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Disparities in Income Distribution among Algerian Families During The period from 1988 to 2022

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Abstract

This research paper aims to identify the magnitude and degree of inequality in income distribution among the different segments of Algerian society during the period 1988–2022. This is achieved through studying and analyzing the evolution of primary income, disposable income, as well as trends in the distribution of consumer expenditure among Algerian households. The analysis is based on field surveys related to consumer expenditure and living standards of Algerian households for the years 1988, 1995, 2000, 2005, 2011, and 2022. The study also attempts to measure deviations in income distribution by calculating the Gini coefficient, the Kuznets coefficient, and income dispersion ratios among different social groups in order to assess the degree of inequality.The results indicate that the process of income distribution among Algerian households witnessed some improvement during the study period; however, it did not reach the level of equity in distribution.

Keywords: *Primary Income, Disposable Income, Consumer Expenditure, Income Distribution Inequality.*
JEL Classifications: D31, D33.

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Introduction

The issue of income distribution in developing countries is considered one of the major problems that has occupied a large space in economic studies. It has attracted the attention of most policymakers and has engaged both local and global public opinion due to its close connection with living standards across different social groups and segments. Most societies suffer from distortions in income distribution, albeit to varying degrees. Algeria, like other countries, experiences inequality in income distribution, which has negatively affected economic and social outcomes. In order to determine the magnitude and degree of this inequality, this study seeks to answer the following question:
What is the reality and extent of income distribution inequality among Algerian households during the period from 1988 to 2022?

To answer the main question, the following hypothesis is tested:

- There is significant inequality in income distribution among the different segments of Algerian society.

Objectives of the Study:

This research aims to identify the magnitude and degree of inequality in income distribution (consumer expenditure) among the different segments of Algerian society. This is achieved by examining the evolution of income distribution among Algerian households and attempting to measure and analyze inequality in the distribution of their consumer expenditure during the period 1988–2022.

Methodology

In order to answer the main research question and achieve the objectives of the study, a combination of two research approaches was adopted: the descriptive-analytical method, which is suitable for the subject

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of the study through describing and analyzing the phenomenon of income distribution inequality, and the statistical method, which is used to measure inequality in the distribution of consumer expenditure among Algerian households by calculating a set of inequality indicators.

Structure of the Study:

The study begins by defining income, its types, and methods of distribution, while addressing the concept of income distribution inequality, its forms, and measurement tools. The second section highlights the reality of income distribution among Algerian households. The third section measures and analyzes inequality in the distribution of consumer expenditure among Algerian households. The conclusion summarizes the main findings of the study.

Previous Studies and Research:

The study draws on the following previous works:

- Ali Abdelkader Ali (2007), "Indicators for Measuring Inequity in the Distribution of Consumer Expenditure". The researcher used the Gini coefficient to measure inequity in the distribution of consumer expenditure in order to identify the state of distributive injustice at the global level and establish it as a benchmark for assessing distributive injustice in Arab countries. He concluded that despite maintaining a moderate level of inequity, distributive injustice tended to worsen between 1990 and 2000, as indicated by the increase in the Gini coefficient for Arab countries as a group.

- Belhassen Houari (2016), "Income Distribution Inequality and the Issue of Pro-Poor Growth in Algeria". The researcher analyzed the phenomenon of inequality in the Algerian economy by tracking the evolution of the income shares of the poor and the rich to determine the extent to which economic growth in Algeria favored the poor. The study relied on field survey data on consumer expenditure of Algerian households for the years 1988, 1995, 2000, 2005, and 2011. The study concluded that economic growth in Algeria was relatively and modestly pro-poor; however, the share of the rich remained higher than that of the poor.

- Bouzid Sofiane and Kebdani Sidi Ahmed (2017), "Trends in Equity of Consumer Expenditure Distribution in Algeria in Light of Structural Adjustment Programs". The researchers examined trends in the distribution of consumer expenditure among Algerian households as a proxy indicator for income, in order to measure changes in living standards and identify income inequality. They concluded that Algeria achieved improvement among the poorest deciles during the period 1988–2000, which seemingly confirms that government policy attempted to contain the poor class affected by economic reform programs.

Conceptual Framework of Income Distribution Inequality:

In recent years, the literature and technical studies concerned with analyzing, evaluating, and measuring income distribution inequality have witnessed notable growth. This is due to distortions observed in the primary distribution of income, which have contributed to widening the gap between the rich and the poor. Income inequality has become the prevailing condition in all countries—underdeveloped, developing, and even developed—although the degree of inequality varies according to place, time, and level of development.

Income Distribution:

Distribution is defined as the manner in which national wealth and income are divided among individuals and groups within society, within a given framework of values, traditions, and civilizational aspirations (Al-Dabbagh, 2003, p. 19). In its simplest form within a capitalist economy, distribution refers to the allocation of a project's output, in monetary terms or prices, among the factors of production that contributed to its creation: wages for labor, interest for capital, rent for land on which the project is established, and the

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organizer (entrepreneur), who undertakes organizational activities, bears the responsibilities of the employer, and receives a share of the profit (Al-Masri, 1986, p. 110).

The Concept of Income

Hicks defines income as "the amount of money that can be consumed without making us poorer or worse off, while our assets remain unchanged" (S. D'Agostino & G. Trombert, 1992, p. 7). Samuelson defines income as the total amount received or earned by an individual or a household in cash over a specific period of time (usually one year) (Samuelson & Nordhaus, 2001, p. 236).

According to Thomas Piketty, income consists of two components: income from labor (wages, salaries, bonuses, income from self-employment, and other earnings legally classified as work-related) and income from capital (rent, cash dividends, interest, profits, capital gains, property rights, and other incomes derived solely from the ownership of capital in the form of land, real estate, financial assets such as shares, or industrial equipment). Income differs from capital in that income is a flow corresponding to the quantity of goods produced and distributed over a given period, usually one year, whereas capital is a stock corresponding to total wealth owned at a specific point in time. This stock results from wealth accumulated or appropriated over all previous years combined (Piketty, 2016, pp. 24, 25, 56).

