baluchistan	5.7	10
Sindh	17.0	19
GB	3.1	6

5.3 Results for the unite root test

The results shown in table 5.3 indicates unite root test at level, first difference, and second difference. The results of the study indicate that SMEs' trade growth, industrial GDP, and Cop are integrated at *1(1)* and real exchange rate and institutional quality are integrated at order zero *1(0)*

Table 5.3 unite test results for Augmented Dickey-Fuller

Variable	Level	First difference	Second difference
SMEs Trade Growth	-3.034	-3.042	-3.034
Industrial Gdp	-1.348	-4.392	-1.348
Exchange Rate	-3.627	-3.390	-3.389
Cop	-5.628	-5.892	-5.002
R-Prices	-1.287	-1.892	-1.282
Inst-Qu	-2.971	-2.963	-2.987
Inv-Fc	-1.893	-1.633	-1.276

5.4 Results for the Long Relationship between Institutional Quality and SMEs Trade Growth

The results shown in table 5.4 of the study indicate there exists a statistically significant relationship between own lag terms and SME trade, which means the positive variation in SMEs trade growth is partially explained by their past years' values. However, the other lag values of the dependent variable do not explain statistically significant variation in SME trade growth. Industrial Gross domestic product is positively and significantly associated with SMEs growth. In other words, SME growth increases with an increase in industrial GDP. The industrial GDP is an indicator of SME production capacity. An increase in production capacity will lead to an increase in SME contribution toward Trade accounts in the economy of Pakistan. All lag value indicates past years' values which are statistically significant with P. value less than 0.05 and t statistics greater than 2.00.

SMEs trade growth is negatively associated with exchange rate fluctuations, which indicates the risk associated with uncertainties in macroeconomic indicators of the economy. The relationship between SME trade growth and the Exchange rate is negative and significant with the current year value of the exchange rate in Pakistan. This indicates the theory of money value and purchasing power parity. An increase in the exchange rate means the value of Pakistani rupees has increased, which reduces the demand for SME goods because exports become more expensive with the growing price of the currency. SMEs trade growth in the current year is certainly associated with the Cost of production but statistically insignificant for the rest of the lag years. This indicates that the producer price index increase will decrease the trade contribution of SME but statistically the relationship is not significant other than the current values of COP in the case of Pakistan. An increase in the cost of production leads to high prices and reduces the demand for products in competitive market economies. The results shown in table 5.4 indicate that Institutional quality and SMEs trade are statically associated. An increase in institutional quality score increases the SMEs trade growth initially as we can see the linear term of institutional quality is significant and positively affecting the SME trade growth, but the square term of the institutional quality indicates a negative sign of coefficient, which mean very strict institutions are not good for SME trading contribution in Pakistan. Initially, it helps SME to access loans and compete in the market but after reaching a certain limit of quality, strictness, and control the small enterprises cannot afford to meet certain requirements of the international market. Relative prices indicate positive linkages with SMEs trade growth. The results indicate that increase in relative prices of SMEs products in foreign markets or export markets encourages SMEs to trade a higher volume of goods to receive higher economic returns. Investment facilitation positively affects the SMEs trade growth because access to financial support enhances the production efficiency of SMEs. Investment facilitation is a specific incentive for SMEs as a result of which SMEs can adopt new technologies and techniques to improve the skills and productivity of the labor force as well as machinery at work.

Table 5.4 Empirical results

Dependent Variable: SMEs Trade Growth)
Method: ARDL
Model selection method: Akaike info criterion (AIC)
Selected Model: ARDL (4, 4, 4, 4, 4, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
SMEs Trade Growth) (-1)	-0.839897	0.2151	-3.903145	0.0598
SMEs Trade Growth) (-2)	-0.003789	0.2712	-0.013967	0.9901
SMEs Trade Growth) (-3)	0.705574	0.2351	3.144956	0.0880
SMEs Trade Growth) (-4)	-0.931841	0.2142	-3.488183	0.0733
Ind GDP	5.956765	2.4695	2.426489	0.0360
Ind GDP (-1)	7.338705	3.6805	5.030795	0.0094
Ind GDP (-2)	6.047605	4.6005	7.312003	0.0199
Ind GDP (-3)	0.000183	3.7705	4.849017	0.0400
Ind GDP (-4)	0.000180	5.5305	3.248494	0.0831

Exchange Rate	-0.000128	4.3005	-2.974154	0.0069
Exchange Rate (-1)	-0.000118	5.7805	-2.044822	0.1775
Exchange Rate(-2)	7.198905	7.7605	0.926866	0.4518
Exchange Rate(-3)	0.000208	6.2005	3.348294	0.0788
Exchange Rate(-4)	0.000193	8.3905	2.296620	0.1485
COPt	-2.094590	1.9786	-3.191480	0.0033
COP (-1)	-16.26505	1.8948	-0.509901	0.6608
COP (-2)	-52.39626	2.0257	-0.988095	0.4273
COP (-3)	-48.44868	1.6661	-0.937808	0.4473
COP (-4)	-11.33715	1.8945	-0.517738	0.6562
INSQU	1.040644	0.009180	4.427504	0.0474
INSQU (-1)	1.009747	0.011554	-3.843626	0.0577
INSQUsq	-0.003285	0.015510	-0.211786	0.8519
INSQUsq (-1)	-0.039886	0.018894	-2.111015	0.0692
INSQUsq (-2)	-0.050034	0.011276	-4.437231	0.0872
R-PRICE (-1)	0.319458	0.262594	1.216545	0.3479
R-PRICE (-2)	1.003041	0.228697	4.385902	0.0483
R-PRICE (-3)	0.327270	0.175183	1.868167	0.2027
INV-FC	2.202202	0.133899	4.510109	0.0001
INVFC (-1)	1.645483	0.330640	4.976656	0.0381
R-squared	0.999981	Mean dependent var		62.78258
Adjusted R-squared	0.999709	S.D. dependent var		29.69254
S.E. of regression	0.506286	Akaike info criterion		0.606698
Sum squared resid	0.512651	Schwarz criterion		1.948170
Log likelihood	19.59619	Hannan-Quinn criter.		1.043984
Durbin-Watson stat	2.659170			
*Note: p-values and any subsequent tests do not account for model selection.				

5.5 Long run results in a bond test setting

The results shown in table 5.5 of the bound test indicate that variable of the study's independent variables and SME trade growth are bounded together in long run in the presence of good institutional quality in Pakistan. The results indicate the associated equilibrium is statically significant in the case of institutional quality and SME trade growth. Thus, we confirm that there exists a long-run relationship between SME trade growth and institutional quality growth in Pakistan.

Table 5.5 Long-run hypothesis testing

ARDL Bounds Test Included observations: 38: Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	K
F-statistic	1.663964	5
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	1.81	2.93
5%	2.14	3.34
2.5%	2.44	3.71
1%	2.82	4.21

5.6 Short Dynamic between SMEs Trade Growth and Macroeconomic Indicators of Pakistan

The results of the study shown in table no 5.6 show a short-run relationship between SME trade growth and given variables, including industrial GDP, exchange rate, cost of production, relative prices,

investment facilities, and institutional quality in Pakistan. The results indicate that there exists a positive and statistically significant relationship between SME trade growth and industrial GDP in the short run. The current year value of the exchange rate is not significantly associated with SMEs growth, but lag values are reallocating SMEs' trade growth in the case of Pakistan. Cost of production doesn't reallocate the SMEs' trade growth in Pakistan because in the short run producer can stretch up to break-even points to run the industry, where the firm earns only fix costs and opportunity costs for owners. All other variables except institutional quality do not affect the SME trade growth in Pakistan. Neither direct values of institutional-quality growth nor squared term of institutional quality growth is significant in the short run but in long run, these variables are significant in the case of Pakistan.

Thus, it is confirmed that the effects of institutions can be captured in the long-run analysis, in terms of SME trade growth and further linkages in Pakistan. The R-value indicates the model is a good fit in the combination of these variables for the short run as well as long-run estimation in the case of Pakistan. Besides these facts, it is surprising that institutional quality in the short run also indicates a weak significant and negative association with SME enterprise trade growth in the case of Pakistan.

Table 5.6 Short Dynamic between SMEs trade growth and macroeconomic indicators

Dependent Variable: SMEs Trade Growth) Method: ARDL Included observations: 32 after adjustments Maximum dependent lags: 4 (Automatic selection) Model selection method: Akaike info criterion (AIC) Selected Model: ARDL(2, 3, 0, 4)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D SMEs trade growth	0.393291	0.171424	2.294259	0.0333
Ind DGDP	0.601038	0.173588	3.462451	0.0026
Ind DGDP (-1)	1753334.	1509271	1.161709	0.2597
D-EXCHANGE RATE	54458728	16183844	3.365006	0.0033
D-EXCHANGE RATE (-1)	-1.074372	32084561	-3.329067	0.0035
D-COPT	55145156	17712497	3.113347	0.0057
DR-PRICES	-125144.2	58758.03	-2.129823	0.0465
DR-PRICES (-1)	-2464230.	954260.3	-2.582345	0.0183
DINSQUL	117831.0	924719.9	0.127423	0.8999
DINSQUL (-1)	-630381.6	927945.7	-0.679330	0.5051
DINSQUL (-2)	-1094179.	831645.1	-1.315680	0.2039
INSQUL (-3)	-1552824.	793086.4	-1.957951	0.0651
C	74029243	49768462	1.487473	0.1533
R-squared	0.972619	Mean dependent var		98187207
Adjusted R-squared	0.955325	S.D. dependent var		25535078
S.E. of regression	5397182.	Akaike info criterion		34.13186
Sum squared resid	5.534364	Schwarz criterion		34.72731
Log likelihood	-533.1097	Hannan-Quinn criter.		34.32923
F-statistic	56.24233	Durbin-Watson stat		2.137805
Prob(F-statistic)	0.000000			
*Note: p-values and any subsequent tests do not account for model selection.				

5.7 Error Correction Mechanism representation for given ARDL

The results of the study shown in table 5.7 indicate an error correction mechanism. This result indicates error correction, where the study has applied major diagnostic tests but there is no evidence for serial correlation, Autocorrelation, and heteroscedasticity in the data. There is a significant long-term association between the given set of variables. The value of coefficient -0.691 indicates that deviation from the long-term equilibrium is corrected by 69% approximately over each year

Table 5.7 Error correction mechanism

Variable	Coefficient	T value	P value
Intercept	1.20	2.3	0.0032
SMEs Trade Growth	0.37	3.7	0.0021
Industrial Gdp	1.82	4.3	0.0005
Exchange Rate	-3.89	-6.8	0.0000
Cop	1.86	2.1	0.0092
R-Prices	-12.32	-5.6	0.0000
Inst-Qu	10.79	-4.2	0.0000
Inv-Fc	8.26	3.3	0.053
ECM	-0.69	-4.3	0000
R square	58.83	Akaike Info Criterion	13.62
Adjusted R square	54.78	Schwarz Criterion	10.42
Durbin Watson	1.98	F-statistic	7.28

5.8 Major findings

- SMEs in the Punjab region are contributing a significant volume of trade followed by Sindh and KPK in Pakistan. The high density of the SME population makes it easy to transport goods and services at a lower cost to buyers, which increases the efficiency of the sector from this specific region.
- The effects of institutional quality on trade performance of SMEs Enterprises have dominated in long run compared to short-run coefficients. In the long run, institutional quality is effective to increase the growth of SMEs in Pakistan but nonlinear results indicate that the EKC hypothesis is valid in the case of Pakistan.
- GDP in long run has significant implications for SME trade in Pakistan
- Lag values of Relative prices are encouraging to SME Trade in Pakistan in both the long run as well as in the short run but the current value of R prices is negatively associated with the trading performance of SMEs but weakly significant, which can be also interpreted as partially significant.
- Cost of production is negatively associated with SME trade in Pakistan, which means increasing the cost of production does not spare incentives for producers to supply in the international markets.
- Current exchange rate is positive but not statistically significant but the exchange rate of last year is significant and negatively associated with SME trade in Pakistan.

6. Conclusion

The study conducted a time series analysis to examine the relationship between SMEs growth and other macroeconomic indicators of Pakistan. The major concern of the study is to see how long institutional-quality growth is improving SME growth and trade in the international markets, which ultimately increases the economic growth in Pakistan. The study used ARDL bound testing technique and found that the long-run relationship is significant but in the short run SME trade doesn't respond to the changes in most of the given indicators but only a few instruments are effective in the short run in the case of Pakistan. The relationship between SME trade growth and institutional quality is a major concern, which indicates that institutional development is a long-term phenomenon, which takes years to develop and

the impact of such development cannot be effectively captured in the short-run for specific economic activities.

Cop of production in the short run doesn't reallocate the SMEs trade because trends of trade growth in the SMEs sector are flexible enough to absorb the shocks. But staying in losses for the long run would revise the decision of trading for most of the SMEs in Pakistan. SMEs continuously operate till the time, where the marginal cost of production is equal to the marginal revenue. In the long-run average cost of production increases from the average revenues due to continuous losses, which decrease the production of SMEs and reduces the trade of SMEs products. On the exchange rate, the study found that keeping the exchange undervalued can help the economy to increase the exports of SMEs in Pakistan. Investment facilitation has established positive implications for the SMEs sector in Pakistan which seems helpful for the trade growth of SMEs in the short as well as in long run. The study thus concluded that Economic growth through SMEs can be a feasible policy for Pakistan, but these influencing factors should be improved over the years to let the SMEs sector grow in international markets. SMEs enterprises are the backbone of Pakistan's trade sector and growth in this sector can be reallocated through improvement in the quality of institutions in Pakistan.

There are certain policy implications, which can be seen for future economic growth led by the SMEs sector in Pakistan.

