

Impact of Farmers' Use of Information Technology to Improve Agricultural Marketing Extension Services in Wasit Governorate, Iraq

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ABSTRACT

The research presented in the study of the impact of farmers' use of Information Technology (IT) in the field of improving agricultural marketing extension services indicates the small number of researches that dealt with this topic as one of the mechanisms of agricultural extension work, hence the importance of theoretical and applied research. The agricultural sector in Iraq seeks to reach advanced stages in agriculture in general, which must keep pace with the development of agricultural production methods that have developed greatly over the past years. Therefore, farmers in Iraq, with the diversity of agricultural fields that they practice, are in dire need of correct and integrated marketing information about crops. Which are produced and the marketing methods and tools that suit each crop, and in particular the main strategic important crops that represent the main food for the Iraqi people, such as grains, vegetables and In order to modernize agriculture, all kinds of agricultural technological progress must be put into practice, which is in line with the concept of guidance in general in conscious influence in the minds of farmers through the transfer of information and knowledge to help them make a sound decision in the use of modern technology. The main objective of this research is to identify the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services in Wasit Governorate, Iraq, and its relationship to some social and economic characteristics of farmers in the research area. Based on the result of the research, the model of estimating the value of the multiple regression coefficients between the studied independent variables and the dependent variable, the impact of farmers' use of information technology (IT) in the field of agricultural marketing includes fifteen independent variables, and the significance of the model as a whole has been clarified based on the ratio (P), which amounted to about (15,530), in addition to that these variables contribute to explaining 72% of the changes occurring in the variable The effect of farmers' use of information technology (IT) in the field of agricultural marketing services based on the coefficient of

determination (R^2), and it was clear from this model the significance of the effect of each of the independent variables, namely: the age of the farmers surveyed, agricultural experience, the number of respondents' family members, and the number of workers The respondents' farm, the type of agricultural land holding, the means of transportation for marketing agricultural crops, and the respondents' knowledge level.

Keywords: Information Technology - Agricultural Marketing – Agricultural Extension – Wasit Governorate - Iraq

INTRODUCTION

The research presented in the study of the impact of farmers' use of Information Technology (IT) in the field of improving agricultural marketing extension services indicates the small number of researches that dealt with this topic as one of the mechanisms of agricultural extension work, hence the importance of theoretical and applied research.

THEORETICAL SIGNIFICANCE

The theoretical importance of this research is that it is considered one of the important research that deals with the impact of farmers' use of information technology (IT) in improving marketing extension services in Wasit Governorate in Iraq, as well as the compilation of some scientific efforts conducted on the topic of research in the field of studying the impact of farmers' use of information technology (IT)) in improving agricultural marketing extension services, as well as identifying some of the variables associated with it towards the impact of the use of information technology (IT) in improving agricultural marketing extension services, as well as contributing to providing research results that can be relied upon in subsequent studies and research in other regions, There is no doubt that this research, with its scientific method, the concepts and terminology it contains, the variables and research hypotheses that it contains, the statistical methods that have been used in it, and the research results that have been reached, may be useful in highlighting the relative importance of the studied variables. The scientific method used and the standards used in conducting similar future studies in order to reach scientific results that are useful in confirming or refuting the results of previous studies in order to complete scientific efforts on the grounds that science is cumulative.

PRACTICAL IMPORTANCE

The practical importance of this research is clear from what will result from scientific results derived from the actual reality of the impact of farmers' use of information technology (IT) in improving agricultural marketing extension services and interest in spreading and adopting the use of computers, mobile phones and the Internet in agricultural marketing extension as a modern means of communication through the impact of using Farmers of information technology (IT) in improving agricultural marketing extension services and the extent to which farmers' knowledge and application benefit from using information technology (IT) to improve agricultural marketing extension services, thus, identifying and consolidating the strengths, identifying weaknesses and trying to avoid them in the future marketing extension programs directed to farmers and related to the use of information technology (IT) by those responsible for planning and implementing those agricultural marketing extension programs and activities.

