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The Role of Technological Advancement in Agriculture Sector and Economy of Pakistan

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ABSTRACT

This study is designed to explore the role of technological advancement in the agricultural sector in the context of the economy of Pakistan. The data set is based on the period from 1972 to 2019. The Autoregressive Distributed Lag (ARDL) bound testing employed to identify the short run and long-run relationships between the technological advancement in the agricultural sector and gross domestic product. Granger causality also applied to find out the direction of causal relationships. The ARDL cointegration results indicate that there is a positive relationship between technological advancement in the agricultural sector and gross domestic product in the short run and long run. The Granger causality results also indicate that the GDP growth also Granger cause the agriculture technology. And stability tests show that the model CUSUM and CUSUM of squares indicate that models are valid. The results suggest that technological advancement in the agricultural sector has a positive impact on GDP in the case of the Pakistan economy. Technological advancement in the agricultural sector strengthens Pakistan's economy. There is a need to pay more attention by the government administration to provide technological facilities in the agricultural sector, properly and efficiently to get more benefits which ultimately enhance the agriculture growth and development of Pakistan's economy.

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1. Introduction

From the last few decades, the contribution of technology has enormously affected the development of many countries. The role of technology in the skilled population is to promote social and economic development. The difficult connection between the economy, society, the environment, and technological information requires a multidisciplinary way to deal with technological innovation and calls for skilled communication to have the option to address technological issues. Until now, it is the weakness of developing countries to make technology an absolute part of their daily lives that contradicts their continued underdevelopment. For different reasons, developing countries are showing the achievement of technological and scientific knowledge (Miah & Omar, 2012).

Countries whose economies are more progressive than others, but which yet not have fully established the signs of a developed country, are considered in the term newly industrialized countries. The idea of the digital age in recent times which will be considered as

an ability of respective transmission of information freely, and to have an immediate approach to knowledge that would have been problematic to find previously. The idea conveys the consequences of a shift from traditional industry that the industrial rebellion brought, through industrialization, to an economy based on the management of information. In the initial last century, for the first-time researchers started to think about technological knowledge differently. "Heidegger a famous philosopher was the first who call the then concepts of epistemology as immoral". In his discussions "Rationale: The Question of Truth" he composes for people to carry on with their lives and get by doing ordinary centers, they require aptitudes and information picked up for a fact. This information is no less significant than propositional information (Heidegger, 2010).

This age of technological advancement was established as a result of exploiting on computer microminiaturization development, with an evolution extending from the invention of the personal computer to the internet reaching a serious mass in the 1990s, and the implementation of such technology by the public since 1990. The digital age has played a vital role in determining modern society through speedy global communications and networking. Associated to the agri-food sectors, as applied to decorative floriculture and nursery products the direct sales atmosphere presents different administrative and management; in fact, they are attentive the "direct sales" the farms with nursery garden located in urban areas; the sale the products is carried often in the "point of sale prepared (Allegra, Bellia, & Zarbà, 2014); the offer is very miscellaneous and is combined and achieved by extra firm flows.

Many firms elaborate on the workers in management work and work for a technological development application. Firm's high investment in employee training for the improvement of the employee knowledge and skills and on the other hand, development of employee's previous knowledge and the introduction of new technology. You should ensure that employees association to thinking about the impacts of technological headway on their physiology. Unmistakably, "the staff who worked under both the old one and new one frameworks have communicated fewer uplifting perspectives" about their occupations, and these attitudes circled to the association since it has become not so much dedicated but rather more prone to leave. So, firms must encourage the employees to get knowledge about new technology and adopt it, and also the organization gives enticement to employees for higher efficiency (Dauda & Akingbade, 2011).

Likewise, the significant role of technological development in major sectors of the economy. It also plays a key role in the agriculture sector which ultimately affects the economy of any country. Especially, those countries whose large portion of the gross domestic product based on the agriculture sector. The development in the agriculture sector is the potential source of alteration of a mode of any economy from agriculture-based to industrial based economy (Olsson & Hibbs Jr, 2005). When there is accretion in agriculture productivity, it eventually upraises the industrialization in the economy which allows the economy to absorb more and more labour force (Thirtle, Lin, & Piesse, 2003). The technological development in the agriculture sector is the essential condition to increase the productivity of the agriculture sector which finally positively affects the economic growth of any country in long run (Self & Grabowski, 2007). Like, all other sectors of the economy the engine of growth of the agriculture sector is technological development especially, in the case of developing countries (Otsuka, 2019).

