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DOES AGRICULTURAL INVESTMENT STILL PROMOTE ECONOMIC GROWTH IN CHINA? EMPIRICAL EVIDENCE FROM ARDL BOUNDS TESTING MODEL

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Abstract:

One of the major unresolved research issues in agriculture is the question as to whether agricultural investments still a promoter of economic growth at the regional and local levels. The concern is not with the agricultural benefits, principally measured as food security, but whether there are additional development benefits from these investments. In this paper, we have developed a new approach to study the impact of agricultural investment on economic growth. By taking the case of China, this study is based on the Auto-Regressive Distributive Lags (ARDL) approach that is proposed by Pesaran et al (2002). The empirical estimate yields interesting results. In the short and long terms, agricultural investment has a positive effect on economic growth. The findings of this research have important implications for further policy designs that seek to maintain the agricultural sector in China in the future.
Keywords: *Agricultural Investment, Economic Growth, China, ARDL.*
JEL Codes: *C18, C5, O13, O47, O53, Q1, Q10, Q18*

1. Introduction

It is common knowledge that developing countries are characterized by low per capita income, but this indicator, it is not enough to analyze the phenomenon of underdevelopment and economic development. The agricultural sector dominates the majority of economic activity in developing countries. As opposed to developed countries, where, according to their structural nature, agriculture contributes to economic development as an ongoing process of improving the standard of living of the population.

Throughout economic history, there has not been a single country that has been transformed from economic stagnation to the starting stage without having achieved a significant amount of improvement in agricultural production.

Agriculture is the first economic activity without which life cannot exist. It is also responsible for supplying the population of other non-agricultural economies with food and clothing, as well as supplying other sectors with much of the production materials, such as capital, raw materials, and human materials, so their backwardness limits the progress of other economic sectors.

There are many indicators and economic criteria that are used to judge the efficiency of the performance of the agricultural sector, which depends mainly on the value of GDP and investments.In this context, agricultural investment is one of the most important means of agricultural development. It is considered the main basis for increasing production and income and creating new job opportunities. The success of the agricultural development process depends on its ability to increase the volume of agricultural investments available and distribute them among different programs to achieve the highest efficiency possible.

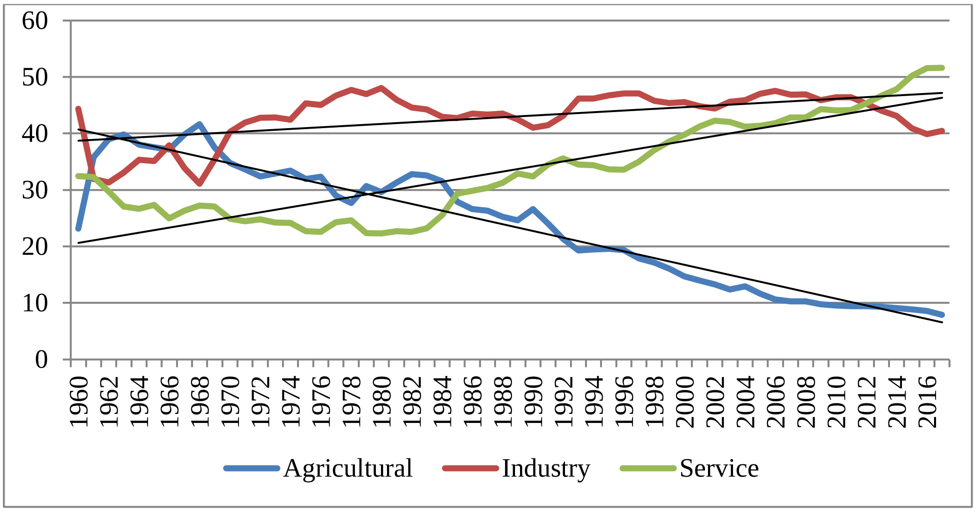
Agricultural investment is the use of available agricultural production factors of land, labor, agricultural fertilizers, capital, tractors, and other agricultural machinery .., and its operation with the aim of producing agricultural products to meet the needs of consumers and to obtain the best possible results.