RESEARCH PROBLEM

The agricultural sector in Iraq seeks to reach advanced stages in agriculture in general, which must keep pace with the development of agricultural production methods that have developed greatly over the past years. Therefore, farmers in Iraq, with the diversity of agricultural fields that they practice, are in dire need of correct and integrated marketing information about crops. Which are produced and the marketing methods and tools that suit each crop, and in particular the main strategic important crops that represent the main food for the Iraqi people, such as grains, vegetables and fruits (Hanoush: 2013, p. 83)

In order to modernize agriculture, all kinds of agricultural technological progress must be put into practice, which is in line with the concept of guidance in general in conscious influence in the minds of farmers through the transfer of information and knowledge to help them make a sound decision in the use of modern technology (Al-Habal: 2019, p. 12),

In the field of agricultural marketing, a lot of marketing problems appear as a result of several reasons, the most important of which is the farmers' lack of knowledge of the appropriate methods for marketing their production of agricultural crops, as well as their lack of knowledge of the quantity and quality of demand for those crops before starting the production process, as it may be less than enough to achieve the amount of demand for them in the markets or more than that, and that such problems are often the result of economic or natural conditions beyond the control of farmers and are just as important as production problems as well as problems related to agricultural marketing operations and services, because obtaining a high price as a result of following the correct marketing services and functions means a decrease in differences or marketing margins, which It means reducing marketing costs and then getting the maximum profit. Also, low-cost production yields a lot of profit. Therefore, the treatment of these agricultural marketing problems is more necessary, and therefore it must be addressed before actually starting agricultural production (Bassyouni: 2013, p. 124).

Therefore, it was necessary to resort to a modern method to keep pace with the development, through the use of Information Technology (IT) to improve agricultural marketing extension services for farmers, as it is necessary to take advantage of the development in modern technology in the field of Information Communication Technology (ICT).

The fact that information and communication technology plays a vital and important role to achieve human, social, economic and cultural development because of its characteristics and characteristics that have a communicative efficiency that are more influential than traditional methods of communication through the speed of global spread, transcending all spatial and temporal boundaries, including information and knowledge that mostly meet the needs of individuals in every time and place, very quickly and less costly through the distinction of information and communication technology with its characteristics that distinguish it from other technology. Among the most important of these characteristics is the reduction of time, small size, low cost, the possibility of interaction between the sender and the receiver, comprehensiveness, the formation of communication networks, the flow of information, and the possibility of receiving messages at any time. Through this technology, the receiver can be a sender and receiver at the same time. And transferability, mass, prevalence and spread (Khalil: 2021, p. 5).

In light of the foregoing, the need to conduct this research to identify the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services in Wasit Governorate, Iraq, by identifying some personal, social and economic characteristics of the farmers in question, and studying the correlational and regressive relationships between Personal, social and economic characteristics of farmers and the impact of farmers' use of information technology (IT) in improving marketing extension services.

RESEARCH OBJECTIVE

The main objective of this research is to identify the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services in Wasit Governorate, Iraq, and its relationship to some social and economic characteristics of farmers in the research area.

DATA COLLECTION METHOD

In light of the research objectives and based on the nature and quality of the data that achieve those objectives, a questionnaire was designed as a tool for collecting the primary data necessary for this research, in which the questions were logically linked to the general framework of the research problem, while following the simplicity and smoothness of the method to present the research questions, as well as the logical sequence and the interdependence of its contents. This was done by referring to a lot of literature, studies, writings and scientific standards related to the subject of the research, in addition to seeking the assistance of specialists in the field of research respondents to questions. After preparing respondents' understanding of the questions, followed by making some modifications, whether by deleting, adding or modifying the formulation of some questions or adjusting the order of each other. For the farmers surveyed, the second section included questions about the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services by the farmers in question.

METHODOLOGY

Based on the nature of the research and the quality of the data that achieve the research objectives of this research, the data was collected by designing a questionnaire form. The standard deviation and frequency tables to describe and classify the respondents according to their different characteristics, analysis of variance, and Pearson's simple correlation coefficient. The computer was used in the statistical analysis process using the statistical program (SPSS).

The first hypothesis

There is a correlation between the effect of farmers' use of information technology (IT) to improve agricultural marketing extension services as a dependent variable and each of the studied independent variables represented in: age, educational level, academic specialization, agricultural experience, number of family members, number of workers on the farm, type of tenure Agricultural land, means of transportation for marketing crops, transportation costs for marketing crops, marketing channels, farm income, possession of agricultural machinery, degree of innovation and renewal for farmers, and farmers' knowledge of the effect of using information technology (IT), and farmers' attitudes to the impact of using information technology (IT). This research hypothesis is tested in its zero form (the null hypothesis) thus: There is no correlation between the effect of farmers' use information technology (IT) to

improve agricultural marketing guidance services as a dependent variable and between each of the aforementioned independent variables separately.