Types of Income:

It is necessary to distinguish between different types of income:

National Income:

Also referred to as national product income, it represents the total income of the factors of production that contribute to the production process, whether inside or outside the country, over a specified period, usually one year (Saqr, 1977, p. 49).

Household Income:

According to the International Labour Organization, household income consists of all incomes received by households or household members in cash, in kind, or in the form of services, annually or periodically. This income is practically determined by income from work (wage employment and self-employment), property income, income from the production of household services for own consumption, and received transfers (International Labour Organization, 2003, p. 10).

Personal Income:

This refers to all receipts or cash earnings received by an individual or a household over a specific period of time (usually one year), consisting of earnings from work (wages), income from property (rents, interest, dividends), and transfer payments from the government (Samuelson & Nordhaus, 2001, p. 392).

Primary Income:

Primary income is income directly linked to the participation of individuals or households in the production process. The majority of individuals' or households' primary income consists of compensation of employees, including wages and social security contributions, in addition to property income resulting from lending or leasing financial assets or land (interest, dividends, property income, etc.) (Tableaux de l'Économie Française, 2017, p. 62).

Disposable Income:

Also known as available income, income allocated for expenditure, or net income, disposable income is personal income minus any taxes paid (income taxes, property taxes, inheritance taxes, social contributions,

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etc.). It is defined as the income that individuals can use or spend for consumption or saving purposes (Shamiya et al., 2008, p. 34).

Income Distribution Inequality

The Nature of Income Distribution Inequality:

Inequality in general refers to a deviation from a state of equality, or in other words, an imbalance in equality or equity. It may be economic (such as inequality in income, living standards, or inheritance), or social (such as inequality in access to healthcare or appropriate education, etc.) (Ngo Tedga et al., 2014, p. 1047). The concept of inequality can be divided into two components: the first relates to inequality of outcomes, which refers to disparities in various material dimensions that affect human well-being, such as income level or educational attainment; the second relates to inequality of opportunities, which implies that part of the inequality in outcomes (such as income) arises from differences in circumstances beyond an individual's control, such as gender, sex, or race, while the remainder is attributed to differences in talent and effort (UNDP, 2013, p. 16).

Income inequality refers to unequal distribution of income among members of society, whereby a small group of individuals receives the largest share of income, while the majority of society receives only a small portion (Cowell, 1995, p. 15). Inequality in output or income can be divided into wage inequality, which refers to inequality in income from labor, and wealth or capital inequality, which refers to disparities in income derived from the ownership of capital independently of any work, regardless of its legal classification (rent, dividends, interest, property rights, profits, capital gains, etc.) (Piketty, 2016, p. 258).

Forms of Income Distribution Inequality:

According to Pierre-Noël Giraud, this phenomenon can take several forms (Giraud, 2002, pp. 4–7), including:

Inequality in Income Distribution Between Countries (International Inequality):

This type of inequality is usually measured by disparities in indicators of living standards across countries, such as average per capita income. If the world is divided into regions, income inequality between countries, according to Thomas Piketty, becomes evident through differences in regional averages of per capita income. While average monthly per capita income in some African countries (Sub-Saharan Africa) and India ranges between €150 and €250, it rises to approximately €2,500–€3,000 per month in Western Europe, North America, and Japan—representing a gap of ten to twenty times. The global average, which roughly corresponds to the Chinese average, is about €600–€800 per month (Piketty, 2016, p. 71).

Inequality in Income Distribution Within a Country (Internal Inequality):

This is usually measured by the Gini coefficient, which reflects the degree of income distribution inequality within a given country. In Algeria, this coefficient reached approximately 31.16% according to the most recent survey conducted by the National Office of Statistics on consumer expenditure and living standards of Algerian households for the year 2011. The survey showed that the poorest 10% of households received only 3.5% of total household expenditure, estimated at DZD 4,489.5 billion, while the richest 10% of households accounted for more than a quarter of total expenditure (about 26%). In other words, the richest segment of the Algerian population spends 7.4 times more than the poorest segment (ONS, 2013, p. 5).

Global Income Distribution Inequality (Global Inequality):

This form considers the world as a single unit, measuring inequality among all individuals worldwide, and it results from the combination of the two previous types. Global income inequality has risen sharply in recent years. The 2016 Global Wealth Report published by Credit Suisse concluded that there has been a massive increase in global inequality and a deterioration in the conditions of the middle class in favor of the

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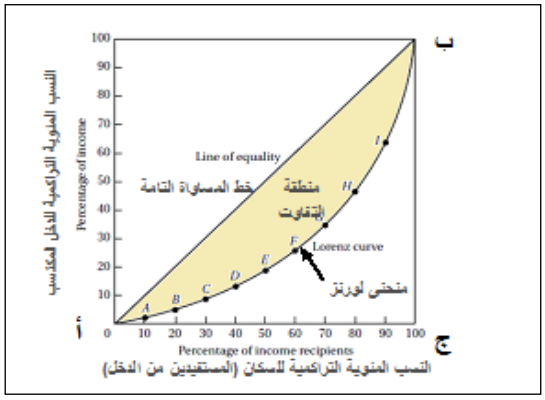
very wealthy. The report revealed that half of the world's wealth is concentrated in the hands of just 1% of the population, who own 50.8% of global wealth (Credit Suisse, 2016, p. 18). According to a report published by the British non-governmental organization Oxfam entitled An Economy for the 1%, the wealth accumulated by the richest 1% of the world's population in 2015 exceeded that owned by the remaining 99%. Only 62 individuals owned as much wealth as 3.6 billion people worldwide, compared to more than 388 individuals in 2010 (Hardoon, Ayele, & Fuentes-Nieva, 2016, p. 2).

2.3 Measuring Income Distribution Inequality:

The process of measuring inequality involves assessing and comparing income distribution among different segments of society (households or individuals) in order to identify the magnitude of disparities affecting the primary distribution of income. This is done using various measures and indicators with different dimensions and analytical approaches. Measuring inequality can be expressed as "the transformation of measures of dispersion into measures of inequality" (Aaberge, 1986, p. 10).