This research makes several important contributions to the literature. First, there is no studies test empirically the impact of agricultural investment and economic growth in China. Second, all studies that look into the nexus between agricultural investment and economic growth used gross fixed capital formation (GFCF), in our study, we will use a set of variables that can express agricultural investment to facilitate research in this area, because obtaining the variable of GFCF in the agricultural sector takes more time and very difficult to have it especially in the site internet. Third, we will reconsider the role of the agricultural sector on economic growth, especially in the case of China. Finally, this paper putssome innovates policymakers to stimulate economic growth through agricultural investment.

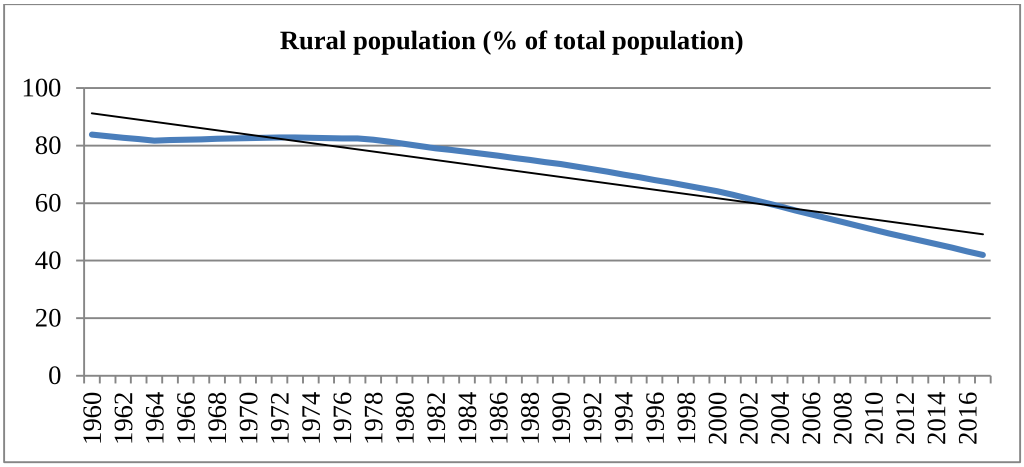
The paper is organized as follows. The next section briefly describes the agricultural sector context in China. Section 3 presents a review of the literature related to the impact of agricultural, domestic investment and the diversification of domestic investment on economic growth. In Section 4 we describe the sample, the data, and the empirical strategy. In Section 5 we present the results of the study and Section 6 concludes.

2. Background

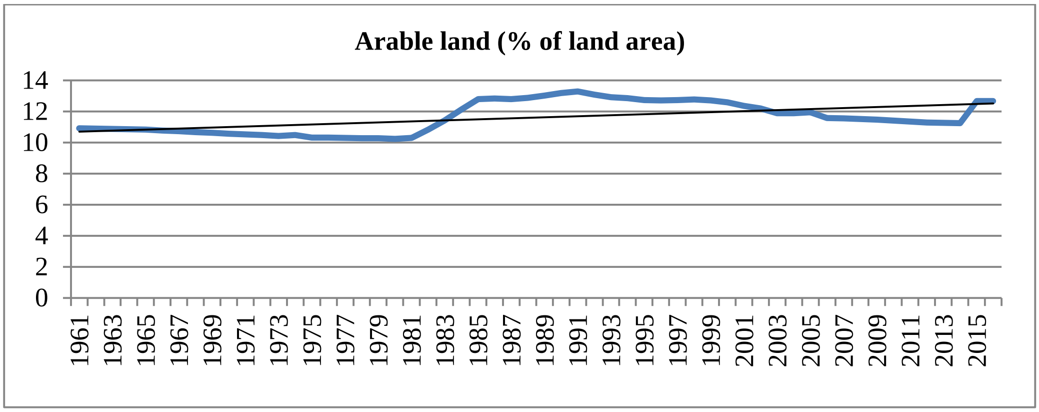
The share of agriculture in the Chinese economy has been declining steadily since the beginning of the 1960s. In 2017, it accounted for 7.91% of GDP (as against 23.17% in 1960 and 38.98% in 1962) and 16, 44% of jobs (compared to 82% in 1962).



China has experienced rapid urbanization in recent decades. The share of the rural population increased from 83.79% in 1960 to 42.04% in 2017. It isexpected to fall to 38% by 2022.