The second hypothesis

There is an effective relationship between the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services as a dependent variable and each of the studied independent variables represented in: age, educational level, academic specialization, agricultural experience, number of family members, number of workers on the farm, type of tenure agricultural land, means of transportation for marketing crops, transportation costs for marketing crops, marketing channels, farm income, possession of agricultural machinery, degree of innovation and renewal for farmers, and farmers' knowledge of the effect of using information technology (IT) to improve agricultural marketing extension services, and farmers' attitudes to the impact of using information technology (IT) to improve agricultural marketing extension services. This research hypothesis is tested in its zero form (the null hypothesis) thus: There is no correlation between the effect of using information technology (IT) to improve agricultural marketing extension services information (IT) to improve agricultural marketing extension services for farmers as a dependent variable and between each of the aforementioned independent variables together

RESEARCH RESULTS AND DISCUSSION

Studying the correlational and regressive relationships between the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services and the studied independent variables

This part of the research is concerned with studying the correlational and regressive relationships between the dependent variable represented by the effect of farmers' use of information technology (IT) to improve agricultural marketing extension services with each of the independent factors in the research by studying the correlation and regression between each of the impact of farmers' use of information technology in improving services Marketing guidance as a dependent variable and among the fifteen independent variables included in the study, the research was based on the selection of these variables on many results of research and studies related to the topic of research in addition to the belief that these variables are more related to the field of this research, and the Pearson simple correlation coefficient was used to determine the correlations between each of the dependent variable and the studied independent variables, in addition to determining the multiple regression relationship on the stages of the progressive logical analysis method between the independent variables that have the conditions of the multiple regression coefficient on the stages and the dependent variable.

First: The correlation and regression between each of the studied independent variables and the impact of the respondents' use of information technology (IT) to improve agricultural marketing extension services as a dependent variable

a. Correlational relationship between each of the studied independent variables and the impact of the respondents' use of information technology (IT) to improve agricultural marketing extension services as a dependent variable:

The simple correlation coefficient was used to calculate the correlation between the independent variables: the age of the respondents, the educational level of the respondents, the study specialization of the respondents, the number of years of work in the field of agriculture (agricultural experience), the number of family members, the number of workers on the farm,

the type of agricultural land ownership, the means of transportation for marketing agricultural crops, and transportation costs. For the marketing of agricultural crops, marketing channels of agricultural crops, farm income, ownership of agricultural machinery, the degree of innovation and innovation for farmers, the level of knowledge towards information technology (IT) and the attitude of farmers towards information technology (IT). (Table1).

Table (1): The simple correlation between the studied independent variables and the effect of the respondents' use of information technology (IT) in improving marketing extension services

No.	Independent variables	Simple correlation
1.	The age of the farmers surveyed	0,151**
2.	The educational level of the surveyed farmers	0,100*
3.	Study specialization of the respondents	0,114*
4.	Number of years of work in the field of agriculture (agricultural experience)	0,102*-
5.	Number of family members of the respondents	0,123*-
6.	The number of workers in the respondents' farm	0,199**
7.	Type of agricultural land tenure	0,158**
8.	A means of transportation for marketing agricultural crops	0,081
9.	Transportation costs for marketing agricultural crops	0,088
1.	Agricultural Crops Marketing Channels	0,031
1.	farm income	0,002 -
1.	Possession of agricultural machinery	0,087
1.	The degree of innovation and innovation for farmers	0,107*
1.	The knowledge level of the respondents towards information technology (IT)	0,254**
1.	The degree of respondents' attitude towards information technology (IT)	0,186**
** Significant at the level (0.01),		* Significant at the level (0.05)

Source: It was collected and calculated from the data of the study questionnaire.

The correlation between the age of the respondents and the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services as a dependent variable

It is clear from the study of the simple correlation between the age of the respondents as an independent variable and the impact of farmers' use of information technology (IT) in the field of agricultural marketing, it was found that there is an inverse significant correlation at a probabilistic level of (0.01) where the value of the simple correlation coefficient is (-0.151), which means that two variables are interlinked and move in opposite directions, as the older age decreases, the effect of using information technology decreases, i.e. an increase in one of them is offset by a decrease in the other. Therefore, the research hypothesis is accepted and the null hypothesis is rejected, which states that there is no correlation between each of the ages of the respondents and the use of information technology, This may be due to the fact that the elderly do not have the necessary awareness of their use of information technology and their lack of literacy and consequently the inability to use information technology as shown in Table No. (1).