- The study findings suggest that institutional quality growth has to be in the priorities list to be seen specifically for the ease of doing business and compensation to small businesses. Institutions can create boundaries to limit the role an effective SMEs and expand the role of efficient and effective SMEs in the trade sector.
- On exchange rate the price of currency should be undervalued intentionally to keep the export-led hypothesis in action for a long period and SMEs should be considered in a wrangle of currency business.
- On cop of production, I suggest letting the market decide producer behavior because intervention will create a trend which may not be possible to carry up artificially through federal budgets

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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An Analysis of Global Integration and Economic Growth Nexus: Evidence from Pakistan

Anum Shoaib Abbasi [1], Zubia Hussain[1], Muhammad Tariq Majeed[1]

Affiliation
1. School of Economics, Quaid-i-Azam University, Pakistan

Corresponding author email:
abbasiscooby9@gmail.com

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Abstract
The following research examines economic growth potential from the perspective of globalization for Pakistan. The empirical results are estimated using the ARDL model over the period 1970 to 2018. The study reports the time before and after the openness to the world. The country opened up its borders quite late in the 80s. The results demonstrate that, in the short term, globalization negatively affects economic growth, but that, in the long run, it boosts economic growth. Globalization has assisted Pakistan's economic progress since the country opened its borders and economy to the rest of the world, but not to too much extent, what it could. Furthermore, research findings demonstrate that government spending and physical capital improve economic growth, however, inflation has a detrimental impact on Pakistan's economic growth.

Keywords: Globalization, Economic Growth, Inflation, Physical Capital, Government spending, Pakistan, ARDL Bound Test

JEL Classification: F15, F21, F33, O3

1. Introduction

"Economic growth has liberated societies from the natural pressures that forced societies into an immediate struggle for survival, but they haven't yet been liberated from their liberator. The commodity's independence has spread over the entire economy it now dominates. This economy has transformed the world, but it has merely transformed it into a world predominated by the economy."
— Guy Debord

Economic growth remains one of the crucial macroeconomic goals that a country strives for and maintains. However, the question here is how it will be achieved, and which path will be pursued to manage it. There are some extremely prosperous economies across the globe such as; the USA, the UK, France, South Korea, and Japan. Where, in contrast, many countries have a large proportion of their population still living below the sustenance level due to slow economic growth. These growth disparities are not by chance, but more precisely because of a combination of certain factors. This variation in economic growth urges scholars to investigate economic growth aspects and their importance in the growth process (Majeed & Ayub, 2018).

While investigating these economic growth aspects, the link between economic growth and globalization becomes an area of considerable interest. Globalization is popularly referred to as a double-edged weapon. Apart from benefitting the economies through economic, social, and political changes, it sometimes hinders economic growth. It is widely believed that the growth effects of globalization depend upon any country's economic structure during the globalization process. Among the impoverished, globalization creates both winners and losers. On the one hand, globalization reduces the cost of production by improving resource allocation and resource use efficiency. Furthermore, consumers have more access to a wider variety of products. Globalization, on the other hand, has been related to growing inequality, according to various studies, because the poor are not always able to gain from trade.

Nevertheless, the benefits ripped by the countries globally through globalization are not to be ignored. Recognizing the potential benefits of globalization, many developing countries have been integrating their economies, particularly through trade, financial flows, technological diffusions, and knowledge transfers, since the early 1980s. Pakistan is one of those countries which started adopting a global rule to lead the economies. Pakistan started liberalizing its economy in 1982-83 with the assistance of IMF and World Bank through the improvement of the economy with the role of the private sector. Those amendments of the 80s included price deregulation, delinking of the rupee from the US dollar, denationalization of industry, import liberalization, and export expansion schemes (Afzal, 2007). This shows that like all developing countries in the world, Pakistan also welcomed globalization by integrating into the world economy through foreign direct investment (FDI), trade liberalization, and other macroeconomic policies.

Pakistan's economy has always had a volatile growth pattern, with regular boom and bust cycles, making long-term and inclusive growth difficult to achieve. Pakistan's major urban areas known as its economic hub along with underdeveloped areas of the country are considered the growth poles of Pakistan's economy. But internal political instability, economic uncertainty, a mixed level of foreign investment, and a rapidly growing population with a 2pc growth rate have all hampered the economy and its growth in history. Though consistent worker remittances bolster foreign exchange reserves and expand the current account deficit – are generated by a growing trade gap as import growth outpaces export growth which threatens to deplete reserves and slow GDP growth in the medium term.

Since the 1950s, Pakistan has used an import substitution strategy to create a highly protected environment for industrialization. Domestic resource costs increased from roughly 1.20 percent in 1968-69 to 3.33 percent in 1980-81, resulting in an inefficient industrial structure (Naqvi & Kemal 1991). With the effects of major industry nationalization in the 1970s, the industrial sector began to shrink even more, with annual growth falling from 9.9 percent in 1960 to 5.5 percent in the 1970s (Husain, 2000). Beginning in the late 1980s, Pakistan attempted to liberalize its trading regime and integrated its economy with the global economy. A major shift was seen in trade and industrial policies from an inward-looking economy to an outward-looking economy. Or to say from import-substitution strategy towards export promotion and trade liberalization. Those strategies involve, the replacement of non-tariff barriers to tariffs, cutting down tariffs from 100pc to 35pc in 1998-99, and managing floating exchange rates to the free-floating exchange rates (Husain, 2000).

For the early three decades, Pakistan's economy was heavily reliant on foreign direct investment (FDI) but remained restricted to it. Following modifications to trade and industrial policy in the late 80s, the Pakistani government began to open the economy and relax the regulations governing foreign investment. According to the Handbook of Statistics 2020, after total liberalization in the 1990s, FDI in Pakistan increased from a low of $10.7 million in 1976-77 to $1296 million in 1995-96, growing at a compound annual growth rate of 25.7 percent. In 1995-96, private investment inflows into the country increased by 93.3 percent to $1532 million. Following that, in 1999, the investment portfolio of 1996 plummeted to $449 million. A stunning negative FDI influx of $27 million was recorded in 2004. With such changes in the investment portfolio of the country for several decades, currently, the FDI stands at $2,074 million (SBP, 2020).

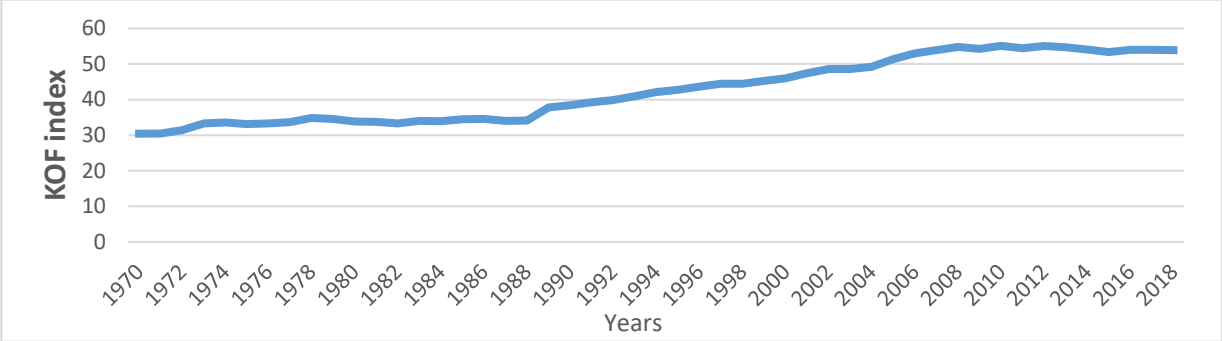
Besides FDI Pakistan's economy also relies heavily on foreign aid and remittances. Pakistan also receives international financial funding in the form of loans and grants from a variety of sources. Pakistan receives long-term loans from global institutions including bilateral aid from developed and oil-rich nations. However, the country still stagnates at very low levels of foreign investment despite high incentives by the government through high-interest rates and a major share in profit. It may call upon a couple of reasons like economic uncertainty due to political instability (regime change), terrorism activities, inconsistency in policies by governments, and a weak bureaucratic system.

Technology remains crucial to any networking in an economy. To make sure the availability of technology and its uses governments tend to create an ecosystem for such purpose. According to Network Readiness Index 2021 rankings, Pakistan ranks 97 out of 134 while having an index of 40.2. It shows that Pakistan despite entering the era of globalization remains significantly weak at strengthening its technology and networking across the country.

The economic literature on the consequences of globalization on Pakistan's economic growth, which bears the policies of trade liberalization, FDI inflow, privatization, and investment in ICT infrastructure and human capital, tends to produce contradictory evidence across the country. Some see globalization as a blessing to developing economies like Pakistan, while others see it as a threat to economic growth. Majeed (2011) explores the trade and economic development nexus for Pakistan by analyzing time series data from 1970 to 2006. His results show that trade does not increase economic growth in Pakistan. While Bhatti & Fazal (2020) consider the importance of a continuous supply chain for raw materials and export-led growth for the industrial sector of Pakistan reveal the opposite. They argue that globalization boosts the growth of the industrial sector in Pakistan through economic development and increased commercial production by importing the new machinery that upsurges the agriculture output level and economic expansion.

Figure 1, shows the globalization trend in Pakistan from 1970 to 2018. However, it shows that globalization in the country tends to have an increasing yet slow trend throughout the liberalization process.

Figure 1: Trends of globalization in Pakistan since the 1970s



To the best of our knowledge, no earlier study has calculated the impact of globalization on Pakistan's economic growth using a three-dimensional comprehensive measure of globalization. There is a need to investigate the relationship between economic growth and this international phenomenon (globalization) in the context of Pakistan, which has a significant impact on the country's economic sustainability. This study also aims at checking the robustness of the impacts of globalization on economic growth in Pakistan. This research covers a longer horizon of time covering about a half-century from 1970 to 2018. The study also offers important policy implications. The study's contribution would result in an addition to the existing scientific literature aimed at key policy decisions for the future and would strengthen the role of government policies in the proper direction

The remaining paper is arranged as follows. Section 2 encounters the prior studies in the context of economic growth and globalization. Section 3 discusses the empirical modeling and practice. Section 4 presents the model findings and tables. While section 5 concludes the debate and recommends policy.

2. Literature review

The first period of globalization started in the early 19th century and lasted until 1914. Since then, globalization has accelerated as a result of the financial as well as production factors' mobility among countries. Concerns about globalization have grown in recent years as a result of the consequences of inequality in economic development, poverty, income disparities among segments of society and countries, cultural dominance, and environmental or economic integration. As a result of their multifaceted implications, the impacts of globalization have become one of the most contentious issues. Since the 1980s, the rise in globalization trends in the global economy has resulted in a variety of notions in the related literature. Related literature suggests that globalization seems an uneven phenomenon, having negative as well as positive effects. Bhagwati (2005) contends that increased globalization trends will benefit international competition and economic progress. Economics of globalization tends to produce positive effects when money is poured into developing economies and people tend to succeed

economically while enjoying better living standards. Husain (2000), argues the positive impacts of globalization are attributed to liberal policies rendered by a country. Globalization's positive effects convey through four main channels: international trade, international money flows, cross-border labor flows, and technological transformation, particularly in information technology (IT) and telecommunications.

Globalization also reduces income inequality and poverty levels through growth impact. Globalization links to economic growth in the first tier, while poverty reduction links to economic growth in the second tier. Furthermore, as a consequence of globalization, economic growth tends to increase through rapid technical progress, the fusion of global financial markets, and reduced information and processing costs which helps to ensure growth in productivity and investment, and optimum resource allocation. Through globalization, poor countries, in particular, can receive the benefits of contemporary technology while avoiding many of the growing pains associated with its development. (Incekara & Sway, 2011).

Several studies reveal empirical evidence for such positive impact of globalization on economic growth. Ying et al. (2014) using panel fully modified OLS (FMOLS), revealed that economic globalization has a favorable significant impact on economic growth. Gurgul & Lach (2014) discovered to have a strong and robust growth-enhancing influence, particularly in economic and social dimensions; where economic dimensions included (international trade, growth of foreign investment, removal of import barriers, and establishment of a tax policy). Kilic (2015) studies globalization in developing countries' growth rates, for 74 developing countries from 1981 to 2011. According to the findings, economic globalization has a positive impact on economic growth levels. Bataka (2019) using data from 40 Sub-Saharan African (SSA) countries from 1980 to 2015, reveals that de jure globalization enhances economic growth.

A large number of studies have documented different forms of globalization like international trade, FDI, and ICT advancement which lead to influence the economic growth of countries (Apergis et al. 2008; Pegkas, 2015; Gnangnon, 2018; Sağlam, 2018). Among them, trade liberalization accounts for an important and most followed form. Trade liberalization has grown in popularity over the last three decades, particularly among emerging and developing economies. This is usually the result of the anticipated limitations of most followed import substitution-based strategies in the developing world which restricts the goods and capital inflow. And also, the IMF and the World Bank, for example, have routinely made trade liberalization a condition of their financing. The primary basis for this level of commitment to a trade reform program is a firm view that liberalization is necessary for a transition from closed to open economies. Generally, economists like, Grossman & Helpman (1993) agree that open economies grow faster than closed economies.

Despite such an acclaimed relationship of openness to growth, the link between trade and economic growth continues to be a source of contention in both theoretical and empirical studies. For example; the 'neoclassical trade' theory supports such a relationship of trade openness to growth, although the 'neoclassical growth' theory does not; and the 'new trade' theory is doubtful, whereas the 'new growth' theory supports the positive impacts of trade on output and economic growth (Singh, 2010). In light of the 'endogenous theory' of economic growth, Romer (1986) and Lucas (1988) gave a more comprehensive assessment of trade's productivity effects, as well as an additional feature assessing trade-induced convergence in per capita income and growth across nations.

From a theoretical standpoint, trade liberalization allows for the resource reallocation from areas with comparative disadvantage; resources may be redundant, towards the areas of comparative advantage; with resource abundance. Trade also boosts growth and productivity by increasing the availability of a variety of intermediate inputs and encouraging worldwide technological diffusion. Akhtar et al. (2015) view exports as improving a country's foreign exchange reserves, and it is also maintained that the foreign exchange produced by exports can be used to pay for imports. Several studies show that trade has a discernable positive impact on productivity and growth leading to convergence in income per capita and total factor productivity across nations, implying that trade reduces income gaps between countries (Dollar, 1992; Ben-David, 1993). While cross-country growth analysis also finds a positive relationship between trade liberalization and growth using trade shares or trade liberalization indices (Sachs et al. 1995; Edwards, 1997; Frankel & Romer, 1999; Dollar & Kraay, 2001).

