# Role of Agriculture Sector in the Economic Development of Pakistan

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*Abstract*
*The agriculture sector is a major and fundamental part of Pakistan that plays an important role in the development of the country's economy; 70% of the people of the country depend on agriculture. The main purpose of this research is to analyze the role of the agriculture sector in the economic development of Pakistan. In this study time series data for the year, 2010-20 was collected from many sources such as economic survey reports, newspapers, magazines, and government reports. To identify the underlying variables Durbin Watson test was applied to check whether the data is serial correlated or not, the value 1.328 indicates that there is no autocorrelation in this data. The P-value (0.0002< 0.05) defines there is a statistically significant and negative impact of agriculture growth rate on real GDP of Pakistan, +ve coefficient value indicated the direct effect of agriculture growth rate on real GDP of Pakistan, coefficient value 1.078 suggests that there is an increase of 1.078 GDP of Pakistan per year. It means that role of agriculture for the GDP of Pakistan was not satisfactory for the last 10 years. Furthermore, the R-squared value 0.0429 also indicated a weak relationship between the variables. This study declares the reasons of backwardness of the agriculture sector like unavailability of resources and mismanagement agriculture sector is going to be slowdown which directly affects the economy of Pakistan. This is the fact that the agriculture sector plays an important role in economic development by providing food and employment for the population of Pakistan.*
*Keywords: Agriculture, Economic Development, Real GDP, Regression*

## 1. INTRODUCTION

Agriculture plays an important role to develop the economy of developing countries like Pakistan. The agriculture sector of Pakistan is considered the backbone and important part of Pakistan's economy. The agriculture sector contributes to Gross Domestic Product (GDP) 18.3% with an annual growth rate of 2.77%. The agriculture sector provides about 42.3% employment for the labour force and 63.4% of the population living in villages is engaged with the agriculture sector. The importance of the agriculture sector is that it provides food to the nation and boosts the industrial sector providing it raw material and it is considered as a means of earning foreign exchange producing cotton and grains for export.

According to the report of the federal Bureau of Statistics 2015-16, the agriculture sector of Pakistan provides 42.3% employment for the labour force in the country and 63.2% population living in the villages depends upon agriculture for their livelihood. In Pakistan from cultivable areas very little area is cropped only 21.2 million hectares are cultivated whereas 8.3 hectares are non-cultivated. The irrigation system of Pakistan is considered the biggest and the best in the world and Pakistan is the largest producer of wheat, cotton, sugarcane, mango, dates, oranges and rice in the world. Major crops provide 6.5 %, minor crops 2.3, fisheries 0.4 whereas forestry adds 0.2% to the GDP respectively, despite it the country strives with huge levels of food security. According to the World Food Program, more than 48% population of Pakistan is struggling with food shortage. At this time Pakistan is facing a big issue of continuous rise in population which demands more food; although much amount of water is provided to agriculture and a very small amount of water is being given to the industries and homes then ever food security problem is increasing.

### 1.1 Aims and objectives of the study

1. To study the annual agriculture growth rate of Pakistan from 2011-20.
2. To study the real GDP rate of Pakistan from 2011-20.
3. To analysis the effect of agriculture growth rate on the real GDP of Pakistan.

4. To study the effect of various factors on the agriculture growth rate of Pakistan.

**Table-1 Growth rate of Agriculture Sector and real GDP in Pakistan from 2010 to 2020.**

| Year | Agriculture Growth Rate | Real GDP Growth Rate |
|---|---|---|
| 2010-11 | 3.9% | 1.60% |
| 2011-12 | 3.62% | 2.70% |
| 2012-13 | 2.68% | 2.30% |
| 2013-14 | 2.50% | 0.40% |
| 2014-15 | 2.13% | 4.24% |
| 2015-16 | 3.81% | 4.71% |
| 2016-17 | 3.80% | 5.28% |
| 2017-18 | 3.81% | 5.80% |
| 2018-19 | 2.67% | 5.84% |
| 2019-20 | 2.77% | 2.08% |

Source: Economic Surveys of Pakistan

## 2. REVIEW OF LITERATURE

Past research studies on agriculture and the economy of Pakistan declared that the agriculture sector of Pakistan has been a main and important sector of Pakistan economy which plays a vital role in the development of Pakistan. the agriculture sector not only provides food for the population of the country but also provides 43.2% employment for the labour force of the country and it produces cotton, wheat, sugarcane, grains, and other agricultural products for exports which are considered means of earning foreign exchange and to earn money from abroad.