Correlational relationship between the educational level of the farmers surveyed and the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

The research results indicate that there is a direct significant correlation at a probability level (0.05) between the education level of the respondents as an independent variable and the effect of farmers' use of information technology (IT) in the field of agricultural marketing, where the value of the simple correlation coefficient between them was (0,100) and this means that The two variables are correlative and move together in the same direction, and that an increase in one of them is accompanied by an increase in the other variable. Therefore, the research hypothesis is accepted and the null hypothesis is rejected, which states that there is no correlation between each of the farmers' education level and the effect of farmers' use of information technology (IT) in The field of agricultural marketing This may be due to the fact that educating farmers enables them to use information technology (IT) efficiently and benefit from it to improve their agricultural marketing skills.

Correlational relationship between the study specialization of the respondents and the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

It is clear from the research results that there is a direct significant correlation at a probability level (0.05) between the study specialization of the respondents as an independent variable and the effect of farmers' use of information technology (IT) in the field of agricultural marketing, where the value of the simple correlation coefficient between them was (0.114) and this means that two variables are correlated and move together in the same direction and that an increase in one of them is accompanied by an increase in the other variable, and accordingly the research hypothesis is accepted and the null hypothesis rejected, which states that there is no correlation between each of the respondents' academic specialization and the effect of farmers' use of information technology (IT) in agricultural marketing field. This may be due to the fact that the study specialization of the respondents encourages them to take an interest in using information technology (IT) to improve their decisions in marketing their crops and to support those decisions.

Correlation between the number of years of work in the field of agriculture (agricultural experience) and the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

The research results revealed that there is an inverse significant correlation between the agricultural experience of the respondents as an independent variable and the impact of farmers' use of information technology (IT) in the field of agricultural marketing at a probabilistic level of (0.05), where the value of the simple correlation coefficient was (-0.102), which means that the two variables They are inseparable and move in two opposite directions, as the greater the agricultural experience of the respondents, the less the use of information technology, i.e. an increase in one of them is offset by a decrease in the other. Therefore, the research hypothesis is accepted and the null hypothesis is rejected, which states that there is no correlation between each of the respondents' agricultural experience and the effect of farmers' use of information technology. This may be due to the fact that increased experience accompanies age, and this category represents the lagging category in the adoption curve of new innovations, including information technology, and thus relying on previous experience more than the use of information technology.

Correlational relationship between the number of respondents' family members and the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

It is clear from the research results that there is an inverse significant correlation between the number of respondents' family members as an independent variable and the impact of farmers' use of information technology (IT) in the field of agricultural marketing at a probabilistic level (0.05), where the value of the simple correlation coefficient is (-0.123), which means that The two variables are interlinked and move in opposite directions, as the more the number of the respondents' family members increases, the less the impact of the use of information technology, i.e. the increase of one of them is offset by the decrease of the other. Farmers' use of information technology. This may be due to the fact that the increase in the number of the respondents' family members working with him in agriculture and agricultural marketing makes the respondents' farmers depend on the number of their family members in carrying out agricultural marketing work and the lack of interest in using information technology to improve agricultural marketing operations.

Correlational relationship between the number of workers on the respondents' farm and the impact of farmers' use of information technology (IT) in improving agricultural marketing extension services

It was found from the research results that there is a significant correlation between the number of workers in the respondents' farm as an independent variable and the impact of farmers' use of information technology (IT) in the field of agricultural marketing at a probabilistic level of (0.01), where the value of the simple correlation coefficient was (0,199) and this means that two variables are inseparable and move together in the same direction, as the greater the number of workers in the respondents' farm, the greater the impact of the use of information technology, i.e. an increase in one of them is accompanied by an increase in the other. Therefore, the research hypothesis is accepted and the null hypothesis is rejected, which states that there is no correlation between each of the number of workers in the respondents' farm and the impact of farmers' use of information technology. This may be due to the fact that respondents who deal with agricultural labor from outside their families have the ability to use information technology, including the use of skilled labor in agricultural and marketing work.

Correlation between the type of agricultural land tenure and the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

It was found from the research results that there is an inverse significant correlation between the type of agricultural land tenure of the respondents as an independent variable and the impact of farmers' use of information technology (IT) in the field of agricultural marketing at a probabilistic level of (0.01), where the value of the simple correlation coefficient was (-0.158), which means that two variables are correlative and move in opposite directions, as the more the type of agricultural land tenure of the respondents is ownership, the less the impact of farmers' use of information technology, i.e. an increase in one of them is offset by a decrease in the other. The agricultural land of the respondents and the impact of farmers' use of information technology. This may be due to the fact that the respondents who have permanent possession of agricultural land in the form of ownership are satisfied with their performance and do not have an incentive to renew, unlike farmers who rent agricultural land have the desire to make the most of everything new, including the use of information technology in agricultural marketing.

