

# The Effect of the Electronic Payment System on Saving in Iraq for the period from 2011 - 2019<sup>1</sup>

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## ABSTRACT

This study dealt with the effects of electronic payment systems on savings, and aimed to show the impact of two independent variables: (amounts transferred according to the electronic clearing system EC) The amounts transferred in accordance with the total settlement systems on the dependent variable saving S for the period (2011-2019) and the standard model was estimated according to the autoregressive methodology of distributed deceleration .ARDL ,and it was found according to the limits test for joint integration that there is a joint integration relationship for the estimated model, so the analysis was done in the short and long terms, and that the estimated model was free from standard problems and that its residues were stable and that they are distributed naturally, and the most important results of the study were, that the relationship of the total settlement system. With savings, it was negative in the short and long terms, while the relationship of the electronic clearing system was positive in the short and long terms. The study came up with recommendations, the most important of which was working to expand the area of electronic payment through electronic cards as well as through the mobile phone, and taking the necessary measures to work on increasing bank branches Civil and governmental institutions in all governorates, in order to increase the percentage of banking density, prepare special programs and develop appropriate plans to increase banking awareness among the Iraqi society.

**Keywords :** *electronic payment system; savings; Iraq.*

## INTRODUCTION

The payment system has witnessed many recent developments that accompanied the emergence of informatics, as it is one of the most important advantages of the modern era that affected the economic sectors, especially the financial and banking sector, as it is the most sensitive sector to changes in the world, because of its important role in achieving the economic development of the country through Mobilize savings and direct them towards financing investment projects .

This prompted banks in the countries of the world to adopt a new policy to develop their technological infrastructure and information systems to bring about fundamental changes in their work environment, especially the shift from traditional payment to electronic payment to keep pace with global developments and increase their competitiveness as an inevitable and natural result to attract the largest possible number of customers to deal with them on the one hand. Providing financial and banking services in more modern ways, including completing withdrawals and deposits, transferring funds and settling payments electronically from one customer's account to another customer's account after giving orders by customers to banks that are dealt with to complete financial

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operations and without the need for their personal presence in banks through the use of Banking distribution channels from ATMs and points of sale due to the ease and speed of payment systems and means, in addition to reducing costs .

In Iraq, the electronic payment system is among the financial and banking reforms that the Central Bank of Iraq has sought to implement since 2006 to develop the banking sector in Iraq and keep pace with global developments after the traditional manual work was prevalent in all financial transactions, which was accompanied by risks and errors resulting from manual work, including Forgery, loss and damage, and to motivate individuals to join the official financial system and encourage them to save because there is a positive impact relationship between the electronic payment system and savings and thus reduce the country's dependence on external sources (loans and aid), but it is still in its initial stages as it did not achieve the desired savings rates necessary to meet all The challenges facing the country's economic performance, especially the fiscal deficit in the general budget, Iraq's dependence on the oil resource, the rise in poverty, unemployment and inflation, as well as the phenomenon of financial and administrative corruption .

#### **First .Research Problem:**

The research problem lies in the recent application of the electronic payment system in Iraq by the Monetary Authority to develop the financial and banking sector to mobilize savings and direct them towards financing economic activities, and it was not in a way that achieves the desired saving rates. Modern payment technologies as well as the inefficiency of the telecommunications infrastructure.

#### **Secondly .Research Importance:**

The importance of the research lies in showing the impact of the electronic payment system in enhancing savings rates, because of its role in attracting financial resources, as it represents the channels through which funds are transferred and payments are settled quickly and efficiently, so the Central Bank of Iraq sought to implement an effective payment system for the purpose of benefiting from Advanced banking services and keeping pace with contemporary banking work and the challenges it poses at the practical and technical levels to come up with a banking reality that has the ability to satisfy local needs and simulate international banking systems.

#### **Third .Research Hypothesis:**

The research stems from the hypothesis that "the electronic payment system has a positive role in promoting savings in Iraq through its role in encouraging individuals to deal with modern payment systems and means because of the ease and speed in completing financial transactions as well as low costs".

#### **Fourthly .Research Aims:**

The study aims to highlight:

Measuring and analyzing the impact of the electronic payment system on promoting savings in Iraq.

### **THE FIRST TOPIC: THE ROLE OF THE ELECTRONIC PAYMENT SYSTEM IN SAVING**

#### **Reflection of electronic payment System on Savings**

The application of electronic payment systems in the modern financial and banking sectors is a must, as it entails many benefits, especially for the bank's customers to encourage them to save, which is the main driver of banks to increase their ability to grant credit to individuals and companies and at the same time facilitate them with quick access. for the goods and services they need through the transmission of credit card numbers by consumers, through an operational network that links bank accounts and provides cash exchange functions and using bank deposits (Joseph,2015, 56).

Therefore, the analysis of the role of the electronic payment system on savings will be addressed in light of the following demands:

**The First Requirement: the role of the electronic payment system in mobilizing bank deposits:**

Application payment system e - contributed to the banks in the mobilization of bank deposits, which occupies a major economic importance of its key role in the development of the national economy through surplus directing them towards the financing of investment projects so necessary attention and all kinds of (Bo Abdelli 2015, 38). The extent The success of electronic payment systems in mobilizing bank deposits on a set of mechanisms followed by banks and financial institutions, the most important of which are (Gorganai, 2016, 44) Deposit insurance, the interest rate, the good reputation of the bank, Aluaa banking, banking density.