Chinese farms are very small: the average size ranges from 0.15 hectares (Zhejiang) to 2.7 hectares (Heilongjiang) with a national average of 0.6 hectares (Figure 13). In addition, they are usually broken up into parcels distant from each other.



In areas near Beijing (Hebei, Shandong, Henan), farmers consider that a farm is important when it exceeds three hectares. On the other hand, the big farms exceed seven hectares in the far north-east of China (Heilongjiang, Jilin, Liaoning).

The average farm size has been 0.70 hectares just after de-collectivization. It had fallen to 0.55 hectares in 2000 because of the growing number of rural households. It has been rising since farmers could rent their land (the average was 0.60 hectares in 2010).

3. Literature Survey

3.1. Agricultural and Economic Growth

Gardner (2003) used a sample of 52 developing economies, the results pointed out the absence of a significant impact of agriculture on economic growth. However, Tiffin and Irz (2006) applied the cointegration technique and Granger causality tests for a sample of 85 economies. Their results revealed that agricultural Granger causes income for in the developing economies, while in the developed economies, the direction of causality is not specified.

Katircioglu (2006) examined the nexus between agriculture and income for the case of North Cyprus by applying the cointegration technique and the Granger causality test over the period 1975-2002. The insights pointed out that the presence of long-run bidirectional causality between agricultural output and economic growth. Also, the results suggested that agriculture has a significant influence on the economic sphere although North Cyprus economy suffers from several political problems.

Awokuse (2009) investigated the effect of agriculture as a determinant factor of economic growth for a sample of 15 developing and transition countries through the use of the ARDL bounds testing approach. The empirical findings reported that agriculture significantly considered as a driving force of economic growth.

Chabbi (2010)investigated the impact of agriculture on economic growth for the Tunisian economy during the period 1961-2007 by applying the Johansen's multivariate approach. The findings revealed that agriculture plays a key role as a determinant factor of economic growth.

Bakari and Mabrouki (2018) studied the impact of the agriculture trade on economic for the case of North Africa over the period 1982-2016 by applying the correlation analysis and the static gravity model. The findings reported that agricultural trade has a positive correlation with GDP. However, agricultural exports and gross domestic product have a weak correlation. Furthermore, the findings of the static gravity model pointed out that agricultural export exert a positive effect on GDP. While agricultural imports have no significant effect on GDP. This implies that the agricultural exports are a determinant factor of economic growth in North Africa Countries.

3.2. The Impact of Investment onEconomic Growth

Omri and Kahouli (2014) examined the nexus between domestic investment and economic growth for 13 MENA Countries for the period 1990 – 2010. By using the Generalized Method of Moments (GMM), they have found that there is a positive bidirectional causality relationship between domestic investment and economic growth.

Keho (2017) found that there is a positive bidirectional causality relationship between domestic investment and economic growth in short and long terms in the case of Cote D'Ivoire during the period 1965 and 2014. He used as methods ARDL model and Granger causality tests.

Adams et al (2017) discovered that domestic investment has a positive effect on Nigerian economic growth in the long run by using the ARDL Model.

Bakari (2017) studied the impact of domestic investment on economic growth in Malaise by using the Granger causality, Johansen cointegration test and error correction model for the period 1960–2015. He found that there is a positive effect of the domestic investment on economic in the long run. He explained these results by the stability of the countries' social and economic policies, by the strong technological development, by the good infrastructure and by the encouragements that facilitate all the procedures of investing.

Bakari (2018) employed cointegration analysis and VECM to analyze the impact of domestic investment on economic growth of Algeria between 1969 and 2015. His findings show that economic growth is negatively affected by domestic investment in the long run. However, in the short run, he found that domestic investment causes economic growth. Bakari (2018) concluded that domestic investment is a fount of economic growth for Algeria, but it languishes from various issues that are returned to the miserable management and the feeble strategy for investment and sustainable development, take to the occurrence of this long-term negative effect.

Bakariet al (2018) applied the same methodology in the case of Nigeria for the period 1981 – 2015. They found that there is no relationship between domestic investment and economic growth in the long run and in the short run. They concluded that among the reasons that impede the effectiveness of domestic investments to be a factor of economic growth in Nigeria are the instability of economic and social policies, the mismanagement of natural resources, corruption, terrorism, weakness of the human capital.