According to Wacziarg and Welch (2008), nations that opened their economies for trade saw an average annual growth rate which was around 1.5 pc higher than before openness. The effects of trade liberalization in fostering economic growth can also be seen through effects on physical accumulation. Post liberalization investment rates rose to 1.5 percentage points than before. Siddique & Majeed (2015) accessed the relationship between trade on economic growth and found positive results for the long-run relationship. Gnangnon (2018) using unbalanced panel datasets for 150 countries from 1995 to 2015, examines the influence of multilateral trade liberalization on economic growth rates however, the findings indicate that multilateral trade liberalization has a large and favorable impact on economic growth. Bardi and Hfaiedh (2021) investigated the impact of trade openness on economic growth using data from 1975 to 2016 and a panel of eight nations. Their findings suggest that merchandized and financial openness do help in promoting economic growth.

Trade becomes a more beneficial policy when the cross-border labor movement is also allowed. Rodrik (2002) argues the most promising of the "feasible globalization" is a multilaterally negotiated visa regime that permits a mix of high-skilled and low-skilled workers from developing countries to enter advanced countries temporarily. Even if it led to a very slight increase in cross-border labor flows, such a plan would almost certainly provide greater revenue gains. Harrison & McMillan (2007) discuss the case for India and Columbia and suggest trade reforms are more likely to benefit the poor when trade liberalization policies work in conjunction with a reduction in impediments to labor mobility.

Besides trade, many studies have also focused on a more financial dimension or form of globalization which is FDI, which tends to boost economic growth. FDI in the form of multinational corporations and aid to development projects remain a more focused area for the global agenda. Many studies have demonstrated the importance of FDI to any economy, particularly in today's globalized world where domestic investment is insufficient for development and progress. Foreign direct investment plays a vital role in a country's economic progress by delivering cutting-edge technology, offering greater infrastructure, supplying foreign capital, and creating job possibilities (Shahid et al 2013).

The establishment of multinational enterprises (MNEs) is fundamentally tied to economies of scale, nonmarketable technology, management, and product diversification, hence limiting competition in host economies (Hymer, 1976). FDI plays a vital role in the production process in a country as it increases the supply of funds required for domestic investment in a host country. It enhances the growth rate in two ways: firstly through attracting foreign funds required by domestic investment and secondly, through the interaction of advanced technologies (Pegkas, 2015).

The positive impact of FDI is certainly supported by many studies. Campos & Kinoshita (2002) study the impact of FDI on growth for the period 1990–1998. The study's main outcomes revealed that FDI significantly and positively impacts the economic growth of each country under study. Khawar (2005) also finds a similar positive relationship between FDI with the economy under an empirical cross-country growth analysis from 1970 to 1992. Apergis et al. (2008) counter the causal link between the two macro variables (FDI and growth) for a set of transition economies. Their results suggest bidirectional causality between the two macro-variables. Pegkas (2015) also finds supporting results for the positive and significant impact of FDI on economic growth in the Eurozone. Majeed and Ashiq (2019) also find the favorable role of FDI in the economic growth of Pakistan over the period 1976-2016. Bakhsh et al. (2022) conclude the same results for a significant positive impact of FDI on economic growth in the case of Pakistan.

Certainly, investment patterns over the globe have changed since the fourth industrial revolution. Countries tend to boost their economies through investing in ICT (Information and Communication Technology) infrastructure. ICT is too regarded as a critical sector that significantly contributes to economic growth. The majority of economic activities, trade, and foreign direct investment are heavily reliant on modern ICT sources. ICT is said to be the composition or integration of software-related modes of information sharing like; computer workstations, telecommunications, electronics, networks, and information media that has an impact on individuals, businesses, and the whole economy. It has been considered that ICT capital is more growth-intensive compared to non-ICT capital. Higher levels of ICT stock per capita allow any typical economy to achieve higher growth rates. Levine (1997) argues that progress in ICT infrastructure tends to improve the influence of economic advancement on growth by

eliminating market imperfections and increasing financial functions. Therefore investment in ICT remains the key driver of productivity growth. ICT could enable emerging and developing countries to 'leapfrog' traditional methods for increasing productivity. According to Steinmueller (2001) ICTs have the potential to support the "leapfrogging" development strategy. Jorgenson & Vu (2005, 2011) taking into account the global growth rate during the initial phase of globalization support that the most important source of development in industrialized countries and Asian economies was the investment in intangible assets, such as IT equipment and software. The 2016 World Development Report offers insights into a growth accounting exercise conducted in developed and developing nations between 1995 and 2014. According to the report, the percentage share of ICT capital in total input factor contribution to GDP growth is quite similar in developing and developed countries. (World Bank, 2016). However, the varying results in growth rates can be attributed to every country's absorbance capacity which remains significantly different worldwide.

Most studies find positive results for economic growth while accounting for increment in investment in ICT infrastructure. Pohjola (2000) finds that a significant and positive impact of ICT on growth emerges for a sample of 23 OECD countries. Inklaar et al. (2005) compared the ICT contributions to growth in the US and the EU4 (Germany, the Netherlands, France, and the United Kingdom), and finds that ICT contribution to growth in the US is more than EU4 during the 1979–2000 period. As US started investment earlier than EU4 in ICT infrastructure. Edquist & Henrekson (2017) and Sağlam (2018) investigate the role of the internet, investment in ICT infrastructure, mobile phones, and research and development (R&D) in economic growth. Their findings show that ICT spread raises the proportion or share of R&D and human capital formation, which has an indirect favorable impact on economic growth. Withstanding the fact of negative spillovers of ICT in developing countries, on the other hand, casts doubts on technological shock. The rapid accumulation of ICT in areas where skilled labor is scarce will eliminate low-skilled workers (those in the majority) and the poor because they are not well equipped and qualified, thereby lowering growth rates and increasing poverty and income inequalities. Furthermore, ICT will provide developed countries with more benefits in competing with developing countries in their domestic markets (Freeman & Soete, 1985; Aghion et al, 1998; Freeman, 2013) which could not be beneficial for the latter ones.

A conclusion is that Trade, FDI, and ICT impact the counties' growth rates depending on the countries' institutional and political backgrounds. It remains endogenous policy choices of governments and the private sector to make economies wide open for cross-border flows of goods, labor, capital, and technology to reap the benefits of globalization.

Prior studies on the globalization and growth nexus have focused on a single dimension of globalization, ignoring the fact that globalization is comprehensive and multifaceted, with multiple impact channels on the economy. Many of them (Sachs et al. 1995; Edwards, 1997; Frankel & Romer, 1999; Dollar & Kraay, 2001; Wacziarg & Welch 2008; Bardi & Hfaiedh, 2021) emphasized trade liberalization as a growth engine. Other studies (Pohjola, 2000; Steinmueller, 2001; Draca et al., 2006; Cardona et al., 2013) have focused solely on the impact of other variables on economic growth through ICT or FDI. The current research aims to provide a comprehensive analysis of globalization's impact on economic growth. It aims at providing a nuanced focus on the globalization trend in Pakistan from the 1970s (before opening up to the world) to date (where the economy is still.

3. Empirical Methodology

The present study analyzes the impact of increasing globalization in shaping economic growth. It considers the annual data of Pakistan ranging from the period 1970 to 2018 depending upon the availability of data. The data for all the variables are taken from the world development indicator (WDI, World Bank) whereas, table 1 provides the description of these variables in detail. The description of the model to achieve the objective of the current study is as follows:

Economic Growth = f (Globalization, Capital, Government Spending, Inflation)

GDP= f (GI, K, GS, INF)

Where GDP is described as gross domestic product per capita at constant 2015 US$, globalization is the KOF index of total globalization, government spending is general government final consumption

expenditure at constant 2015 US$, capital is described as gross fixed capital formation, and inflation which is measured by a consumer price index. We are utilizing the Autoregressive Distributed Lag approach (ARDL) to the Bound technique proposed by Pesaran et al. (2001). The basic reason behind using this model is that this approach is helpful in the case of variables exhibiting diverse order of integration i.e. variables can be stationary at the level i.e. I (0) or variables can be of I (1) i.e. stationary at the first difference. Secondly, the selected approach also gives an unrestricted error correction model. This approach provides us with dynamics of both the short and long run. In addition, this approach gives valid t-statistics and unbiased estimates by eliminating the endogeneity issue of repressors through appropriate lag selection. Thus our analysis is based on this approach for best estimates. The model equation is given as follows:

$$\Delta \ln(\boldsymbol{GDP})_t = \boldsymbol{\beta_0} + \sum_{i=1}^{p} \boldsymbol{\beta_1} \Delta \ln(\boldsymbol{GDP_{t-i}}) + \sum_{i=1}^{p} \boldsymbol{\beta_2} \Delta \boldsymbol{GI_{t-i}} + \sum_{i=1}^{p} \boldsymbol{\beta_3} \Delta \boldsymbol{K_{t-i}} + \sum_{i=1}^{p} \boldsymbol{\beta_4} \Delta \mathbf{lnGS_{t-i}} + \sum_{i=1}^{p} \boldsymbol{\beta_5} \Delta \boldsymbol{Inf_{t-i}} + \emptyset_1 \boldsymbol{ln(GDP)_{t-1}} + \emptyset_2 \boldsymbol{GI_{t-1}} + \emptyset_3 \boldsymbol{K_{t-1}} + \emptyset_4 \boldsymbol{ln(GS)_{t-1}} + \emptyset_5 \boldsymbol{Inf_{t-1}} + \boldsymbol{\varepsilon_t} \quad \text{-------1}$$

Where the coefficients $\beta_1, \beta_2, \beta_3, \beta_4$, and β_5 represents the short-run estimates while $\emptyset_1$, $\emptyset_2$, $\emptyset_3$, $\emptyset_4$ and $\emptyset_5$ represents the long-run coefficients. β_0 represents the constant term and ε_t is the error term. In addition, ARDL based error correction model (ECM) model can be shown as:

$$\Delta \ln(\boldsymbol{GDP})_t = \boldsymbol{\beta_0} + \sum_{i=1}^{p} \boldsymbol{\beta_1} \Delta \ln(\boldsymbol{GDP_{t-i}}) + \sum_{i=1}^{p} \boldsymbol{\beta_2} \Delta \boldsymbol{GI_{t-i}} + \sum_{i=1}^{p} \boldsymbol{\beta_3} \Delta \boldsymbol{K_{t-i}} + \sum_{i=1}^{p} \boldsymbol{\beta_4} \Delta \mathbf{lnGS_{t-i}} + \sum_{i=1}^{p} \boldsymbol{\beta_5} \Delta \boldsymbol{Inf_{t-i}} + \boldsymbol{\theta ECT_{t-i}} + \boldsymbol{\varepsilon_t} \quad \text{--------2}$$

Where ECT is an error correction term and it must be negative to provide evidence of system convergence in the long run from the short run. $\boldsymbol{\varepsilon_t}$ is an error term that is normally distributed.

To estimate the ARDL model first of all we will understand the stationarity condition of our used variables by applying unit root testing. Augmented Dickey-Fuller (ADF) Unit Root Test and Phillip Perron (PP) Unit Root Test are conducted in the current study. After this, for detection of long-run association in our model, we will apply Co-integration bound test.

The bound test contains:

Null Hypothesis: $\emptyset_1 = \emptyset_2 = \emptyset_3 = \emptyset_4 = \emptyset_5 = 0$ (No Cointegration)

Alternative Hypothesis: $\emptyset_1 \neq \emptyset_2 \neq \emptyset_3 \neq \emptyset_4 \neq \emptyset_5 \neq 0$ (Presence of Cointegration)

Thus after accepting the existence of long-run association ECM is estimated.

4. Empirical Results

Table 1: Data Description

Variables	Symbols	Unit	Source
Globalization	GI	Index (0-100)	KOF Index
GDP per capita	GDP	Constant 2015 US$	World Bank(2021)
Capital	K	Percentage of GDP	World Bank(2021)
Government Spending	GS	Constant 2015 US$	World Bank(2021)
Inflation	INF	Annual percentage	World Bank(2021)

Table 2 provides a detailed summary of statistics of the desired variables for analysis. In the case history of Pakistan, the average globalization index is 42.65, with a low of 30.46 in 1971 and a high of 55.12 in 2010. Till the late 70s, Pakistan remained an inward-looking economy, and started liberalizing the economy in the early 1980s remained. This contributed to the lowest level of globalization in 1971. While for 2010, it was provided by a better than expected boom in Coalition Support Fund (CSF), growth in remittances, and improvement in trade account through high cotton exports which surpassed earlier projections. The average value of its GDP per capita in constant is 968.53 in constant 2015 US$. As shown in Table 2, summary statistics also include other control variables.

Table 3 represents the association among our variables by giving their correlation values. The correlation matrix reports a positive association between GDP and globalization. Also, there exists a positive relationship between GDP and government spending. However, all other variables exhibit a negative association with each other.

Table 2: Descriptive Statistics

Variables	Mean	Std. Dev.	Minimum	Maximum
Globalization	42.65141	8.781915	30.4644(1971)	55.12311(2010)
GDP	968.5355	265.2777	565.0732(1972)	1502.891(2018)
Capital	15.73788	1.826524	11.33023	19.11229
GS	$1.32e^{10}$	$9.02e^{9}$	$2.99e^{9}$	$3.76e^{10}$
Inflation	8.815705	5.207417	2.529328	26.66303

Table 3: Correlation Matrix

	Globalization	GDP	Capital	GS	Inflation
Globalization	1.0000				
GDP	0.9504	1.0000			
Capital	-0.1946	-0.0745	1.0000		
GS	-0.1128	0.9536	-0.2053	1.0000	
Inflation	-0.1128	-0.2235	-0.1295	-0.1996	1.0000

First of all unit root testing i.e. ADF and P-P are applied to analyze the stationary condition of variables. Before the bound test, it is necessary to perform it because this test is not applicable if any one variable in data has an integration of order two I (2) or beyond. The results of the ADF test are presented in Table 4 while the results of the P-P test are presented in table 5. In both the tests, GDP, capital, globalization, and government spending are revealed to be non-stationary at a level however they become stationary on taking the first difference. While inflation is stationary at the level thus it is integrated of order zero I (0).