This discussion concludes that the transfer of modern technology in agriculture sector improves productivity, which ultimately affects economic development. But in the case of Pakistan's economy, we are unable to find any study which particularly focused on this issue. That is why there is dire need to explore these relationships and their long run and shot run

implication. This study mainly focuses on this issue and fulfills this gap in the literature in the case of the Pakistan economy.

2. Literature Review

On one side technology can lead to improved productivity or expand performance when joint with other resources efficiently by human resources or when done successfully, and use technology effectively and morally (Dauda & Akingbade, 2011). The future of the agricultural economy does not only seem moneymaking but also very stimulating, as we will get to witness how the revolution of agriculture through technology will pay towards growth in the rural economy and upgrading the farmers' incomes.

Angeli and Valanides (2009) find out that through an interaction of five contractions. While accepting the instructional method and substance spaces, they renamed the innovation area as Information and Communication Technologies (ICT) to underscore the kind of innovation considered in the model. They included two information spaces because of their examination concentrates with in-administration educators the information on understudies and the information on the setting inside which learning happens. From their point of view, as instructors educate with ICT, the endless supply of understudies' substance related troubles just as the complexities of the pertinent setting what works and doesn't work in their study halls and how they accept they have to instruct to encourage understudies' learning. Miah and Omar (2012) cited the impact of mutual dependent process on the technological growth in developing countries: knowledge use branches understanding, which in turn branches greater use. Using a multi-method approach of opinion, trend analysis, and case training, this research breaks its disagreement into three other parts: 1) favoring the technological challenges in developing countries; 2) allegations on how technology moves education, substructure, health care, and development social and economic factors; and 3) status of technological development and the hastening growth and developmental rates of the developing countries.

The evidence obtainable in this research also supports the argument that developing countries' lack of access to technology and other substructure has donated to their lag behind the new technology development. Technological pedagogical content knowledge (TPCK) was anticipated as the interconnection and connection of content, education and digital technology (Akram, Siddiqui, Nawaz, Ghauri, & Cheema, 2011; Margerum-Leys & Marx, 2002; Mishra & Koehler, 2006; Niess, 2005; Pierson, 2001; Zhao, 2003). Over time the abbreviation of TPCK was reorganized as TPACK (pronounced "tee-pack") to forward attention to the total package compulsory for teaching a package that participates in technology, education, and content knowledge (Mishra & Koehler, 2006; Niess, 2005). TPACK is observed as a dynamic framework recitation the knowledge that teachers must rely on enterprise and instrument curriculum and training while guiding their students' thinking and knowledge with numerical technologies in several subjects.

Technological development has a great impact on a worker's routines (Nohria & Gulati, 1996). Furthermore, technological development is considered as an important factor for the improvement and enhancement of performance (Hitt, Hoskisson, & Kim, 1997). Many types of research have frequently depicted a positive and significant connection between technological development and performance of a firm, and determined that technological development is also significant for worker's performance (Foster, 1986). Imran, Maqbool, and Shafique (2014) discussed that analyzing the data very professionally, the study explored that technological development has a substantial impact on motivation skills and training of workers. The results of the study show that motivation has an important impact on worker's performance but

training has no significant influence on workers efficiency. Furthermore, as the concerned for technological development which has significant impact on workers efficiency.

In this section, we reviewed many studies related to this topic but we could not find any study in the case of Pakistan which particularly focused on this issue. So, this study covers this critical issue which is a significant contribution to economic literature.

3. Methodology and Results

The main objective of this work is to elicit the long run and short run impact of technological development in the agriculture sector and the growth of Pakistan's economy. For this purpose, we employed ARDL bound testing since this approach has several benefits (Azam, Nawaz, & Riaz, 2019). To find causal links we employed Granger causality. The data are used from 1972 to 2019 and the data collection source is World Bank. A wide range of studies was carried out to investigate the impact of technological advancement and economic growth. This study has focused on developing countries like Pakistan.