Fakraoui and Bakari (2019) applied a VECM for India for the period 1960–2017. Their results provide en evidence that there is no relationship between domestic investment and economic in both short run and long run. They wrapped up as a conclusion during this considerable period that domestic investment is not seen as a source for economic growth in India because it bore a lot of obstacles and unsuitable economic strategy.

3.3. The Impact of Investment in Different Sectors on Economic Growth

Herrerias (2010) looked for the causal relationship between industrial investments on economic growth in China for the period 1964 - 2004. He found that industrial investment has a positive effect on economic growth in the long run. In the short run, there is no relationship between industrial investment and economic growth.

Babatundeet al (2012) investigated the relationship between infrastructure investment and economic growth in Nigeria for the period 1970 - 2010. They concluded that there is a positive relationship between infrastructure investment and economic growth.

Younis (2014) inspected the relationship between investment in infrastructure and economic growth in Pakistan. By applying the vector error correction model (VECM), the empirical results show that there is a negative effect of infrastructure investment on long-term economic growth. However, in the short term, the empirical results show that there is no effect between the two variables.

Mbulawa (2017) investigated the impact of investment in infrastructure on economic growth of Botswana in the long run. He used VECM and ordinary least squares for the period 1985 – 2015. He found that investment in infrastructure influence positively economic growth.

BakariandAbdelhafidh (2018) examined the impact of the structure of agricultural investment on economic growth in Tunisia in the long run for the period 1990 – 2016 by using the autoregressive distributed lag approach (ARDL). According to their empirical results, it has been observed that investments in fruit trees, investment in livestock farming, investment in agricultural irrigation and investment in studies, extension and research in the agricultural sector have a positive incidence on economic growth. However, they found that investment in fishing has a negative impact on economic growth.

Bakariet al (2018) investigated the impact of domestic investment in the industrial sector on economic growth for the Tunisian economy over the period 1969–2015. By using Johansen cointegration analysis of VECM and the Granger causality tests, they found that industrial domestic investment has a negative effect on economic growth in the long run. In the short run, they found that industrial domestic investment causes economic growth. They noted as an ending that domestic investment in the industrial sector, thus, is not seen as the spring of economic growth in Tunisia during this wide period with a lot of problems, and a poor economic strategy.

3.4. CO_2Emission and Economic Growth

Minihan and Wu (2014) studied the determinants of CO2 emissions in the European agriculture sector by applying the computable general equilibrium (CGE) model. They concluded that technological progress and the optimization of the economic structure greatly contribute to mitigating CO2 emissions.

Robaina-Alves and Moutinho (2014) investigated the change in the greenhouse emissions of the agriculture sector for the case of the European economies. Their results pointed out the significant impact of the emissions on the agriculture sector in these economies.

Tiba and Omri (2016) gave a global snapshot on the nexus between the CO2 emissions and economic growth. In this context, Tiba et al. (2015) studied the relationship between CO2 emissions and economic growth for the case of 24 middle- and high-income economies over the period 1990-2011, using the panel simultaneous equations model. And they pointed out the existence of bidirectional causality between CO2 emissions and economic growth.

Hasegawa and Matsuoka (2015) studied the effect of the agricultural production mode on CO2 emissions for the case of Indonesia's agricultural sector. Their results reported that agriculture production leading to reduced fertilizer use and CO2 emissions in the agricultural sector.

Tendall and Gaillard (2015) investigated the effect of climate change and socioeconomic aspects on the agriculture sector for Switzerland. Their findings reported that the socioeconomic aspects exert a significant impact on the CO2 emissions of the agriculture sector than climate change.

Liao et al. (2015) treated the level of CO2 emissions of different crops in Sweden's agricultural sector through the use of a spatial econometric model. Their highlights reported that the carbon intensity of the agricultural sector in different regions was different.

4. Data, Model Specification and Methodology

Annual data from the online World Development Indicators of the World Bank collected in the period of 1984 -2008 is utilized for China country. Based on these studies, we use the real gross domestic product GDP (constant 2010 US$) as a measure of economic growth. Also, we use as variables of agricultural investments; agricultural nitrous oxide emissions (thousand metric tons of CO2 equivalent), agricultural methane emissions (thousand metric tons of CO2 equivalent) and Agricultural raw materials imports (constant 2010 US$). Finally, and as control variables, we use agricultural land (sq. km). Table 1 defines the variables and the data source of each variable.

