An econometric study of the impact of mortgages on the housing sector in Algeria (2000-2020)

Adda Abed [1] ♦, Bensaoucha Thameur [2]

[1] Ibn Khaldoun University, Tiaret (Algeria). abed.adda@univ-tiaret.dz

ORCID: https://orcid.org/0009-0009-0893-1524

[2] Ibn Khaldoun University, Tiaret (Algeria). bensaoucha.thameur14@gmail.com

ORCID: https://orcid.org/0009-0009-5272-5381

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Abstract:

This research paper aims to measure the impact of mortgages on the housing sector in Algeria during the period 2000/2020 and in order to achieve the objectives of the study, the standard approach was used using the self-regression model for distributed time gaps ARDL. As for the study data, it was obtained from subsidies provided by the National Housing Fund and Real estate loans granted by the National Savings and Reserve Fund Bank and mortgages granted by the Algerian People's Loan.

The results of econometric study showed a long-term complementary relationship between the mortgages granted by the National Savings and Reserve Fund and granted by the Algerian People's Loan and the size of housing, which confirms the existence of a long-term complementary relationship between the study variables.

Keywords : Housing, Finance, Home Finance, Mortgage, ARDL .

♦ **Corresponding author**

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I- Introduction:

The availability of adequate and adequate housing is a concern of citizens in various countries, where governments pay great attention to it because of its importance in providing security and stability for citizens and achieving social peace and its repercussions on productivity in general.

Algeria is one of the countries that suffer from the problem of the lack of adequate housing for a large segment of society, as a result of the low supply, especially for low-income people, which is exacerbated by the high rate of population growth and the deterioration of the social situation, which reduces the possibilities of saving for housing, and makes the process of providing housing a very difficult problem, as a result of its high cost.

The housing financing system in Algeria, which is considered by many studies as one of the most important causes of the housing crisis in this country, it is obvious that the housing sector needs sums of money that can be used in the construction of housing units, but the latter has not become achievable in the current period in light of the limited resources of the state, due to the fluctuation of oil prices, and therefore real estate financing is among the most important alternatives and special solutions, considering that financing is the cornerstone of any Housing strategy, where the degree of success depends on the success of the means of financing, in creating effective channels and means to provide the necessary funds for individuals and institutions to build housing units, as housing is the place where the individual feels safe and enjoys privacy, hence this research came as an attempt to shed light on the housing sector and its sources of financing, and in light of this we can pose the following problem:

What is the impact of mortgages on financing the housing sector in Algeria?

Hypotheses of the study:

- There is a long-term relationship between the volume of housing and the various forms of financing with mortgages that exist in Algeria during the period 2000-2020.
- Real estate loans granted by the Housing Fund affect the volume of housing in Algeria during the study period.
- Mortgages granted by the National Savings and Reserve Fund and the People's Loan affect the volume of housing in Algeria during the study period.

The importance of our study of this topic lies in the following:

The subject of real estate financing is one of the most important topics that have known a wide spread and a great impact on the nature of banking systems in many countries, as applied studies in this field have confirmed that real estate financing has positive effects on the economic and social levels, and this is consistent with the housing plan initiated by the Algerian state recently.

This study **aims** to:

- Introducing real estate loans, which are one of the tools used in housing financing.
- Identify the reality of the housing sector and present the housing policy adopted by the Algerian state to promote this sector.

- Assess the extent to which mortgages contribute to reducing the housing crisis.

- Contribute to the analysis of the development witnessed by both mortgages and housing in a more realistic manner equipped with modern statistics.

To familiarize ourselves with this research, we will try to study it through the following elements:

– General concepts about the residential sector and real estate lending.

- An econometric study of the impact of mortgages on the development of housing in Algeria during the period 2000-2020

1. General concepts about the housing sector and real estate lending.

The mortgage loan is the most successful means used by the state to promote the housing sector because the latter needs huge financial resources to reach the top of development on the one hand and ensure the distribution of housing units to individuals and families on the other hand, and through the importance of the mortgage loan and the modernity of its work in the Algerian banking sector, we touched on the need to know all its aspects.

1.1 Definition of a mortgage:

It can be said that a mortgage loan is a contract under which the bank or institution is obligated to provide a cash amount to the borrower or promises to provide that amount to the borrower for the purpose of financing the ownership, exploitation or construction of a property, provided that the borrower is obligated to return the cash amount at the expiration of the agreed period. (Bousetta, 2016-2017, p. 242)

- The mortgage loan is also defined as a long-term debt instrument (credit) and is represented in loans directed to the family sector and business enterprises to buy homes, land and other real assets, and these assets and lands are considered as a guarantee for these loans.

- Real estate loans are granted to finance the purchase and renovation of a property, by up to 100%, but banks require a personal contribution to ensure the repayment process, estimated at 01%, where the nominal value of the property is greater than the value of the loan, and the maturity date of these loans may reach 30 years, during which it is repaid in quarterly or six-year monthly installments (Toure, 2016-2017, p. 61)

1.2 Characteristics of a mortgage loan: The real estate contract is characterized by many characteristics, some of which are derived from its nature as a mortgage loan, and some of them are due to the contract in which we empty the loan process, and the most important of these characteristics are the following:

- **Characteristics of a mortgage derived from the nature of the process**:

The mortgage derives from its nature as a real estate contract several characteristics, the most important of which is that it is cash and interested.

- Mortgage loan is an interest-bearing loan: For the institution, the loan may become interest on receiving funds in the form of deposits against the public, as the loan institutions here are considered borrowed from the public with interest, and the law allows them to grant loans as an interest-bearing lender, provided that the interest rate is determined by a ministerial decision, within the framework of encouraging national economic activity (Bousetta, 2016-2017, p. 243)

A mortgage is considered a cash loan that is always replaced by an amount of money made by the lending body in order to finance a real estate operation or project, as it grants it either directly to the borrower or indirectly to the seller of the property in fulfillment of the price debt (Berahila, 2016-2017, p. 29)

- **Characteristics of a mortgage derived from its status as a contract:**

A mortgage loan is a process characterized by many characteristics that show the most important thing that distinguishes it from other contracts and bank loans that requires the intervention of several parties and financial institutions in their practices and process, we will discuss them in detail in the following:

- The mortgage loan is a consensual contract: The mortgage loan contract is a consensual contract that arises as soon as the will of the lender and the borrower match, the agreement is sufficient to conclude the loan contract without the need for delivery, but the loan contract must contain some items and phrases as follows related to interest rates and rates, and the conclusion of the contract financed by the loan and the guarantees established on the occasion of the loan contract.