Graphical Measurement of Inequality (Lorenz Curve):

The Lorenz Curve is one of the most widely used tools for graphically representing inequality in income distribution. It is based on the mathematical relationship between cumulative population shares (ranked by levels of expenditure, income, or wealth from poorest to richest) and the cumulative shares of income received by each corresponding population group (Ali Abdelkader & Ben Jlili, 2006, p. 13). The Lorenz Curve was proposed by the American statistician Conrad Lorenz in 1905 and is represented as follows:



Diagonal line: Line of equality

Curved line: Lorenz curve

Shaded area: Area of inequality

Horizontal axis: Cumulative percentage of income recipients

Vertical axis: Cumulative percentage of income

Figure (1): Lorenz Curve

Source: Michael P. Todaro & Stephen C. Smith, 2012, p. 206.

Indicators for Measuring Income Distribution Inequality:

According to Amartya Sen, inequality measures are divided into two categories: positive (or objective) measures, which do not explicitly incorporate any concept of social welfare, and normative (or axiomatic) measures, which are based on an explicit formulation of social welfare and the loss resulting from unequal distribution (Sen, 1997, p. 24). The first group of measures and indicators helps achieve an accurate

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measurement of income distribution inequality through the use of statistical and econometric tools, while the second group attempts to assess inequality within a social welfare framework (Al-Fares, 2001, p. 100). Table (1) summarizes the main measures and indicators:

Table (1): Categories of Measures and Indicators of Income Distribution Inequality

Normative or axiomatic inequality measures		positive or statistical inequality measures	
Indicator Formula	**Indicator Name**	**Indicator Formula**	**Indicator Name**
$D = 1 - \left[\frac{\frac{1}{n}\sum_{i=1}^{n} U(y_i)}{U(\mu)}\right]$	Dalton Index (Duo Qin et al., 2006, p. 5)	$R = \frac{Max\ Yi - Min\ Yi}{\mu}$	المدى (Sen , 1997, p. 24)
$I = 1 - \left[\sum_{i=1}^{n}\left(\frac{y_i}{\mu}\right)^{1-\epsilon} f(y_i)\right]^{1/1-\epsilon}$	Atkinson Index (Atkinson, 1970, p. 257)	$M = \frac{\sum_{i=1}^{n}\lvert\mu - Yi\rvert}{n\mu}$	الانحراف المتوسط النسبي (Sen , 1997, p. 25)
		$V = \frac{\sum_{i=1}^{n}(\mu - Yi)^2}{n}$	Variance (S. Jenkins, 1991, p. 14)
$GE = \frac{1}{n(\alpha^2 - \alpha)}\sum_{i=1}^{n}\left[\left(\frac{y_i}{\mu}\right)^{\alpha} - 1\right]$	Standard Deviation of Logarithms (Lorenzo & Paolo, 2006, p. 6)	$C = \frac{\sqrt{V}}{\mu}$	Coefficient of Variation (Sen , 1997, p. 27)
		$LV = \frac{\sum_{i=1}^{n}[Log(\frac{y_i}{\mu})]^2}{n}$	Logarithmic Variance (Cowell F. , 2009, p. 27)
		$VLI = \frac{\sum_{i=1}^{n}[Log(\frac{y_i}{y^*})]^2}{n}$	Variance of Log Incomes (Cowell F. , 2009, p. 27)
$T = \frac{1}{n}\sum_{i=1}^{n}\frac{y_i}{\mu}\ln\left(\frac{y_i}{\mu}\right)$	Theil Index (Paul D , 1978, p. 867)	$SDL = \sqrt{\frac{\sum_{i=1}^{n}(Log\ \mu - Log\ Yi)^2}{n}}$	Generalized Entropy Index (Lorenzo & Paolo, 2006, p. 12)
		$Gini = 1 - \sum_{i=1}^{n}(x_i - x_{i-1})(y_i + y_{i-1})$	Gini Coefficient (Haughton & R. Khandker, 2009, p. 104)

Source: Compiled by the authors.

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Ratios of Dispersion:

Decile and quintile dispersion ratios are among the simplest measures of inequality. They classify or divide the population into decile or quintile groups and rank them in ascending order from the poorest to the richest according to a specific variable (level of expenditure or income). Income dispersion ratios are calculated according to the relationships shown in the table below:

Table (2): Income Dispersion Ratios

Dispersion Ratio	Mathematical Relationship	Explanation
Decile Share Ratio (Yves, 2010, p. 85)	$DSR = \frac{D10}{D1}$ أو $SR = \frac{S90}{S10}$	The ratio of the average consumption (or income) of the richest 10% of the population to the average consumption (or income) of the poorest 10%.
Quintile Share Ratio (Yves, 2010, p. 84)	$QSR = \frac{Q5}{Q1}$ أو $SR = \frac{S80}{S20}$	The ratio of total income received by the top 20% of income earners (highest quintile) to the income received by the bottom 20% (lowest quintile).
Palma Ratio (Cobham, Schlogl, & Sumner, 2015, p. 4)	$\textbf{Palma Ratio} = \frac{D10}{D1 \text{ to } D4}$	Expresses the ratio of the national income shares of the richest 10% of households to those of the poorest 40%.
Kuznets Coefficient (Baqer & Amouri Hadi, 1985, pp. 203–205)	$D = \frac{\sum_{i=1}^{n} \lvert d_i - 10 \rvert}{180}$	di: percentage share of income received by the ith decile. |10 − di|: the absolute value of the difference between income percentage shares and the percentage shares of individuals or households.

Source: Compiled by the authors.

Analysis of the Reality of Income Distribution Among Algerian Households During the Period 1988–2022

As previously mentioned, the income of Algerian households consists of wages (labor income), property or capital income (rents, interest, and insurance benefits), in addition to cash transfers. It can be divided into two parts: primary income (income before transfers) and disposable (or available) income.