Table 4: Augmented Dickey-Fuller Unit Root Test

Variables	ADF Test Statistics				Variables Type
	Level		1st Difference		
	t-statistics	Critical Value	t-statistics	Critical Value	
Globalization	-0.543	-2.936	-5.434***	-2.938	I(1)
GDP	0.021	-2.936	-5.372***	-2.938	I(1)
Capital	-2.160	-2.936	-5.054***	-2.938	I(1)
GS	2.629	-2.936	-6.996***	-2.938	I(1)
Inflation	-3.82***	-2.936	-	-	I(0)

*** indicates the level of significance at 1%

Table 5: Phillip Perron Unit Root Test

Variables	P-P Test Statistics				Variables Type
	Level		1st Difference		
	t-statistics	Critical Value	t-statistics	Critical Value	
Globalization	-0.543	-2.936	-5.434***	-2.938	I(1)
GDP	0.021	-2.936	-5.372***	-2.938	I(1)
Capital	-2.160	-2.936	-5.054***	-2.938	I(1)
GS	2.629	-2.936	-6.996***	-2.938	I(1)
Inflation	-3.528***	-2.93	-	-	I(0)

*** indicates the level of significance at 1%

Thus unit root analysis gives evidence of mixed integration in our data i.e. one variable is I (0) and others are I (1). Thus we apply the bound test to it. The outcome obtained from the bound test is presented in table 6 along with its critical value. The bounds test indicates the presence of a long-run link among our variables of interest at 1%, 5%, and 10% significance levels. As the calculated F-statistics value is greater than the upper critical bound value at 1%, 5%, and 10% significance levels. Thus the alternative hypothesis of the presence of Cointegration is accepted.

Table 6: ARDL-Bound Test Results

			Bound Critical Values		
Test statistics	Value	Lags	Significance Level	I(0)	I(1)
F-Statistics	5.575	3	1%	3.74	5.06
			5%	2.86	4.01
			10%	2.45	3.52
t-statistics	-3.261	3	1%	-3.43	-4.60
			5%	-2.86	-3.99
			10%	-2.57	-3.66

ARDL bounds test predicts the existence of long-run association thus ECM model is applied, and its result is presented in table 7.

Table 7: Error Correction Model Results

Dependent Variable (Economic Growth)	
Short Run Coefficients	
ECT_{t-1}	-0.19881* (.07011)
Core Variable	Estimated Coefficients
$Globalization_{t-1}$	-0.00231 (0.00264)
$D.Globalization_{t-1}$	-0.00771* (0.00287)
Explanatory Variables	
$Inflation_{t-1}$	0.00280* (0.00055)
$D.Inflation_{t-1}$	0.00234* (0.00059)
Constant	0.11348 (0.18466)
Long Run Coefficients	
Globalization	0.00907** (0.00369)
Capital	0.01581** (0.00733)
GS	0.25411* (0.04822)
Inflation	-0.01287* (0.00434)
R-squared	0.5251
Observations	46
Root Mean Square Error	0.0136

Standard errors reported in parentheses (* p<0.01, ** p<0.05, *** p<0.1)

Current work employs ARDL long-run and short-run coefficients by applying an error correction model (ECM). For such analysis lag order selection is the most important exercise to carry out the empirical

work. Akaike Information Criterion (AIC) is used to select an appropriate lag length. Short-run coefficients show the negative role of globalization in determining economic growth but this coefficient is insignificant at first lag. This supports the theory from the literature of negative repercussions in the short run. In addition, significant and positive effects of inflation and its lagged value on economic growth are reported. However, the coefficient of error correction term is significant at a 1% significance level with a magnitude of -0.1988 which shows that deviation from long-run equilibrium will be adjusted at the speed of 19.8%. Moreover, our analysis is based on the long-run relationship between globalization and the economic growth of Pakistan. The long-run coefficient of globalization tends to be positively significant in rising economic growth in the case of Pakistan i.e. one unit rise in globalization results in a 0.9% rise in economic growth. Aside from liberalization policies, this positive impact can be attributed to remittances from Pakistan's labor abroad, a rise in aid to Pakistan from international donor agencies like the EU and World Bank for poverty eradication programs like the BISP (Benazir Income Support Program) and US-AID after 9/11 for cooperation in so-called 'war on terror.

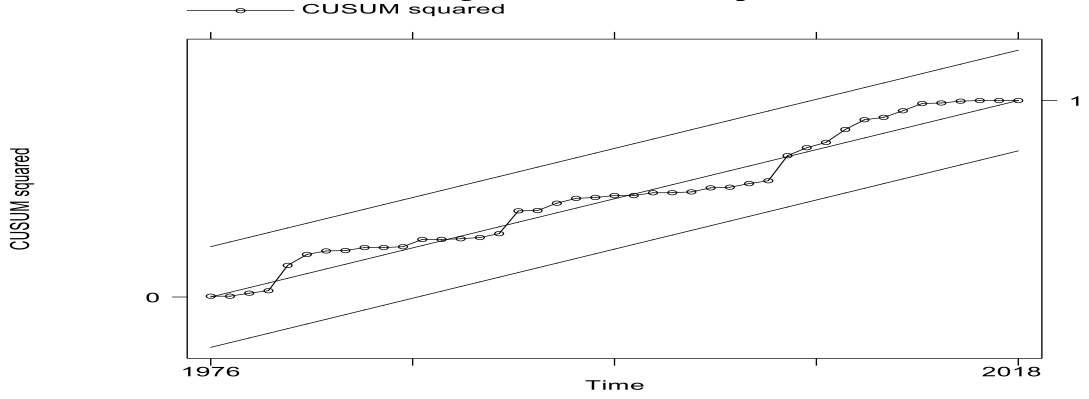
Similarly, government spending performs a significant role in boosting the economic growth of any country. In the case of Pakistan, the coefficient suggests that a one percent rise in government spending results in a 0.25% rise in economic growth. Inflation declines the economic growth to 1.2% by its unit rise while capital rise increases the economic growth. These findings are similar to earlier studies (Majeed & Malik, 2016; Majeed, 2017 & Majeed, 2019). The results remain conclusive with all the long-run coefficients of independent variables and are statistically significant.

Table: 8 Diagnostic Tests Results

Durbin-Watson's alternative test for Autocorrelation	
Chi-squared	0.008
Prob > chi2	0.9284
Durbin-Watson d statistic to test for first-order serial correlation	
d-statistics	2.01
Breusch-Godfrey test for higher-order serial correlation	
Chi-squared	0.011
Prob > chi2	0.9180
Breusch-Pagan / Cook-Weisberg test for heteroscedasticity	
Chi-squared	0.16
Prob > chi2	0.6885

Diagnostic testing is performed to make sure about the goodness of the selected model analysis. Durbin-Watson and Breusch-Godfrey tests for serial autocorrelation and Breusch-Pagan test for heteroscedasticity are performed. The outcomes of all tests are presented in table 8. All of the performed tests indicate that the applied model is free of autocorrelation and heteroscedasticity issues.

Figure 2: CUSUM2 Graph



Moreover, for analyzing the stability of the estimated model cumulative sum of the square of the recursive residuals (CUSUM2) test is performed and its graph is presented in figure 2. This graphic analysis supports the stability of short-run and long-run parameters as the plot for stability is laying under the critical values at the 5% significance level of the graph portion.

5. Conclusion

Given the positive spillovers of globalization, the present study has analyzed the impact of globalization on Pakistan's economic growth using time series data from 1970 to 2018. This study is based on ARDL bound testing approach. The empirical results show that globalization exerts a negative influence on economic growth in the short run while globalization has a positive and significant impact on economic growth in the long run. The role of physical capital and government spending is also positive and significant in explaining the economic growth of Pakistan. However, inflation has a negative and significant influence on economic growth.

6. Policy Implications

This study suggests that countries need to open up their doors to unlock the potential of globalization. For Pakistan, it must ensure that every sector of the economy is liberated in terms of trade development, ICT infrastructure improvement, and an open economy for FDI, but with carefully regulated policies so that globalization can be proven beneficial to every sector of the economy. However, the government needs to invest a significant amount of money, time, and appropriate policies in the economy to reap the benefits of globalization.

The subject of whether globalization has an impact on growth continues to be debated. Because the countries have yet to fight the battle.

7. Limitations of the Study

The study aims at a single country analysis of globalization and economic growth nexus. Further studies can be done doing comparisons of regional countries under such a comprehensive measure of globalization. Moreover, this study reports negative results in the short run; the abrupt changes due to globalization can be better interpreted through reasons behind this by other studies.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Disclosure statement

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Pandemic Impact on the Travels and Tourism Sector of Nepal

***Chongbang Nirmal*[1]**

Affiliation
1. Department of Social Work, Tribhuvan University, Nepal
Email: nirech2005@gmail.com

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Abstract
The travel and tours enterprise were badly affected due to pandemics. In the aftermath of high restrictions on human movement, travel-based entrepreneurs were highly impacted due to lockdown. Due to pandemic, highly impacted into earning-saving, lack of supportive working conditions, lower self-capacity, and lack of recovery budget and policies, the travel and tours-based entrepreneurs were highly impacted. The study reflected the impact of pandemics on travel and tours, major constraints, and a possible way forward to sustaining. The research explores what are the major existing practices of sustaining travel and tours entrepreneurs during pandemics, what factors can contribute to building bounce-back capacities of travel and tours entrepreneurs' sustainability. Above forty-four, snowball-based sampling was done from major travel and tours entrepreneurs, Pokhara-Nepal. A structure-based open-ended questionnaire, key informant interviews, and in-person-based discussion were applied in the method of study. Used the content analysis along with a recap of the research question, undertake bracketing to identify biases, operationalize variables with develop a coding, and code the data with undertaking analysis while qualitative analysis, and multiple regression facilitated on quantitative analysis to finalize the discussion. The study reflects that self-saving, social support, state and financial institutions recovery support, social behavior and change communication, full vaccination practices, and self-accountable tourist behavior are highly expectable conditions to the sustainability of travel and torus entrepreneurship in the learning area. The study concludes that self-saving capacity can contribute to bounce-back capacity for every entrepreneur. Social support and socioeconomic recovery packages were also contributing to sustaining travel and tours in the study area. Self-saving condition and capacity is higher bounce back capacity compared to non-saved entrepreneurs in the study area. Social support, socioeconomic recovery practices, and recovery packages from state and financial institutions were not at the higher level as expected.

Keywords: Bounce back, capacity, support practices, saving-capacity, travels and tours

JEL Classification: R40, Z3, Z32

1. Introduction
The COVID-19 had extremely squeezed into the local and national economy including travel and tours entrepreneurship. The development of the infection and its impact was extremely to entrepreneurs, which made it difficult to move ahead on the macroeconomic arrangement from local to a national scenario. According to the world health organization, Covid-19 was a global pandemic on the 11th of March 2020 (Kenyon, C. 2020). According to WHO the highly spread of the virus, most of the states announced lockdown for the break-down of virus spread, which was highly impacted into travel and tours business. The tourism sector is interconnected in all aspects, which is interlinked from employment, hotels, restaurants, transportation. All of trade and business was badly impacted due to Corona's spread, and cancellation of travel plans from external visitors which has been a chain impacted economically (Khanal (2020). The immediate, intermediate, and long-term impact was seen in travel and tourism-based investments, especially in tourist-based trades and business. Due to low human movement, restriction on external visitors, and high pressure on financial return on business have heavily impacted these trades

during the lockdown. The lockdown led to a loss, travel-based enterprises were hard could sustain, retain, and manage their microeconomy, which seems a huge financial tragedy in the study area. Not enough economic movement, lower social support practices, not having a good condition of social protection directly impacted travel and tourism entrepreneurs and their trade sustainability. Due to the speedy spread of Covid019, its impacted-on multiplier impact on humans and their trades including health, education, and livelihood domains. The travel and tours-based economics are interrelated with the socioeconomic status of entrepreneurs including the value chain. Restriction of human movement directly impacted local, national, and international economic movement, especially impacted on the micro, and small economy.

Most of the economic pillars of society were weak due to long-term lockdown and lower economic movement in the community. Now, we must revive and react to socioeconomic recovery via better planning and execution of economic prosperity. COVID019 has highlighted the environment folly of the 'extract-produce-use-damp economic model of material and energy flows. Short-term policies to cope with the urgency of the pandemic are unlikely to be sustainable models in the long run. Nonetheless, they shed light on critical issues that deserve emphases, such as the clear link between environmental pollution and transportation/industrialization. The role of unrestricted air travel in spreading pandemics particularly the viral influenza types (of which COVID-19 is one) is not in doubt, with sectors like tourism and aviation being walloped (some airlines may never recover or return to profitability in a long time) due to reduced passenger volumes (Ibn-Mohammed et al., 2020).

Still, the travels and tours-based entrepreneurs were struggling for the betterment of their socioeconomic status due to the high restriction of the COVID019 spread, which made more complications for the entrepreneurs in developing communities. Many states were trying to access sustainable economic development through local entrepreneurship engagement. Through own saving, expanding social support mechanism, and linking with protection policies in the local state can play a crucial role in entrepreneurs' social safety nets during this pandemic preparedness. Soliku et al. (2021) discusses based on their study which has concluded that the socio-economic impacts of the COVID-19 pandemic in the tourism region. Where they were shared from their study suggest that overconfidence in tourism and tourism-related activities by communities around tourist locations can have serious consequences for the local economy and the livelihoods of the people in times of crisis. The global effect of pandemics on tourism has been devastating.

Through the study paper, I tried to pull out a descriptive analysis of the pandemic impact on travel and tour entrepreneurship in Pokhara Nepal. Dig out the linkage between bounce back capacity based on self-saving, social support, financial institutions, and state support with a connection of financial supporting factors from financial institutions. The study could make a hypothesis: the self-saving capacity, received social support, state support, and support from financial institutions of entrepreneurs have higher bounce back capacity compared to non-self-savers and not received any support from the state, and financial institutions.