-Mortgage loan time contract: The real estate contract is considered a time contract or a term contract, as the latter is defined as those contracts that the term is an essential element for its conclusion, and the amount of the mortgage loan agreed upon can be repaid or fulfilled by the borrower in one or more payments according to the rate Completion of works related to construction, restoration or improvement (Touati Mounir 2014-2015, p. 11).

- The mortgage loan is a contract of acquiescence: the mortgage loan is one of the contracts of compliance because it contains all its characteristics with the presence of a strong party is the loan institution because of the actual or legal monopoly to grant real estate loans and the weak party will seek to obtain the amounts of money to finance a real estate operation or project as its payment in installments can only be provided by the loan institution, which is what makes the latter impose its conditions in advance within its own model contract and be unified for certain operations and do not accept The borrower only has to accept or reject, i.e. accept the conclusion of the loan contract under the terms of the loan institution, leave it or dispense with it (Bousetta, 2016-2017, p. 249)

1.3 Types of mortgages.

The main objective of the participation of banks and financial institutions in the financing process for the housing sector is to alleviate the crisis suffered by this society, and for this reason we find that the process of distributing real estate loans to beneficiaries takes several forms and forms that we will mention as follows:

- **Mortgage loan for individuals:**

It is a loan directed to every natural person who wants to complete his own home or buy a house and his financial ability does not allow him to cover the total costs of that, and it should be noted that it takes several forms, including:

- Real estate loan directed to construction: granted to any natural person who wants to build his personal or family home, called the term self-construction, where the individual has a plot of land on which he wants to build a house, but his ability is not enough for the costs of completion, as well as the process of financing ready-made housing in order to elevate, prepare or expand, and this loan is granted by banks or financial institutions to individuals in installments depending on the progress of the works, ranging from 15 to 30 years.

- Mortgage loan directed to purchase: It takes the following forms:

- Mortgage loan to finance the purchase of a ready-made house: The loan application is for the purpose of buying a prefabricated building, whether this house belongs to others or it is a contributory social housing by financing the purchase of a housing unit completed within the framework of the real estate upgrade.

- Mortgage loan to finance the purchase of a house according to the sale on designs: This means that individuals can buy homes before completion and under construction, but they are present on the design, the process of selling on designs helps the supervisor to sell the asset (housing) before the sale process takes place, if you will, and in this type we distinguish between 03 cases:

The first case: the selling price remains fixed and there is no problem for both parties.

The second case: the increase in the selling price, meaning that the contractor does not remain its first price, i.e. the customer bears the increase.

The third case: the contractor does not complete the house or manipulates the funds of others.

- **Real estate loans directed to the free sector:**

This type of loans is given by the loan bodies where they do not have any characteristics of interest or special laws and each body can develop, diversify and facilitate its producers and loans to the free sector can be divided into two basic categories:

- Loans repaid differently: in this type the capital and interest are repaid according to a specific time or can be classified with the reconsidered interest.

- Fixed Interest: The interest rate is fixed over the duration of the loan.

- Variable (revised): The interest rate is not fixed and can be adjusted either by increase or decrease.

- **Real estate loans directed to legal persons:**

They are projects granted to finance real estate promotion, they are granted to those who earn the status of moral provided to them within the framework of financing their projects, whether in the completion or renewal of real estate properties are different from what they are for the natural person nominated for the completion or renewal of real estate property represented in the completed housing, and this in terms of the value of loans high at the expense of the size of the project and the short duration does not exceed 24 months and determine the percentage of financing Within 80% to 90% of the project value

- **Real estate loan directed to finance real estate promotion:**

Before addressing this type of loan, you must know the real estate promotion.

- Definition of a mortgage loan directed to financing real estate promotion: It is a loan to finance the establishment of housing, commercial and professional shops specified for sale, rent or purchase of a plot of land in order to establish a real estate upgrade process on it, and it differs from the mortgage loan directed to individuals through the following points:

- The value of the loan is very high due to the multiplicity and diversity of housing types.
- The size of the project under financing far exceeds the cost of building an individual or prefabricated dwelling.
- The difference in duration where the latter is medium-term 05 years.

Through the definition, we conclude that the subject of the loan is:

- Construction financing: means the construction of various real estate projects in order to meet the needs of individuals for construction or within the framework of real estate cooperatives.

- Financing renovation: This is through the increase in the size or height of the building, which is all that is the restoration and maintenance work, expansion, elevation and maintenance of the building or rehabilitation.

- Real estate lease loan: It is a contractual agreement between the two parties that entitles one of them to the usufruct of an asset owned by the other party in exchange for periodic payments for a specific period of time ((Khalid , 2006, p. 368).

It is also a financing technique for the acquisition of property, whether the property is for production or consumption, through which the financial institution commits to purchase or build used for a professional purpose (offices - factories - administrative buildings ...) in order to allow institutions to benefit from this service, which is represented in renting in Starting with the possibility of buying at the end of the rental period.

- Real estate loan for private promoters: It is a loan intended for the purchase or preparation of land within the framework of clavicle operations where the resources specified under Law 03/93 of 11/03/1993 relating to real estate activity The real estate promoter, institution or body concerned can obtain a loan in order to purchase land allocated for the completion of housing programs or land promotion.