Correlation relationship between the independent variables (means of transportation for marketing agricultural crops, transportation costs for marketing agricultural crops, marketing channels for agricultural crops, farm income, and ownership of agricultural machinery) for the respondents and the dependent variable, the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

It is clear from the results of the study that there is no significant correlation between the independent variables (means of transportation for marketing agricultural crops, transportation costs for marketing agricultural crops, marketing channels for agricultural crops, farm income, and ownership of agricultural machinery) for the respondents and the respondents' use of information technology (IT) in the field of marketing. The research hypothesis is rejected and the null hypothesis that it states that there is no correlation between each of the above independent variables and the impact of farmers' use of information technology to improve agricultural marketing processes.

Correlation between the degree of innovation and innovation of the farmers surveyed and the impact of farmers' use of information technology (IT) to improve agricultural marketing processes

It is clear from the research results that there is a direct significant correlation at a probability level (0.05) between the degree of innovation and innovation of the farmers surveyed as an independent variable and the impact of farmers' use of information technology (IT) in the field of agricultural marketing, where the value of the simple correlation coefficient between them is (0,107), which means this is that two variables are correlative and move together in the same direction, and that an increase in one of them is accompanied by an increase in the other variable. Therefore, the research hypothesis is accepted and the null hypothesis is rejected, which states that there is no correlation between the innovation and innovation of the respondents and the impact of farmers' use of information technology (IT). in the field of agricultural marketing, this may be due to the fact that the respondents' innovation and innovation motivate them to improve their standard of living through interest in using information technology (IT).

Correlation relationship between the knowledge level of the respondents and the impact of farmers' use of information technology (IT) in improving agricultural marketing extension services

From the research results, it was found that there is a significant correlation between the knowledge level of the respondents as an independent variable, the impact of farmers' use of information technology (IT) in the field of agricultural marketing at a probability level (0.01), where the value of the simple correlation coefficient was (0.254), which means that the two variables are correlated and move together. In the same direction, as the higher the knowledge level of the respondents, the greater the impact of farmers' use of information technology, i.e. an increase in one of them is accompanied by an increase in the other. Therefore, the research hypothesis is accepted and the null hypothesis rejected, which states that there is no correlation between each of the respondents' knowledge level and the effect of farmers' use of information technology. This may be due to the fact that the respondents who have a high level of knowledge have the ability to use information technology in agricultural marketing for their agricultural crops.

Correlational relationship between the degree of respondents' attitude and the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

It was found from the research results that there is a significant correlation between the degree of attitude of the respondents as an independent variable and the effect of farmers' use of information technology (IT) in the field of agricultural marketing at a probability level of (0.01), where the value of the simple correlation coefficient was (0.186), which means that the two variables are interlinked and move together in the same direction, as the higher the degree of direction of the respondents, the greater the impact of the use of information technology, i.e. an increase in one of them is accompanied by an increase in the other. Therefore, the research hypothesis is accepted and the null hypothesis rejected, which states that there is no correlation between each of the respondents' degree of direction and the effect of farmers' use of information technology. This may be due to the fact that respondents who have a high degree of respondents' attitude have the ability to use information technology in the agricultural marketing of their agricultural crops.

The regression relationship between each of the studied independent variables and the effect of farmers' use of information technology (IT) to improve agricultural marketing extension services as a dependent variable

By studying the regressive relations between some characteristics of the respondents as independent variables, the impact of farmers' use of information technology (IT) in the field of agricultural marketing as a dependent variable, it became clear from the results that only seven independent variables were independent of the dependent variable: the age of the respondents, agricultural experience, and the number of respondents' family members, The number of workers on the respondents' farm, the type of agricultural land holding, the means of transportation for marketing agricultural crops, and the knowledge level of the respondents as shown in table No. (2). Based on the analytical method that was used, the regression relationships between the studied independent variables and the impact of farmers' use of information technology (IT) in the field of agricultural marketing as a dependent variable were estimated, and several models were estimated, and the variables that did not affect the dependent variable were excluded from the analysis as a result because the results of their transactions are not logical and therefore incompatible with the indicative interpretation.