This study tried to explain the relation between self-saving capacity and self-sustaining practices that contributed to the bounce-back capacity of travel and tours-based entrepreneurs. Try to analyze the major self- practices on self-sustain for their trade which has been contributing to socio-economic recovery trends and what are the major supporting factors in individual socioeconomic recovery during and aftermath of the pandemic. The research paper can contribute to making a strong answer to further empirical theory on; the self-saving capacity contributes to the bounce-back capacity of every entrepreneur.

2. Literature Review

2.1 Theoretical

Before digging out of the empirical and analytical discussions about the pandemic, travel and tours entrepreneurship development, social support, and bounce back capacities it is important to make a position the argument within a theoretical context. Because we will be going to examine how the self-saving and sustaining intervention can contribute into bounce back capacity during the pandemic in

travel and tours entrepreneurship development. Through the theoretical context building, we will especially foresee on self-sustaining theories, self-helping theories, and social support theories for further theoretical literature review process.

The social support theory initially starts with Cullen in 1994. Lakey & Cohen (2000) has explained the idea of social support negotiated through many theories of crime and delinquency. They are bridging their ideas from Cullen. Which has famed relation between macro-level and interpersonal-level effects of social support, enhancing how helpful enterprises have made final relationships. Social supports are usually identified based on social resources and it makes a difference when people supported to each-others. Social support can be facilitated into the transformation of human, cultural, material, and social capital even in crises management like pandemic. Which can be link with individual and in larger population units. Butler, L. K. (2018) explains on the social support theory can be used in existing social resources among of community, which could be used as a social safety tools while community members faced crisis like pandemics.

Legault (2017) explains the Self-determination theory is a comprehensive theory of human character and drive concerned with how the individual can interacts with and depends on the social environment for self-sustaining. Self-determination theory describes intrinsic and numerous kinds of external motivation and how these motivations can impact into situational responses in different domains, especially on self-sustaining as well as social and reasoning growth. Self-determination theory is placed on the elementary psychological needs of independence, capability, and affiliation and their essential role in self-determined motivation, well-being, and development. Finally, Self-determination theory describes the serious impact of the common and cultural setting in moreover facilitating people's basic psychological-physical needs, supposed logic of self-direction, presentation, and welfare. Self-determination theory is based on the basic humanistic statement which contribute into individuals natural setting and motivated in actively orient themselves to evolution and development. In the other sense, the Self-determination theory breaks on the concept that the individual is involved endlessly in an energetic interaction with the social world.

2.2 Empirical

Disruptions to production, initially in Asia, have now spread to supply chains across the world. All businesses, regardless of size, are facing serious challenges, especially those in the aviation, tourism, and hospitality industries, with a real threat of significant declines in revenue, insolvencies, and job losses in specific sectors. Sustaining business operations will be particularly difficult for Small and Medium Enterprises (ILO, 2020). Farah et al., (2021) clarifies the loss of jobs is more common in many industries including service industries, the tourism sector, and culture among women, immigrant, and refugee workers, small entrepreneurs, and youths due to COVID019. Due to pandemics, there are worsening job conditions, requirements, and reductions in work hours and pay. Small, medium, and micro-businesses whose personal numbers fall below certain limits, are overrepresented in some sectors, such as tourism, and are adversely impacted on supply and demand sideways. Small and medium enterprises are generally seemed less resilient and quite more flexible in dealing with the costs of the pandemic than larger companies.

The local travel and tourism-based entrepreneurs are major drivers of local socio-economic improvement. Which may contribute to local economic growth & development. Which always promotes the contribution of local trades and entrepreneurship. Kelley & Wright (2020) explain how the government responses could be vital to interventions aftermath of the pandemic, which may be more effective on trades bouncing back into normal. It could be easier to sustain and recover trade and entrepreneurs when they received external support from local supporting agencies and governmental authorizes. Due to the long-term lockdown, travel and tours-based small enterprises were highly suffered because they had limited access to revolving budgets which impacted retaining their trade. Having high restrictions due to Covid019, the travel and tours entrepreneurs have lower opportunities to extend their trade and invest their own savings into scaling up their trades. Their own savings, receiving extended support from institutions or authorities in the local area can contribute to economic development.

The worldwide affected pandemic reflects multiplier impacts on socioeconomic conditions of travel, tours, and another entrepreneurship. These were directly impacted on services-based entrepreneurship, especially in private investment. Guelich & Takahashi (2020) were suggested the international practices of state subsidy and their support can accelerate the bounce-back capacity of financially suffering entrepreneurship, especially pandemic suffered communities. The author explains from the Japanese and Thailand government supporting practices, where they do support entrepreneurs who were badly suffered during a pandemic. The direct support was contributed in enabling policies, addressing affected entrepreneurs' demand through a government program, inline post-school entrepreneurial education system, support to opening internal markets, support to explore the environment to a local market, and link with vocational training for new entrepreneurs.

The local travel and tourism-based entrepreneurs are major drivers of local socio-economic improvement. Which may contribute to local economic growth & development. Which always promotes the contribution of local trades and entrepreneurship. The worldwide affected pandemic reflects multiplier impacts on socioeconomic conditions of travel, tours, and another entrepreneurship. These were directly impacted on services-based entrepreneurship, especially in private investment.

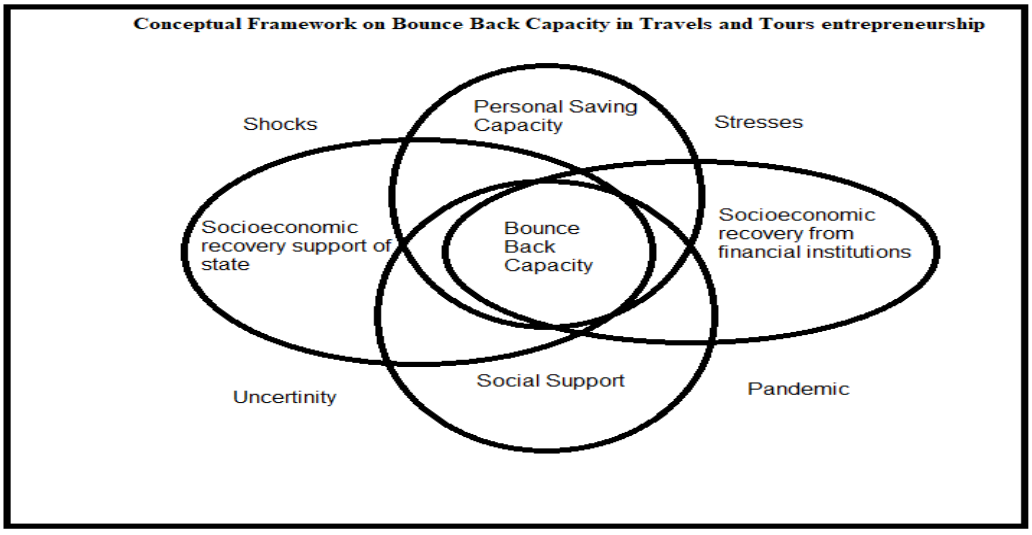
2.3 Research gap

In the above discussion, most of the research papers discussed the impact of pandemic and its multiplier impact on entrepreneurship. Where all authors were trying to raise issues on protecting their trade, promoting good practices, supporting factors to stabilize their enterprise and provoke their retention practices in their business. Some of the studies were elucidated about the social support practices even in governmental and from development aids. They explained the pandemic context, impacted trade and business but rarely covered on travel and tours business-based studies. This study was finding out about remaining findings in the context of travel and tours-based entrepreneurship situation, especially in the pandemic of Pokhara districts, which were highly tourist-influenced districts of Nepal.

2.4 Conceptual framework

Economic resilience can be explains based on ability to recover from a shock, ability to stand against to the effect of the external shocks and stresses like pandemic. Every traders and entrepreneurs should have the flexibility to bounce back after being the adversative impact of pandemics. Which should facilitate for reduce, avoid, and transfer risk during the emergencies. The personal saving ability of entrepreneurs, receiving social support, received financial institutions support, get state recovery support can make enhanced on resilient travels and tours entrepreneurship.

Figure 1 Conceptual Framework: Bounce Back Capacities in Travels and Tours entrepreneurship



In travel and tours entrepreneurship, the personal saving capacity, social support-mechanism, recovery support from financial institutions, and socioeconomic recovery support from state agencies can contribute into the bounce back capacity of entrepreneurs, especially for recovery from pandemic.

3. Research methodology

3.1 Study area

Research was implemented in Pokhara, Kaski district of Nepal which was highly tourist crowded city of Nepal. Where we could find many travels and torus-based entrepreneurship.

3.2 Data collection techniques

For collecting of information and data, I had applied qualitative and quantitative research method while primary data collection and interpretation. During the information gathered by talking directly to the responders based on open-ended questionnaire and used observation in their natural setting. In this research, researcher was a key instrument for information collector through the observation, and directly interviewed with the responders. Used convenience sampling for sample collection from personal entrepreneurs from Pokhara, Kaski district of Nepal. The total sample size of the Google survey was fixed nearly 43, all of responders were from travel and tour enterprises. Listed respondents were prepared based on records of those who have their own entrepreneurship recorded. The data collection strategy was focus on in-depth analysis of self-saving packages, social supporting practices, socioeconomic recovery support from financial institutions and state, risk transform practices and support packages from the state.

Through the qualitative & quantitative analysis, research explores the issues, tried to collect previous finding from literature review on make a further insight, and take depth interview for qualitative analysis of specific experience collection. Collect case analysis for details information. Study was tried to generalize common understanding of real-world practices from travel and tour entrepreneurs on bounce-back capacities, tie-up with real ground knowledge about the self-sustaining practices during these pandemics. Questions were prepared based on research question, major questions were stored in Google form, shared with concerned agencies, collect information from online mode, draft tabulation, and refine tabulation. Reached responses interviews were transcribe and made thematic analysis in qualitative analysis and multiple regression was done in quantitative analysis.

3.3 Duration of study

Around six months takes to complete this study. It was started to collect reading materials from last July 2020. Completed reading table, annotated bibliography, finalize research question, conclude variables, drafted questionnaires, define study area, collected possible respondents list and collected information. Data collection and processing, write draft paper, and finally complete the study.

3.4 Theoretical model

Research mostly founded on major conceptualization of economic resilience theory (Briguglio et. al, 2006). The daily interventions, investigation of socioeconomic activity in trades, risk assessment, and forecasting with coping capacity reflects economic resilience. Theory express on theoretical and operational framework for the examination and measurement of economic resilience. Theoretical ground reflects on working ability of an economy to recover from the effects of hostile shocks. This theory reflects the building self-sustaining, and resilience based microeconomic stability, entrepreneurship efficiency, trade governance, and social development. Theory explore the high level of preparedness to reduce future vulnerability to make more resilient trade and business capacity in capital formulation with anticipation of crises. The economic resilience was well-defined as responding ability to recover from the adverse impacts of external economic shocks like pandemic. While considering of the building economic resilience, every trade and travels should be ready to them on improve their preparedness and response ability with forecasting of external shocks.

3.5 Empirical model

In this study I used the empirical research model which are interconnected, and all are equally important to further proceed. Which facilitated the different phases involved in building the research hypotheses and testing systematically used of empirical data. Through the empirical model, mainly I had used the following in this study;

A. Observation: Through this process, I had gathered the empirical data for research. During the collection of data, I had gathered relevant empirical data using of qualitative and quantitative observation methods, and its help on building research hypothesis. Especially, what were the major source of income, whether they do save their income or not, was their entrepreneurship was sufficiently opened, how many tourists were visited Etc.

B. Induction: Thought this process, I had made use of inductive reasoning in order to arrive at a general probable research conclusion based on my observation. It's helps to me on generated a general assumption and facilitate to attempts to brief the empirical data.

C. Deduction: In the deductive reasoning, I had generated hypothesis with applied of logic and rational based on my previous observation. Based my observation, I had concluded; what were the existing capacity of entrepreneurs, how they could bounce back on their financial conditions from these pandemics, what were the major supporting factor on bounce back capacity building? Etc.

D. Testing: I had inserted my hypothesis to test with support of ANOVA quantitative research methods, personal observation, case-study also used. In this stage I had tested whether the self-saving capacity, social support, financial institutions, and state recovery support can contribute on building of bounce back capacity in entrepreneurs or not?

E. Evaluation: Not only above-mentioned variables only can impact into building bounce back capacity in travels and tours entrepreneurship in study area. Many others variable also can impacted on bounce back capacity of travels and tours, which was not considering during my study. But I hope the further researcher can take-off from my finding of this research.

4. Result and discussion

Due to the long lock-down and pandemic, economic growth, and capital formation were highly impacted. Which highly impacted on regularizing travels and tours-based trade and downsize entrepreneurs' income. The tourist industry's industrial production, tourism, travel, and market economy have all suffered as a result of the stringent prohibition of human movement. Due to human mobility restrictions during the Covid019 pandemic, travel and tours-based services were either slowed or stopped down. The states' prohibitive orders and shutdown influenced entrepreneurship. Most service providers were shut down during the lockdown, but due to local demand, some local travels movement the sum of travels companies have reopened partially. These catastrophic events are causing further economic shocks and stressors to the entrepreneurial community as a result of the long-term shutdown. Finally, the people's socio-economic situation had deteriorated significantly; those who were highly engaged in travel and tourism entrepreneurship.

4.1 Demographic status/ Graphical analysis

100% of participants from Pokhara, Kaski district, Nepal. Among of the respondents, 20% were between 20 to 30 age group, 53.33% were between 30 to 40 age group, 17.77% were between 40 to 50 age group, and 8.88% were from 50 to 60 age group. 33.33% are female respondents and 66.66% are male participants.