Analysis of the Evolution of Primary Income of Algerian Households During the Period 1988–2022:

According to the Integrated Economic Accounts (TEE), the gross primary income of Algerian households—also referred to as income before transfers—consists of wages (labor income), property income (rents, interest, and insurance benefits), in addition to gross operating surplus (retained profits and distributed profit shares to shareholders). Figure (2) below illustrates the evolution of the structure of total primary income of Algerian households.

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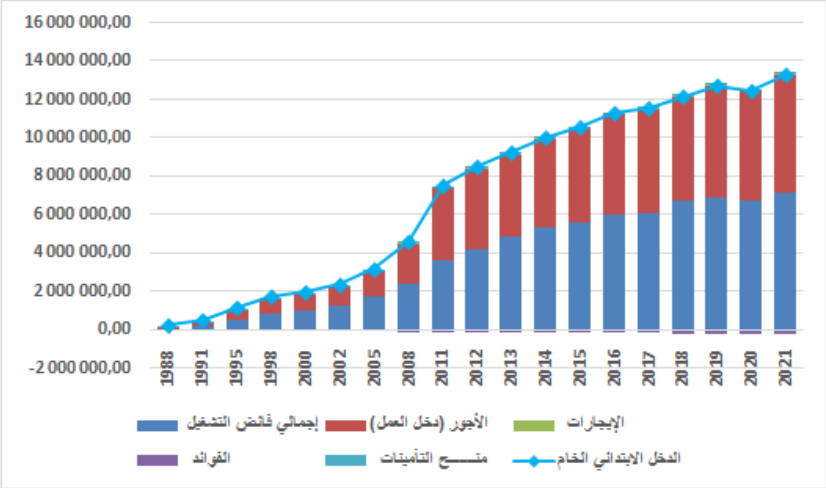

Blue bars: Gross operating surplus

Red bars: Wages (labor income)

Green bars: Rents

Purple bars: Interest

Teal bars: Insurance compensation

Blue line with diamond markers: Gross primary income

Figure (2): Evolution of the Structure of Total Primary Income of Algerian Households, 1988–2022

Source: Prepared by the authors based on data extracted from:

- Retrospective des Comptes Économiques 1963–2014, ONS, 2016, pp. 102–125;
- TEE 2012–2015, ONS, 2017, pp. 4–7;
- TEE 2015–2018, ONS, 2019, pp. 4–7;
- TEE 2019–2021, ONS, 2023, pp. 5–7.

Based on the above figure, total primary income of Algerian households shows a significant upward trend over time. It amounted to approximately DZD 220 billion in 1988, then increased to more than DZD 1,136 billion in 1995. By 2000, it exceeded DZD 1,943 billion, representing an increase of about 41.53% compared to 1995. It then rose to approximately DZD 3,128 billion in 2005, an increase of 60.95% compared to 2000. In 2011, it nearly multiplied by two and a half to reach DZD 7,474 billion, then exceeded DZD 10,519 billion in 2015, and continued to grow, surpassing the threshold of DZD 13,242 billion in 2022. This total included approximately DZD 6,200 billion in wages, DZD 7,186 billion in gross operating surplus, DZD 7 billion in rents, and DZD 47.3 billion in insurance compensation.

Analysis of the Evolution of Disposable Income of Algerian Households During the Period 1988–2022:

The sum of income from work and income from household production for own consumption is referred to as production income. When this income is added to income from property, it is called primary income. When income from transfers is added to it and mandatory deductions—known as transfer expenditures (direct taxes and social contributions)—are subtracted, we obtain income after transfers. After deducting

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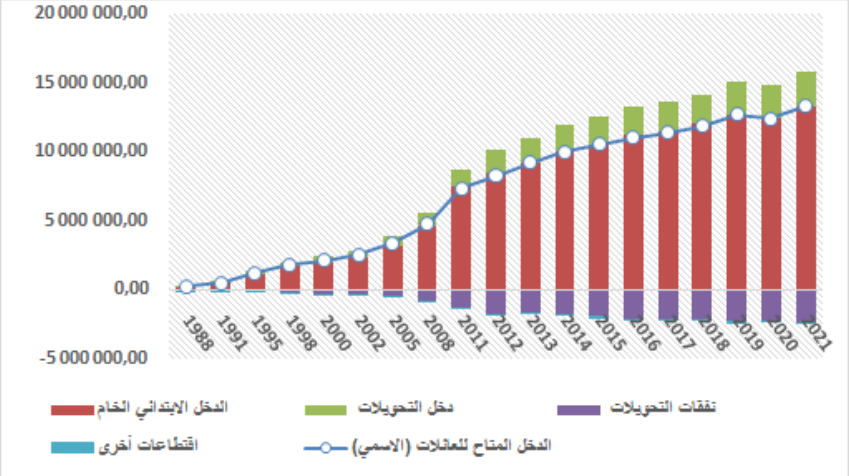
certain other charges (insurance, financial services, and other current transfers), we obtain disposable income (or available income). The latter is divided into two parts: one part is spent by households for consumption purposes, known as consumer expenditure, and the other part is saved.

Total disposable income of Algerian households witnessed a noticeable increase during the period 1988–2022. It rose from DZD 239 billion in 1988 to approximately DZD 2,105 billion in 2000, then increased by 61.52% in 2005 to reach DZD 3,400 billion. It continued to rise to DZD 7,360 billion in 2011, and reached DZD 10,511 billion in 2015, representing an increase of 42.8% compared to 2011. It then attained its highest value in 2021, estimated at about DZD 13,308 billion. Figure (3) below illustrates the evolution of disposable income and its components during the period 1988–2022.



- Red bars: Primary income of households
- Green bars: Transfer income
- Purple bars: Transfer expenditures
- Teal bars: Other deductions
- Blue line with circle markers: Nominal disposable income of households

Figure (3): Trend in the Change of Disposable Income of Algerian Households During the Period 1988–2022

Source: Prepared by the authors based on:

- Retrospective des Comptes Économiques 1963–2014, op. cit., pp. 102–125;
- TEE 2012–2015, op. cit., pp. 4–7;
- TEE 2015–2018, op. cit., pp. 4–7;
- TEE 2019–2021, op. cit., pp. 5–7.