- Treasury loans: In application of the provisions of Article 77 of Law 07-12 of 30-12-2007 containing the Finance Law of 2008, the draft specifies the modalities and conditions for granting loans by the Treasury to employees for the acquisition of collective housing or the expansion of individual housing, employees of public institutions and administrations, employees appointed in Parliament, military employees, officials of the national defense sector and judges exercising their functions at the date of submission of the application (Bouhafs , 2013 , p. 137)

1.4 Procedures for granting a mortgage.

The stages of credit begin with the customer's need for financing beyond his own capabilities, and these stages are supposed to end with the return of financing and its benefits, and between the beginning and the end of the main stages that may be appropriate to refer to in order to identify the following points, which represent the source of problems for making credit decisions in the following:

- The customer submits a request for a loan: The customer submits a request for credit facilities, provided that the application specifies the types, amounts, purpose, method and duration of repayment of these facilities. And the guarantees that can be provided.

- Examination of the loan application: The bank studies the customer's application to determine the extent of initial approval in accordance with the bank's lending policy, especially the loan offer, maturity and method of repayment, as well as in terms of the absence of reservations on dealing with the customer, as well as financing the quality of the activity and the compatibility of the application with the credit policy of the bank and the extent to which it completes the requirements of the credit study, and this stage is a personal interview and field visit to the applicant in order to identify his personality and experience in the field of The activity, the nature of the activity, the location of the project, the machinery, equipment, the technology used, as well as the steps of the production process.

- Customer inquiry: The latter is done in terms of his reputation and treatment and the extent of fulfillment of his obligations and regularity in payment with suppliers and customers and with the banks that deal with them and whether legal measures have been taken against him or not and the inquiry stage is one of the most important stages of credit decision-making, as it is assumed not to complete the procedures as it was found that the customer does not meet his obligations.

- Credit analysis of the customer: includes the collection of information that can be obtained from various sources to know the customer's credit potential in terms of his personality, reputation and ability to repay based on previous transactions with the bank and the suitability of capital through financial analysis, where the credit study of the customer depends mainly on the financial aspects, where the focus is on estimating the creditworthiness of the customer by studying the financial statements, data and documents complementary to them. At this stage, the customer's ability is analyzed On reimbursement using the following ratios:

- Measuring the client's liquidity.
- Measuring the efficiency of the client's capital.
- Financial solvency.
- Profitability.

- Negotiation with the customer: after the study, the agreement is positive or negative with the customer and the bank, if the conditions do not meet the loan to the customer, the bank rejects the application and folds the file permanently, but if the results of the study of the file are positive, the bank and the customer move to the stage of direct negotiation while about the amount of the loan and how to repay, maturity and interest rate and finally the interest rate and the loan is disbursed since the date of the beginning of the customer's use of the loan In addition to what has been negotiated on obligations, the contract also includes:

- The bank's obligations: It is represented in putting money at the customer's disposal for the agreed period and making sure that the customer pays a commission for this promise, and the bank may terminate the contract upon the death or bankruptcy of the customer or even the decrease in his eligibility.

- Customer's obligations: to pay the amounts requested by him on the agreed date in addition to interest and commissions if mentioned in the text of the contract.

- Decision making: The decision to grant credit or not is made according to the table of credit powers, and the credit decision usually takes the method of collective credit through the credit committee in the branch, region or head office.

- The choice of one method depends on a set of factors, the most important of which are the size of the required financing, the organizational structure of the bank, the efficiency and experience of the employees in the credit department, and in all cases, the credit decision is obligated to include the limits of the facilities, the method of payment, indebtedness documents and the guarantors.

- Loan disbursement: To start using the loan, the borrower must sign the loan agreement, provide the required guarantees, and fulfill the pledges and obligations stipulated in the loan.

- Loan follow-up: The aim of this follow-up is to ensure the customer's proper functioning of the facility and the absence of any changes in the specified repayment dates, verify the use of the facility in the loan granted for him, the safety of the implementation of the terms of the facility, identify the changes that occur in the customer's credit components, collect installments, or identify the reasons and clarify the seriousness of this delay on him, it requires calling the customer for discussion or taking legal action.

- Loan collection: The bank collects its dues according to the agreed system if it is not matched by any of the previous circumstances when following up (legal procedures - postponement of payment - loan renewal).

1.5 Definition of housing.

"Housing is the place where a person evacuates himself so that he lives in a monologue with himself away from the eyes of censorship, away from the eyes and ears of others, so he deposits his privacy and secrets and is unique to himself, his family and those close to him".

It is also defined as the place where individuals reside linked by ties of love and sympathy, and it is the place where the loving relationship stems between parents and between each member of the family, and it is the place where the individual is happy to practice his hobbies, and it is also considered the shelter in which a person resides and the place where he prepares for his habitation, even if he is not in it (Ben Yahya , 2011-2012, p. 12).

The narrow concept: it is the shelter in which individuals reside, or the physical building that consists of the walls and the roof on which the human eye is located

The broad concept: The dwelling is not limited to the group of four walls, and the roof above them, but to the auxiliary services and facilities provided by the community to it so that a person accepts to live in this building with comfort and stability (Abdul & Nazir , 2012, p. 3).

1.6 The importance of housing: The housing sector has an important and effective role in the economic and social development of human life, as it is indispensable.

- **Economic importance:**

Housing is important from the economic side, so that the annual investment for the completion of housing represents a percentage of the gross national product, as well as a percentage of the total investments for a certain period of time, and also a percentage of the total urban industrial activity, where the production of housing contributes to absorbing the unemployment rate and in the employment of the labor force, as well as increasing the growth of the construction sector and public works.

As the housing sector is one of the main factors in economic stability, interest in it will inevitably lead to an increase in the demand for housing, and this in turn will encourage contractors to build new housing, and thus the economic cycle becomes in continuous interaction because each housing completed will drag behind it several other activities, including the movement of labor and the movement of factories that manufacture raw materials and manufactured materials, which contributes significantly to solving the unemployment crisis, and the deduction of Individuals are part of their incomes in order to obtain housing in the future, this increases savings with banks, thus reducing the rate of inflation and providing liquidity to finance the required projects (Abdel Ati , 2000, p. 25).

- **Social importance:**

Housing is one of the most important and most necessary for an individual's life, the loss of housing may lead to psychological and social frustration and make him behave in an abnormal manner that may not satisfy him, and regardless of the individual's access to housing for free or at nominal prices that do not match the cost of its completion by the authorities (such as social housing in Algeria), obtaining housing takes two forms, either obtaining housing as ownership or as rent. .