4.2 Descriptive analysis

Table 1: From 154 travel and tours entrepreneurs, here only marks of 43 entrepreneurs' sample

T&T entrepreneurs	What is the percent of your loss (In100%)	T&T entrepreneurs	What is the percent of your loss (In100%)
1	55	23	80

2	90	24	80
3	65	25	80
4	90	26	85
5	90	27	80
6	80	28	80
7	90	29	85
8	65	30	65
9	85	31	65
10	80	32	80
11	65	33	85
12	90	34	80
13	80	35	65
14	90	36	75
15	85	37	55
16	90	38	75
17	65	39	75
18	65	40	80
19	80	41	80
20	80	42	80
21	85	43	80
22	90		

Table 2: Mean, standard deviation and Number of travels & tours entrepreneurs

Mean	Standard deviation	Number of travels & tours entrepreneurs
78.30	9.47	43

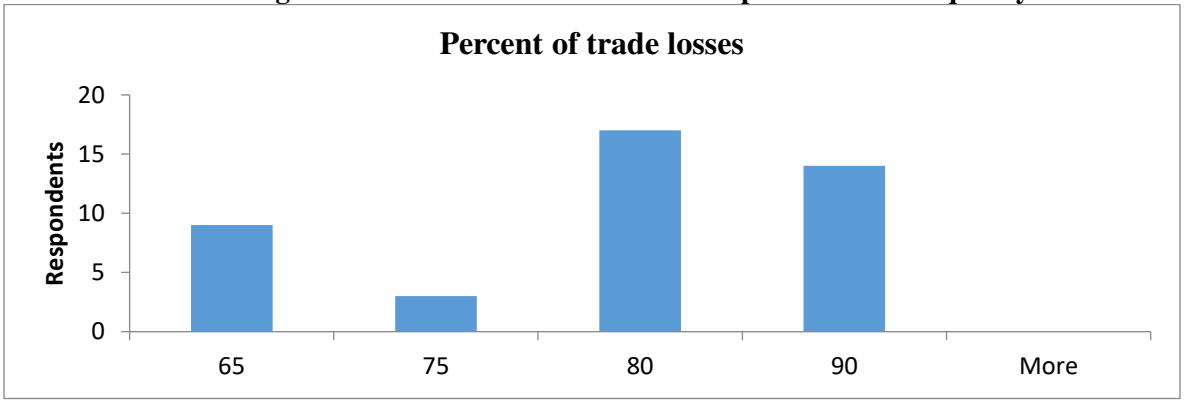
Table 3: Frequencies of 43 travels & tours entrepreneurs

Descriptive Statistics	
Mean	78.84
Standard Error	1.37
Median	80.00
Mode	80.00
Standard Deviation	8.99
Sample Variance	80.76
Kurtosis	-0.07
Skewness	-0.77
Range	35.00
Minimum	55.00
Maximum	90.00
Sum	3390.00
Count	43.00
Largest(1)	90.00
Smallest(1)	55.00

Confidence Level (95.0%)	2.77

From the respondents, 77.27% said their trade was almost closed, 22.73% replied their business was partially closed. They responded that, only 2.28% got chance to mobilize the local tourist, 9.09% have not had any idea, and 88.64% we just informally opened their business. 43.18% were said their business shutdown had badly impacted into their financial status, 15.91% said only got impact into their regular trade, and 40.91% said it was impacted into shutting down their trade due to this long pandemic effect. For retention of their trade during this pandemic, 68.18% were used their self-saving, 13.64% added loan, 13.64% were mobilize helping hands, and 4.55% were use debt.

Figure 2: Travel and torus trade losses percent with frequency



4.3 Inferential analysis

Table 4 presents ANOVA results.

Table 4: ANOVA results

SUMMARY OUTPUT

Regression Statistics	
Multiple R	1
R Square	1
Adjusted R Square	1
Standard Error	1.80811E-15
Observations	43

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	242.43	60.6	1.85	0
Residual	39	1E+00	3.26		
Total	43	242.43			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1E+00	6.28	-2.12	0.04	-2.6	-6.1	-2.6	-6.1
x1	1	1.64	6.06	0	1	1	1	1
x2	1	1.97	5.06	0	1	1	1	1
x3	1	3.34	2.99	0	1	1	1	1
x4	1	1.76	5.67	0	1	1	1	1

4.4. Result of hypothesis testing

The F statistics is significance for the entire regression. At a (alpha) =0.005, this regression is statistically significant because 'P' value is < 0.05, that's why we can now reject the null hypothesis. All four T value are statistically not significant, because their corresponding P value is <0.05. Therefore, all four; X1 (self-saving), X2 (Social support), X3 (state support) and X4 (financial institutions support) are individually contributing into prediction of Y (bounce back capacity). Prediction equations= Y=b0+(b1*x1) +(b2*x2) +(b3*x3) +(b4*x4), therefore Y = -1.33+(1*4) +(1*0) +(1*0) +(1*0), = 2.67. Which shows the Self-saving, Social support, State support, and Financial institutions support are can significantly contribute into bounce back capacity on every travels and tours entrepreneurship, which could be scaled up by 2.67 times via each assistance. Which could directly add value on bounce back capacity of every entrepreneurs during this pandemic.

4.5. Discussion

During the first lockdown, my travel and tours were fully shut down, and in the second lockdown we had partially open but there was the low flow of external tourist, only we had handled local tourist who was partially engaged in local tourism. Our trade was badly locked for nearly nine months which was too tragic for us. We had hardly could earn from the limited resource. Now I had partially engaged on local food mart, which does not seem too earning, but it's all are based on daily consumable items so feel quite good to change this new trade. It was seeming too hard to manage to operate and sustain my previous travels and tours business and hoping for more profit from new trade. We are expecting social recovery support from state and already started personal saving for scaling-up own response capacity for further pandemic" (*Case one: Owner of travel and tours, 42, Pokhara, Lakeside*).

Only 4.54% of respondents said they were reached social support, 95.45% were not got any social support to revive or sustain their trades during this pandemic. 90.90% of respondents believe their travels and tours trade can be revived with completion of full vaccination and 90.09% emphasis on social behavior change in these industries related to people, business owners, and even travelers also. Among the respondents 72.72% searching for new business alternatives including food shop, glossary, fruit delivery, and international labor market. 25% of respondents looking for new scope of internal travels and tours, do believe in the expansion of internal tourism, and 2.27% of respondents felling the new normal will be more challenging pieces of stuff in their trade and tourism. In the study area, there are many push factors on travel and trade-based enterprises. Among the respondents, 45.45% were said there was low economic movement, 40.90% said the lockdown was a major push factor, 9.09% said due to lower movement of tourists, and 4.54% said the enterprises were going to non-profitable. Respondents planning to retain their recent trade if will get enabling environment, 40.91% planning to retain based on their self-saving, 34.09% expecting socioeconomic recovery support from state authority, 20.45% expecting added loan, and 4.55% going to borrow debt from relatives and local financial institutions for retaining their travels and tours. Most of the entrepreneurs were expecting support from external supporting hands, 68.18% of respondents were expecting long-term state support, 27.27% expecting zero-interest based loan from financial institutions, 2.27% expecting pandemic sensitive trade management, and 2.27% respondents said we need to start work on risk sensitive behavior change and communication.

The socioeconomic conditions of entrepreneurs were quite weak due to long lockdown, lower tourism movement, and they were badly impacted due to weak social and state support systems. The side effects of the pandemic were raising, like lack of unemployment, lower income, lower savings, and limiting their support to family operation and whole socioeconomic movement in the local market. Most of the travel and tour-based entrepreneurs were facing extreme economic conditions due to pandemics. They were tried to raise up the extreme effect of shocks and increasing their stresses and could not standing-up properly due to low level of preparedness, low self-saving capacity, low investment-friendly policies of financial institutions, lower investment in risk transfer insurance, weak support system, and rare state support on socioeconomic recovery.

The research is largely focused on the understanding of the concept of socioeconomic resilience theory, which has been founded on the socioeconomic investigation, overall vulnerability assessments, and

business anticipatory ability as it relates to building resilience capacity. This idea describes an economy's ability to rebound from the consequences of severe shocks and stresses. Microeconomic stability, market efficiency, governance, and social development were used to complete the theory on how to construct economic resilience. The major socio-economic vulnerability can be decreased and make bounce back capacity by increasing personal saving capacity, receiving social support, state recovery support, and receiving support from financial institutions in travels and tours entrepreneurship, as a result of this research with empirical evidence. Another one, in the micro, macro-level and interpersonal-level effects seems much better with the social support, which has enhancing how helpful to respective enterprises. It's always based on social resources and it makes a difference when people supported to each-others. Which seems quite more practiced in study area. The common social support culture is much poor than expected in study area, which has seriously impacted on building of common interest and building supporting cultural. But the individual can involve endlessly in an energetic interaction with the social world for active common goal from enabling social support.

These theories suggest that defending through readiness improves capital formulations' resilience capacity, and this research would like to increase bounce-back capacity through added personal saving, reach-out social support, state support, and financial institutions.

5. Conclusion and Recommendations

Contributing to the entrepreneurship knowledge management domain through the empirical and theoretical knowledge combination on how the bounce-back capacity can be strengthened in travel and tours enterprises is the major aim of this study. The travel and tours entrepreneurs could strengthen their bounce-back capacity through their savings, received social support practices, state authority support, and received financial subsidies from financial institutions. Most of the enterprises have collected their savings in local microfinance, local saving groups, and some have used nearby banks. The flow of savings was at a decreasing rate during the pandemic, and mostly they burned their savings to retain their business. In the travel and tours business, there were rare practices on social support due to lower saving practices at the professional (group) level. Due to lower savings in their collective group fund, mostly they were not able to support their members during this pandemic. Support from state agencies is also at a lower rate due to lower social protection covered to travel and tours businesses. The state has not yet been considering social protection in non-contributory sectors like business hubs. Due to socio-economic recovery policies, plans, budgets, and programs, the state has not been able to support the travel and tours business during this crisis. The financial institution was not able to support local businesses, and even their regular client due to a lack of crisis recovery policies. They were advocacy and practiced risk transfer mechanisms only for loan purposes, and when the collateral will be demolished by disasters like earthquakes, fire, and other natural disasters.

In the future, the travel and tours, and local business holder should increase their saving practices on a personal and professional level. Which will contribute to the strengthening of social support capacity. State agencies should be beginning policy dialogue with enterprises, formulation of policies on socioeconomic recovery, setting-up budgets, and programs for most vulnerable entrepreneurs in the study area. Which could make a difference in their effort to retain trades and contribute to socio-economic recovery as well. The financial institutions must review their existing loan distribution policies, examine corporate social responsibility, and integrate client interests with their current socio-economic conditions. This research reflects insights into travel and tours-based entrepreneurship development in Pokhara Nepal. Anticipate roadmap based on respondents' responses on how travels and tours make bounce back capacity for coping with extreme situations, like a pandemic.

This study was considering only the current situation, how entrepreneurship can strengthen their capacity, what are the major underline factors to capacity enhancement themselves, and how external factors can crucial role play on entrepreneur's management ahead. Due to limited coverage of study area in Pokhara, Kaski district of Nepal, which might not represent the whole bounce-back capacity of travel and tours entrepreneurs in different places of Nepal, and the whole pandemic-affected business communities. But I hope my study can contribute as a cornerstone to the pandemic entrepreneur's

management studies of Nepal. This could be explored more in upcoming research in respective issues on the bounce-back capacity of an entrepreneur's resiliency.

Author Note

Mr. Chongbang Nirmal © http://orcid.org/0000-0002-8164 is pursuing doctoral degree in Social Work from Tribhuvan University. Already published four papers & shared more than four research-based conference papers in international conferences in Nepal, India, Bangladesh, and Mauritius.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Macroeconomic Instability and Terrorism Nexus; Empirical Evidence in Case of Pakistan

Hafsa Jabeen[1] and Ayesha Naz[1]

Affiliations
1. Department of Economics, International Islamic University, Islamabad.

Corresponding Author Email:
ayesha.naz@iiu.edu.pk

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Abstract
The current study is an attempt to analyze the association between macroeconomic instability and terrorism in Pakistan over the period of 1970 to 2020. Six important variables are taken as a proxy to measure macroeconomic instability which includes external debt, budget deficit, trade deficit, real effective exchange rate (REER), inflation and unemployment. Results indicate that there exists a long run cointegration relationship between the indictors of macroeconomic instability and terrorism. FMOLS is employed to obtain the estimates and it reveals that budget deficit and external debt is negatively associated with terrorism. It indicates that government expenditures on different project such as infrastructure create economic opportunities, therefore, reduces terrorism. Furthermore, welfare programmes also improve the performance of socioeconomic variables that translates into harmonized environment which lessens violence. The variable of trade deficit, inflation and unemployment has positive impact on terrorism while REER is insignificant. In context of trade deficit, higher imports results in job loss of domestic industries, hence, it hits the vulnerable groups. Therefore, the opportunity cost of life of these groups reduces and it increases the probability to become a part of terrorist activities. Inflation also pushes the vulnerable groups in poverty by reduces the purchasing power and unemployed individuals are also easy target to get involve themselves in acts of aggression. This study also constructs the macroeconomic instability index including the six variables through principal component analysis (PCA). Results of this model show that macroeconomic instability index and GDP has positive effect on terrorism. In case of GDP, the plausible reason could be uneven income distribution that increases terrorist activities. For the policy implications, government need to divert the resources from non-productive to productive uses through the investment in such projects which has direct and indirect impact on the welfare. In this way deprived group will enjoy economic perks and engage themselves in productive activities rather than becoming a helping hand in terrorism.