The econometric model equation is the following:

$$\mathrm{GDP}_t = \gamma_0 + \gamma_1 \mathrm{TAGRI}_t + \gamma_2 \mathrm{FDI}_t + \gamma_3 \mathrm{DI}_t + \gamma_4 \mathrm{LF}_t + \gamma_5 \mathrm{INF}_t + \varepsilon_t \quad (1)$$

Where:
GDP= Gross Domestic Product (current US$)
TAGRI= Technological Advancement in Agricultural Sector
FDI= Foreign Direct Investment (million US$)
DI= Domestic Investment (Domestic/GDP×100)
INF= Inflation Rates
ε = Error Term

Table 1
Variables Measurement and Description

Variables	Measurements
Dependent Variable	
Gross Domestic Product	GDP at purchasers' prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of products.
Independent Variables	
Technological advancement in Agri	Agricultural machinery refers to the number of wheel and crawler tractors (excluding garden tractors) in use in agriculture at the end of the calendar year specified or during the first quarter of the following year.
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.
Foreign Direct Investment	Foreign direct investment refers to direct investment equity flows in the reporting economy. It is the sum of equity capital, reinvestment of earnings, and other capital
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.
Labor Force	The labor force is the sum of employed and unemployed persons.

Source: The World Bank data bank

4. Results and discussion

To analyze the patterns and nature of dependent and independent variables, the descriptive statistics are used. It provides average trends, data distribution, and data nature that helps to increase research span and better forecast future behavior. Table 2 displays the descriptive statistics given below:

Table 2
Descriptive Statistics (1972-2019)

	GDP	TAGRI	DI	FDI	INF	LF
Mean	96973.17	130894.8	14697.7	1020.351	8.889509	40.72722
Median	61413.99	71578.5	9629.326	403.7123	7.76821	35.395
Maximum	312570.1	352600	46336.94	5594.2	26.66303	75
Minimum	6324.884	24311	723.2574	0.2	2.529328	19.61
Std. Dev.	92493.51	108229.4	13011.61	1367.622	5.27104	16.12169
Skewness	1.084148	0.805292	0.999996	1.879248	1.50098	0.622085
Kurtosis	2.807208	2.096355	2.754472	6.160105	5.333681	2.206189
Jarque-Bera	9.477354	6.82111	8.120497	48.2251	28.91567	4.356192
Probability	0.00875	0.033023	0.017245	0.0000	0.000001	0.113257
Sum	4654712	6282951	705489.5	48976.83	426.6964	1954.907
Sum Sq. Dev.	4.02E+11	5.51E+11	7.96E+09	87908315	1305.841	12215.72
Observations	48	48	48	48	48	48

Source: Software E-Views 9

The results of table 2 are showing that the mean value of the GDP is 97010.68, its median value is 61413.99, its maxima is 314588.2 and minima is 6324.884. The standard deviation points the spread out of employed data while a higher value of standard deviation showed greater spread. The value of the standard deviation of Gross Domestic Product (GDP) is 92589.48 that shows the highest data spread in this study. The symmetrical trend of data is measured by the value of skewness. The skewness value for GDP is 1.087032. It showed that positively skewed. The value of kurtosis for GDP is 2.817411. The goodness of fit checked by the Jarque-Bera test. Jarque-Bera test for GDP has 9.477354. If the probability of data is less than 0.05 means rejected null hypotheses. P. value of Gross Domestic Product (GDP) is 0.00875 which shows it is statistically significant.

The 2nd variable is Technology Agriculture (TAGRI). The values of mean and median of Technology Agriculture (TAGRI) are 130894.8 and 71578.5 respectively. The maximum and minimum values of Technology Agriculture (TAGRI) are 352600 and 24311 respectively. While the speared of data 108229.4. Technology Agriculture (TAGRI) is positively skewed because its skewness value is 0.805292 and the value of kurtosis is 2.096355 which showed Technology Agriculture (TAGRI) is normally distributed because Jarque-Bera is 6.82111 and p. value is 0.033023 that is less than 0.05 and this value represents, Technology Agriculture (TAGRI) is statistically significant.