With regard to obtaining housing as ownership, here we find the individual bears a relatively high cost, i.e. bears the price of the house he wants to get, and this cost is usually paid when buying this house, but the ownership of the house gives him a number of positives, on the one hand it is considered as a tool of social stability because it provides him with permanent shelter, and it also protects his saved money that I invest in buying the house on the other hand.

With regard to obtaining housing as rent, this method is a solution for those who do not have financial resources in order to obtain housing ownership and allows them to freely change their place of residence more easily than the first case, and the lack of access to decent housing makes the individual spend most of his time on the street because he does not find tranquility in his shelter. In addition to the possibility of entering the field of social ills, the housing is the first step to achieve family construction first and then the safety and stability of society second (Abdellatif Ben Achenhou, 2000, p. 54).

- **Political importance:**

The emergence of signs of democracy in the political life of the country, represented by the political parties that strongly adopted the problem of housing in their development programs, and if this has become one of the basic elements of any national development even many officials who successively came to power realized one fact (when the construction and housing sector is fine, all other sectors are so).

So the housing sector is one of the main factors in economic and social stability so that housing represents On average, it ranges from 60% to 70% of the total urban industrial activity and employs an average of 150,000 to 170,000 workers, and the annual investment in the completion of housing ranges from 06 to 08% of the gross national product and between 25 to 30%. of the total investments for a certain period of time (Ibtisam, 2017, p. 137).

1.7 Types of housing, their characteristics and objectives.

The multiplicity of housing a lot, which led to the variation of its characteristics and goals, which we will mention as follows:

First - types of housing: Algeria has known several types of housing during a period of time we will mention:

- **LSL social housing :**

Social rental housing means housing financed by the state or local groups and directed only to people who have been classified according to their incomes within the needy and disadvantaged social groups that do not have housing or live in inappropriate housing. (Gazette, 2002, p. 18).

Conditions for obtaining social rental housing: A person cannot apply for social housing if:

- Owns a property with a residential use or owns a piece of land suitable for construction, a commercial shop or agricultural land that produces income for him. - He must not have benefited from a rental, shareholding, rural or any other housing or that his wife has not benefited from the state subsidy in the framework of the purchase or construction of a house.

- The person resides for at least 05 years in his municipality of residence and his monthly income exceeds 24,000 DZD.

- If the age of the applicant for housing is less than 21 years.

- **Subsidized clavicle housing LPA:**

Subsidized clavicle housing is a new formula developed since 2010 by the public authorities to compensate for contributory social housing, and this formula has known a great demand and demand from society, subsidized clavicle housing is a new housing that is built by a real estate promoter, in accordance with the technical specifications and financial conditions predetermined by the state and directed to applicants who meet the conditions for obtaining international assistance, for people with income. This type of housing is used through a financial structure consisting of the applicant's personal contribution, a bank loan with a subsidized interest rate and direct assistance from the National Housing Fund directly to the promoter.

- **LV Selling Formula :**

The lease sale formula is defined as a way to obtain housing with a prior option to own it within a specific period of the lease period indicated in the contract, this type of housing is granted to middle-income people who do not own housing and have not received financial assistance provided by the state and their income level does not exceed 05 times the national income Personal contribution for those who wish to benefit from housing according to this formula is estimated at 25% is divided as follows:

10% upon conclusion of the contract, 05% upon receipt of keys, 05% after two years after receiving the keys, 05% after two years of handover. As for 75% The remaining are financed through loans provided by the state, represented by the National Housing Fund

(CNL) by payments in line with the stages of progress of achievement and the payments are monthly repaid for a period of 20 years, research does not exceed the age of the beneficiary in the last batch 65 years, without interest with the possibility of prepayment, and the Agency for the Development and Promotion of Family Housing AADL Who is responsible for the completion of this type of housing by collecting requests, directing housing and covering payments.

- **Rural housing L R:**

Rural housing aims to encourage the family to achieve decent housing in the rural environment within the framework of self-construction, and it is subject to the granting of public subsidies granted by the National Housing Fund according to the progress of the works after the beneficiary submits his personal contribution, and this type of housing is also directed to the middle groups of society, currently Algeria pays special attention to rural housing by allocating important shares of its own within The best example of this is the one million housing program for the period 2004-2009, which included 39% of the total housing quotas in the program and huge sums allocated by the state for the completion of this formula of housing, both in terms of financing the completion and in terms of the subsidies provided under this formula (Algeria, April 23, 2011, p. 18).

- **Public clavicle housing LPP:**

Article 02 of Executive Decree No. 14-203 defines this type of housing as "public clavicle housing is a real estate project without a public mortgage and benefits from the state subsidy to complete it and includes the benefit of this form of housing for each eligible student" " The public housing is provided with the payment of the beneficiary as a personal contribution, and the state subsidy is limited to paying the difference between the interest rate applied in the market and that which is actually imposed on the beneficiary, or in the form of a reduction in the value of state lands, and the price of the assignment of public housing is determined on the basis of the final cost of its completion, including the expenses of buying the land and the profit margin of the real estate promoter, these housing is directed to the category that cannot acquire public rental housing or Subsidized clavicle housing or rental housing, as their income exceeds the levels specified at the latter types (Official Gazette, July 27, 2014, p. 7).

- **LP:**

They are housing completed by public or private real estate contractors directed to free sales operations without restrictions related to ownership or income, and this formula has currently witnessed a relative development in the size and quality of housing in addition to the high return of its friendliness compared to other housing types (Toubal, 2016, pp. 303-305).

1. 7.7 Contributory social housing LSP: It was established with the aim of supporting middle-income groups, whose income ranges from 12 to 40 thousand dinars, and this type of housing products benefited from two types of subsidies:

- Direct financial subsidies increased from 500,000 DZD to 700,000 DZD.