**Temple (2000),** has tried to examine the relationship between education and economic development in his thesis, he says that the education sector plays a central role in the development of Pakistan's economy providing skilled labour for the agriculture sector because skilled labour is necessary to increase the agricultural productivity.

**Anam (2017),** in her research, "Agriculture in Pakistan and its Impact on Economy. A Review" declares that the agriculture sector plays important role in the development of Pakistan economy. The author divides agriculture into four sub-sectors of agriculture; researcher discussing issues faced by agriculture says that issues in the agriculture sector harm the economy of Pakistan.

**Syed Ali Raza(2012),** in his research " Role of Agriculture in Economic " declares that the agriculture sector plays a vital role in the development of Pakistan economy, he collected information of agriculture and economy from secondary data from 1980 to 2006 and he analyzed data through descriptive statistics and regression analysis to test the hypothesis. The result shows the positive relationship between agriculture and economic development and the result also shows the contribution of crops and livestock more than 90% of the total agriculture sector.

**Abedullah (2009),** reveals in his research that credit supply increases the income of livestock and credit plays a major role in promoting the livestock sector. It does not only helps to develop the economy but it also helps to utilize the available resources to increase the productivity of the livestock sector and provides employment skilled labour and it absorbs untrained rural labour also.

(Riaz, Khan, & Ahmad, 2012) Describe the capital that plays a vital role in the development of agriculture as a result of the convenience of capital in time results in an increase the farm production and ultimately the expansion rate. Therefore, agriculture credit is a vital part of modernization in agriculture and a rising Pakistan's economy. The study was designed to investigate the employment of agriculture credit as received by the farming community of Faisalabad from ZTBL. A sample of a hundred and twenty loaners was willy-nilly chosen. Results showed that the credit for agriculture functions was additionally used partly for different

functions. It had been used for livestock and poultry production, and social unit desires together with crop raising activities. There's a necessity to form it certain that every one credit be used for a similar purpose that it had been obtained.

**2.1 Research Hypothesis**

This research is based on the following Hypothesis:

Ho1. There is a positive agriculture growth rate in Pakistan from 2011-20.

Ho2. There is a positive GDP growth rate in Pakistan from 2011-20

Ho3. Agriculture growth rate has a significant impact on the real GDP of Pakistan.

### 3. RESEARCH METHODOLOGY

The research objective of this study was to examine the impacts of the agriculture growth rate on the real GDP of Pakistan. To measure the impact we took GDP as a dependent variable and Agriculture growth rate as an independent variable. The secondary data of the last10 years were collected from the official Economic Survey of Pakistan.

Analysis trends in agriculture and development of the economy of Pakistan are defined well in the introduction; in the research Methodology, we show the investigation of the relationship between variables and association of agriculture with the development of Pakistan economy. In this research paper, time-series data has been used from 2010- 2020. Data has been tested through regression to check the association of agriculture with economic development and how the agriculture sector develops the economy of Pakistan. To find the result coefficient, probability and simple regression are used to find the impact of variables on each other and to show how the agriculture sector develops the economy of Pakistan.

**3.1 Data collection & Source of information**

Using time-series data, the information has been collected from secondary data such as past research papers, economic surveys reports, books SSP reports, annual economic surveys and other valuable sources.

**3.2 Data Analysis**

We have applied simple regression analysis to study the data and other statistical tools and techniques are used to explore the relationship and impact of variables on each other.

**3.3 Statistical Techniques**

To analyze the data for finding the role of agriculture in the economic development of Pakistan and drawing inferences for this research study computer software SPSS, Eviews and Excel were used.