**The Second Requirement: the relationship of the electronic payment system to financial inclusion:**

The term “financial inclusion” refers to the expansion of the process of delivering financial and banking services to all members of society, especially the financially excluded (people with low incomes), as quickly as possible and at the lowest cost, in order to integrate them into the formal financial system, to enable them to benefit from the services provided to them without discrimination (Tariq, 2019, 16)

We note from the above, that there is a relationship between the electronic payment system and financial inclusion, through the role of the electronic payment system in providing more modern banking services and delivering them to the largest possible number of segments of society through banks achieving their goals in improving and developing their services to become more attractive to deposit, which increases the The amount of savings by spreading awareness among the various segments of society, which in turn will stimulate indicators of financial inclusion.

**The Third Requirement: the relationship between the electronic payment system and electronic banking services:**

The term electronic banking services refers to the processes of customers completing banking operations in their modern form (electronic payment systems) at anytime and anywhere, without the need for physical presence and long waiting for them in banks (Omar and Ahmed, 2019, 399). We note from the above that there is a relationship between the electronic payment system and electronic banking services, because electronic payment systems play a key role in providing banking services electronically, which are of high quality in order to encourage individuals to deposit and withdraw in banks throughout the day and without the need for their physical presence in banks and standing In the long queue in the banking halls, that is, without any restrictions in terms of place and time.

**Fourth Requirement: the impact of the electronic payment system on e-commerce and e-tourism:****First .The impact of the electronic payment system on e-commerce:**

Electronic commerce is one of the modern means used to conduct commercial activities (buying and selling of goods and services), in addition to the electronic exchange of commodity and information via the Internet or wireless communication networks (mobile phone), and the accompanying operations and other procedures such as payment, delivery, ordering and communication .For the product (Al-Titi, 2012, 74)

It follows from the above that there is an impact of the electronic payment system on e-commerce, through the primary role that electronic payment methods play in completing business, which in turn contributes to increasing the volume of savings and thus raising the economic growth rates of the country through the role of electronic payment systems in supporting electronic stores And increasing the volume of its sales, due to the ease and speed these systems achieve in obtaining goods and services at low costs, which leads to an increase in production, the creation of modern markets, and an increase in exports, through what these systems grant to countries the possibility of concluding commercial deals as quickly as possible. E-commerce is based on basic elements, including the seller and buyer, technological technologies (the Internet), in addition to electronic payment methods.

**Secondly .The impact of the electronic payment system on e-tourism:**

E-tourism is a major driver that contributes to the economic and social progress of countries, because of its importance in increasing revenues and creating more job opportunities.( Bayona, Ruiz Rua, 2019, 203)..

It follows from the above that there is an impact of the electronic payment system on e-tourism, through the primary role that electronic payment methods play in providing tourism services electronically, as e-tourism and its primary role in embracing e-commerce, is based on the following elements, electronic information, electronic reservation, payment which in turn increases the country's savings by increasing tourism revenues from foreign currencies that were spent by the tourist to obtain the goods and services he needs throughout the period of his stay.

#### **Fifth Requirement: the impact of the electronic payment system on consumer spending:**

Consumer spending means that individuals spend a part of their income to obtain goods and services to meet their needs and desires, through the use of cash or checks and other traditional means of payment, which are part of traditional banking services that played a very important role for long periods, but due to financial education and the development of customs and traditions The dissemination of banking awareness and the continuous economic developments have changed consumer payment methods from the use of traditional payment methods to the use of electronic payment methods, to settle payments (Bahadur , 2017, 2)

Based on the foregoing, the electronic payments system has a positive impact on the financial system and the monetization of the economy, as the introduction of electronic payments helps to attract the money of individuals and companies into the banking system and reduce cash flow

#### **The Sixth Requirement: the impact of the electronic payment system on tax evasion:**

Tax evasion is defined as a serious economic phenomenon that all developed and developing countries are exposed to, represented by the failure of taxpayers to pay taxes in whole or in part by following many fraudulent means, which causes countries to lose and lose a large part of their domestic and international revenues, and its size and image varies from one country to another. Another, therefore, all countries of the world are striving to combat it by all kinds of means by monitoring and knowing the causes of its occurrence (Abdullah, 2011, 170).

Based on the foregoing, it can be said that there is an urgent and necessary need to implement the electronic payment system in tax departments, as it includes a huge amount of data and information that has been processed and stored, which motivates taxpayers to pay it for ease of dealing with tax departments, and thus the application of this type of system achieves a fair application. The tax bases, which in turn lead to an increase in government savings and public revenues for the state to finance its public expenditures.

### **THE RELATIONSHIP BETWEEN THE ELECTRONIC PAYMENT SYSTEM AND SAVINGS IN IRAQ FOR THE PERIOD (2011-2019)**

#### **The First Requirement: the importance of the electronic payment system in supporting savings:**

##### **First .The role of the electronic payment system in mobilizing deposits in commercial banks**

Bank deposits (time and savings) are of great importance in commercial banks, and their growth rate reflects the extent to which commercial banks are able to attract savings and grant the required credit.

**Table ( 1)****Total savings and time deposits with commercial banks in Iraq for the period (2011-2019) million dinars**

Electronic clearing percentage to total deposits (6)	Gross settlement ratio to total deposits (5)	Deposit growth rate (4)	Total fixed and savings deposits (3)	Total electronic clearing (2)	total gross settlement (1)	the years
2.3	56.3	—	7845913	182916	4414999	2011
15.2	43.8	10	11526992	1757701	5045316	2012
73.6	69.3	11	13223139	9733247	9163637	2013
158.9	50.5	8	17451420	27725100	8811519	2014
138.7	47.9	-13	18034581	25006770	8639414	2015
125.3	31.2	0	18470809	23136266	5767516	2016
134.5	22.2	5	19209621	25842615	4266055	2017
165.8	26.3	15th	21428505	35529796	5632169	2018
214.5	32.6	7	22188685	47597309	7241022	2019

**Source:** Columns (1, 2), Payments Department, Central Bank of Iraq, interview, direct interview with Sitt Bushra Taleb.

