



Role of working females in economic development of Pakistan

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ARTICLE DETAILS	ABSTRACT
History Revised format: Feb, 2018 Available Online: Mar, 2018 Keywords GDP, female agricultural participation rate, female services participation rate, Agriculture sector, DI, Pakistan.	The purpose of this paper is to investigate the relationship between working females in agricultural sector and economic growth. The model has been used to analyze the time series data on Pakistan from 1987 to 2017. This paper contributes to the accessible literature by investigative the different empirical methods to estimate the relationship between working females in agricultural sector and economic growth. Finding discovers the role of working females in agricultural sector and economic growth. Female agricultural participation rate has a long run relationship with domestic investment in Pakistan. The results suggested that if the rate of female agricultural participation rate increases may have a positive effect on domestic investment.

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1 Introduction:

In rustic regions of Pakistan, the job of women in agricultural sector is more articulated in light of the fact that they contribute a considerable measure to farming; however, their commitment in horticulture isn't recognized. In Pakistan around fifty present work drives are given by the rustic women (World Bank, 2016). Commitment of provincial ladies in the farming is thought little of. Agriculture sector is performing its important role to enhance the Pakistan' economy. Owing to the different factors such as political social environmental and weather changes its Agricultural production are not fulfilling its desirable requirements of country.

The female's in-horticulture modified in Nigeria, which was built up in comprehension of this and the deficiency in expansion administrations for ladies' ranchers, has been a tremendous achievement. Female's gatherings, non-legislative associations (NGOs) and common social orders have engaged and given country ladies ranchers a voice and adequately supported their motivation (Ogunlela & Mukhtar, 2009).

When women are weakly educated then their only wage is labor outer surface the home and family farm is in labor-intensive work, against which a strong social disgrace exists. On the other hand, when women are well educated, above all at the secondary level, they entered in white-collar work, next to which no social disgrace exists, Claudia Goldin (1994). The U-bend theory which predicts that with expanding modernization female work first abatements and after that increments, However, the impacts of modernization are eclipsed by the solid impact of man centric belief system that has a tendency to keep Turkish women to the private area (Gündüz-Hoşgör & Smits, 2008). The absence of business openings in agribusiness amid off season

constrained the lady's workers to look for elective work sources like exercises, development works, tile making and so forth. The occasional women joblessness in farming has caused an extreme effect on the wage of workers, family consumption, their investment funds and obligation position (Mmemon, Noonari, Kalroo, Pathan, and Manzoor & Pathan, 2015). The improvement in agricultural sector has addition system, preliminary educational programs; establish training centers and condition of credit amenities by government and non-government physiquies are necessary for the strengthen of these rural females. Sarwar and Abbasi (2013) show Labor force information from Pakistan authority of insights and World Bank proposes that work compel investment of women in Pakistan, as level of aggregate females' workforce and level of aggregate nations work constrain is less than impressive when contrasted with worldwide standard and created nations. Over the world, the extent of women in farming generation and post-reap movements choices from 20 to 70%; their presence remains increasing in various producing states. Main magnitude of regional females completes retain on challenging weakness and labor environments, constrained access to training and power over characteristic assets, shaky commercial and squat income. Provincial women have for quite some time been associated with farming and its partnered fields. Pakistan, the focal point of the venture, faces the particular issues in enhancing the circumstance of provincial females. There ought to be a free abundance to instruction and preparing especially some preparation modules for ladies in pressing, evaluating and esteem expansion exercises. There is have to change the social taboos which segregate women. In the event that instruction and foundation offices are enhanced in their general vicinity then it more females will work in the business and at last financial freedom could be accomplished.