Table (2) - Estimating the value of the multiple regression coefficients between the studied independent variables and the dependent variable, the impact of farmers' use of information technology (IT) in the field of agricultural marketing

No.	Independent variables	Partial regression coefficient	t-value
1	Constant		** 2,176
2	Age of the respondents' farm	0,197 -	** 2,781 -
3	The educational level of the surveyed farmers	0,064 -	0,633 -
4	Study specialization of the respondents	0,100	1,460
5	Number of years of work in the field of agriculture (agricultural experience)	0,147	* 2,082
6	Number of family members of the respondents	0,206 -	** 3,625
7	The number of workers in the respondents' farm	0,196	** 3,572
8	Type of agricultural land tenure	0,132 -	* 2,455 -
9	A means of transportation for marketing agricultural crops	0,119	* 2,305
10	Transportation costs for marketing agricultural crops	0,090	1,606
11	Agricultural Crops Marketing Channels	0,027 -	0,482 -
12	farm income	0,022 -	0,415 -
13	Possession of agricultural machinery	0,056	1,028
14	The degree of innovation and innovation for farmers	0,063 -	- 1,199
15	The knowledge level of the respondents towards information technology (IT)	0,242	** 3,531
16	The degree of respondents' attitude towards information technology (IT)	0,018	0,261

**** Significant at the level (0.01)**

*** Significant at the level (0.05)**

F = 15.530 R² =

0.72

Source: It was collected and calculated from the data of the study questionnaire

Based on the numbers mentioned in table No. (2), this model includes fifteen independent variables, and the significance of the model as a whole has been clarified based on the ratio (P), which amounted to about (15,530), in addition to that these variables contribute to explaining 72% of the changes occurring in the variable The effect of farmers' use of information technology (IT) in the field of agricultural marketing services based on the coefficient of determination (R²), and it was clear from this model the significance of the effect of each of the independent variables, namely: the age of the farmers surveyed, agricultural experience, the number of respondents' family members, and the number of workers The respondents' farm, the type of agricultural land holding, the means of transportation for marketing agricultural crops, and the respondents' knowledge level.

With regard to the variable of the age of the farmers surveyed, the amount of its partial regression coefficient was (- 0.197), and the significance of the parameter of this variable was proven at the level of significance (0.01) and this is in addition to the logicity of its sign based on the value of (t), which amounted to (- 2,781) and this means By increasing the age of the

respondents by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing decreases by (0,197) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the indicative interpretation that the effect of the respondents' use of information technology (IT) in the field of agricultural marketing decreases as their age increases.

With regard to the agricultural experience variable of coefficient was about (0,147), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value (t), which amounted to (2,082), and this means that By increasing the agricultural experience variable of the respondents by one unit, the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0,147) units, in light of the reciprocal effects of other independent variables in the model, and this result is consistent with the indicative interpretation as the effect of farmers' use The respondents for information technology (IT) in the field of agricultural marketing increases as the agricultural experience of the respondents increases.

With regard to the variable number of family members of the respondents, the amount of its partial regression coefficient was (-0.206), and the significance of the parameter of this variable was proven at the level of significance (0.01) and this is in addition to the logicity of its sign based on the value of (t), which amounted to (3,625) and this means By increasing the number of the respondents' family members by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing decreased by (0,206) units, in light of the reciprocal effects of other independent variables in the model. information technology (IT) in the field of agricultural marketing decreases as the number of their family members increases.

With regard to the variable number of workers on the respondents' farm, the amount of the partial regression coefficient was about (0.196), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value of (t), which amounted to (3,572). This means that by increasing the variable number of workers on the respondents' farm by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0.196) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the interpretation Indicative as the impact of the respondents' use of information technology (IT) in the field of agricultural marketing increases as the number of workers increases on the respondents' farm.

With regard to the variable of the type of agricultural land tenure, the amount of its partial regression coefficient was (-0.132), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value of (t), which amounted to (- 2,455) and this It means that the respondents' ownership of agricultural land is reduced by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing is reduced by (0.132) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the indicative interpretation that the effect of the respondents' use of agricultural land Information technology (IT) in the field of agricultural marketing decreases as the ownership of the land tenure is proven to the farmers.

With regard to the means of transportation variable for marketing agricultural crops, the amount of the partial regression coefficient was about (0.119), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value of (t), which amounted to (2.305), This means that by increasing the agricultural experience variable of the respondents by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0.119) units, in light of the reciprocal effects of other independent variables in the model, and this result is consistent with the indicative interpretation where the impact of the respondents' use of information technology (IT) in the field of agricultural marketing increases the more the respondents depend on renting transportation and not owning it.