Column (3) Central Bank of Iraq, statistics published on the following link :<https://cbiraq.org>.

Columns (4, 5, 6), prepared by the researcher.

We note from Table (1) that the total savings and time deposits in commercial banks witnessed a slight increase during the period (2011-2013). It reached 11%, perhaps due to the relative improvement in the security and political conditions, as well as the initial applications of modern payment systems, including the gross settlement system and electronic clearing .

Total bank deposits (time and savings) declined during the period (2014-2016), reaching 17,451,420 million dinars in 2014 and reaching 184,70809 million dinars in 2016, with a growth rate of 0%, despite the modern applications of payment systems and the reason for this is the deterioration The relative weakness of banking awareness and customer distrust of dealing with the modern type of payment systems because of the risks it carries, especially the weakness of the telecommunications sector as well as the low level of financial education of the banking customer in terms of using advanced payment methods .

The total bank deposits gradually increased during the period (2017-2019), reaching 1,920,621 in 2017 and reaching 2,218,685 million dinars in 2019, with a growth rate of 7%.

**Secondly .Credit granted by commercial banks. :**

Table (2)

Credit developments granted by commercial banks in Iraq for the period (2011-2019 - (million dinars

Percentage electronic clearing to total credit (6)	Percentage gross settlement to total credit (5)	Rate credit growth (4)	total credit (3)	Total electronic clearing (2)	total gross settlement (1)	the years
0.9	21.7	-----	20344076	182916	4414999	2011
6.2	17.7	39.8	28438688	1757701	5045316	2012
32.5	30.6	5.3	29952012	9733247	9163637	2013
81.3	25.8	13.9	34123067	27725100	8811519	2014
68.0	23.5	7.7	36752686	25006770	8639414	2015
62.2	15.5	1.2	37180123	23136266	5767516	2016
68.1	11.2	2.1	37952829	25842615	4266055	2017
92.3	14.6	1.4	38486947	35529796	5632169	2018
113.2	17.2	9.3	42052511	47597309	7241022	2019

**Source:** Columns (1,2), Payments Department, Central Bank of Iraq, interview, direct interview with six Bushra Taleb.

-Column (3) Central Bank of Iraq, statistics published on the following link [:https://cbiraq.org](https://cbiraq.org) .  
Columns (4, 5, 6) prepared by the researcher.

Table (2) shows the developments of credit granted by commercial banks in light of the application of electronic payment systems in Iraqi banks, which are still low as they were recently applied during the period (2011-2019), as we note that the credit granted by commercial banks was increasing throughout the study period. However, its increase was at different rates of growth, reaching 20344076 million dinars in 2011 and becoming 4,2052511 million dinars in 2019, and the highest growth rate was in 2012, at (39.8%) due to the growth in the total of savings and fixed bank deposits, which reached 11526992 million dinars. In 2012, the lowest growth rate of total credit was in 2016 (1.2%) due to the events of June of 2014 and what followed.

## 2 .The reality of banking density indicators:

The banking density index means the ratio of the population per 1000 people to the number of bank branches spread in Iraq, and it is one of the indicators that reflect the extent to which financial and banking services provided by banks to citizens .

We note from Table (3) that the number of bank branches continued to increase during the period (2011-2013), as the number of bank branches reached 888 in 2011 and rose to 1002 in 2013, but the number of bank branches witnessed a decrease during The years (2014-2015), as the number of banking branches decreased to (938 branches) in 2014, and reached (854 branches) in 2015, and then the number of banking branches rose again to 866 in 2016. As for the period (2017- 2019) witnessed a continuous increase, reaching (843 branches) in 2017 and rising to (888 branches) in 2019. As for the banking density, it started to decline during the period 2011-2013 ,reaching a rate of 37.2 in 2011, i.e. (37,300 people / branch) and decreased to (34.2) in 2013 (34,200 people / branch), and the reason for this decrease is due to the increase in the number of branches in the same period, which leads to an increase in bank savings (time deposits and savings), as the decrease in the banking density index is one of Positive indicators in terms of monetary stability and financial inclusion, which is a positive indicator in terms of attracting financial resources in order to benefit from them in investment projects Necessary for the country's economic development process, but during the period (2014-2017) the banking density was increasing, reaching (37.1) in 2014 and rising to

(44.1) in 2017. On the conditions that Iraq experienced during the events of June of 2014, which negatively affected the total time deposits and savings during that period. As for the period (2017-2019), the banking density remained constant until the end of the period at a rate of (44.1), and the average banking density ratio for the entire period was (39.8), meaning that each bank branch, whether governmental or private, provides its services to (39,800) people, and this means double the banking density index compared to Jordan, for example, in which each branch provided its services to (12,000 people) (Iraq Financial Stability Report, 2017, 94)

**Table( 3)**  
**Banking Density Index in Iraq for the period (2011-2019)**

Deposit growth rate ( time and savings )	Banking Density	Number of bank branches	population	the year
_____	37.2	888	33088782	2011
10	34.3	982	33725178	2012
11	34.2	1002	34304693	2013
8	37.1	938	34819301	2014
-13	41.2	854	35212600	2015
0	41.8	866	36169123	2016
5	44.1	843	37139519	2017
15th	44.1	865	38124182	2018
7	44.1	888	39127889	2019

**Source :** Columns (1,2,3) Data of the Central Bank of Iraq published in the annual economic reports / multiple years .  
\*Banking density = population 1000 people / (number of bank branches) .