2 Literature review:

The appearance of bargain approach is comparatively different singularity in the nonfiction of femininity association inside domestic and private. The negotiating methodology consumes gain broader money then the literatures of famous economist Amartya Sen, 1990. Pakistan is a developing country and the improvement in agricultural sector has addition system, preliminary informative programs; establish training centers and condition of credit amenities by government and non-government bodies are necessary for the strengthen of these rural females. Ogunlela & Mukhtar (2009) cited the femininity Issues in Agriculture and Rural growth in Nigeria through The Role of females. Finding shows the women who contend all the more positively with their men people regarding their over-investment in farming exercises and commitment to family unit economy and nourishment security would be putting it mildly. The survival and sustenance of farming and country advancement in Nigeria, and additionally in many sub-Saharan Africa nations, lay decisively on the rustic ladies. Beneria & Sen (2010) depicted buildup, duplicate, and Women's Role in monetary Development: Boserup Revisited. Finding shows positive commitments of Boserup's work to a time of women's activist research on women in the Third World. There has been a lot of productive research in the previous decade that is altogether grounded in principle, especially in class-based and women's activist viewpoints, which gives a lavishly finished comprehension of the situation of women in the Third World. Claudia Goldin (1994) described the turned in female labor force purpose in economic growth and economic olden times. There is used time series data for analysis. Results suggest that the substitution impact was at a high point for U.S. woman in the 1950 and 1960s, though the salary impact may have kept on declining from the effectively twentieth century down to the present The young fellow, in any case, did not regularly observe secondary school as having so sure an effect. Gündüz-Hoşgör and Smits, (2008) investigated the difference in Labor Market contribution of marital Women in Turkey. Findings reconfirm the presence of essential variety among Turkish women regarding their work advertise circumstance. The constructive outcome of the nearness of youthful youngsters in the family unit on being a housewife and the negative impacts on being utilized in the formal economy or in an upper non manual occupation are in accordance with what is known from different

parts of the world: the weight of bringing up kids lays on the shoulders of women and lessens their chances at the work advertise. Ishaq & Memon (2016) described the role of women in agriculture: a case study of rural Lahore, Pakistan. The provincial women of the examination territory took compacted support in trainings, for case, sleek group, creature's agriculture and family management however they take consistently remained waited undetectable. They existed on behalf of the record portion engaged through reduced excellence movements, but their cooperation in land readiness, gathering, manuring, aquatic system, relocation, water and bug management remained zip. They stayed challenging a considerable measure of financial and innovative limitations similar absenteeism of workplaces, unawareness approximately current diurnal farming advancements and emotionless family temperament. Masood and Jamil (2015) discussed the Women Labor contribution of Agricultural manufacture in Sindh Pakistan. Results demonstrates that Skill enhancement formulating plans must to stand composed females absorbed on yield creation, constructed mechanism making and confidential embellishment with a specific finish area to promotion their revenue for excellence life. Not at all development can exist accomplished except if cleared highways, doctor's conveniences and schools are manufactured. Admittance to spotless consumption aquatic hygiene and authority is a complete requirement. Amir, Ali, Ahmad and Zafar, (2009) elaborates the contribution level of rural women in farming actions. Time series data used for the analysis. Result shows that accessibility of improved diet to the rural women can make sure by vegetable production which is rich in vitamin and mineral. Sarwar & Abbasi (2013) *cited* an investigation of Women's Labor Force contribution in Pakistan. Finding explains that economic growth and serious endeavors to enable has enhanced women status inside and outside homes. Aboohamidi & Chidmi (2013) attempted women labor force contribution in Pakistan and some MENA countries. There is used panel data procedure to study the effect of factors. The empirical results of the irregular impacts show demonstrate that education and urbanization rates have a positive and huge impact on female work investment. Factors, for example, ripeness rate and per capita GDP have negative and critical impacts on female work cooperation. At long last, female training enlistment and exchange receptiveness don't significantly affect FLFP in the nations. S. Isran and A. Isran, (2012) described the causes and consequences of low women labor force participation in Pakistan. Here is time series data used for analysis. Results argue that from beginning to end employment and other income-generating actions women's economic location improves and their status strengthens inside the family. Begum & Yasmeen (2011) explored the contribution of Pakistani women in agriculture: productivity and constraints. Findings suggest that to defeat this pattern Pakistan needs to create women in horticulture on favored premise keeping in mind the end goal to satisfy the expanding populace sustenance requests, and in the meantime stay focused comprehensively in the present milieu. Luqman, Malik and Khan (2006) suggested the amount of rural women's contribution in agricultural and family actions. Time series data used in this study for analysis. Results concluded that ladies' support is especially high in picking of cotton among cultivating exercises. Among domesticated animal's exercises, their cooperation was most astounding in cleaning of creature sheds. Caring for the relatives was the fundamental action where ladies' investment was most astounding in family exercises. Javed, Sadaf and Luqman (2006) attempts the rural women's contribution in harvest and farm animal's production actions in Faisalabad-Pakistan. A total of 125 rural women were selected through multistage random sampling technique and interviewed with well-designed and pre-tested interview schedule, finally analyzed by using SPSS. The results of the data analysis revealed that rural women's participation was high in harvesting of vegetables. On the other hand, among post-harvest activities women's participation was maximum in storage of cereals. Similarly, among livestock and poultry management activities rural women's involvement was maximum in cleaning of animal's sheds.