With regard to the variable of knowledge level of the respondents, the amount of the partial regression coefficient was about (0.242), and the significance of the parameter of this variable was proven at the level of significance (0.01) and this is in addition to the logicity of its indication based on the (t) value which reached (3,531), and this means by increasing the knowledge level variable of the respondents by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0.242) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the indicative interpretation as the effect of using the farmers surveyed for information technology (IT) in the field of agricultural marketing increases as the knowledge level of the respondents increases.

The relative importance of the independent variables in their impact on the dependent variable, the impact of farmers' use of information technology (IT) to improve agricultural marketing extension services

Based on the standard partial regression coefficients, the relative importance of the following independent variables can be clarified: the age of the respondents, agricultural experience, the number of the respondents' family members, the number of workers on the respondents' farm, the type of agricultural land holding, the means of transportation for marketing agricultural crops, and the knowledge level of the respondents, arranged according to Because of the strength of its impact on the impact variable of the respondents' use of information technology (IT) in the field of agricultural marketing, and it was found that the variable of the respondents' knowledge level ranks first, followed by the variable number of workers in the respondents' farm in the second place, followed by the variable number of the respondents' family members in the third place, followed by the means of transportation for marketing agricultural crops in the fourth place, followed by the variable of the type of agricultural land tenure in the fifth place, as in table No. (3).

Table (3) - The relative importance of the independent variables in their impact on the impact variable of the respondents' use of information technology (IT) in improving agricultural marketing extension services

No.	Independent variables	partial regression coefficient	t value	standard partial regression coefficient	Rank
1	The knowledge level of the respondents	0,242	3,531	0,251	1
2	The number of workers in the respondents' farm	0,196	3,572	0,214	2
3	Number of family members of the respondents	0,206 -	3,625	0,203	3
4	A means of transportation for marketing agricultural crops	0,119	2,305	0,137	4
5	Type of agricultural land tenure	0,132 -	2,455-	0,130	5

Source: It was collected and calculated from the data of the study questionnaire

It is clear from the previous table that the factor of the respondents' knowledge level is of great importance in influencing the variable of the respondents' use of information technology, followed by the factor of the number of workers on the respondents' farm, followed by the number of respondents' family members, followed by the means of transportation to market agricultural crops, and finally comes in the impact on the use of information technology Variable type of agricultural land tenure.

With regard to the other variables in the research, it became clear that these variables are not significant, and this is due to the reluctance of the elderly to use information technology in the studied areas of agricultural marketing depending on their experience, and also due to the weak internal and living standards of some of the farmers surveyed, and thus a decrease the rate of their use and then their lack of knowledge of everything new in the field of agricultural marketing.

CONCLUSION

Related to the results obtained, the most important results were following:-

With regard to the variable of the age of the farmers surveyed, the amount of its partial regression coefficient was (- 0.197), and the significance of the parameter of this variable was proven at the level of significance (0.01) and this is in addition to the logicity of its sign based on the value of (t), which amounted to (- 2,781) and this means by increasing the age of the respondents by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing decreases by (0,197) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the indicative interpretation that the effect of the respondents' use of information technology (IT) in the field of agricultural marketing decreases as their age increases.

With regard to the agricultural experience variable of coefficient was about (0,147), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value (t), which amounted to (2,082), and this means that By increasing the agricultural experience variable of the respondents by one unit, the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0,147) units, in light of the reciprocal effects of other independent variables in the model, and this result is consistent with the indicative interpretation as the effect of farmers' use The respondents for information technology (IT) in the field of agricultural marketing increases as the agricultural experience of the respondents increases.

With regard to the variable number of family members of the respondents, the amount of its partial regression coefficient was (-0.206), and the significance of the parameter of this variable was proven at the level of significance (0.01) and this is in addition to the logicity of its sign based on the value of (t), which amounted to (3,625) and this means By increasing the number of the respondents' family members by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing decreased by (0,206) units, in light of the reciprocal effects of other independent variables in the model. information technology (IT) in the field of agricultural marketing decreases as the number of their family members increases.

With regard to the variable number of workers on the respondents' farm, the amount of the partial regression coefficient was about (0.196), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value of (t), which amounted to (3,572). This means that by increasing the variable number of workers on the respondents' farm by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0.196) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the interpretation Indicative as the impact of the respondents' use of information technology (IT) in the field of agricultural marketing increases as the number of workers increases on the respondents' farm.

With regard to the variable of the type of agricultural land tenure, the amount of its partial regression coefficient was (-0.132), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value of (t), which amounted to (- 2,455) and this It means that the respondents' ownership of agricultural land is reduced by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing is reduced by (0.132) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the indicative interpretation that the effect of the respondents' use of agricultural land Information technology (IT) in the field of agricultural marketing decreases as the ownership of the land tenure is proven to the farmers.