The 3rd variable is Domestic Investment (DI). The values of mean and median of Domestic Investment (DI) are 14697.7 and 9629.326 respectively. The maximum and minimum values of Domestic Investment (DI) are 46336.94 and 723.2574 respectively. While the speared of data 13011.61. Domestic Investment (DI)) is positively skewed because its skewness value is 0.999996 and the value of kurtosis is 2.754472 which showed Domestic Investment (DI) is normally distributed because Jarque-Bera is 8.120497 and p. value is 0.017245 that is less than 0.05 and this value represents, Domestic Investment (DI) is statistically significant.

The 4th variable is FDI. The values of mean and median of Foreign Direct Investment (FDI) are 1020.351 and 403.7123 respectively. The maxima and minima of FDI are 5594.2

and 0.2 respectively. While the speared of data 1367.622. Foreign Direct Investment (FDI) is positively skewed because its skewness value is 1.879248 and the value of kurtosis is 6.160105 which showed Foreign Direct Investment (FDI) is normally distributed because Jarque-Bera is 48.2251 and p. value is 0.0000 that is less than 0.05 and this value denotes, FDI is statistically significant.

The 5th variable is Inflation (INF). The values of mean and median of Inflation (INF) are 8.889509 and 7.76821 respectively. The maximum and minimum values of Inflation (INF) are 26.66303 and 2.529328 respectively. While the speared of data 5.27104. Inflation (INF) is positively skewed because its skewness value is 1.50098 and the value of kurtosis is 5.333681 which showed Inflation (INF) is normally distributed because Jarque-Bera is 28.91567 and p. value is 0.000001 that is less than 0.05 and this value represents, Inflation (INF) is statistically significant.

The 6th variable is Labor Force (LF). The values of mean and median of Labor Force (LF) are 40.72722 and 35.395 respectively. The maximum and minimum values of Labor Force (LF) are 75 and 19.61 respectively. While the speared of data 16.12169. Labor Force (LF) is positively skewed because its skewness value is 0.622085 and the value of kurtosis is 2.206189 which showed Labor Force (LF) is normally distributed because Jarque-Bera is 4.356192 and p. value is 0.113257 that is greater than 0.05 and this value denotes, Labor Force (LF) is statistically insignificant.

Before going to modeling it is required to check the stationarity of variable for this, we employed the unit root testing. A stationarity test (or non-stationarity) that has developed commonly popular over the earlier numerous years is the unit root test. ADF test chief assumption is that the error terms are freely and identically scattered. Similar and spontaneously spreading in data is the basic assumption of (ADF) Augmented Dickey-Fuller Tests. Another assumption is that the variance value should be constant. Additionally, Stationarity has been checked at level but the conclusion was non- stationary, after the first difference the required outcomes for stationarity have attained (Asteriou and Hall, 2007). The results are given below in table 3:

Table 3
Unit Root Testing

	ADF at Level		ADF at 1st Difference	
Variables	**t-Statistic**	**Prob.***	**t-Statistic**	**Prob.***
GDP	-2.22569	0.4648	-9.28624	0.0000
TAGRI	-2.14313	0.5091	-6.69134	0.0000
DI	-2.32305	0.4137	-7.56433	0.0000
FDI	-4.18795	0.0094	-	-
INF	-3.72449	0.0318	-	-
LF	-2.01301	0.5792	-8.24655	0.0000

Source: Software E-Views 9

Table 3 is showing the findings of the unit root test. According to the results, Dross Domestic Product (GDP), Technology Agriculture (TAGRI), Domestic Investment (DI), and Labor Force (LF) are stationary at the first difference, while the FDI and Inflation (INF) are stationary at a level at ADF Test. The results indicate that the variables are having different integration orders, which means some are stationary at first difference; GDP, TAGRI, DI, and LF, while some are at level; FDI and IINF. For the long run and short run relationships with different levels of integration, we employed ARDL bound testing.