3 Theoretical Framework and Methodology

This study uses an annual time series data for the period of 1980 to 2016 and data source is World Bank. In the model to check the stationary series of all the variables, the unit root tests performed. Augmented Dickey Fuller (ADF) and Phillip Perron (PP) tests are used to identify whether all the variables are stationary and to control the variables' orders of integration.

By Robert M. Solow (1956) output is produce with the help of two factors of production, capital and labor, whose rate of input is $L(t)$. Technological possibilities are represented by a production function $Y = F(K, L)$

In 1992 Romer give extension to Solow Growth Model and production function takes the form.

$$Y(t) = F(K(t), A(t), L(t))$$

Where t denotes time. (A) represents "Knowledge" or "Effectiveness of labor"

A dominant question in development of economics is the role of agriculture for the process of economic growth from several decades (e.g., Johnston and Mellor 1961).

$$GDP = \alpha_0 + \alpha_1 FAGRI + \alpha_2 FSER + \alpha_3 DI + \alpha_4 INF + \varepsilon$$

GDP = Gross Domestic Product

FAGRI = Females Participation in Agricultural Sector

FSER= Females Participation in Services Sector

DI= Domestic Investment

INF = Inflation

ε =Error Term

Table 1: Variables Measurement

Variables	Measurements
Dependent Variable	
Gross Domestic Product	Gross domestic product in million rupees at market prices is used as a proxy for Economic growth.
Independent Variables	
Female Agricultural Participation Rate	The agriculture sector consists of activities in agriculture, hunting, forestry and fishing.
Female Services Participation Rate	The services sector consists of wholesale and retail trade and restaurants and hotels; transport, storage, and communications; financing, insurance, real estate, and business services; and community, social, and personal services.
Domestic Investment	Gross domestic investment consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories.
Inflation	Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services.

Source: World Bank, 2017

4 Results and Discussion Descriptive Statistics

The basic features of the data are defined by descriptive statistics which denotes the measureable descriptions in the convenient method and provide the abstract of the data. Mean median and mode are the three measures of a random variable in the central tendency. (Gujarati, 2004). All variables in this model are estimated in descriptive statistics.

Table 2: Descriptive Statistics

	GDP	FAGRI	FSER	DI	INF
Mean	751.471	70.411	17.6115	17.51333	8.391994
Median	533.862	70.9	17.6	17.7112	7.921084
Maximum	1443.63	73.7	20.9	20.81826	20.28612
Minimum	339.085	65.5	15	14.12063	2.539516
Std. Dev.	376.86	2.23317	1.34926	1.805058	3.998199
Skewness	0.6344	-0.5834	0.13344	-0.17115	0.670716
Kurtosis	1.81788	2.62858	3.19899	1.907961	3.69846
Jarque-Bera	3.88436	1.93652	0.14315	1.691714	2.954412
Probability	0.14339	0.37974	0.93093	0.429189	0.228275
Sum	23295.6	2182.74	545.955	542.9133	260.1518
Sum Sq. Dev.	4260699	149.611	54.6152	97.747	479.5678
Observations	31	31	31	31	31

The standard deviation is used to measure the dispersion of the variables in the series. The results of the table show that violence of GDP is highly uneven in the standard deviation. The values of GDP, FSER and INF of skewness show that the distribution is progressive. While the value of the FAGRI and INF indicate negativity of the distribution. Standard value is 3 for the kurtosis but the kurtosis value of FSER and INF is greater than 3 which indicate leptokurtic distribution is present in the data. But the platykurtic distribution is shown by the GDP, FAGRI and DI due to the values of these are less than 3.