- Indirect subsidies represented in the reduction of 80% of the value of state land destined for the implementation of this type of program. - Exemption from tax on gross income and on corporate profits applicable to companies implementing this type of program that meet the regulatory requirements in terms of the cost of sale and housing area (Joint Ministerial Decision dated 2006) (Maskar Siham, 2015, p. 04)

1.8 Housing characteristics: Housing is characterized by certain characteristics that make it different from the rest of the other products and must be highlighted in order to properly and accurately understand this type of products, so that these characteristics can be limited to the following:

- **Stability property:**

a property associated with the ground on which construction operations are carried out and on what basis it is based, the main advantage of the land is stability as we cannot move it from one place to another.

- **Permanence characteristic:**

The residential product is characterized by the length of its economic life cycle, which ranges between 30-50 years and can reach 100 years, depending on the nature of the product for some special data, so it can be said about the real estate product that it is a durable product.

- **Contrast property:**

That is, residential products cannot be 100% similar, and this is due to the nature of the lands on which construction operations are carried out, which cannot be completely homogeneous even if they are very close in composition because they do not carry the same geographical data on the one hand and on the other hand, they can differ in terms of how they are allocated (for residence, commercial or industrial) and also in terms of their size and location. (Jameel, 2010-2011, p. 15).

- **non-transparency characteristic:**

Real estate markets are characterized by lack of transparency, as their statistical sources are generally scarce and incomplete, in addition to the difficulty of obtaining information, if any, which is often inaccurate despite the high costs in order to obtain it, which negatively affects the exchanges for real estate products, and makes their prices not subject to supply and demand.

- **High unit value of housing:**

The residential product is characterized by its high value, and this is due to the high cost of completion in addition to the length of the real estate production cycle, which requires the allocation of large amounts of money to invest in the real estate market and to avoid this problem, investment can be made by acquiring shares of real estate institutions or buying a real estate product in partnership with other parties, and this is what makes investment possible even if the available capital is small in size.

- **Low degree of liquidity:**

The residential product needs a long time to sell it in the market, and thus it is an illiquid asset that can be accelerated in the process of selling it by reducing its price, this characteristic in the residential product is mainly related to the high unit value of the latter in addition to the heterogeneity property, which in turn leads to the distribution of loans for housing products with comparative characteristics.

- **High degree of creditability:**

This characteristic is related to the high unitary value of the housing product, in many cases we find that investors do not have sufficient liquidity to buy this product, as they rely on their own money in addition to searching for other sources of financing such as banks.

1. 9 Housing Objectives: Housing plays a vital role in the economic, social and political sector as well, trying to achieve a set of goals, namely:

- Securing the human right to adequate housing throughout the Arab countries and providing adequate housing for the largest number of families. - Improving, developing and providing access to basic services and raising the efficiency of housing production and reducing its cost. - Provide equal opportunities for obtaining land for housing and reduce the differences in housing saturation levels between different Arab cities and between urban and rural areas in the Arab city on the other hand, in addition to improving the ability of homeowners to improve and expand their existing housing.

- Improving and developing equal access to housing construction loans, reducing the degree of residential overcrowding and occupancy rates to acceptable limits, increasing the government's ability to address special needs and segments that cannot obtain adequate housing, and improving the quality of new housing, including energy efficiency and environmental impacts (Abdul & Nazir , 2012, pp. 14-15).

Previous studies that dealt with the relationship between real estate loans and the housing sector

- Study by Sharia Hussein, 2021, on estimating the housing demand function, a case study of the state of Medea 1998/2018, where the study dealt with identifying the factors that most influence the demand for housing for people of different social classes and determining the form and nature of their interaction and impact by using quantitative methods and techniques as a tool to rationalize this study.
- Study by Qawwal Zawiya Iman, Murad Ismail, Onan Boumediene, 2017 on real estate loans in Algeria, a case study, where the study dealt with the most important methods and procedures followed by banks to contribute to financing the real estate sector and the applied benefits as well as the criteria for obtaining the loan.
- Study by Boumaaraf Al-Arabi, 2020, on the participation of the National Housing Fund in the financial management of subsidized promotional housing projects, where he addressed the housing crisis in Algeria and its causes, which prompted those in charge of the housing sector to search for sources of financing away from the public treasury, such as adopting the idea of involving buyers in the process of financing and implementing housing projects.

The difference between previous studies and our study on the subject of the impact of real estate loans on the housing sector: What we noticed during our journey in searching for references related to the subject, we found that most of the studies that dealt with the subject of the impact of real estate loans on the housing sector were theoretical and analytical studies, and the noticeable thing is the scarcity, if not the absence of standard studies that dealt with this subject, with the exception of some studies such as the study of

Sharia Hussein, 2021, on estimating the housing demand function, a case study of the state of Medea 1998/2018, which referred to it, but did not address in detail the relationship of real estate loans to the housing sector. As for using ARDL to address this subject, we did not come across any similar study before.

2. Measuring the impact of granting mortgages on the development of housing in Algeria during the period (2000-2019):

Algeria has known several housing formulas during the period studied, as it was characterized by the state's focus on financial reforms in all fields with a focus on the real estate sector, which resulted in five-year plans aimed at completing about 1.5 million housing units to reduce the housing crisis, and therefore we will measure in this study the impact of real estate loans granted by the National Savings and Reserve Fund Bank, as well as granted by the Algerian People's Loan, in addition to subsidies. submitted by the National Housing Fund, on the evolution of the number of housings in Algeria during the study period.

2.1 Practical identification of model variables: represented in

- **Subsidies provided by the National Housing Fund**

Subsidies consist of the various amounts provided by the National Housing Fund, a public financial body under the tutelage of the Ministry of Housing and Urbanism, established with the aim of providing direct and indirect subsidies derived from the State budget and directed to needy groups for the completion or acquisition of housing.

- **Real estate loans granted by the National Savings and Reserve Fund Bank**

These are sums of money granted by the National Savings and Reserve Fund in the form of term loans to contribute to the realization of the State's plan to eliminate the housing crisis.

- **Real estate loans granted by the Algerian People's Loan**

These are sums granted by the Algerian People's Loan with the aim of promoting development in the construction and public works sector.