Through the foregoing, it becomes clear to us that the electronic payment system has a weak role in banks, and that Iraq needs to double the number of banking branches, especially in the governorates, in order to lower the banking density index and contribute to providing electronic financial and banking services to a larger number of the population smoothly and easily and within the absorptive capacity of each bank branch in order to Encourage customers to save .

### **The Second Requirement: the relationship of the electronic payment system to financial inclusion:**

There are many indicators that measure the level of financial inclusion, but here we will be limited to the indicator of individuals and companies' access to banking services:

#### **.1 Banking penetration index in Iraq:**

The banking penetration indicator depends on the number of the population and the number of bank branches in its calculation, and it expresses the number of banks that provide their banking services for every 100,000 people.

Table (4) shows the banking penetration index in Iraq for the period (2011-2019), and we note here that the banking penetration index has gone through three stages. In the first stage, which included the period (2011-2013), we find that it was increasing, as the banking penetration reached 2.68) Branch (100,000 people) in 2011, and increased to (2.92 branches/100,000 people) in 2013, which in turn leads to an increase in attracting bank deposits .

The reason for this increase is due to the expansion in the volume of banking transactions, especially the financial transfer and cash deposit from one account to another, which in turn increases the volume of deposits with banks as well as facilitating the cash withdrawal process . In the second stage, which included the period (2014-2016), we find that It was decreasing, as the banking penetration reached (2.69 branches / 100,000 people) in 2014 and decreased to (2.39 branches / 100,000 people) in 2016. The reason for this is due to the events of June of 2014 and what followed, which is negatively reflected in the volume of bank deposits due to the lack of customer confidence To deal with banks in light of the current conditions, but in the third stage and during the period (2017-2019), the banking penetration index remained constant at a rate of (2.27 branches / 100,000 people), which means that the rate

of increase in the population was matched by the same rate as the increase in the number of bank branches per 100,000 people That is, there is no increase in the size of the bank deposit .

**Table (4)**  
**The evolution of the banking penetration index in Iraq for the period (2011-2019)**

Growth rate of time deposits and savings	banking diffusion	Number of bank branches	population	the year
—	2.68	888	33088782	2011
10	2.91	982	33725178	2012
11	2.92	1002	34304693	2013
8	2.69	938	34819301	2014
-13	2.43	854	35212600	2015
0	2.39	866	36169123	2016
5	2.27	843	37139519	2017
15th	2.27	865	38124182	2018
7	2.27	888	39127889	2019

**Source:** Central Bank of Iraq, Annual Economic Reports / Multiple Years (2011-2019)

\*Banking spread = number of bank branches / number of population (100,000 people . )

## 2. Indicators of access to electronic banking services:

Access indicators depend on the number of residents, the geographical area, the number of ATMs and the number of points of sale in their account, and they are of two types:

### a. Index of access to ATMs and points of sale for the adult population:

This indicator expresses the level of access to electronic financial services from automated teller machines (ATMs). (ATME and point of sale devices POS per 100,000 adults , i.e. those over 15 years of age .

Table (5) shows the access index for the adult population, and we note that the number of ATMs ATME (It was increasing in general except for its decline in 2014 and 2017, as the number of ATMs reached 467 machines in 2011 and rose to (647 machines) in 2013, but it decreased to (485 machines) in 2014, and the reason for this decrease is due to the events June of 2014, security and political instability, and ATMs increased again to reach 580 machines in 2015, (660 machines) in 2016, and decreased to (556 machines) in 2017, but it increased dramatically in the last two years to become (865 machines). device and (1014 devices) respectively, and this increase was thanks to the return of security stability in some Iraqi governorates .

As for the number of point of sale devices POS, It was about 50,000 devices in 2011 and 2012, but it decreased in the period (2013-2016) to remain constant to reach 30,000 devices, but it increased at great rates during the period (2017-2019) to become 918000 devices, 2,200,000 devices, and 2226000 devices respectively, with the continued Security improvement in Iraq, coinciding with the efforts of the Central Bank of Iraq to encourage banks to deploy the largest possible number of point of sale devices POS in addition to the localization of employee salaries.

The average number of ATMs per 100,000 adults for the entire period was (2.89 machines per 100,000 adults), and the lowest rate was in 2014 (2.21 machines per 100,000 adults), for the same reason that the number of ATMs decreased. While the highest percentage was in 2018 (4.35 devices per 100,000 adults), due to the fact that the growth rate of the number of devices ATME greater than the rate of population growth.

On the other hand, the average number of point of sale devices was posper 100,000 adults for the full term was 2698 devices per 100,000 adults and the lowest rate was in 2016 (132 devices per 100,000 adults), while the highest rate was in 2018 (9693 devices per 100,000 adults), because Device growth rate POS Much greater than the population growth rate, and the increase in POS devices results in an increase in the deposit of individuals in banks, as this type of device is easy and fast.

**Table(5)**  
**Developments of indicators of access to electronic banking services for the adult population in Iraq for the period (2011-2019)**

number POS 100000/ Adult (5)	numberATME 100000/ Adult (4)	number adult population* (100000) (3)	number POS (1000) (2)	number ATME (1)	Duration
251	2.34	199.29	50	467	2011
243	2.27	205.69	50	467	2012
141	3.05	212.27	30	647	2013
137	2.21	219.26	30	485	2014
136	2.63	220.82	30	580	2015
132	2.91	226.54	30	660	2016
3993	2.42	.229.92	918	556	2017
9693	3.81	226.96	2200	865	2018
9556	4.35	232.94	2226	1014	2019

**Source** :Columns (1,2) / Central Bank of Iraq / annual reports of financial stability during multiple years .  
\*(3) Number of adult population = number of population over the age of 15 / Ministry of Planning / Central Statistical Organization  
Columns (4, 5), prepared by the researcher.