Correlation Matrix

Measurement of the power or degree of the linear relationship among the two variables is the main objective of the correlation analysis (Gujarati, 2004).

Table: 3 Correlation matrix

	GDP	FAGRI	FSER	DI	INF
GDP	1				
FAGRI	-0.02998	1			
FSER	0.717784	-0.3576	1		
DI	-0.67196	-0.02991	-0.67175	1	

INF	0.009246	0.262543	-0.40699	0.330008	1
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Table 2 correlation matrix show positive relationship with all the employed variables, like gross domestic product, Employment in agriculture, female (% of female employment), Employment in services, female (% of female employment), domestic investment and inflation. To check out the multi-collinearity used the correlation matrix.

Unit Root:

The unit root test is a test of stationary (or non-stationary) that is used from many years. The main assumption of the ADF test is that the error terms are independently and identically distributed. (Gujarati, 2004). Similar and spontaneously distribution in data is the basic assumption of Augmented Dickey Fuller Tests. Value of variance should be constant is second assumption. Additionally, Stationary have been checked at level but the consequence was non- stationary, after taking first difference the required results for stationary have achieved (Gujarati, 2004).

Table: 4 Results of Unit Root Test

	Level			First Difference	
		Statistics	Probability	Statistics	Probability
GDP	0.53688		0.9852	-3.92289	0.0055
FAGRI	-2.46421		0.1339	-4.77532	0.0006
FSER	-0.14319		0.9355	-4.61371	0.001
DI	-1.57718		0.4816	-5.51083	0.0001
INF	-2.5439		0.1157	-6.8335	0.0000

Source: Software E-Views 10

All the variables are stationary at the first difference in the unit root test in this model.

Table 5: Unrestricted Co-integration Rank Test (Trace)

Unrestricted Co-integration Rank Test (Trace)

Hypothesized	Trace	0.05			
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	
None *	0.599312	76.04767	69.81889	0.0146	co-integrated
At most 1 *	0.546384	49.52507	47.85613	0.0345	co-integrated
At most 2	0.421388	26.60048	29.79707	0.1118	No co-integration
At most 3	0.297666	10.73391	15.49471	0.2284	No co-integration
At most 4	0.016649	0.48688	3.841466	0.4853	No co-integration

Source: Software E-Views 9

Note: * shows the significant of the variable.

Table 6: Unrestricted Co-integration Rank Test (Maximum Eigen value)

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen		0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**	
None	0.599312	26.5226	33.87687	0.2898	No co-integration
At most 1	0.546384	22.92459	27.58434	0.1767	No co-integration
At most 2	0.421388	15.86657	21.13162	0.2327	No co-integration
At most 3	0.297666	10.24703	14.2646	0.1962	No co-integration
At most 4	0.016649	0.48688	3.841466	0.4853	No co-integration

Source: Software E-Views 10

Note: * shows the significant of the variable.

The result for multivariate co-integration analysis is presented in this table for all the series. The results show that two variables are co-integrated with GDP in long run.

Table: 7 Results

In the table the first column displays the null hypothesis for possible rejection at different significance level. Whereas second shows the observations third F statistic and fourth column indicate probability value. On the behalf of the probability value, i.e. the value of GDP does not Granger because FSER is 0.021. It means that cross domestic product has positive impact on FSER. It has a unidirectional relationship with the GDP. So, the value of GDP is positively affected by the DI.