Accordingly, the model of the impact of mortgages on the number of residences can be written in the following mathematical form:

$$\Delta Y_t = C + \beta_1 Y_{t-1} + \beta_2 X_{t-1} + \beta_3 X_{2t-1} + \beta_4 X_{3t-1} + \sum_{i=1}^{p-1} \lambda_{1i} \Delta Y_{t-1} + \sum_{i=0}^{q_1-1} \lambda_{2i} \Delta X_{1t-1} + \sum_{i=0}^{q_2-1} \lambda_{3i} \Delta X_{2t-1} + \sum_{i=0}^{q_k-1} \lambda_{4i} \Delta X_{3t-1} + \varepsilon_t$$

Where Y : number of residences, C : fixed limit, ، a_1, a_2 a_3 : model parameters are required to be estimated, X1 : mortgages granted by the National Housing Fund, X2: Real estate loans granted by the National Savings and Reserve Fund Bank, X3: Real estate loans granted by the Algerian People's Loan.

2.2 Study methodology:

In order to study and measure the impact of mortgages on the evolution of the number of housings in Algeria during the period 2000-2020, we will rely on following the ARDL self-regression methodology to estimate the joint integration and estimate the error correction equation by following the steps:

-We test the stability of model variables.

-We test the causality of yin model variables.

- We test the cointegration (Bond Test)

-We test error correction

2.3 Stationarity Test:

The stationarity testing process requires determining the degree of delay for each series, and through the Eviews program we reach that: The degree of delay for: The number of residencesy is 0, mortgages granted by the National Housing Fund x1is 01, mortgages granted by the National Savings and Reserve Fund Bank x2 is 02: Real estate loans granted by the Algerian People's Loan x3 are 03

After determining the degree of delay, we use the Dickie Fuller ExtendedADF test to test stability, relying on three models, where we test in the third model the significance of the general trend, and if it is significant, we accept the result of the test, whatever the results, but if it is not significant, we test the constant significance of the second model and if it is significant, we accept the result of the test, whatever the results, and if it is not significant, we test the presence of the root of the unit or not, depending on the third model, and in the case of the instability of the series, we Conducting another test with the same methods mentioned based on the first differences. We point out that the null hypothesis (the series contains the unit root) is accepted when the tabular value is greater than the calculated value in absolute terms and vice versa.

The results of the stability tests for all model variables are summarized in the following table:

Table(1) : stationarity test

In the conditions of joint integration according to the ARDL methodology , the degree of integration of variables I(0) or I(1) using the tests (PP) and (ADF) the results are as follows:

UNIT ROOT TEST TABLE (PP)

At Level

		Y	X1	X2	X3
With Cons...	t-Statistic	-2.9068	-1.7415	-2.2567	-0.7708
	Prob.	0.0622	0.3966	0.1943	0.8057
		*	n0	n0	n0
With Cons...	t-Statistic	-4.4817	-1.3398	-2.2480	-3.8825
	Prob.	0.0103	0.8469	0.4404	0.0329
		**	n0	n0	**
With Cons...	t-Statistic	-0.8270	-1.6761	-1.7571	1.8753
	Prob.	0.3450	0.0878	0.0751	0.9815
		n0	*	*	n0

At First Difference

		d(Y)	d(X1)	d(X2)	d(X3)
With Cons...	t-Statistic	-18.3140	-4.2079	-4.6171	-8.2263
	Prob.	0.0000	0.0046	0.0019	0.0000
		***	***	***	***

With Cons...	**t-Statistic**	-17.5136	-4.4079	-4.9875	-7.8958
	Prob.	0.0001	0.0127	0.0042	0.0000
		**	***	***	***
With Cons...	**t-Statistic**	-10.6043	-4.2398	-4.7846	-4.6881
	Prob.	0.0001	0.0002	0.0001	0.0001
		***	***	***	***

UNIT ROOT TEST TABLE (ADF)

At Level

		Y	**X1**	**X2**	**X3**
With Cons...	**t-Statistic**	-2.9603	-1.7415	-2.2567	-0.4651
	Prob.	0.0562	0.3966	0.1943	0.8781
		*	n0	n0	n0
With Cons...	**t-Statistic**	-4.4732	-1.3398	-2.1947	-3.8825
	Prob.	0.0105	0.8469	0.4668	0.0329
		**	n0	n0	**
With Cons...	**t-Statistic**	-0.3566	-1.6748	-1.7571	2.2122
	Prob.	0.5427	0.0880	0.0751	0.9906
		n0	*	*	n0

At First Difference

		d(Y)	**d(X1)**	**d(X2)**	**d(X3)**
With Cons...	**t-Statistic**	-6.9605	-4.2079	-4.4379	-6.9323
	Prob.	0.0000	0.0046	0.0028	0.0000
		***	***	***	***
With Cons...	**t-Statistic**	-6.7423	-4.3919	-4.4153	-6.6749
	Prob.	0.0002	0.0131	0.0125	0.0002
		***	**	**	***
With Cons...	**t-Statistic**	-7.0970	-4.2398	-4.5665	-4.6818
	Prob.	0.0000	0.0002	0.0001	0.0001
		***	***	***	***

Source: Extract from Eviews12

The two tables of the tests (PP) and (ADF) showed that the series (y,x1,x2,x3) are integrated of the first order I(1) .

2.4 Causality test:

Causality refers to the determination of the existence of causal relationship in the independent variables and the dependent variable and using the Angel Granger methodology the results are as follows:

Table (2) : causality test

Pairwise Granger Causality Tests Date: 09/29/24 Time: 20:01 Sample: 1 21 Lags: 2			
Null Hypothesis	**Obs**	**F-Statistic.**	**Prob**
X1 does not Granger Cause YK	19	1.19604	0.3315
Y does not Granger Cause X1		0.03587	0.9649
X1 does not Granger Cause YK		2.16432	0.1517

Y does not Granger Cause X2	19	4.87117	0.0248
X1 does not Granger Cause YK	19	5.97729	0.0133
Y does not Granger Cause X3		0.10360	0.9023