This significant increase in total disposable income resulted from the rise in primary income, along with transfer income. As shown in Figure (3) above, transfer income (pensions and social benefits plus other current transfers) increased substantially during the study period, rising from DZD 61 billion in 1988 to DZD 456 billion in 2000, then to DZD 741 billion in 2005, and to DZD 1,250 billion in 2011. This upward trend continued until it reached DZD 2,581 billion in 2021. This increase in transfer income is attributed

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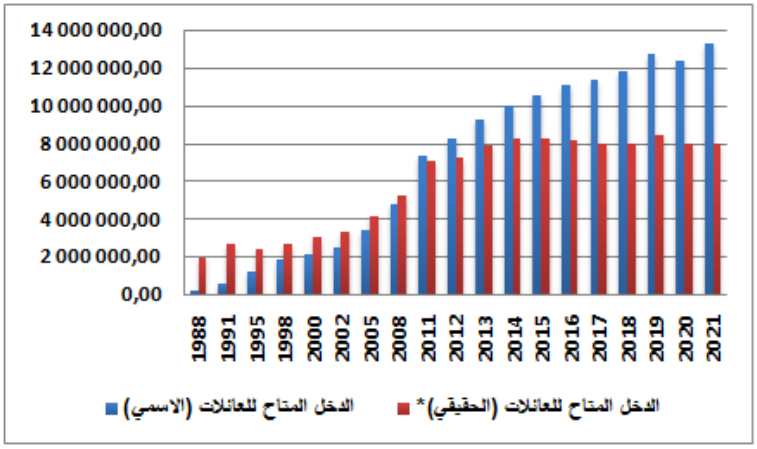
to the government's adoption of an expansionary fiscal policy starting in 2001, which, in its social dimension, aimed to reduce poverty and alleviate income inequality among different segments of society.

However, this increase in disposable income is nominal and is quickly eroded by annual price inflation. Figure (4) below illustrates the evolution of nominal and real disposable income of Algerian households during the period 1988–2022.



- Blue bars: Nominal disposable income of households
- Red bars: Real disposable income of households

Figure (4): Evolution of Nominal and Real Disposable Income of Algerian Households, 1988–2022

Source: Prepared by the authors based on:

- General Consumer Price Index (CPI) data obtained from the World Bank; and
- Retrospective des Comptes Économiques 1963–2014, op. cit., pp. 102–125;
- TEE 2012–2015, op. cit., pp. 4–7;
- TEE 2015–2018, op. cit., pp. 4–7;
- TEE 2019–2021, op. cit., pp. 5–7.

Real disposable income in 1988 amounted to approximately DZD 1,962 billion, then gradually increased to reach DZD 2,675 billion in 1991, representing an increase of about 34.8%. However, it began to decline immediately after the government implemented the structural adjustment program and the accompanying austerity economic policies. In 1995, it recorded a decrease of about DZD 280 billion. With the completion of economic reforms in the late 1990s, it began to rise again, reaching approximately DZD 2,989 billion in 2000. This upward trend continued in subsequent years following the Algerian government's adoption of an expansionary spending policy starting in 2001 after the recovery of oil prices. Real disposable income reached DZD 7,042 billion in 2011 and exceeded DZD 8,000 billion starting in 2014.

As previously mentioned, part of disposable income is allocated to various consumption purposes and represents the largest share of total disposable income for households, while the remaining part is saved. Figure (5) below illustrates the evolution of household consumer expenditure and household savings during the period 1988–2022.

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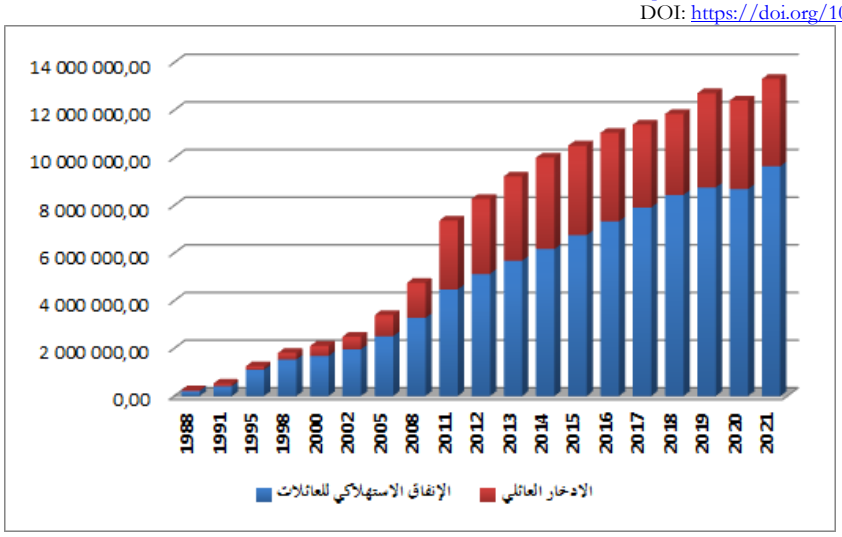

Blue bars: Household consumer expenditure

Red bars: Household savings

Figure (5): Evolution of Consumer Expenditure and Household Savings During the Period 1988–2022

Source: Prepared by the authors based on:

- Retrospective des Comptes Économiques 1963–2014, op. cit., pp. 102–125;
- TEE 2012–2015, op. cit., pp. 4–7;
- TEE 2015–2018, op. cit., pp. 4–7;
- TEE 2019–2021, op. cit., pp. 5–7.

Household consumer expenditure in Algeria experienced a significant increase during the study period. It rose from approximately DZD 209 billion in 1988 to nearly five times that amount, reaching about DZD 1,103 billion in 1995. It continued to increase to DZD 1,531.5 billion in 2000, representing an increase of about 39% compared to 1995, then rose further to DZD 2,510.5 billion in 2005. It nearly doubled in 2011 to reach DZD 4,471 billion, continued rising to exceed DZD 6,750 billion in 2015, and reached its highest level in 2022, surpassing DZD 9,645 billion.