Table 7: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
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(2018)

				0.2987	Source: Software E- Views 9
FAGRI does not Granger Cause GDP				1.27129	
GDP does not Granger Cause FAGRI				0.25666	The Granger
				0.7757	
FSER does not Granger Cause GDP				0.02023	0.98
GDP does not Granger Cause FSER				4.55551	
				0.021	
INF does not Granger Cause GDP				0.17597	0.8397
GDP does not Granger Cause INF				Trace	5 % Critical
				0.25014	0.7807
				Value	
Variables				29	0.6435
DI does not Granger Cause GDP				0.44897	0.0246
GDP does not Granger Cause DI				4.33841	
				29	0.2519
FSER does not Granger Cause FAGRI				1.46102	0.0903
FAGRI does not Granger Cause FSER				2.66227	
				29	0.1438
INF does not Granger Cause FAGRI				2.10472	0.061
FAGRI does not Granger Cause INF				3.14868	
				29	0.4228
DI does not Granger Cause FAGRI				0.8924	0.0932
FAGRI does not Granger Cause DI				2.62342	
				29	0.9069
INF does not Granger Cause FSER				0.09817	0.5699
FSER does not Granger Cause INF				0.57568	
				29	0.1261
DI does not Granger Cause FSER				2.25971	0.8538
FSER does not Granger Cause DI				0.15912	
				29	0.0737
DI does not Granger Cause INF				2.91239	0.0758
INF does not Granger Cause DI				2.87769	

causality analysis shows that Females Agricultural participation rate (FAGRI) is Granger cause of economic growth. Thus DI does Granger cause INF and INF cause DI, these have Bi-directional Cointegration.

Table 7: Bi-directional Co-integration

GDP FAGRI	0.250057	8.715088	15.49471	No co-integration
	0.012681	0.370097	3.841466	
GDP FSER	0.280459	9.627673	15.49471	No co-integration
	0.002843	0.082567	3.841466	
GDP INF	0.144115	4.519809	15.49471	No co-integration
	0.000236	0.006857	3.841466	
GDP DI	0.26049	8.833133	15.49471	No co-integration
	0.002819	0.081857	3.841466	
FAGRI FSER	0.355488	13.23077	15.49471	No co-integration
	0.016828	0.492161	3.841466	
FAGRI INF	0.404023	21.59566	15.49471	Co-integration
	0.203178	6.586606	3.841466	
FAGRI DI	0.369789	16.89658	15.49471	Co-integration
	0.113913	3.507252	3.841466	
FSER INF	0.145933	4.82159	15.49471	No co-integration
	0.00848	0.246978	3.841466	
FSER DI	0.250403	8.913519	15.49471	No co-integration
	0.018962	0.555165	3.841466	
INF DI	0.305355	17.03201	15.49471	Co-integration
	0.199851	6.465746	3.841466	

Source: Software E-Views 9

Bi-variate Co-integration exist when the trace statistics is more than the critical value and show that long run relationship present between the variables. Findings of the table show that bi-variate relationship exist between the FAGRI INF, FAGRI DI and INF DI in the long run. While the other variables are not cointegrated with each other **5 Conclusion:**

This study is try to examine the role of working females in agricultural sector and economic growth of Pakistan on the basis of the annual time series data from the period of 1980-2016 and by using the technique of co-integration. The results show that FAGRI, FSER and DI are co-integrated with GDP in long run. Correlation results show that there is positive relationship of female agricultural participation rate (FAGRI) with the GDP. The results of multivariate Johansson co-integration analysis show that GDP is co-integrated with FAGRI and DI in the long run. The result for Bi-variate relationship shows bi-variate of FAGRI and DI are in Bi-variate Co-integration. Furthermore, Female agricultural participation rate has a long run relationship with domestic investment in Pakistan. Our results suggested that if the rate of female agricultural participation rate increases may have a positive effect on domestic investment.

The result for Bi-variate relationship of GDP, FAGRI, FSER, DI and INF are shown in the above table. If the trace statistic value is higher than the critical value which indicates that Bi-variate relationship between the variables exist in the long run. In this table FAGRI and INF are integrated in the long run. Similarly, FAGRI is integrated with the DI in the long run.

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