Table 1. Description of Variables

No	Variables		Descriptions	Sources
1	Y		the real gross domestic product GDP (constant 2010 US$)	The World Bank
2	ANOE		agricultural nitrous oxide emissions (thousand metric tons of CO2 equivalent)	The World Bank
3	AME		methane emissions (thousand metric tons of CO2 equivalent)	The World Bank
4	ARMM		Agricultural raw materials imports (constant 2010 US$)	The World Bank
5	AL		agricultural land (sq. km)	The World Bank

We will commence from the equation below:

$$Y = F\,(Ka, X) and Y = A\,Ka^{\alpha i} X^{\alpha j} \tag{1}$$

The disaggregation of agricultural investment and of control variables drives us to the following equation:

$$\mathrm{Y_t = A \prod_{i=1}^{n} Ka_t^{\alpha i} X_t^{\alpha j}} \quad (2)$$

Where A shows the level of technology (assumed to be constant) utilized in the country. The returns to scale are associated with agricultural investment and control variables which are shown by $\alpha_i and\ \alpha_j$.

The linearization of equation (2) by a logarithmic transformation leads to equation (3) below:

$$\mathrm{Log(Y)_t = Log\ (A) + \sum_{i=1}^{n} \alpha_i Log(Ka)_t + \sum_{i=1}^{n} \alpha_j Log(X)_t} \quad (3)$$

We devise the variable of agricultural investment in three variables which are agricultural nitrous oxide emissions (ANOE), agricultural methane emissions (AME) and Agricultural raw materials imports (ARMM). However, control variables include only agricultural land (AL)[1].After devising our variables, our equation takes this forum:

$$\mathrm{Log(Y)_t = Log\ (A) + \alpha_1 Log(ANOE)_t + \alpha_2 Log(AME)_t + \alpha_3 Log(ARMM)_t + \alpha_3 Log(AL)_t} (4)$$

After having constant technology, the empirical model can be written as follow:

$$\mathrm{Log(Y)_t = \alpha_0 + \alpha_1 Log(ANOE)_t + \alpha_2 Log(AME)_t + \alpha_3 Log(ARMM)_t + \alpha_3 Log(AL)_t + \varepsilon_t}\ (5)$$

We effectuate the ARDL approach of Pesaran et al (2002) because it has several assets. It is more proper for inspecting the existence of relationships in small data in the long-run and in the short-run. Also, the ARDL model allows testing between variables with different integration orders (they should not be integrated of order 2). Our empirical plan would be established first of all on the determination of the stationary of variables using the ADF stationary test. All variables must be stationary in I(0) and I (1) to sustain to the next step of applying cointegration analysis.

Augmented Dickey-Fuller (ADF) unit root test is used to examine the stationary properties for the long-run relationship of time series variables. Augmented Dickey-Fuller (ADF) test is based on the equation given below:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \sum_{j=1}^{k} d_j\, \Delta Y_{t_j} + \varepsilon_t \quad (6)$$

Where; ε_t is pure white noise error term, Δ is first difference operator, Y_t is a time series,α_0 is the constant and k is the optimum numbers of lags of the dependent variable. The Augmented Dickey-Fuller (ADF) test determines whether the estimates of coefficients are equal to zero. The ADF test provides a cumulative distribution of ADF statistics.

In the second step, we will assess to experiment with the cointegration between the variables of the model by putting into practice the Bounds Test. If the bounds test indicates the existence of a cointegration relationship, the third step would be to estimate the relationship of equilibrium of long term using the ARDL model.The Fourth step consists to determine the relationship in the short run using WALD Test which is included in the ARDL Model.

$$\Delta Log\ (Y)_t = \alpha_0 + \sum_{i=1}^{m} \beta_{1i} \Delta Log\ (Y)_{t-i} + \sum_{i=0}^{n} \beta_{2i} \Delta Log\ (ANOE)_{t-i} + \sum_{i=0}^{o} \beta_{3i} \Delta Log\ (AME)_{t-i} + \sum_{i=0}^{p} \beta_{4i} \Delta Log\ (ARMM)_{t-i} + \delta_1 Log\ (ANOE)_{t-1} + \delta_2 Log\ (AME)_{t-1} + \delta_3 Log\ (ARMM)_{t-1} + \varepsilon_t \quad (7)$$

1

Where Log is the natural logarithm, Δ indicates the variable in the first difference, α_0 is an intercept, t refers to the time period in years from 1984–2008, and ε_t is a white-noise error term. Lags (m,n,o,p) are determined using the Akaike information criteria (AIC).