As for the share of consumer expenditure in total disposable income, it amounted to 87% in 1988, increased to 89% in 1995, then declined to 80% in 2000, and further to 74% in 2005. It continued to decrease until reaching 61% in 2011, stabilized at around 62% during the period 2012–2015, and then gradually increased to approximately 72% in 2022.

Household savings also witnessed notable development, both in absolute value and as a share of total disposable income. The volume of household savings increased from DZD 30 billion in 1988 to approximately DZD 890 billion in 2005, and continued to rise at the same pace until reaching its highest level in 2019, at about DZD 3,958 billion. As a percentage of disposable income, household savings increased from 13% in 1988 to 26% in 2005, then continued to rise to reach its highest level of about 39% in 2011. It then stabilized at around 38% from 2012 to 2014, and starting in 2015 began to decline, reaching about 28% in 2022.

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Trends in the Distribution of Consumer Expenditure of Algerian Households During the Period **1988–2022:**

The level of consumer expenditure varies from one household to another due to differences in income distribution among households. To clarify the manner in which income is distributed among Algerian households, this study relies on field surveys conducted by the National Office of Statistics (ONS) and the National Center for Population and Development Studies and Analyses (CENEAP) on household consumer expenditure for the years 1988, 1995, 2000, 2005, 2011, and 2022. These surveys classify households into five income quintiles (or ten income deciles), ranging from the first quintile representing the poorest 20% of the population to the fifth quintile representing the richest 20%. Table (3) illustrates the evolution of the distribution of consumer expenditure among Algerian households from 1988 to 2022.

Table (3): Evolution of the Volume of Consumer Expenditure of Algerian Households by Income Quintiles, 1988–2022

Quintiles	**1988 Expenditure**	**(%)**	**1995 Expenditure**	**(%)**	**2000 Expenditure**	**(%)**	**2005 Expenditure**	**(%)**	**2011 Expenditure**	**(%)**	**2022 Expenditure**	**(%)**
First quintile	14.23	6.86	67.63	6.79	118.50	7.74	183.27	7.30	377.30	8.40	600.90	7.50
Second quintile	22.77	10.98	114.42	11.49	179.80	11.74	306.28	12.20	565.40	12.59	943.70	11.77
Third quintile	30.99	14.94	159.38	16.00	242.20	15.82	409.21	16.30	740.30	16.49	1,252.50	15.63
Fourth quintile	43.02	20.74	225.80	22.67	330.60	21.59	554.82	22.10	978.40	21.79	1,679.70	20.95
Fifth quintile	96.41	46.48	428.62	43.04	660.30	43.12	1,056.90	42.10	1,828.20	40.72	3,539.10	44.15
Total	**207.41**	**100**	**995.85**	**100**	**1,531.4**	**100**	**2,510.5**	**100**	**4,489.5**	**100**	**8,015.80**	**100**

Source: Prepared by the authors based on:(ONS, 1988, p. 70); (ONS, 1997, pp. 2–3); (ONS, 2013, pp. 5–6); (CENEAP, 2006, p. 37); (ONS, 2024, p. 6).

A comparison of the evolution of consumer expenditure distribution among Algerian households (Table 3 above) shows that the fifth quintile (the highest-income group) consistently received the largest share of household consumer expenditure. Its share exceeded 47% in 1988, then declined somewhat to reach 40.72% in 2011, before rising again in 2022 to approximately 44%. In contrast, the share of the first quintile (the poorest 20%) of total household consumer expenditure ranged between 6.86% in 1988 and 8.4%—its highest recorded share—in 2011. This clearly indicates the existence of significant inequality in the distribution of consumer expenditure among Algerian households during the period 1988–2022.

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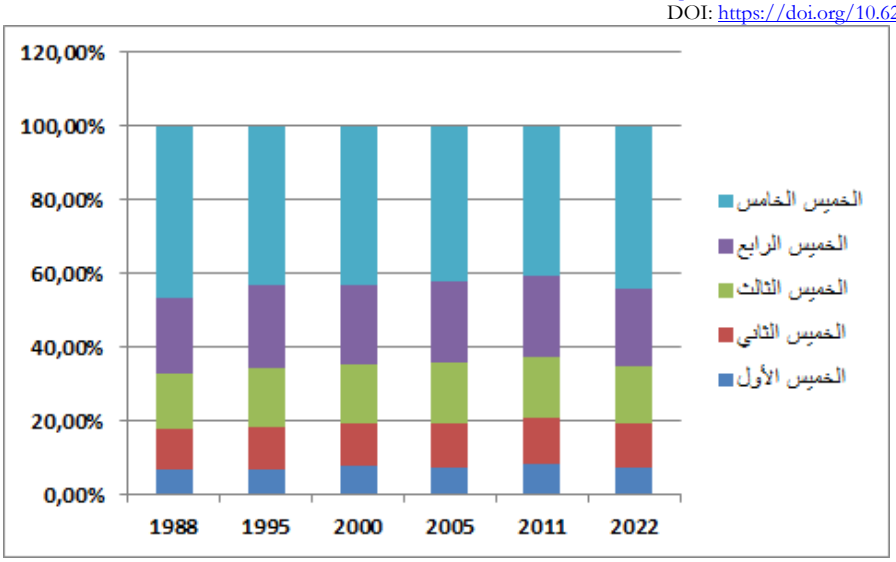

Dark blue segment: First quintile (poorest 20%)

Red segment: Second quintile

Green segment: Third quintile

Purple segment: Fourth quintile

Light blue (cyan) segment: Fifth quintile (richest 20%)

Figure (6): Evolution of the Volume of Consumer Expenditure of Algerian Households by Income Quintiles, 1988–2022

Source: Prepared by the authors based on the data in Table (3).