Keywords: Terrorism, Budget deficit, External debt, Unemployment, Macroeconomic instability

JEL Classification: E24, F10, F31, H62, H63

1. Introduction
Pakistan is facing the problem of terrorism from 1947 but in 1980s this issue increased due to Afghan War. The border of Pakistan is connected with Afghanistan, Iran, China and India. However, largest border of Pakistan is shared with India and Afghanistan. It is evident from history that Pakistan has been in clash with India since after its independence. Likewise, Afghanistan has also remained in war or threat of war in different periods. Consequently, transnational terrorism is the central distress for the government of both countries. Afghanistan has fought the wars namely as the Union of Soviet Socialist

Republic (USSR) and Anglo-Afghan war which was against Russia and British. The basic purpose of these wars was to fight against terrorism. US government wanted to interfere and weakened the Soviet Union economically and politically by giving armed and monetary support to Afghan activist and Pakistan (which is known as Mujahidin). The reason behind the intervention of the US government was that America wants to become the superpower all over the World. Pakistan and the US agencies are the helping hand in the formation of Al-Qaeda organization. When Afghanistan defeated Russia, the Afghan militant (Taliban) announced their government by taking the control in Afghanistan. At that time Afghan militants were politically and economically strong meanwhile the incident of 9\11 took place. After 9\11 attacks America announced that Al-Qaeda group and Afghan activist are terrorists. In response to 9\11 attack, America attacked on Afghanistan in 2001 to fight against terrorism. Pakistan was unwilling to fight against Afghanistan because of same religion and culture. But Pakistan was under pressure of US government and decided to involve in war against terrorism. America provided financial and military support to Pakistan. Under this condition, Pakistan foreign policy changed which is not in favor of Taliban. This started terrorist activities in Pakistan. At initial stage, there were attacks on FATA (Federally Administered Tribal Areas). Later on, the network of terrorist activities is increased throughout Pakistan. In this situation, government of Pakistan took rapid steps to control the war against terrorism and started operation Zarb-e-Azb in June 2014 (Shahzad et al., 2016).

According to South Asia Terrorism Portal Database, 1600 civilian killed in 2003 to 2006 while 2650 civilians killed in 2010 to 2011 due to terrorist attacks. The rationale behind this was the financial deprivation in the society and response of terrorist organization to the counter terrorism measures of government (Shahbaz et al., 2013). Financial support to internally displaced persons (IDPs) due to terrorism and counter-terrorism expenditures created financial pressure which lead to fiscal deficit and hamper the economic development of Pakistan. According to the Economic Survey (2010-2011), Pakistan incurred huge cost (direct and indirect) which is $67.93 billion during last ten years due to terrorism (Ismail and Amjad, 2014).

Macroeconomic instability damages the private investment and productivity of a country. It decreases public resources due to high inflation and excessive debt that can be used for current expenditure and capital (Ismihan et al., 2005). Macroeconomic stability plays very vital role for sustainable economic growth. It can be defined in terms of inflation, unemployment, trade deficit and budget deficit. Sameti et al. (2012) pointed out fluctuation in inflation, instability of real exchange rate and inappropriate fiscal policy are the reasons of macroeconomic instability.

Macroeconomic stability can also be defined by achieving balance between savings & investment, domestic demand & output and fiscal revenues & expenditure. There are different factors which are helpful in identifying the country stability or instability. The variable of international reserves, fiscal deficit, growth, current account deficit and inflation can be used to explain the macroeconomic condition of a country. Macroeconomic conditions would be stable in case of rise in GDP per capita, decline in inflation and reduction in the level of debt along with current account and fiscal balances. However, macroeconomic conditions would be considered as instable with double-digit inflation, short term borrowing, higher level of public debt and lower GDP per capita. Additionally, it includes the seigniorage financing to current account deficits (Sameti et al., 2012).

There are several factors such as fiscal deficit, high inflation, political instability, lack of physical and human capital, increase in foreign debt, low exchange rate, natural disasters and poor law and order conditions that characterize unstable macroeconomic environment and hampers the economic growth of a country. Likewise, external, and internal shocks have the direct effect on economic growth. The rise and fall of financial markets and term of trade are considered as exogenous shock that reduces the gross domestic product. Internal or domestic factors have more noticeable effect in producing macroeconomic instability as compared to external shocks. Moreover, limited resources of developing countries, usage of old technology and unskilled labor negatively affect the output. These shocks have negative effect on

the market efficiency of developing and low-income economies. However, economic progress can be achieved through the production of quality products. Technological progress and accumulation of factor of production can also play crucial role in enhancing economic growth (Ali and Rehman, 2015).

Local as well as foreign investors are reluctant to invest in a host country due to the existence of macroeconomic instability. Since 1972, macroeconomic instability remained a major problem in Pakistan due to multiple factors. It includes persistent increase in inflation, fiscal account deficit, increase in exchange rate, current account deficit, low economic growth and low trade openness. Terrorism is also associated with macroeconomic instability as inflation affects terrorist activities. The rationale behind is that inflation decreases the purchasing power of individuals which in turns pushes them below poverty line. The inability to fulfill the basic needs ultimately indulge them toward the terrorist activities (Shamshir et al., 2019). In developing countries, higher fiscal account deficit is due to terrorist activities that creates the more pressure on the respective government towards the optimal allocation of resources. Government spending increases to rebuild the infrastructure which is damaged due to terrorist activities. Hence, government spending shifts from the development expenditure towards the military spending. Consequently, fiscal deficit increases due to increases in terrorist activities (Mukhtar and Jehan, 2021).

The significance of the study is that macroeconomic factors namely as gross domestic product, inflation, external debt, budget deficit, real effective exchange rate, trade balance, unemployment which may contribute positively or negatively towards terrorist activities in Pakistan. So, there is need to evaluate and analyze the impact of macroeconomic performance on terrorist activities in Pakistan. Literature shows that there are various studies that have tested the relationship between macroeconomic indicators and economic growth, but limited efforts have been done in determining the association between macroeconomic instability and terrorism. Therefore, the objective of current study is to determine the association between different indicators of macroeconomic instability and terrorism. In this context, total six indicators are chosen which include budget deficit, external debt, trade deficit, REER, inflation, and unemployment.

The present paper contributes to existing literature in two ways: Firstly, effort has been made to empirically find out the association between different indicators of macroeconomic instability and terrorist activities in Pakistan using the latest data set over the period of 1970 to 2020. Secondly, this paper develops the index of macroeconomic instability rather than just relying on single proxies of macroeconomic instability. Although, there are some studies that have constructed the macroeconomic instability index, but present study constructs this index by using a comprehensive set of variables. Moreover, terrorism index is also constructed by using three variables i.e. number of incidents, number of fatalities and number of injuries. Thirdly, this study provides policy guidelines to curtail terrorism. The study highlights internal socioeconomic factors that destabilize the economy which results in terrorism.

2. Review of Literature

There are multidimensional causes for the terrorism such as religious extremism, illiteracy and military expenditures. In South Asia region, GDP per capita, population, unemployment, poverty, inflation, inequality, and political volatility are considered to be the major reasons of terrorism (Akhmat et al., 2014). Ismail and Amjad (2014) analyzed the causes of terrorism in Pakistan and included various socioeconomic indicators like literacy level, GDP per capita, inflation, political rights, poverty, inequality, and unemployment in the analysis. The study found long run association of terrorism with socioeconomic variables.

Different indicators are used to measure macroeconomic instability; it includes inflation, unemployment, budget deficit, public expenditure, and trade deficit (Sanchez-Robels, 1998 and Bleaney, 1996). Several studies have used single indicator i.e., inflation as a proxy of macroeconomic variables while others measure it by constructing composite index using two or more variables. Bukhari and Masih (2016)

explored the relationship of domestic terrorism and macroeconomic variables in Pakistan. Results show that GDP growth is positively related to terrorism in the long run. The terrorism increases due to uneven income distribution in country. Similarly, Ali and Li (2016) investigated the influence of economic factors in terrorism for Pakistan and found positive association among GDP per capita, inflation, unemployment, population, income inequality, poverty and terrorism.

The study of Malik and Zaman (2013) examined the macroeconomic effects of terrorism in Pakistan and the outcomes of study show the macroeconomic factors namely political instability, population growth, poverty, and price level as a source of terrorism. However, unemployment, trade openness and income inequality are found to have no long run association with terrorism. Furthermore, study shows unidirectional causality between macroeconomic factors and bidirectional causality between unemployment and terrorism. Shahbaz (2013) investigated the connection among terrorism, economic growth and inflation in Pakistan and results show bidirectional causality from inflation to terrorism. Ismail and Amjad (2014) explored the connection of terrorism and macroeconomic variables in Pakistan. The study used the macroeconomic indicators such as inflation, unemployment, and GDP per capita. The results show long run association of terrorism with macroeconomic indicator. Similarly, the study of Shamshir et al. (2019) shows that inflation decreases the purchasing power and results in deprivation of basic need, therefore, it causes higher terrorism. The study of Naz et al. (2021) also investigated the relationship between macroeconomic instability and terrorism by using ARDL approach. The results show the presence of long-run association among terrorism, macroeconomic instability, political instability, and GDP per capita in Pakistan.

Azam (2001) used economic model with rational prospect to analyze the connection between inflation and macroeconomic instability in case of Madagascar. The variable of unbalanced real exchange rate, fiscal deficit, inflation, overestimated currency, and balance of payment deficit are used as a proxy of macroeconomic instability. The study found that inflation is positively related to macroeconomic instability. Rasul et al. (2016) analyzed the relationship among output growth, inflation and macroeconomic uncertainties in India and Pakistan. Results reveal that output growth is negatively related to inflation and macroeconomic uncertainties.

The issue of budget deficit and economic growth is discussed by various studies in Pakistan. Budget deficit is used as a proxy to measure the macroeconomic instability. The study of Mukhtar and Jehan (2021) found positive association between fiscal deficit increases due to and terrorist activities. Fiscal burden increases due to more spending on military equipment in order to halt terrorist activities. Ahmad (2013) examined the impact of budget deficit in the GDP of Pakistan during the period of 1971 to 2007 and results show bidirectional causality between budget deficit and GDP. Fatima et al. (2012) investigated the influence of budget deficit on economic growth for the period 1978 to 2009 and found negative association between budget deficit and economic growth. However, the study of Nayab (2015) shows positive association between budget deficit and economic growth. Dao and Bui (2016) analyzed the effect of budget deficit and economic growth of Vietnam. The results show that productive expenditures are positively correlated with economic growth. While non-valuable expenditures have negative link with economic growth.

Unemployment is an influential factor in macroeconomic instability and its prevalence creates social and economic problem in an economy. Shahid (2014) examined the consequence of unemployment and inflation on economic growth of Pakistan. The results reveal the long run correlation among economic growth, unemployment, and inflation. Similarly, Hussain et al. (2010) determine the causal link between unemployment and economic growth of Pakistan for the period of 1972 to 2006. The results of the study show that the variable of unemployment and economic growth are correlated in short run and long run.

Different studies have been conducted on the issue of external debt/foreign debt and showed mixed results on the relationship of external debt and economic growth. In this regard, the study of Hassan and Mamman (2013) and Zaman and Arslan (2014) show that external debt is positively linked with

economic growth. While the studies of Atique and Malik (2012), Malik et al. (2010) and Asghar (2016) found the negative relationship of external debt and economic growth in Pakistan. Nawaz et al. (2012) examined the causal relationship of external debt and economic growth and found bidirectional causality between them.

The main contributing factor to the trade deficit is an insufficient capability of domestic producers and fluctuation in oil prices which lowers the production of value-added products of Pakistan (Hassan et al., 2017). Iqbal and Zahid (1998) examined the macroeconomic determinant of economic growth in Pakistan. Results indicate negative relationship of budget deficit and external debt to economic growth. The quantitative analysis shows that higher economic growth can be achieved through primary education and stock of physical capital. Hussain et al. (2016) explored the influence of macroeconomic indicators like interest rate, inflation and real exchange rate on GDP of Pakistan and concluded that inflation and interest rate are negatively related to GDP while, the real exchange rate is positively correlated to GDP. Awounang and Foning (2014) analyzed the impact of macroeconomic instability on capital stock accumulation in Sub-Saharan African countries. The study used four macroeconomic indicators namely GDP growth, inflation rate, term of trade and real effective exchange rate to measure macroeconomic volatility. Results show positive impact of GDP growth on macroeconomic volatility, while inflation rate, term of trade and real effective exchange rate appeared to slow down the physical capital accumulation. The study of Ghura and Grennes (1993) investigated the relationship between macroeconomic performance and real exchange rate and found that real exchange rate is negatively related to macroeconomic performance in Sub-Saharan Africa. Similarly, Khan et al. (2015) explored the effect of exchange rate on macroeconomic variables and found long run association of real exchange rate and GDP in Pakistan. On the other hand, Abudalu et al. (2014) analyzed the effect of real effective exchange rate on economic growth and found that real effective exchange rate is positively related to economic growth.

Literature shows that most of the studies have established a link between different indicators of macroeconomic instability and economic growth. Limited literature is observed to examine the relationship between different indicators of macroeconomic instability (budget deficit, external debt, trade deficit and REER) and terrorism. Therefore, literature has yet to come up with empirical studies to examine the relationship of these indicators to terrorism. Hence, this study fills this gap by taking the comprehensive set of the indicators of macroeconomic instability and determining their impact on terrorism.

3. Data and Methodology

3.1 Study Area and Duration of Study

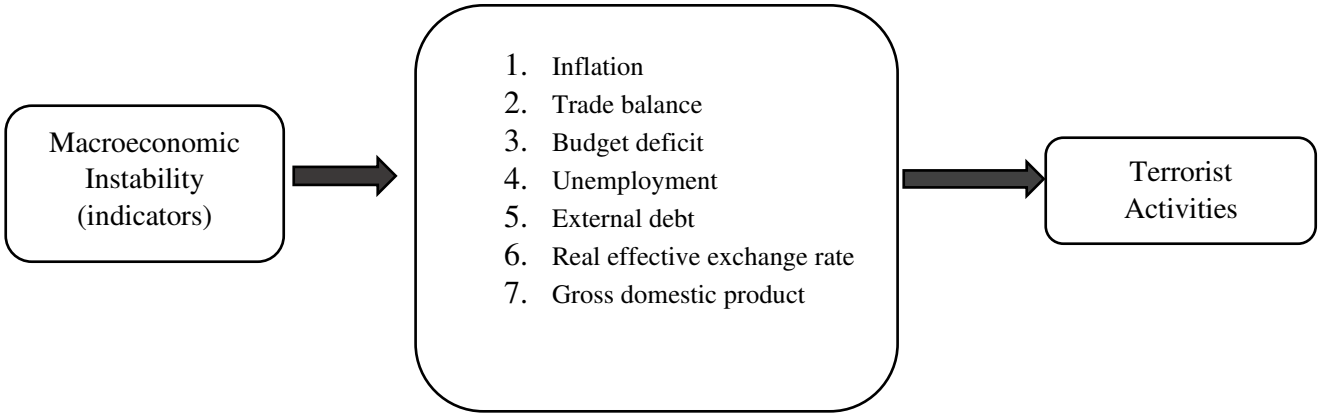
The study is conducted for the case of Pakistan covering the period of 51 years. The data ranges from 1970 to 2020. In this study large sample size is used to show better results that can be generalized for policy perception in developing countries like Pakistan.