**3.4 Variables of the study**

This study consists of two types of variables dependent variables and independent variables, Annual agriculture growth is an independent variable and the GDP of Pakistan is a dependent variable.

### 4. RESULT AND DISCUSSION

Dependent Variable: REAL_GDP_GROWTH_RATE
Method: Least Squares
Date: 01/05/22   Time: 08:55
Sample: 1 10
Included observations: 10

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| AGRICULTURE_GROWTH_RATE | 1.087158 | 0.183928 | 5.910786 | 0.0002 |

| | | | |
|---|---|---|---|
| R-squared | 0.042924 | Mean dependent var | 0.034950 |
| Adjusted R-squared | 0.042924 | S.D. dependent var | 0.019224 |
| S.E. of regression | 0.018807 | Akaike info criterion | -5.014509 |
| Sum squared resid | 0.003183 | Schwarz criterion | -4.984251 |
| Log likelihood | 26.07255 | Hannan-Quinn criter. | -5.047703 |
| Durbin-Watson stat | 1.328785 | | |

Figure-1

## 4.1 Goodness of Fit of Model

The Probability-statistics suggests the overall significance of the model. If the p-value is significant i.e. below 0.05, rejects the null hypothesis and will accept the alternative hypothesis which suggests that independent variables can predict or forecast the dependent variable. The P-value of 0.0002 proves the goodness of the model. Secondly, the R-Squared value indicates the explanatory power of the variables. This value states the variability of a dependent variable due to independent variables. As in this case adjusted R-squared value 0.0429 proves weak explanatory power. Consequently, the annual agriculture growth rate is inducing 100% variability of the real GDP growth of Pakistan.

## 4.2 Test of Hypothesis

We reject the null hypothesis because the results suggest that there is a statistically significant and negative impact of agriculture growth rate on the real GDP of Pakistan, as P-value 0.0002< 0.05. +Ve coefficient value indicates the direct effect of agriculture growth rate on real GDP of Pakistan, coefficient value 1.078 suggests that there is an increase of 1.078 GDP of Pakistan per year.

To identify the underlying variables Durbin Watson test is applied to check whether data are serial correlated or not, the value1.328 indicates that there is no autocorrelation in the data. F-Statistics is used to compare the two means; value 0.527 against significant value 0.489 indicates that there is a difference between the means; it means the role of agriculture for GDP of Pakistan was not satisfactory from last 10 years. Furthermore, the R-squared value of 0.062 also indicates a weak relationship between the variables.
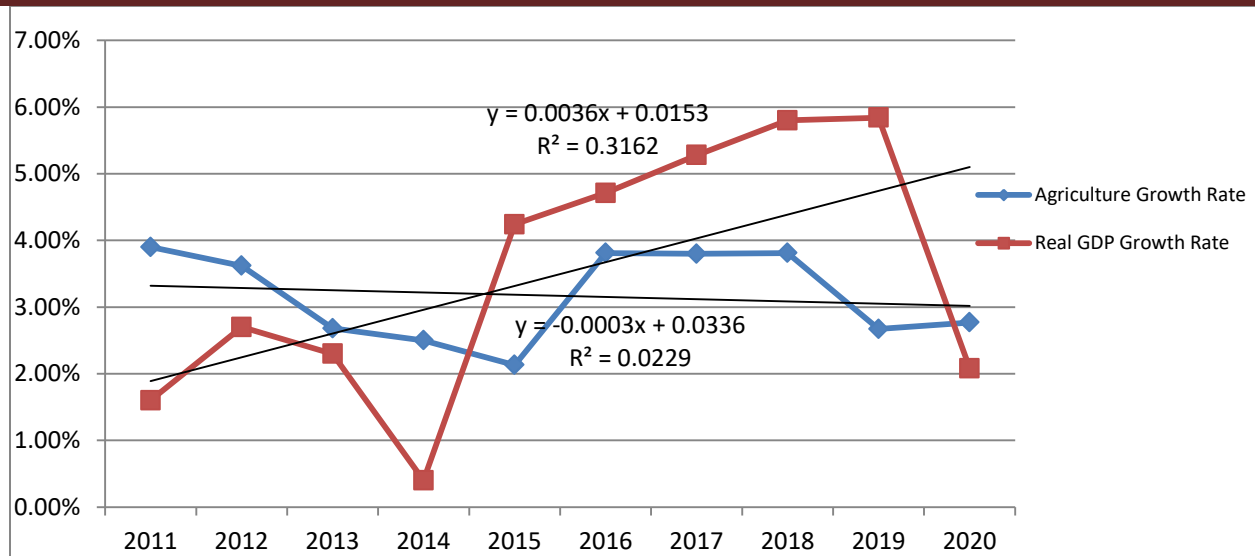
Figure-2