Autoregressive Distributed Lag Model (ARDL) Bound Testing

The ARDL co-integration result doesn't need all variables checked in the same order. In this analysis, variables may be stationary at the order I (0), they may be at the order I (1), or combination of both. ARDL cointegration technique develops one equation to both find the short- and long-run effects. Assessments of ARDL's cointegration are unbiased and effective. The results of ARDL bound testing given below in table 4:

Table 4
ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG (GDP (-1))	0.086456	0.097528	0.886476	0.3805
LOG(TAGRI)	0.038311	0.010126	3.783376	0.0005*
LOG(DI)	0.627641	0.087297	7.189688	0.0000*
LOG(FDI)	-0.04507	0.013425	-3.35726	0.0017*
LOG(INF)	0.05455	0.016203	3.366718	0.0017*
LOG(LF)	1.10485	0.182251	6.062248	0.0000*
R-squared	0.996912		Durbin-Watson stat	1.528464
Adjusted R-squared	0.996535			

Source: Software E-Views 9 Note: * show significance of variable

In the above table Gross Domestic Product (GDP) dependent while the Technology Agriculture (TAGRI), Domestic Investment, FDI, and Inflation and Labor Force (LF) are independent variables in this model. Results indicate that all the independent variables TAGRI, DI, FDI, INF, and LF have a positive significant effect on the GDP of Pakistan because their probability value is 0.0005,0.0000,0.0017,0.0017 and 0.0000 are respectively.

Bound test for cointegration

The results of the table show that the calculated value of "F-stat is higher than the upper critical value which proposes that the long-run relationship exists.

Table 5
The Results of Bound Testing

Test Statistic	Value	k
F-statistic	5.572345*	5
Critical Value Bounds		
Significance	**I(0) Bound**	**I(1) Bound**
10%	1.81	2.93
5%	2.14	3.34
2.50%	2.44	3.71
1%	2.82	4.21

Source: Software E-Views 9 Note: * show significance of variable at 5 percent level of significance

The results of table 5 indicate that the bound test statistics value is 5.57234 which is more than the 5 critical value of the upper bound. It shows that there is a long-run relationship among the variables. Now we can estimate a short run and long run coefficient.

Table 6
Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TAGRI	0.041937	0.010345	4.053952	0.0002*
DI	0.68704	0.066988	10.25616	0.0000*
FDI	-0.04934	0.012737	-3.87345	0.0004*
INF	0.059712	0.018526	3.223095	0.0025*
LF	1.209411	0.135202	8.945242	0.0000*

Source: Software E-Views 9, Note: * show significance of variable at 5 percent level of significance

The results in table 6 show that the value of the coefficient and probability of Technology Agriculture (TAGRI) are 0.0002 and 0.041937 respectively that indicate, the impact of the Technology Agriculture (TAGRI) is significant and has a positive effect on GDP in the long run. Similarly, Domestic Investment (DI), Inflation (INF), and Labor Force (LF) have a positive significant effect on the GDP of Pakistan. While the value of the coefficient and probability of the Foreign Direct Investment (FDI) are -0.04934 and 0.0004 respectively that indicate, the impact of the FDI has a negatively significant effect on the GDP in Pakistan.

Table 7
Short Run Co-efficient

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(TAGRI)	0.038311	0.010126	3.783376	0.0005*
D(DI)	0.627641	0.087297	7.189688	0.0000*
D(FDI)	-0.04507	0.013425	-3.35726	0.0017*
D(INF)	0.05455	0.016203	3.366718	0.0007*
D(LF)	1.10485	0.182251	6.062248	0.0000*
ECM (-1)	-0.91354	0.097528	-9.36699	0.0000*
Cointeq = GDP - (0.0419*TAGRI + 0.6870*DI -0.0493 *FDI + 0.0597*INF + 1.2094*LF)				