#### **NS .Geographical spread of banking branches and ATMs in relation to the area of Iraq:**

This indicator shows the level of geographical spread of electronic banking services from automated teller machines ATMs .ATME (And the number of branches per 1000 km<sup>2</sup> and shows the table (6) indicators of the geographical spread of the number of bank branches and ATMs ATME Per 1000 km<sup>2</sup> and since the Iraq area of 435 052 km<sup>2</sup>so we note that the average index the number of bank branches / 1000 km<sup>2</sup> for the entire period, the rate of 2.08branch per 1,000 km<sup>2</sup> while the highest value in In 2013, at 2.3 branches per 1000 km<sup>2</sup> although the lowest value was in 2015 1.96branches per 1000 km<sup>2</sup> and in 2017, 1.94 branches per 1000 km<sup>2</sup> which are very close to the average, which means that the number of banking branches In Iraq, it is few, and the monetary authorities should work to expand it in order to reach electronic banking services to a large segment of the population. As for the average indicator the number of devices ATME 1000 /km<sup>2</sup> for the entire period, the rate of 1.46device per 1,000 km<sup>2</sup>, while the highest value in 2019 and by 2.33 device per 1,000 km<sup>2</sup> and the smallest value was in 2014 and the rate of 1.05 device per 1000 km<sup>2</sup> because of the significant decrease in the number of devices due to the events of June of the same year, which means that the number of devices ATME In Iraq, it is very little and has not achieved the required level of savings, and the monetary authorities represented by the Central Bank of Iraq should work to encourage pre-Islamic and governmental banks to increase the number of bank devices .ATME And educating the population to use

it in order to increase the values of these indicators and to make progress in the indicators of financial inclusion in general because of the role of financial inclusion in promoting the reality of saving in Iraq.

**Table (6)**  
**Developments of geographical spread indicators in Iraq for the period (2011-2019)**

number ATMEper 1000 km <sup>2</sup>	Number of branches per 1000 km <sup>2</sup>	number of devices ATME	Number of bank branches	Duration
1.07	2.04	467	888	2011
1.07	2.26	467	982	2012
1.49	2.30	647	1002	2013
1.05	2.16	458	938	2014
1.33	1.96	580	854	2015
1.52	1.99	660	866	2016
1.28	1.94	556	843	2017
1.99	1.99	865	865	2018
2.33	2.04	1014	888	2019

**Source:** Central Bank of Iraq / Financial and Monetary Stability Department / Annual financial stability reports for multiple years.

### Third .The relationship of the electronic payment system with electronic financial and banking services:

Iraqi banks sought to provide financial and banking services electronically, as mobile phone companies (Asiacell and Zain Iraq) were granted the license to provide financial services to their customers, including withdrawals, deposits, and purchasing cards, in addition to bill payment services to and from the approved wallets of these companies (Central Bank of Iraq, 2018).

Table 7 shows the total bank deposits (savings and fixed) continued to increase for the period (2017-2019), reaching 19209621 million dinars in 2017 and reaching 22188685 million dinars in 2019 as a result of the use of electronic banking services, including payment by mobile phone, where its relative importance formed from Total bank deposits ranked first, amounting to (88.7%, 180.3%, 386.7%) respectively, while bank cards occupied a small role in terms of their relative importance in total bank deposits, at a rate of (12.5%, 159.5%, 138.2%), respectively.

**Table (7)**  
**Percentage of electronic banking services contribution to total bank deposits % for the period (2017-2019)**

. 3/2 ratio % (5)	. 3/1 ratio % (4)	Total savings and fixed deposits ) million dinars ( (3)	Card payment )million dinars( (2)	mobile payment )million dinars( (1)	the years
12.5	88.7	19209621	2402540	17039403	2017
159.5	180.3	21428505	34189267	38640163	2018
138.2	386.7	22188685	30674315	85812808	2019

**Source:** Columns (1,2) Central Bank of Iraq, Payments Department for separate years  
Column (3) Bahr Al-Uloom, Amjad Jaafar, *The Role of Automated Banking Services in Enabling Social Trade and Its Impact on Enhancing Electronic Commerce*, 2020.  
Columns (4,5) prepared by the researcher

#### Fourth requirement: The impact of the electronic payment system on e-commerce and e-tourism in Iraq for the period (2017-2019)

##### First: The reality of e-commerce in Iraq during the period (2017-2019)

E-commerce in Iraq has faced many difficulties, due to the inefficiency of its infrastructure and the lack of confidence and awareness for customers regarding the use of electronic commerce means, especially the means of paying the price through modern technologies, due to the lack of protection for them and the lack of consistency of Iraqi laws and legislation as required by trade. In addition to the low efficiency in the field of communications, and consequently, the inability to benefit from information technology and its applications in Iraq (Al-Shammari, 2014, 97)

Table (8) shows that e-commerce has continued to increase for the period (2017-2019) after it was in 2011 (1791836573 million dinars) became in 2011 (4415182512) million dinars as a result of using electronic banking services, including payment by phone The mobile phone, where its relative importance in the total e-commerce ranked first, amounted to (9.5%, 13.1%, 19.4%), respectively, while bank cards occupied a small role in terms of their relative importance in e-commerce, which amounted to (13.0%, 1.2%, 6.9%). Straight

**Table(8)**  
**Percentage of contribution of electronic banking services to e-commerce % for the period(2019-2017)**

. 3/2 ratio % (5)	. 3/1 ratio % (4)	Total e-commerce )million dinars( (3)	Card payment )million dinars( (2)	mobile payment )million dinars( (1)	the years
0.13	9.5	1791836573	2402540	170394031	2017
1.2	13.1	2947439622	34189267	386401630	2018
6.9	19.4	4415182512	306743152	858128080	2019

-Source: Columns (1,2) Central Bank of Iraq, Payments Department for separate years

-Column (3) Bahr Al Uloom, Amjad Jaafar, *The Role of Automated Banking Services in Enabling Social Trade and Its Impact on Enhancing Electronic Commerce*, 2020.