Source: Extract from Eviews12

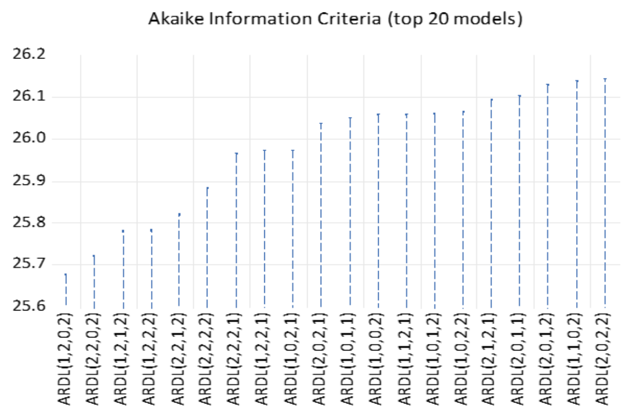
The results of the causality test indicate that there is a one-way causal relationship between (X1, X2, X3) and Y

2.5 Estimating the cointegration Model:

- **Test optimal slowdown periods**

Based on the AIC test to test the optimal slowing scores for the ARDL model the results are clear to test the best models, as shown in the figure and the most optimal of those models is the ARDL model (1,2,0,2)

Figure (1): Test optimal slowdown periods



Source: Extract from Eviews12

- **Cointegration Test (Boundary Test (Bounds Test):**

Table (3) : bound test

F-Bounds Test **Null Hypothesis: No levels relationship**

Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic **K**	14.15365 3	**Asymphotic n=1000**		
		10%	2.37	3.2
		5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
Actual Sample Size	19	**Finale sample n=35**		
		10%	2.618	3.532
		5%	3.164	4.194
		1%	4.428	5.816
		Finite Sample: n=30		
		10%	2.676	3.586
		5%	3.272	4.306
		1%	4.614	5.966

Source: Extract from Eviews12

It is clear from the outputs of Eviews12 that the statistical values F-Statistic are greater than the critical values at the level of significance (5%) where

This confirms the existence of a common integration relationship between the variables (f=14.15) >(4.19)

2.6 Estimating the cointegration relationship

After testing the existence of a co-integration relationship, the equations of the ARDL model can be estimated in the short and long term, as this is illustrated as follows:

- **Estimating the cointegration relationship in the short term**

Based on Eviews12, the results of estimating the equilibrium equation in the short term are as follows:

Table (4) : Estimating the cointegration relationship in the short term

ARDL Error Correction Regression Dependent Variable: D(Y) Selected Model: ARDL(1, 2, 0, 2) Case 2: Restricted Constant and No Trend Date: 09/29/24 Time: 19:52 Sample: 1 21 Included observation: 19				
ECMRegression Case 2: Restricted Constant No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(X1)	0.217323	0.098835	2.198837	0.0525
D(X1(-1))	-0.430025	0.105750	-4.066440	0.0023
D(X3)	95.64783	23.20877	4.121193	0.0021
D(X3(-1))	203.4751	22.23834	9.149744	0.0000
CointEq(-1)*	-0.494798	0.049710	-9.953669	0.0000
R-squared	0.905147	Mean dependent var		11354.05
Adjusted R-squared	0.878047	S.D. dependent var		189094.0
S.E. of regression	66035.05	Akaike info criterion		25.25469
Sum squared resid	6.10E+10	Schwarz criterion		25.50323
Log likelihood	-234.9196	Hannan-Quinn criter		25.29676
Durbin-Watson stat	2.131088			
*p-value incompatible with t-Bounds distribution				

Source: Extract from Eviews12

The equilibrium coefficients in the short term recorded a significant significance at the confidence level (0.5%), where (Sig>0.05) and the return coefficient recorded a negative and significant value, which suggests a long-term equilibrium after two years and fourteen days (2 years and 14 days), and the coefficient of determination reached a significant value (0.51%)) that is, the independent variables affect the dependent variable by (0.51%) in the short term.

It was also found that the effect of parameter (x2) was excluded and excluded in the short-term effect and there was only a clear effect of parameters (x1) and (x3) to the point of slowing down twice.

The effect equation can be written by the relationship:

$$(DY) = 0.21X_{1t-1} - 0.43X_{1t-2} + 95.64X_{3t-1} + 203X_{3t-2} - 0.49(ELM)$$

- **Estimating the relationship of integration in the long term :**

After estimating the long-term relationship model the same short-term relationship results as shown in the outputs

Table (5) : Estimating the cointegration relationship in the long term

Levels Equation Case 2: Restricted Constant No Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
X1	**1.000198**	0.548501	1.823512	0.0982
X2	**0.015872**	0.007866	2.017921	0.0712
X3	**121.2067**	46.92699	2.582878	0.0273
C	**-985610.1**	558867.7	-1.763584	0.1083

Source: Extract from Eviews12

All parameters of the model recorded statistical significance issued by (X3) the degree of impact followed by (X1) and the equation is written on the figure :

$$\Delta Y_t = -985610.1 + 1.00X_{t-1} + 0.02X_{2t-1} + 121.21X_{3t-1} - 0.49Y_{t-1} - 0.43\Delta X_{t-1} + 203.47\Delta X_{3t-1}$$

2.7 Diagnostic tests:

To test whether the model is free of standard problems, we perform the following tests

- **Autocorrelation test for residual LM:** which is based on the null hypothesis

H0: Model free of autocorrelation of errors

Table (6) : LM test

Breusch-Godfrey Serial Correlation LM Test Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.595454	**Prob. F(1,16)**	0.4516
Obs*R-squared	0.645850	**Prob. Chi-Square(1)**	0.4216

Source: Extract from Eviews12

It turns out that 0.05<(Pro(x2)=0.33), which confirms the acceptance of the hypothesis H0

- **ARCH Conditional** Variance Instability Test Based on the Hypothesis of Instability of Variance

Table (7) : ARCH test

Heteroskedasticity Test: ARCH			
F-statistic	0.595454	**Prob. F(1,16)**	0.4516
Obs*R-squared	0.645850	**Prob. Chi-Square(1)**	0.4216