Measuring and Analyzing Inequality in the Distribution of Consumer Expenditure among Algerian Households (1988–2022):

In order to determine the extent of inequality in income distribution among Algerian households, the Gini coefficient, the Kuznets coefficient, and several dispersion ratios were calculated, including the Palma Ratio, the Decile Share Ratio (DSR), and the Quintile Share Ratio (QSR). This was done using data on household consumer expenditure for the years 1988, 1995, 2000, 2005, 2011, and 2022. The following table shows how the Gini coefficient, the Kuznets coefficient, and dispersion ratios were calculated for the year 1988.

Table (4): Measuring Inequality in the Distribution of Household Consumer Expenditure for the Year 1988

Deciles	**Share of Each Group**	**x_i (%)**	**x_{i-1} (%)**	**$X_i - X_{i-1}$ (A) (%)**	**Household Share of Expenditure d_i%**	**Y_i (%)**	**Y_{i-1} (%)**	**$Y_i + Y_{i-1}$ (B) (%)**	**(A)(B)**	**$\lvert d_i - 10 \rvert$**
1st decile	10	10	0	10	2.76	2.76	0.00	2.76	0.0028	7.24
2nd decile	10	20	10	10	4.10	6.86	2.76	9.62	0.0096	5.90
3rd decile	10	30	20	10	5.01	11.87	6.86	18.73	0.0187	4.99

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4th decile	10	40	30	10	5.96	17.83	11.87	29.70	0.0297	4.04
5th decile	10	50	40	10	6.93	24.76	17.83	42.59	0.0426	3.07
6th decile	10	60	50	10	8.01	32.77	24.76	57.53	0.0575	1.99
7th decile	10	70	60	10	9.40	42.17	32.77	74.94	0.0749	0.60
8th decile	10	80	70	10	11.34	53.51	42.17	95.68	0.0957	1.34
9th decile	10	90	80	10	14.75	68.26	53.51	121.77	0.1218	4.75
10th decile	10	100	90	10	31.74	100.00	68.26	168.26	0.1683	21.74
Total									**0,62158**	**55.66**
Gini Coefficient: $:\text{Gini} = 1 - \sum_{i=1}^{n}(x_i - x_{i-1})(y_i + y_{i-1})$ -1) =0,62158(									**0,37842**	
Kuznets Coefficient: $:D = \frac{\sum_{i=1}^{n}\lvert d_i - 10\rvert}{180}$ =) 55,66 / 180(									**0,3092**	
Palma Ratio:: $\text{Palma Ratio} = \frac{D10}{D1 \text{ to } D4}$) 31,74 / (2,76+4,1+5,01+5,96)(									**1,78**	
Decile Share Ratio (DSR) $:\text{DSR} = \frac{D10}{D1}$ =)31,74 / 2,76(									**11,50**	
Quintile Share Ratio (QSR): : $\text{QSR} = \frac{Q5}{Q1}$ =)46,49/ 6,86 (									**6,78**	

Source: Prepared by the authors based on data extracted from (ONS, 1988, p. 70).

Using the same methodology, inequality indicators (Gini and Kuznets coefficients) and dispersion ratios were calculated for the years 1995, 2000, 2005, 2011, and 2022. Table (5) presents the evolution of inequality indicators and dispersion ratios during the period 1988–2022.

Table (5): Evolution of Inequality Indicators in the Distribution of Household Consumer Expenditure in Algeria, 1988–2022

Year	**1988**	**1995**	**2000**	**2005**	**2011**	**2022**
Gini Coefficient	0.37842	0.35198	0.341	0.318	0.3116	0.351
Kuznets Coefficient	0.3092	0.2857	0.2744	0.2689	0.2500	0.2844
Palma Ratio	1.78	1.49	1.47	—	1.24	1.56
Decile Share Ratio (DSR)	11.50	10.19	8.94	—	7.43	9.71
Quintile Share Ratio (QSR)	6.78	6.34	5.53	5.77	4.85	5.88

Source: Prepared by the authors based on the data in Table (3).

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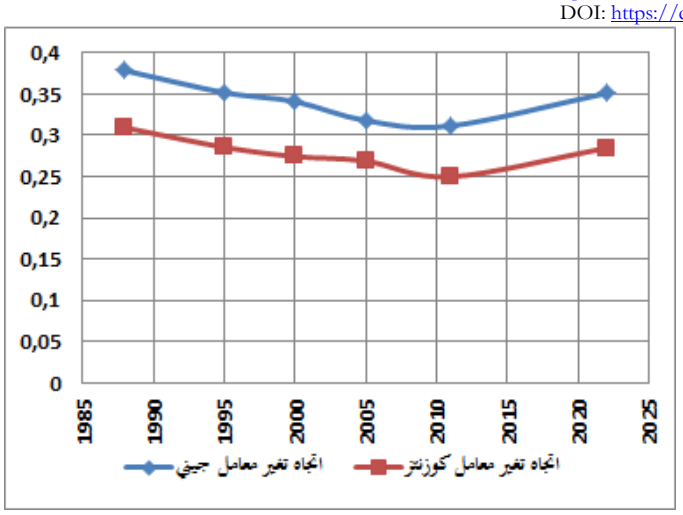
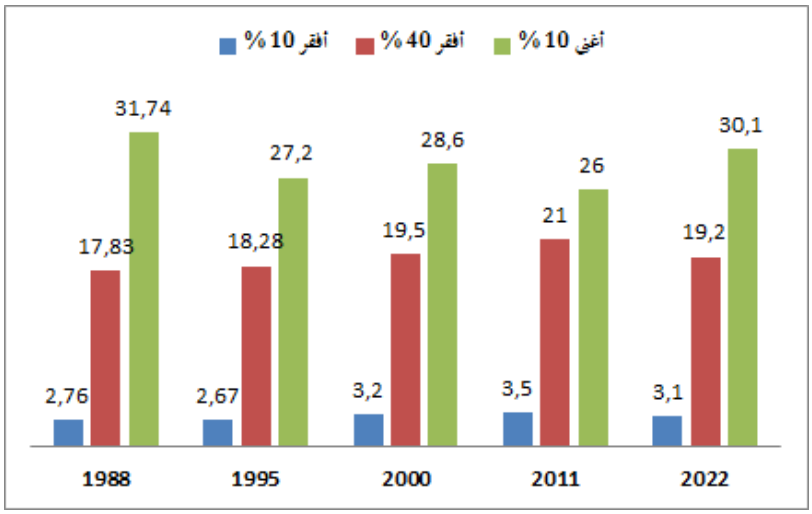


- Blue line: Gini Coefficient
- Red line: Kuznets Coefficient

Figure (7): Trend in the Change of the Gini Coefficient and Kuznets Coefficient During the Period 1988–2022

Source: Prepared by the authors based on the data in Table (5).