Columns (4,5) prepared by the researcher

##### Second: e-tourism in Iraq

The application of the electronic payment system to tourism in Iraq is very weak, as it is recent and still faces the same challenges that faced the application of electronic commerce, especially the lack of confidence of tourists to deal with electronic payment methods, in addition to the country's economic and security instability and weakness in the field of communications.

Table (9) shows that the total tourism revenues continued to increase throughout the period (2017-2019), after it amounted to 281,23848 million dinars in 2017, and reached 6,7375464 million dinars in 2019 as a result of an improvement in the conditions experienced by Iraq during that period and also to the spread of services Banking from the mobile phone and bank cards to complete the procedures related to tourism electronically due to the ease and speed achieved, as well as the low costs, as the relative importance of mobile payment constituted of the total tourism revenues (60%, 10%, 127.4%), respectively. The country has more foreign currencies (foreign savings), while bank cards during the period (2017-2019) constituted the lowest percentage in terms of their relative importance in the total tourism revenues, reaching (8%, 87%, 45.5%), respectively .

Table(9)

**Percentage of the contribution of electronic banking services to e-tourism for the period(2019-2017)**

Percentage %3/2	Percentage %3/1	e-tourism revenue (3)	Card payment (2)	mobile payment (1)	the years
0.09	60.0	28123848	2402540	1703940315	2017
0.87	98.4	39235840	34189267	38640163	2018
4.55	127.4	67375464	306743152	858128080	2019

Source :Columns (1,2), Central Bank of Iraq, Payments Department .

(3) Horizon Travel and Tourism Company.

**The fifth requirement : the impact of the electronic payment system on consumer spending for the period:(2019-2017)**

Some Iraqi families prefer using mobile payment methods to obtain goods and services more than using electronic cards .

Table (10) shows that the family consumer spending has continued to increase during the period (2017-2019) after it was (114058380) million dinars in 2017 ,it became (118657381) million dinars in 2019 due to an increase in the use of electronic banking services Due to the speed and ease of obtaining goods and services, especially mobile payment ,which achieved the first place in increasing consumer spending, as its percentage reached ,149.4 357.5,723.2respectively, and any such increase will be negatively reflected. On saving, while electronic cards, in terms of their relative importance in the Iraqi citizen's demand for consumer spending, had a very weak importance during the study period (2017-2019), as they reached 2.1%, 29%, 26%, respectively, due to the lack of confidence and full knowledge in their use. Therefore, here it is required the availability of trust and security among all parties that deal with electronic payment from the customer, banking institutions, as well as merchants .

Table (10)

**The proportional contribution of electronic banking services to consumer spending for the period (2017-2019) million dinars**

Percentage %3/2	Percentage %3/1	Consumer spending (3)	Electronic card payment (2)	mobile payment (1)	the years
2.1	149.4	114058380	2402540	170394031	2017
29.0	357.5	117982107	34189267	386401630	2018
26.0	723.2	118657381	30674315	858128080	2019

Source: Columns (1 and 2) Central Bank of Iraq, Payments Department until 2019

Column (3) Ministry of Planning, Central Statistical Organization, Directorate of Unified National Accounts

**The sixth requirement: Analyzing the role of the electronic payment system in tax evasion :**

The tax systems in Iraq still did not apply the electronic payment system for tax revenue collection until 2019, as it requires the tax administration to implant confidence between it and the taxpayer and spread tax awareness in addition to amending the wording related to tax legislation so that it is easy and clear ,as well as developing the means of tax collection By reducing the traditional procedures that it follows with taxpayers, it seeks to deal with taxpayers electronically in the coming years in order to reduce the phenomenon of tax evasion and increase the mobilization of tax revenues to reduce the state's dependence on oil revenues .

**THE THIRD TOPIC: MEASURING AND ANALYZING THE IMPACT OF ELECTRONIC PAYMENT SYSTEMS ON SAVINGS IN IRAQ**

**First, the model description:**

The variables were taken using the logarithm, and they were variables for the estimated model as follows:

1. savings chain S is the dependent variable in the model.
2. Gross Settlement System Series LS , The first independent variables in the model.
3. Electronic Clearing System Series EC It is the second independent variables in the model.

**Secondly .Sleep test results:**

Stability tests were performed according to the Philips-Peron Method PP ,and the results were detailed in a comprehensive way with the equation of the fixed term and the equation of the fixed term ,And the trend and the equation that do not contain them, and we obtained the following results, which are shown in Table (11)

**Table (11): Results of the Philips Peron Sleep Test**

Variables		At Level at level			At First Difference at the first difference			Variables
		With Constant with fixed limit	With Constant & Trend With fixed limit and direction	Without Constant & Trend Without fixed limit and direction	With Constant with fixed limit	With Constant & Trend With fixed limit and direction	Without Constant & Trend Without fixed limit and direction	
1	S	0.7396	0.6344	0.2966	0.1129	0.3115	0.0181	saving
2	LS	0.4480	0.7606	0.8249	0.0886	0.2619	0.0100	gross settlement system
3	EC	0.0000	0.0221	0.9770	0.2029	0.9098	0.0048	electronic clearing system

Source: From the researcher's work based on program outputs E-Views10

Table 11 shows the results of the dormancy test according to the Phillips-Beron test, and we note at the level that the savings chain S. The rest of the time series of the study model variables were not stable at any level, with the exception of the time series of the electronic clearing system. EC was stable at the equation of the fixed term and at the level of significance (1%), as well as at the equation of the fixed limit and the vector and at the level of significance (5%). At the level of (1%), we also notice its stability at the equations of the fixed term, the constant limit, and the vector, but at different significant levels.