Once Eq. (7) has been estimated, the attendance of a cointegration relationship between the variables has to be elaborate by involving the bounds test. Indeed, the cointegration test is constructed predominately on the Fisher test (F-stat) for the joint significance of the coefficients of the lagged level variables, i.e., H0: $\delta_1 = \delta_2 = \delta_3 = 0$, which indicates no cointegration, against the alternative H1: δ_1 # δ_2 # δ_3 # 0, which indicates that there is integration. After comparing the F-stat value with asymptotic critical value bounds calculated by Pesaran et al. (2001), the null hypothesis of no cointegration is rejected when the value of the F test protrudes the higher critical bounds value, embroilment that there is a cointegration relationship between the elaborated variables.

In the final step, we will take on diagnostic and stability tests to check the robustness and credibility of our empirical finding.

5. Empirical Analysis

To ascertain the stationary properties we involve Augmented Dickey Fuller (ADF) unit root test. Table 2 represents the results of stationary tests. First, this test is applied to the level of variables than on their first difference. The results of Table 2 show that all variables are stationary at level and at first difference. This means that the series of variables may exhibit a valid long-run relationship.

The ARDL process commences with determining an appropriate lag order in Eq. (7). This necessitates achieving the information criteria for selecting the lag-lengths. In this view, we utilized the Akaike Information Criterion (AIC). Figure 1 shows that the model ARDL (3.3.1.3.3) is the optimal model since it has the lowest AIC criterion.

Testing of long-run equilibrium relationship through the bounds testing approach put in Table 3. The F statistic keeps an asymptotic distribution and null of no cointegration is only rejected if calculated F statistic surpasses the upper bound value. Long-run estimates are only expressive if a cointegrating relationship dwells among variables. Results of bounds test in Table 3 rejects the null hypothesis of no cointegration as F-statistic exceeds upper bounds critical values at the 1% level of significance. It denotes that there is a long-run equilibrium relationship among the variables. So, we can say that the long-run coefficients and short-run dynamics can be estimated as itemized in equation (7).

Table 4 contains the results of the long run ARDL cointegration for economic growth. The long-term equilibrium relation indicates that all variables of agricultural investment and control variables have positive elasticities. To check the credibility of the existence of these effects in the long term, we must test the significance of the cointegrating long term equilibrium relation by the verification of the coefficient of the error correction term (ECT(-1)). Table 4 reports that the coefficient of the error correction term has a negative coefficient (-1.369529) and a probability less than 5% (P-value = 0.0006), in this case, we can say that the cointegration equation of long-term equilibrium is significant and there is a long term relationship between variables.It manifests that: agricultural land has a positive effect on economic growth, a 1 % increase in Log (AL) leads to an increase of 0.8731 % of Log(Y); agricultural raw material imports have a positive effect on economic growth, a 1 % increase in Log (ARMM) leads to an increase of 0.0171 % of Log(Y); agricultural nitrous oxide emissions have a positive effect on economic growth, a 1 % increase in Log (ANOE) leads to an increase of 0.7625 of Log(Y); and agricultural methane emissions have a positive effect on economic growth, a 1 % increase in Log (AME) leads to an increase of 0.4101 of Log(Y). Also, according to Table 4, we can conclude that Log (AL) and Log (ANOE) have the lightest elasticities with a value of 0.8731 and 0.7625 respectively. However, Log (ARMM) has the lowest elasticity with an equal value of 0.0171.