It is clear from the figure above that the Gini coefficient reached approximately **37.84% in 1988**, which indicates the existence of inequality in the distribution of consumer expenditure among Algerian households in that year. However, it declined by **6.68 percentage points in 2011**, reaching **31.16%**, which points to some improvement in income distribution. We also observe a decline in the Kuznets coefficient over the study period (1988–2022) by **2.48 percentage points**, decreasing from **30.92% in 1988** to **28.57% in 1995**, and reaching **28.44% in 2022**. This indicates a slight improvement in income distribution.



Blue bars: Poorest 10%

Red bars: Poorest 40%

Green bars: Richest 10%

Figure (8): Evolution of Inequality in the Distribution of Consumer Expenditure among Income Groups (1988–2022)

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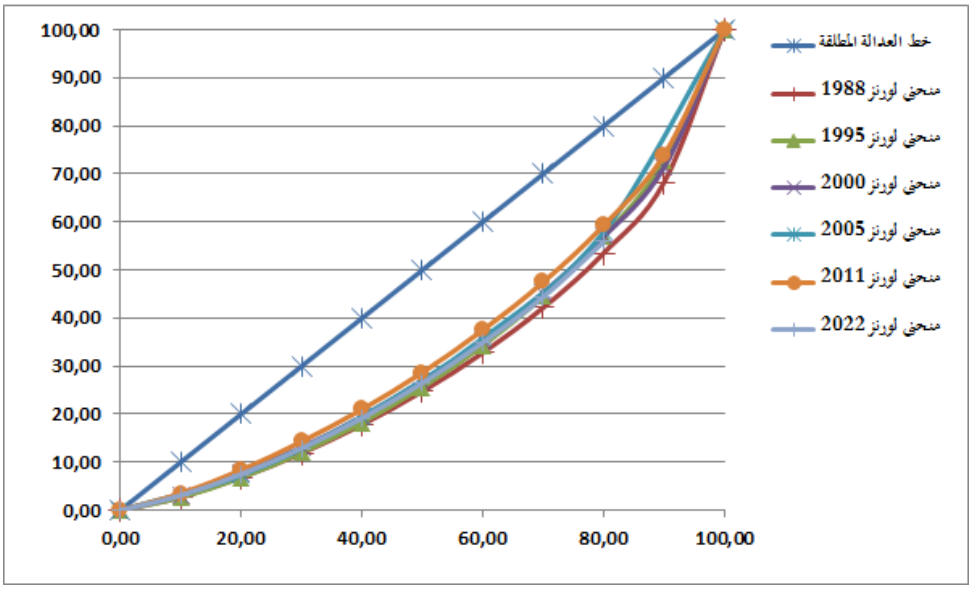
Source: Prepared by the authors based on the data in Table (5).

Based on the graphical presentation above, the **decile share ratio (DSR)** declined from **11.5% in 1988** to **7.43% in 2011**, as a result of the improvement in the share of the first decile (the poorest 10% of the population) in consumer expenditure, which increased from **2.76% in 1988** to **3.5% in 2011**, in addition to the decline in the share of the tenth decile (the richest 10% of the population) from **31.74% to 26%**. However, when comparing the years **2011 and 2022**, we note a slight decline in the share of the first decile (the poorest 10%) by **0.4 percentage points**, while the share of the tenth decile (the richest 10%) increased from **26% to 30.1%**.



Dark blue line with star markers: Line of Absolute Equality

Red line: Lorenz Curve 1988

Green line: Lorenz Curve 1995

Purple line: Lorenz Curve 2000

Light blue (cyan) line: Lorenz Curve 2005

Orange line: Lorenz Curve 2011

Dark blue line: Lorenz Curve 2022

Figure (9): Evolution of the Lorenz Curve During the Period 1988–2022

Source: Prepared by the authors based on:(ONS, 1988, p. 70); (ONS, 1997, pp. 2–3); (ONS, 2013, pp. 5–6); (CENEAP, 2006, p. 37); (ONS, 2024, p. 6).

A comparison of the Lorenz curves for the period **1988–2022** shows that all Lorenz curves remain distant from the line of perfect equality, indicating inequity in the distribution of consumer expenditure in all years of the study.

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Conclusion

By tracing the evolution of inequality indicators during the period 1988–2022, the following results were obtained:

- The process of income distribution (distribution of consumer expenditure) witnessed some improvement during the period 1988–2011, as the share of the poorest 10% of the population increased from 2.76% in 1988 to 3.5% in 2011, while the share of the richest 10% declined by 5.74 percentage points, falling from 31.74% in 1988 to 26% in 2011. However, this improvement did not persist over the last decade, as the share of the poorest 10% declined by 0.4 percentage points, while the share of the richest 10% increased by 4 percentage points.

- Despite the improvement observed in income distribution, it did not reach the level of distributive justice, as inequality remained at a moderate level. This indicates that government policies aimed at reducing inequality and mitigating the damage suffered by vulnerable income groups due to the implementation of economic reform and structural adjustment programs—along with accompanying austerity policies that included price liberalization, enterprise closures, and worker layoffs—were insufficient. The richest 20% of the population still capture more than 44% of total income, and their income share exceeds that received by the poorest 60% of the population (from the first to the third quintile).

In light of this situation, the state should seek to adjust its social policies by reforming the tax system to make it more flexible and equitable through the implementation of progressive taxation and wealth taxes, while exempting vulnerable groups from the tax burden on the one hand, and revising the current generalized subsidy policy to make it more targeted toward deprived and marginalized groups on the other.

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