3.2 Theoretical Framework

There are multiple channels through which macroeconomic instability can affect the terrorist activities. Macroeconomic instability is measured with the help of six indicators which include budget deficit, external debt, trade deficit, REER, inflation, and unemployment. Moreover, GDP is also considered as a control variable. It is important to include GDP in this specification as the size of the economy matter in socioeconomic repercussions. Inflation has direct and indirect effect on terrorism via the channel of reduction in purchasing power (Bukhari and Masih, 2016). Trade deficit can affect terrorist activities through job destruction which can occur due to replacement of domestically produce commodities with imported commodities. External debt, budget deficit, REER can be associated with management policies and the composition of government expenditure. It has direct implications on socioeconomic variables

(Khan et al., 2015; Hussain et al., 2016 and Naz et al., 2021) which consequently affects terrorist activities. The relationship between indicators of macroeconomic instability and terrorism is displayed in Figure 1.

Figure 1: Relationship between Macroeconomic instability and Terrorism



3.3 Empirical Model

3.3.1 Model-1

The current study develops model 1 by following the specifications of Shahbaz (2013), Amjad (2014) and Bukhari and Masih (2016). However, all the previous studies have used only one or two proxies of macroeconomic instability to establish its link to terrorism activities. In this study a wider set of the indicators of macroeconomic instability has been used. The model 1 is given in specification (1).

$$TI_t = \varphi_1 + \varphi_2 BD_t + \varphi_3 ED_t + \varphi_4 TD_t + \varphi_5 REER_t + \varphi_6 unemloy_t + \varphi_7 infla_t + \varphi_7 GDP_t + \mu_t \quad (1)$$

Where, TI is showing terrorism index, BD is representing budget deficit, ED is used for external debt, REER is real effective exchange rate, TD refers to trade deficit, Unemloy indicates unemployment, infla is a symbol for inflation and GDP is showing real GDP. GDP is used as a control variable.

3.3.2 Model-2

In model 2, macroeconomic instability index is developed by six indicators through PCA. The model is given in equation 2. In this specification, MII is representing macroeconomic instability index while GDP is a control variable.

$$TI_t = \beta_1 + \beta_2 MII_t + \beta_3 GDP_t + \mu_t \quad (2)$$

3.4 Data and Variables

3.4.1 Inflation (% of CPI)

Consumer price index as an annual percentage is used for Inflation rate. Price is taken an annual percentage change that is bear by average consumer for obtaining the goods and services which may be constant or change for particular time horizon. Data on inflation is collected from World Bank database.

3.4.2 Unemployment (% of total labor force)

Unemployment is taken as the percentage of total labor force and obtained from World Bank database. Missing values are obtained by using several volumes of Economic Survey of Pakistan.

3.4.3 Budget deficit (% of GDP)

Budget deficit is the gap between total government revenue to total government spending and data of budget deficit is taken from various volumes of Economic Survey of Pakistan.

3.4.4 External debt Stock (% of GNI)

According to international debt statistics, total external debt is debt which can return to the creditor in the form of currency, goods, and services. The sum of private nonguaranteed long-term debt, public, use of IMF credit, publicly guaranteed and short-term debt are considered under the definition of total external debt. All the debt which has the maturity of one year or less and interest in amount overdue on long-term debt are included in short-term debt. External debt stock is collected from World Bank database and international debt statistics.

3.4.5 Trade Deficit (% of GDP)

Trade deficit is defined as exports are less than the imports of goods and services. Data on trade deficit are obtained from World Bank database.

3.4.6 Real Effective Exchange Rate (REER)

Real effective exchange rate is the nominal effective exchange rate divided by the index of costs or price deflator. It is a measure of domestic currency value against a weighted average of numerous foreign currencies. Data of REER is extracted from Bruegel database.

3.4.7 Macroeconomic Instability Index (MII)

In line with the study of Ali and Bibi (2016), macroeconomic instability index is extended by including six indicators as mentioned above. The index is generated by adopting the statistical procedure of PCA. The index ranges from 0 to 1, values closer to zero (1) shows low (high) macroeconomic instability.

3.4.8 Terrorism Index (TI)

The current study constructs terrorism index by using three indicators; (i) number of events (ii) number of people injured and (iii) number of people died. PCA is applied to generate this index which ranges from 0 to 1. Values which are closer to zero (1) shows low (high) terrorist activities. Data is obtained from global terrorism database (GTD).

3.4.9 GDP

Data on real GDP is collected from World Bank Database. Data is transformed into index ranges from 0 to 1.

4. Results and Discussions

To check the stationarity of data, Augmented Dickey Fuller (ADF) unit root test is applied to time series data of the variables under consideration. The results are displayed Table 1.

Table 1: Unit Root Test

Variables	At level	At first difference	Conclusion
BD	-2.847	-5.059***	I(1)
ED	-2.197	-3.258*	I(1)
TD	-1.862	-6.150***	I(1)
REER	-1.711	-6.211***	I(1)
Infla	-1.441	-5.437***	I(1)

Unemploy	-2.213	-5.394***	I(1)
GDP	0.402	-5.084***	I(1)
TI	-1.871	-7.648***	I(1)
MII	-1.218	-4.527***	I(1)

Note: t-statistics are reported and the symbol *** and * shows the level of significance at 1% and 10% respectively.

Results shows all the variables of the study are stationary at first difference as we reject the null hypothesis of non-stationary against the alternate hypothesis of stationary. This result implies that Johansen test of cointegration can be applied to the variables under consideration. The results of Johansen test is shown in Table 2.

Table 2: Results of Johansen Test

Hypothesis	Eigenvalue	Trace Statistics	C.V	Prob.	Max-Eigen Statistic	C.V	Prob.
None	0.839872	234.9796	159.5297	0.0000	87.92561	52.36261	0.0000
At most 1	0.634260	147.0540	125.6154	0.0013	48.27990	46.23142	0.0298
At most 2	0.518894	98.77405	95.75366	0.0305	35.12009	40.07757	0.1629
At most 3	0.381703	63.65396	69.81889	0.1406	23.07774	33.87687	0.5245

Johansen test of cointegration determine whether the time series data are mutually co-integrated by a common factor. Trace test indicates the presence of three co-integrating vectors and λmax is also validating the long run association between the different indicators of macroeconomic instability and terrorism. The next stage is the estimation of the parameters using fully modified ordinary least square (FMOLS).

Several recent econometric estimation techniques have been advanced to analyze the association among variables. However, current study employs FMOLS approach to determine relationship between terrorism and macroeconomic instability indicators. The FMOLS method yields reliable estimates even for small data set. The FMOLS method has various benefits over other contemporary techniques. This technique introduces suitable correction to handle the inference problem in Engle Granger, thereby generates valid long-run estimates (Himansu, 2007). Moreover, it considers Kernal estimators of the Nuisance parameters to affect the asymptotic distribution of the OLS estimator. It modifies least squares in order to tackle serial correlation and endogeneity for asymptotic efficiency (Rukhsana andShahbaz, 2008).

Table 3: Results of FMOLS

Model 1: Dependent variable is Terrorism Index (TI)			
Variable	Coefficient	Std. Error	Prob.
C	8.953***	2.059	0.000
BD	-0.228**	0.085	0.011
ED	-0.171***	0.031	0.000
TD	0.358***	0.087	0.000
INF	0.137***	0.045	0.004
REEF	0.015	0.022	0.504
Unemploy	5.530**	0.206	0.014
GDP	1.177	0.859	0.178
Model 2: Dependent variable is Terrorism Index (TI)			

MII	2.243**	0.976	0.026
GDP	1.786***	0.603	0.004

The symbol ***, ** & * shows the level of significance at 1%, 5%and 10% respectively.

Budget deficit is inversely related to terrorism. It shows that if budget deficit increases, it lessens the terrorist activities in Pakistan. This result can be explained through the cannel of government expenditure composition. According to Keynesian framework, government spending are directly associated with short term growth. In expansionary fiscal policy, government increases spending on various projects such as infrastructure, therefore, it creates more economic opportunities for public. It results in reduction in unemployment, hence, reduces terrorist activities. Furthermore, government also follows the policy of tax cuts, rebates, subsidies, direct transfer payments, and welfare program. All these policies are effective in creating social and economic equalization, therefore, reduces the violence and terrorism. Government purchase of military equipment and technology also contributes in moderating terrorism. Counter terrorism expenditures directly help in reduction of terrorism activities.

External debt is also appeared to be significant in reducing terrorism activities. There are various studies which shows that there exists a positive correlation between debt and economic growth (Faraji and Said, 2013; Ogunmuyiwa, , 2011). Many scholars have shown that debt contributes to stimulate growth up to a certain level and then it shows negative effect, a typical Laffer curve. The causality from debt to growth can explained the inverse relationship between terrorism and debt. Higher growth directly improves the socioeconomic performance of a country. Individuals having better access to goods and public services are likely to be less engaged in violence.

Trade deficit is positively associated with terrorism. It is generally believed that trade deficit has adverse effect on employment. If the imports are greater than exports, it is the indication that that some of the sectors of the economy are at a risk of international competition. It may result in job reduction in these sectors, hence, increases unemployment which can be associated with terrorism. Trade deficit also reduces economic growth even stronger negative effects are observed in case of twin deficit (Blavasciunaite et al., 2020).

The next coefficient is inflation; it is also positively associated with terrorism. Higher prices decrease the purchasing power of individuals particularly those in middle- and lower-income groups. The deprived segment of the society is assumed to be an easy target to be persuaded for terrorist activities. Under poor macroeconomic performance of the economy, the opportunity cost of life reduces and these fuels the activities of terrorism.

Real effective exchange rate and GDP is appeared to be insignificant in effecting terrorism. However, unemployment shows adverse effect on terrorism. There are multiple channels through which employment can affect terrorism. Unemployed individuals have higher probability to become a part of violence as they have nothing to loss. Moreover, psychological impact of chronic unemployment can turn out to be more devastating.

The Model 2 is showing the relationship between macroeconomic instability index on terrorism. This analysis reports positive relationship between macroeconomic instability and terrorism. Unfavorable economic circumstances result in higher terrorism. GDP is turn out to be significant in this case and it is positively associated with terrorism. It is indicating that the benefit of GDP is not evenly distributed within the society, hence, creating a group of rich and poor. Therefore, the cost of this uneven distribution can be observed in the form of violence and aggression.

5. Conclusions and Policy Implications

There are various internal and external shocks which destabilizes the economic performance of an economy. Internal factors have more powerful affect in producing instable macroeconomic situation as compared to external shocks. Moreover, limited resources of developing countries, usage of old technology and unskilled labor negatively affect the output. These shocks have adverse effect on market efficiency of developing and low-income countries (Ali and Rehman, 2015). Macroeconomic instability damages the private investment and productivity of a country. It decreases public resources due to high

inflation and excessive debt that can be used for current expenditure and capital (Ismihan et al., 2005). Macroeconomic instability can be defined in terms of inflation, unemployment, trade deficit and budget deficit. Sameti et al. (2012) pointed out fluctuation in inflation, instability of real exchange rate and inappropriate fiscal policy are the reasons of macroeconomic instability.

Macroeconomic performance of a country is significant in determining the future growth path. However, instability in macroeconomic variables has various repercussions and terrorism is among one of them. There are multiple channels through which macroeconomic instability is associated with terrorist activities. For instance, if inflation increases, it directly reduces the purchasing power and stimulates criminal activities. The objective of current study is to inspect the association between different indicators of macroeconomic instability and terrorism over the period of 1970 to 2020. This study contributes to the existing literature by including six variables to measure macroeconomic instability. It includes, budget deficit, external debt, trade deficit, REER, inflation, and unemployment. Another contribution of the study is that terrorism index developed with the help of three variables namely as number of events, number of people injured, and number of people died. Two models are constructed to determine the influence of macroeconomic instability on terrorism. Model 1 shows the relation between different indicators of macroeconomic instability and terrorism while model 2 uses the macroeconomic instability index to examine its impact on terrorism. This index is constructed through PCA by taking the six indicators of macroeconomic instability.

Johansen test of cointegration shows the existence of long run cointegration relationship between the indictors of macroeconomic instability and terrorism. The technique of FMOLS shows that budget deficit and external debt has negative relationship with terrorism. It indicates that government expenditures on different welfare program generate harmonized environment which improves the performance of socioeconomic indicators as a result terrorist activities decreases. The coefficient of trade deficit, inflation and unemployment has positive relationship with terrorism, whereas REER and GDP turn out to be insignificant. Job losses in domestic economy due to trade deficit hurt vulnerable groups. Therefore, the probability of these groups increases to become a part of terrorist activities. Inflation and unemployment are responsible to stimulate aggression. Results of model 2 show that macroeconomic instability index and GDP has positive impact on terrorism. In case of GDP, the uneven income distribution can be linked with terrorist activities.

In general, it is believed that vulnerable segment of the society is an easy target for external forces to involve them in violence and terrorism. Therefore, it is necessary to improve the social and economic status of individuals as the results show inflation and unemployment are positively associated with terrorism. Moreover, government budget should be channelized in such projects which has direct impact on the welfare so that deprived group can enjoy economic perks. Consequently, they engage themselves in productive activities rather than becoming a helping hand in terrorism. Macroeconomic instability destabilizes domestic economy which results in terrorism. For the policy implication, government should focus on the targeting macroeconomic performance which is important in combating terrorism in Pakistan. In addition, government should focus on optimal allocation of resources to overcome the problem of macroeconomic instability that leads towards terrorist activities.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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