Table 2 Unit root test (ADF)

Variables	ADF		Decision
	Constant	Constant and trend	
Log (Y)	(0.028299)	(2.447216)	I (1)
	[3.524358]	[3.407544]	
Log (AL)	(2.187438)	(4.240267)	I (0)
	[1.729274]	[3.902782]	
Log (ANOE)	(1.015475)	(3.472446)	I (1)
	[5.072535]	[5.424441]	
Log (AME)	(0.605047)	(0.204383)	I (1)
	[3.292764]	[3.548911]	
Log (ARMM)	(1.460880)	(3.889296)	I (0)
	[4.414066]	[4.302732]	

Note: ***, ** and * denote significances at 1% , 5% and 10% levels, respectively; ( ) denotes stationarity in level;[ ] denotes stationarity in first difference;

Table 3.ARDL Bounds Test

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	62.99348***	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Note: *** denotes significances at 1% level

Table 4.Estimation of ARDL Model in the Long Run

Dependent Variable: DLOG(Y)				
Selected Model: ARDL (3, 3, 1, 3, 3)				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Probability.
ECT (-1)	-1.369529***	0.090828	-15.078256	0.0006
Cointeq : $\mathbf{DLOG(Y) = 0.8731 * LOG(LA) + 0.0171 * LOG(ARMM) + 0.7625 * DLOG(ANOE) + 0.4101 * DLOG(AME) - 13.8417}$ (8)				

Note: *** denotes significances at 1% level; ECT: Error Correction Term;Cointeq: the cointegration equation of long-term equilibrium

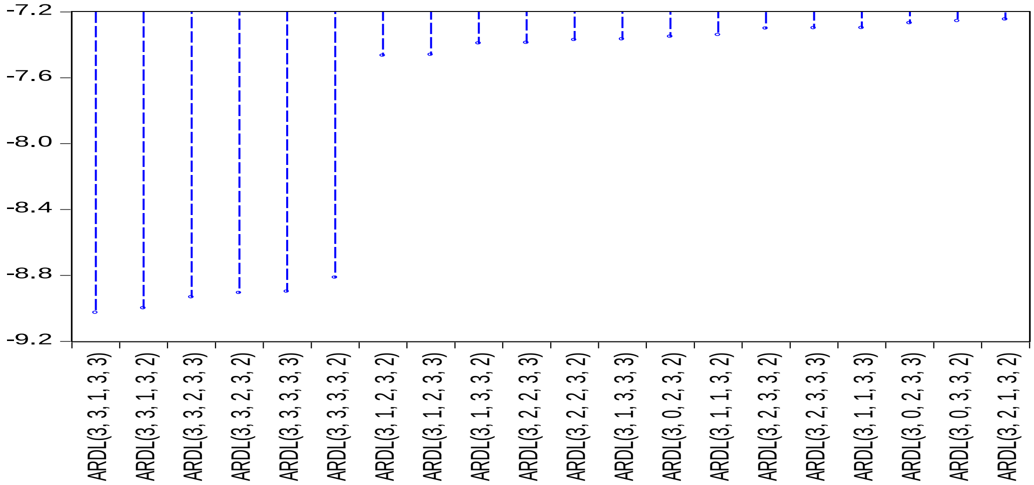


Figure 1. Akaike Information Criteria (top 20 models)