The above results show us that the degrees of integration of the study variables are a mixture between the level 0 I The first difference 1 And these results lead us to estimate the model according to the autoregressive methodology of distributed slowdown ARDL ,which one of its most important conditions is the absence of a stable time series in the second difference .

**Third .Standard test results:**

**.1Cointegration Test:**

The co-integration test in an autoregressive model is called distributed deceleration ARDL B (border test Bounds test)and depends on the Fisher statistic value (F) which is compared with the lower and upper limits of Basran and distributed within four different moral levels, as shown in the following table (12)

**Table (12): Limits Test for Cointegration F-Bound test**

Test Statistic	Value	K
F-statistic	42.9281	2
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	4.19	5.06
5%	4.87	5.85
2.5%	5.79	6.59
1%	6.34	7.52

Source: From the researcher's work based on program outputs E-Views10

Table (12) shows that the Fisher statistical value F has reached 42.9281 which is greater than the upper limits of all moral levels (10%, 5%, 2.5%, 1%), and this means that the study model enjoys the existence of a long-term joint integrative relationship, and this result leads us to apply a correction model Error and identify the error correction mechanism and the flexibility of the long-term.

**.2Model Quality Tests:**

There are several tests that are performed to ensure the quality of the standard model, which relate to tests of standard problems and indicators of model quality. Table (13) shows the results of the autocorrelation test for the study model, and the probabilistic value of the chi-square of (0.4169) indicates that the model does not suffer from the problem of autocorrelation, and that for being greater (0.05)

The same table shows the results of the heterogeneity test for the errors of the study model, and we note that the value of the chi-square has reached (0.8240), which is greater than (0.05), which means that the second model does not suffer from the problem of heterogeneity.

**Table (13): Probabilities of Tests for Standard Problems**

Breusch-Godfrey Serial Correlation LM Test Autocorrelation test	
Prob. F (1,15)	0.5766
Prob. Chi-Square (1)	0.4169
Heteroskedasticity Test: ARCH Variation heterogeneity test	
Prob. F(1,28)	0.8313
Prob. Chi-Square(1)	0.8240
Normal Distribution (Histogram-Normality test) The normal distribution of residuals	
Jarque-Ber	0.3924

Source: From the researcher's work based on program outputs E-Views10

Table (13) shows us the normal distribution test for the residuals of a model AEDL which includes two hypotheses, and the probabilistic value of a statistic Jarque-Ber is the basis for accepting the null hypothesis that the residuals of the model are distributed naturally if their value is greater than  $(0.05)$  or our acceptance of the alternative hypothesis that the residuals of the model are not normally distributed if their probabilistic value is less than  $(0.05)$ , and based on what in advance, we note that the rest of the study model was following the normal distribution, due to the fact that the statistical value Jarque-Ber (has reached  $(0.3924)$  which is greater than  $(0.05)$ , and thus the null hypothesis is accepted, which states that the residuals are distributed normally

Table (14) shows the quality indicators of the study model, and we note that the value of the correction factor  $R^2$  has reached  $(0.9962)$  as well as the value of the corrected determination coefficient has reached  $(0.9929)$ , and these two values show the explanatory power of the study model, as the independent variables LS and EC explain  $(99\%)$  of the changes that occurred in the dependent variable S.

**Table (14) Model Quality Indicators ARDL**

No.	Indicators parameter	the value
1	R-squared ( $R^2$ )	0.9962
2	Adjusted R-squared ( $R^2$ )	0.9929
3	Durbin-Watson stat (DW)	2.1308
4	Durbin's h stat (h)	2.6191-
5	F-stat.	303.929
6	Prop. (F-stat)	0.0000

Source: From the researcher's work based on program outputs E-Views10

We also note the Durban Watson statistic value of  $(2,1308)$ , which we cannot rely on to verify that the model is free from the problem of autocorrelation, but is relied on a statistical value h has been calculated and its value was as follows:

We note that the value of h calculated amounted to  $(2,6191-)$  which is less than  $(1.96 \pm)$ , which means that it is significant at the level of  $(1\%)$ , meaning that the study model does not suffer from the problem of autocorrelation, meaning that the random variables are not related to each other.

**.3 Model results analysis ARDL In the two terms (short and long)**

**Table (15): Short-term elasticities and error correction factor**

short term				
Variable	Coefficient	std. Error	t-Statistic	Prob.
D(LS)	-1.2870	0.1371	-9.3905	0.0000
D(EC)	1.2528	0.1876	6.6769	0.0000
CointEq(-1)	-0.1314	0.0566	-2.3219	0.0338
Cointeq = S - (-5.2132*LS + 2.4007*EC + 60.6132 -0.1416*@TREND )				

Source: From the researcher's work based on program outputs E-Views10

Table (15) shows the results of the autoregressive model of the distributed slowdown ARDL, which shows the short-term elasticities, and we note that the time series of the gross settlement system LS It was inversely related to savings(S) This means that an increase in it by  $(1\%)$  will lead to a decrease in saving by  $(1.28\%)$ , which is approximately  $(0.01)$ , and this relationship was significant at the level of  $(1\%)$  and by  $(0.0001)$

We note the positive relationship of the time series of the electronic clearing system EC by saving S, as an increase in it by (1%) will lead to an increase in saving by (1.25%), which is approximately (0.01), and this relationship was significant at the level of (1%) and by (0.000000).