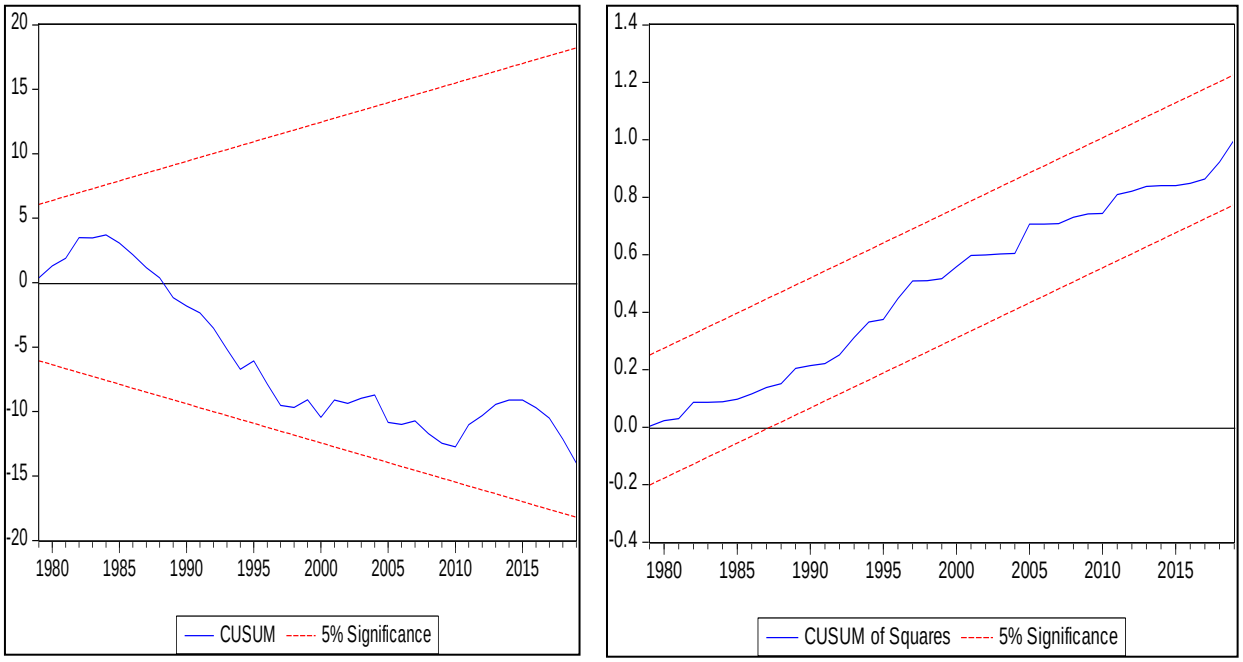
Source: Software E-Views 9, Note: * show significance of variable at 5 percent level of significance.

The findings of the table revealed the results of short run coefficients. Values of the probability of the variables Gross Domestic Product (GDP), Technology Agriculture (TAGRI), Domestic Investment (DI), Foreign Direct Investment (FDI), and Inflation (INF) and Labor Force (LF) show the significance level at 5%. The impact of the Gross Domestic Product (GDP), Technology Agriculture (TAGRI), Domestic Investment (DI), Inflation (INF), and Labor Force (LF) are positive on the GDP of Pakistan but the FDI has an inverse impact on GDP. The coefficient of ECM term is -0.91354 and the p-value is 0.0000 which indicates it is significant and about 91% adjustment speed will be required for one year towards equilibrium.

Stability Test

Two tests are applied to check the stability of the model CUSUM and CUSUM of squares that indicate that model is fit.

Figure 1: The CUSUM and CUSUM of Squares



The Granger causality procedure is employed to test the causal linkages between variables. The results are given below in table 8:

Table 8
Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
TAGRI does not Granger Cause GDP	46	10.7946	0.0002*
GDP does not Granger Cause TAGRI		1.17032	0.3204
DI does not Granger Cause GDP	46	3.71696	0.0328*
GDP does not Granger Cause DI		10.3061	0.0002*
FDI does not Granger Cause GDP	46	0.53031	0.5924
GDP does not Granger Cause FDI		3.98177	0.0263*
INF does not Granger Cause GDP	46	2.7875	0.0733**
GDP does not Granger Cause INF		0.37062	0.6926
LF does not Granger Cause GDP	46	8.85332	0.0006*
GDP does not Granger Cause LF		0.38643	0.6819
DI does not Granger Cause TAGRI	46	1.52631	0.2294
TAGRI does not Granger Cause DI		8.77286	0.0007*
FDI does not Granger Cause TAGRI	46	0.59535	0.5561
TAGRI does not Granger Cause FDI		3.01397	0.0601**
INF does not Granger Cause TAGRI	46	0.40006	0.6729
TAGRI does not Granger Cause INF		0.1601	0.8526
LF does not Granger Cause TAGRI	46	2.33045	0.11
TAGRI does not Granger Cause LF		1.06706	0.3534
FDI does not Granger Cause DI	46	0.378	0.6876
DI does not Granger Cause FDI		3.44035	0.0416*
INF does not Granger Cause DI	46	1.84683	0.1706
DI does not Granger Cause INF		0.38337	0.6841
LF does not Granger Cause DI	46	12.046	0.0008*
DI does not Granger Cause LF		0.49073	0.6157
INF does not Granger Cause FDI	46	3.85852	0.0291*

FDI does not Granger Cause INF		0.76285	0.4728
LF does not Granger Cause FDI	46	5.36917	0.0085*
FDI does not Granger Cause LF		0.73386	0.4863
LF does not Granger Cause INF	46	1.57372	0.2195
INF does not Granger Cause LF		0.33304	0.7187

Source: Software E-Views 9, Note: *, ** show significance of variable at 5 and 10 percent level of significance respectively.

The above mentioned "first column shows the Null hypothesis for possible rejection at different significance levels while 2nd and 3rd columns indicate F statistic and probability. TAGRI does not Granger Cause GDP with p. value 0.0002 that shows TAGRI does Granger Cause GDP and unidirectional causality is present in it. DI does not Granger Cause GDP and GDP does not Granger Cause DI with probability values 0.0328 and 0.0002 respectively which means DI does Granger Cause GDP and GDP does Granger Cause DI and bi-directional causality is present in them. GDP does not Granger Cause FDI with probability value 0.0263, which means GDP does Granger Cause FDI and unidirectional causality is existing. INF does not Granger Cause GDP with p. value 1.0733, means INF does Granger Cause GDP and unidirectional causality is existing. LF does not Granger Cause GDP with p. value 0.0006, which means LF does Granger Cause GDP and unidirectional causality is present. TAGRI does not Granger Cause DI with p. value 0.0007, show TAGRI does Granger Cause DI and show the presence of unidirectional causality relation. TAGRI does not Granger Cause FDI with p. value 0.0601, indicate that TAGRI does Granger Cause FDI and show the presence of unidirectional causality relation. DI does not Granger Cause FDI with p. value 0.0416, means DI does Granger Cause FDI and show the presence of unidirectional causality relation. INF does not Granger Cause FDI with p. value 0.0291, indicate INF does Granger Cause FDI and unidirectional causality is existing. LF does not Granger Cause FDI with p. value 0.0085, indicate LF does Granger Cause FDI and unidirectional causality is existing".

5. Conclusion

This work tries to explore the relationship among the agricultural technology and the economic growth of Pakistan. The findings show by applying the ARDL approach to co-integration for the period 1972-2019, technological advancement in the agricultural sector is statistically significant and has a positive impact on the economy of Pakistan. Similarly, domestic investment has a direct relation with the GDP of Pakistan. FDI, inflation (INF), and Labor force (LF) also have a positive significant effect on the GDP of Pakistan.

Technological advancement in the agricultural sector plays an important role in the earnings from the agricultural sector directly and indirectly. It also becomes the cause of foreign earning in the form of agricultural products exports. The boost in the domestic investment of the economy that increases the employment opportunities because Pakistan is a Labor intensive country. The findings of the study suggest, Pakistan is an agrarian country, so there is still more need to improve the technology from time to time and adopt the modern methods to cultivate the land through which country could become the self-reliance on those crops that it could export and increase the earnings.

Conflict of Interests/Disclosures
The authors declared no potential conflicts of interest w.r.t the research, authorship and/or publication of this article.

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