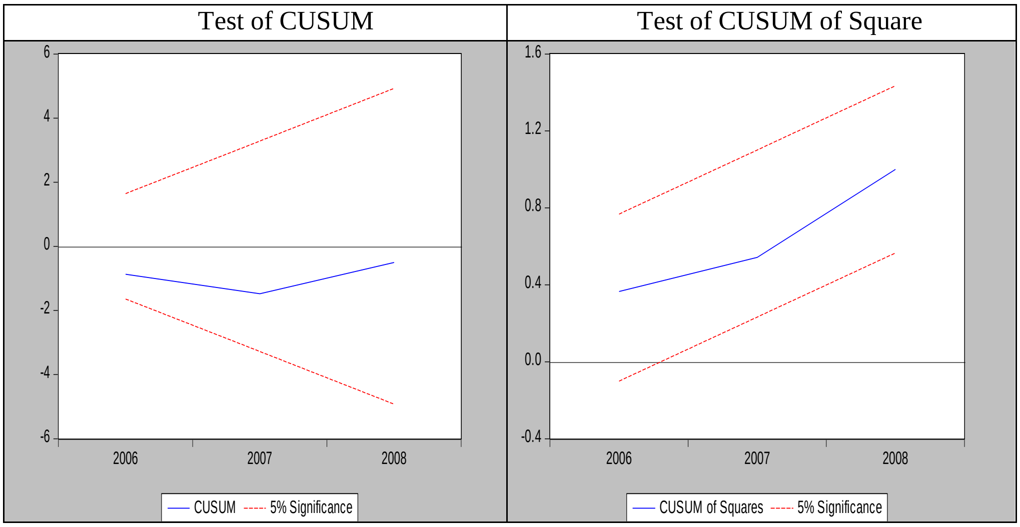


Figure 2.Stability of ARDL Model

To determine the impact of agricultural investments on economic growth in the short run, we use the WALD test. Table 5 shows the results of the estimation of the ARDL model in the short run by using WALD test. According to Table 5, we note that all variables included in our model cause economic growth in the short run. Diagnostic tests indicate that the overall specification adopted is satisfactory (Table 6).Brown et al. (1975) propounded two tests Cumulative Sum and Cumulative Sum of Square, to ascertain accurately the structural stability. CUSUM test tracked down the systematic changes in regression coefficients, while CUSUMSQ holds the separation of parameters from constancy. Hence, parameter consistency is confirmed by employing these two tests. Figure 2 shows that our ARDL Model estimation is stable because the residuals are within 5% critical bonds.

Table 5. Estimation of ARDL Model in The Short Run by Using WALD Test

	Log (Y)
Log (LA)	(0.0031)***
Log (ARMM)	(0.0020)***
Log (ANOE)	(0.0070)***
Log (AME)	(0.0313)**

Table 6. Diagnostics Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.370853	Prob. F(17,3)	0.9215
Obs*R-squared	14.22908	Prob. Chi-Square(17)	0.6508
Scaledexplained SS	0.413599	Prob. Chi-Square(17)	1.0000
Heteroskedasticity Test: Harvey			
F-statistic	7.681189	Prob. F(17,3)	0.0592
Obs*R-squared	20.52837	Prob. Chi-Square(17)	0.2481
Scaledexplained SS	17.36730	Prob. Chi-Square(17)	0.4298
Heteroskedasticity Test: Glejser			
F-statistic	1.135695	Prob. F(17,3)	0.5292
Obs*R-squared	18.17575	Prob. Chi-Square(17)	0.3778
Scaledexplained SS	2.994587	Prob. Chi-Square(17)	0.9999
Heteroskedasticity Test: ARCH			
F-statistic	0.530842	Prob. F(1,18)	0.4756
Obs*R-squared	0.572928	Prob. Chi-Square(1)	0.4491
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	3.236394	Prob. F(2,1)	0.3658
Obs*R-squared	18.18980	Prob. Chi-Square(2)	0.0001
Test of Normality			
Jarque-Bera	2.271023	Probability	0.321258
Test of Quality			
R-squared	0.998011	Adjusted R-squared	0.986737
F-statistic	88.52469	Prob(F-statistic)	0.001711

6. Conclusion

Without any doubt, agriculture is one of the most determinant factors of economic growth since the earliest school of thought “the Physiocrats”, where the land is considered as a main source of prosperity. As one of the most controversial question in the research issues, the investment in the agriculture sector still the driving force behind the economic growth at the regional and local scales. Due to the importance of the agricultural sector, our current study aims to develop a new approach to studying the impact of agricultural investment on economic growth for the case of the Chinese economy. For this purpose, we use in this study the Auto-Regressive Distributive Lags (ARDL) bounds testing procedure.

The estimations results provide quite valuable insights. In the short and long terms, agricultural investment exerts a significant positive influence on Chinese economic growth. This implies the importance of the contribution of the agriculture sector in the Chinese economic sphere as a source of value added and creating jobs. Also, through the massive volume of Chinese agriculture exports, this leads to creating new potential, opportunities (e.g. new markets, new destinations for products, new jobs….), and stimulating the innovation and boosting R&D in this field to respond to the increasing foreign demand. From this perspective, the Chinese authority invited to support and preserves the agriculture investment through fiscal incentives to encourage the private sector to invest. Indeed, the investment in agriculture should consider as a priority not only to guarantee the national food security of the nation of the current generation but also, as an essential and strategic factor for the existence and as the identity of the Chinese future generations.

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The earlier version of this paper has been published on internet as working paper in Munich Personal RePEc Archive. We certify that we have the right to publish this paper in this journal " International Journal of Food and Agricultural Economics".

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