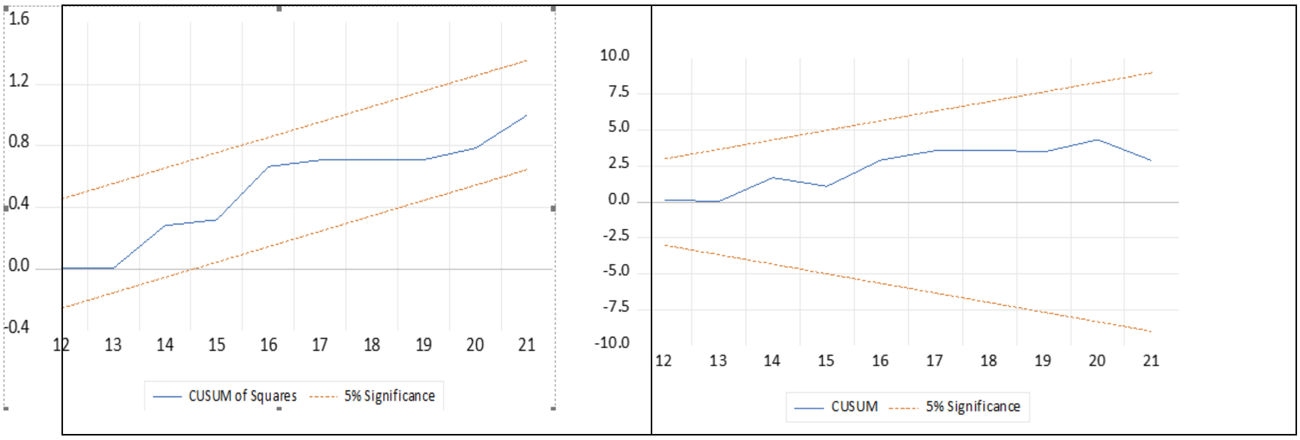
Source: Extract from Eviews12

It is clear from the output that 0.05<(Pro(f)=0.45), which confirms H0 .

- **Structural stability test of the CUSUM model and CUSUM SQUARE**

The two figures showed that there is stability and harmony of parameters in the short and long term, as the critical limits included the graph of both the cumulative sum of the residuals and the cumulative sum of the squares of the residual residuals.

Figure (2): Structural stability test of the CUSUM model and CUSUM SQUARE



Source: Extract from Eviews12

Conclusion

The housing sector was and still is among the requirements of the Algerian state, as one of the basic needs of the citizen despite the difficult financial conditions, housing occupies a significant place within the strategy of social and economic development, as it has become the main concern of the public authority, which is trying to reduce the deficit resulting from the crisis of demand and supply, by developing urgent programs to cover such a continuous increase in the deficit, until due to the exacerbation of the need for housing, which is becoming more complex day by day, in addition to the poor management and distribution of housing followed. In Algeria, the competent authorities have pushed for new policies, based on encouraging public or private banks, to grant mortgages that will make the housing sector more adapted to the requirements of the market economy.

Since financing is an important element in addressing the housing problem, it not only affects demand but also controls the degree of housing supply, the policy adopted by Algeria has had a positive impact on the vulnerable class of members of society, as access to housing of any kind has become dependent on different payment formulas appropriate to the ability of the individual, but this policy initially faced many obstacles that led to creating difficulties in financing the housing sector, which necessitated us to address the subject of mortgages. And its role in financing the housing sector, and after discussing this study and trying to familiarize itself with its various aspects, we can test the validity of the aforementioned hypotheses as follows:

-**Hypothesis validity:**

- The existence of a causal relationship between the variable of mortgages granted by the Algerian People's Loan and the National Reserve Savings Fund and the size of housing and vice versa, which proves hypothesis No. 01, while the variable represented in real estate loans granted by the Housing Fund, the results of the standard study proved that there is no causation between them, which proves the error of hypothesis No. 02

- The results of the standard study showed the existence of a long-term complementary relationship between the mortgages granted by the National Savings and Reserve Fund granted by the Algerian People's Loan, and the size of the housing, where the error correction coefficient was recorded with a negative slope, which is significant, which confirms the validity of hypothesis No. 03 that there is a long-term complementary relationship.

The results of the study: Through this research, both theoretical and applied, a set of results can be drawn as follows:

- Housing finance in Algeria lacks specialized real estate banks, as the absence of experience and competence in this field leads to the bank's inability to determine the real value of the property, especially in light of the intense speculation and inflation in the value of real estate formulas witnessed by the Algerian real estate market.

- The contribution of real estate loans in financing the housing sector remains very limited, whether for citizens or institutions for the completion of housing projects, due to the weakness of real estate and the lack of sufficient guarantees.

- The adoption of mortgages in Algeria was aimed at achieving social rather than financial challenges, as a result of the housing crisis and the formulas adopted in this area made a large segment of society accept the adoption of mortgages for the construction or purchase of a house.

- The importance of real estate, which derives from its value, lies in the extent to which the country is able to use that property to meet the social and economic needs of members of society.

- The role of the state has been positive in reducing the housing crisis through numerous housing programs as well as through granting subsidies to the National Housing Fund for middle-income groups.

- The reluctance of banks and their fear of financing the housing sector helped to increase the housing crisis.

- The loss of housing finance facilities in the Algerian state of interdependence and integration among them, as well as mechanisms to achieve the efficiency of the distribution of housing savings to the various housing sectors, which is commensurate with their relative importance and needs.

Recommendations: In the light of the results obtained, we can make the following recommendations:

- Establishing new mechanisms for banks to grant loans such as the point loan technique and the Credit Man technique to address the eligibility of loans in the housing sector, which will improve the methods of granting real estate loans.

- Renewing laws and legislation in a manner that is compatible with the housing situation in Algeria in order to change the methods of real estate financing.

- Establishing banks specialized in the field of real estate investment and how to finance the housing sector in its various forms.

- Improving the regulatory framework for real estate mortgage loans.

- The Algerian state must take into account the low-income segments of society, and thus grant more housing to this segment.

- Develop a strategy for financing housing projects related to granting mortgages and upgrading banking services.

- The need for the state to take more care of the housing sector by facilitating the conditions for obtaining real estate loans as well as providing the necessary control over the deadlines for the completion of housing programs.

- Developing the financial system in line with the requirements and needs of the market and establishing banks specialized in financing the housing sector.

- Coordination between the policies of banking institutions and residential institutions in Algeria.

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