**Figure-2: Trend lines, showing the Agriculture Growth Rate and Real GDP Growth Rate of Pakistan from 2011 to 2020 (In %age).**

Figure-2 shows an **agriculture growth rate** revealed a decreasing trend, for AGR Equation of Linear Trend (y) = ax + b; y= 0.0003x + 0.0336, Here ax = 0.0003x is Slope (Rate of Change times x) and b=+ 0.0336 (Y-intercept Constant). R-squared Value 0.0229 indicates that these variables have weak explanatory power. It is clear from the above figure that agriculture growth rate is continuously decreasing from 2011-2020. **Real GDP Growth Rate** revealed an increasing trend, for real GDP growth rate Equation of Linear Trend (y) = ax + b; y= 0.0036x + 0.0153, Here ax = 0.0036x is Slope (Rate of Change times x) and b=+ 0.0153 (Y-intercept Constant). It is clear from the above figure that real GDP growth rate is continuously decreasing from 2011-2020.

This study declares the reasons for the backwardness of the agriculture sector that, due to unavailability of resources and mismanagement agriculture sector is going to be slow down which directly affects the economy of Pakistan. Findings also show how the agriculture sector plays an important role in economic development by providing food and employment for the population of Pakistan.

## 5. CONCLUSION

This research concludes that the hypothesis stated "Agriculture growth rate has a significant impact on real GDP of Pakistan is accepted" showing there is +Ve coefficient value indicates the direct effect of agriculture growth rate on real GDP of Pakistan. Past research studies and data showed by the economic surveys, federal bureau of statistics and agriculture department declares that the agriculture has a significant role over the economy it is true and significance importance. Another hypothesis comprised the **"positive agriculture growth rate and Real GDP growth rate in Pakistan from 2011-20"**. Results suggest an agriculture growth rate revealed a decreasing trend and Real GDP Growth Rate revealed a slow increasing trend, R-squared Value of 0.0316 indicates that these variables have weak explanatory power.

Due to less attention to the agriculture sector, climate change, shortage of water, low investment, unskilled labour, increasing cost of production due to constant rise in oil prices are the main reasons for the backwardness of agriculture due to which agriculture sector is going to backwardness and agricultural productivity is decreasing every year, therefore farmers gain low profit from the farming in turn farmers reduce their interest in farming and agriculture can't make development.

The government of Pakistan is taking measures to develop the agriculture sector but these are not enough satisfactory for development of agriculture sector, therefore there is a need to make better agricultural policies

and measures should be taken more seriously to develop the agriculture sector because the agriculture sector is the main sector which plays important role in the development of Pakistan economy.

## 6. RECOMMENDATIONS

- The agriculture sector of Pakistan can be developed by financing the farmers.
- Farmers of Pakistan require loan facilities to purchase modern machinery
- Farmers of Pakistan require loaning facilities to develop their farming skills.
- Farmers of Pakistan need subsidies in the cost of fertilizer.
- Farmers of Pakistan have need training to improve better farm management.
- Government should work on developing the infrastructure of rural areas to make it easier to transport their goods to proper marketing channels.
- The GDP of Pakistan can be developed only by the development of the agriculture sector.

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