With regard to the means of transportation variable for marketing agricultural crops, the amount of the partial regression coefficient was about (0.119), and the significance of the parameter of this variable was proven at the level of significance (0.05), and this is in addition to the logicity of its sign based on the value of (t), which amounted to (2.305), This means that by increasing the agricultural experience variable of the respondents by one unit, the effect of

the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0.119) units, in light of the reciprocal effects of other independent variables in the model, and this result is consistent with the indicative interpretation where the impact of the respondents' use of information technology (IT) in the field of agricultural marketing increases the more the respondents depend on renting transportation and not owning it.

With regard to the variable of knowledge level of the respondents, the amount of the partial regression coefficient was about (0.242), and the significance of the parameter of this variable was proven at the level of significance (0.01) and this is in addition to the logicity of its indication based on the (t) value which reached (3,531), and this means by increasing the knowledge level variable of the respondents by one unit, the effect of the respondents' use of information technology (IT) in the field of agricultural marketing increases by (0.242) units, in light of the reciprocal effects of other independent variables in the model, and this result agrees with the indicative interpretation as the effect of using the farmers surveyed for information technology (IT) in the field of agricultural marketing increases as the knowledge level of the respondents increases.

It is clear from the research that the factor of the respondents' knowledge level is of great importance in influencing the variable of the respondents' use of information technology, followed by the factor of the number of workers on the respondents' farm, followed by the number of respondents' family members, followed by the means of transportation to market agricultural crops, and finally comes in the impact on the use of information technology Variable type of agricultural land tenure.

With regard to the other variables in the research, it became clear that these variables are not significant, and this is due to the reluctance of the elderly to use information technology in the studied areas of agricultural marketing depending on their experience, and also due to the weak internal and living standards of some of the farmers surveyed, and thus a decrease the rate of their use and then their lack of knowledge of everything new in the field of agricultural marketing.

References

- Al-Habal, Abu Zaid Muhammad (2019), *The Role of Agricultural Extension in Rural Development*, Lectures for Postgraduate Students, Social Change Course, Department of Agricultural Economics, Faculty of Agriculture - Saba Basha, Alexandria University, p. 12.
- Bassiouni, Gaber Ahmed, (2013), *New Trends in Agricultural Marketing and Total Quality Management*, Dar Al-Wafaa for Donia Printing and Publishing, Alexandria, Egypt, p. 124.
- Bassiouni, Gaber Ahmed, (2014), *General Statistics*, Dar Al-Wafaa for Donia Printing and Publishing, first edition , Alexandria
- Hannoush, Laith Jaafar Hussein (2013), *Knowledge and marketing guidance needs for date palm growers in the Middle Euphrates governorates in the Republic of Iraq*, Ph.D. thesis, Department of Agricultural Economics, Sababasha College of Agriculture, Alexandria University, p. 83.
- Khalil, Sami Rabie Abdo Ahmed (2021), *Determinants of farmers' benefit from using the mobile phone in the developmental fields in some villages of Al-Ameriya in Alexandria Governorate*, Ph.D. thesis, Department of Agricultural Economics, Saba Basha College of Agriculture, Alexandria University, p. 5.
- Salem, Raghda (2012). *A future vision for the application of electronic training in the agricultural extension system*, *Journal of Agricultural Economics and Social Sciences*, Volume (12), Issue (2): 117-127.

Ahsan, H. and Sadek, S. (2015). Smart phone application based 'agro advisory service' for farmers an innovation from Bangladesh, mpower Social Enterprises Limited, Bangladesh.

Akintunde, Moruf Abiola, Oladele, Oladimeji Idowu, (2019) Use of Information Communication Technologies among Agricultural Extension Officers in Lesotho, Journal of Agricultural Extension, Vol. 23 (3) July.

Alakpa, S., Afolabi, S. and Ighalo I. (2019). Assessment of The extension agents' perception of mobile phone usage for communication with farmers in Edo South of Edo State, Nigeria, Universal Journal of Agricultural Research, 7(3): 131-135.

Bhuiyan M, (2010), Effect of information and communication technology in alleviating poverty in rural Bangladesh focused on mobile phone, MS Thesis, Department of General and Continuing Education, North South University, Bangladesh, p55.

Giridhar KA, Devendrappa S and MP Potdar.(2019), Analysis of extent of utilization of mobile phone services by farmers, The Pharma Innovation Journal 2019; 8(10), pp201-204.