The same table also shows that the error correction limit CointEq (-1) has reached 0,13 -which is significant at the level of (5%) and at (0.033), and it satisfies its conditions, as it must be negative and significant and its value is confined between zero and negative one  $-1 < \text{CointEq}(-1) < 0$  and this value means that %13 of the imbalances in the savings time series that occur in the short term will be corrected in the long term and within a period of three months (a season), and that the speed of the variables returning to the equilibrium state is not high, as it needs seven chapters That is (approximately 22 months), that is, approximately one year and ten months to return to full equilibrium.

**Table (16): Long-Term Elasticities**

short term				
Variable	Coefficient	std. Error	t-Statistic	Prob.
LS	-5.2132	1.9175	-2.7187	0.0152
EC	2.4007	0.9639	2.4906	0.0241

**Source:** From the researcher's work based on program outputs E-Views10

Table (16) shows the long-term flexibility of the study model. We note that the transfers values according to the gross settlement system LS may have had a negative impact on saving S In the long term, that is, increasing it by (1%) will lead to a decrease in saving by ,(5.21 %) which is approximately (0.052), and this relationship was significant at the level of (5%) and with a probability value of 0.01

We note that the transfers values according to the electronic clearing system EC. It had a positive effect on saving S, meaning that its increase by (1%) will lead to an increase in deposits by ,(2.40 %) which is approximately (0.024), which means that the increase in the amounts traded according to the gross settlement system will contribute to raising the savings rates in the long term, and that this relationship was Significance at the level (5%) and with a probability value of (0.02), and the weak morale between transfers according to electronic clearing and deposits is due to the fact that some banks have cadres that are not qualified for modern technology in settling banking transactions through electronic clearing, which makes it an unmeasurable factor. The effect is weakened between the two variables.

## CONCLUSIONS:

1. The modern applications of the payment system in Iraq witnessed a remarkable expansion in terms of providing banking services electronically, but it did not reach the level that raises the rates of savings due to the weakness of the infrastructure necessary to provide such type of services .
2. The low volume of national savings in Iraq and its inability to meet the needs for economic development, is caused by the country's consumption habits as well as the imbalances in the country's economic structure .
3. The index of financial inclusion in Iraq has not effectively achieved its role in increasing saving due to weakness in the indicators of access to modern banking services to the citizen, especially the banking density index and the banking spread of ATMs and points of sale.
4. The electronic payment system has not effectively fulfilled its role in the field of e-commerce in Iraq, due to the lack of awareness and full knowledge in terms of using advanced payment methods, especially the means of making payments through modern payment technologies, and the lack of adequate protection for customers, as well as the inconsistency of Iraqi laws and regulations with what E-commerce applications require it.
5. The weak role of the electronic payment system in the tourism sector in Iraq, due to the latter's weakness in the communication and information systems in terms of transfer and exchange of information.
6. There is no role for electronic payment methods in increasing tax revenues in Iraq because it is not applied in tax institutions, due to shortcomings in communication systems and weak tax education among citizens.
7. The degree of integration of the study variables was a mixture between the original level) 0(I The first difference )1(I ,and there is no variable with the degree of integration of the second difference) 2(I.

8. The results of the standard tests showed that there is a long-term co-integration relationship between the independent and study variables.
9. The estimated study model was free of the standard problems represented by (autocorrelation, multiple linear correlation, heterogeneity of variance), in addition to the fact that the rest of them were static and were normally distributed.
10. As for the study model, the relationship of the electronic clearing system to saving was positive in the short and long term, but the gross settlement system was negative in the short and long term.

#### RECOMMENDATIONS:

1. Commercial banks must continuously provide banking services of high quality and low costs, to attract the largest possible number of customers to deal with them for the purpose of increasing bank deposits.
2. The need to promote the development of the national economy of the country in order to increase the volume of national savings, which requires the efficient use of local resources and diversification of sources of economic growth for the country.
3. The need to pay attention to the strategy of financial inclusion in Iraq, for citizens to join the official system in order to increase the number of bank accounts, especially savings and fixed accounts, as they are one of the most important basic means that give a clear picture of the extent of the success of financial inclusion.
4. Activating the role of control and supervision in the field of e-commerce, to preserve the rights of the parties to the commercial process, especially maintaining the confidentiality of their financial information when concluding any commercial transaction.
5. Develop plans and programs to develop the tourism sector, especially improving the reality of the communications sector infrastructure, while training cadres working in the tourism sector on how to deal with this type of technology and means.
6. Making some amendments to the tax laws and legislation as required by electronic transactions in the tax system .
7. The monetary authority represented by the Central Bank of Iraq should work to encourage private banks to hold media meetings and educational seminars in order to educate the population to increase their use, in order to achieve progress in indicators of financial inclusion in order to advance the reality of local savings in Iraq.
8. Work to expand the area of electronic payment through electronic cards as well as through the mobile phone, as despite the increase in its numbers during the period (2016-2019), it still has a weak impact on savings mobilization.
9. Taking the necessary measures to work on increasing the branches of private and governmental banks in all governorates, in order to increase the percentage of banking density, especially since the population growth rates are high in Iraq.
10. Preparing special programs and developing appropriate plans to increase banking awareness among the Iraqi society, in order to gain customers' confidence in modern electronic payment systems, and work to reduce the volume of hoarded amounts and raise bank deposit rates.

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