LESSONS OF INFLATION IN URBAN HOUSEHOLDS: A COMPARATIVE STATISTICAL ANALYSIS

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Abstract. This article investigates the impact of inflation and rising prices of consumer goods on households in 2022 and 2023, which may signal the approaching period of stagflation in developing countries, similar to the Great Depression in the United States. The article explores the devaluation of major global currencies, including local currencies, although their inflation rates are considered lower than the cost of living increase. The authors argue that cities and rural areas adapt differently to changes in the standard of living. The objective of this article is to compare the parameters of the consumer basket based on relative assessments of the average monthly or annual cost of a consumption item in relation to the average wage level per month or year. Data on average indicators are obtained from statistical estimates of the cost of living in the United States during various years of the 20th and 21st centuries. The article utilizes the "Handbook of Labor Statistics," a popular compendium published in the United States that provides accessible information on prices and the standard of living in simple figures for households. Based on the conducted research, the article identifies an inflation readiness index for households, with the focus on urban centers as economic hubs. The research methodology employed is empirical, as well as document analysis.

Keywords: households, inflation, consumer basket, standard of living, megacity.

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INTRODUCTION

It is no secret that inflation and the rise in dollar prices of the consumer basket have been affecting households in 2022, and this trend has not slowed down in 2023. It appears that the world is heading towards a state of stagflation, reminiscent of the United States during the Great Depression. Major global currencies, as well as local currencies, are being devalued, although their inflation rates are considered lower compared to the rising cost of living. However, in the lives of leading countries, there have been periods of prosperity and crises that were not necessarily reflected in the price proportions of the consumer basket relative to average earnings. Cities and the associated rural areas have adapted differently to these changes in the standard of living. Over the past 20 years or more, the world has witnessed the concept of globalization in the movement of goods and services, but it has faced external restraining factors since 2020 due to the COVID-19 pandemic and, particularly now, against the backdrop of changing energy costs and geopolitical challenges.

REVIEW OF RELEVANT THEMATIC RESEARCH

In "Theory of Money and Credit," (1912) Ludwig von Mises presents a comprehensive analysis of monetary theory, exploring the functions of money, the impacts of credit expansion, and the causes of inflation. This foundational work argues for the significance of sound money principles in maintaining economic stability and critiques the interventionist monetary policies of the time.

Marinakis and White (2022) present a study on hyperinflation potential in commodity-currency trading systems, offering insights into the implications for sustainable development. Beshears et al. (2018) contribute to the field of behavioral economics and household finance, examining the behavioral aspects of financial decision-making.

In "Inflation: Lessons from Al-Maqrīzī," (2020), M. K. Zainal examines historical insights on inflation from the works of the medieval Islamic scholar Al-Maqrīzī. The article highlights Al-Maqrīzī's observations on the causes and effects of inflation, offering valuable lessons for contemporary economic understanding and policy-making.

Finally, the "Handbook of Labor Statistics" used in the article has served as a valuable resource for analyzing historical data on wages and consumption in the United States from 1924 to 2021. This comprehensive compendium provided essential information on labor-related statistics, prices, and the standard of living.

The aim of this article is to investigate key trends in the development of living standards and inflation over multi-generational periods, while also constructing an inflation preparedness index for urban households.

MATERIALS AND METHODS

The methodology employed in this article encompasses several approaches to gain a comprehensive understanding of the subject matter. The following methods were utilized:

Literature review: A thorough review of relevant literature was conducted, including scholarly articles, books, and reports, to establish a theoretical framework and identify key concepts related to inflation in urban households. Analysis of statistical data: Statistical data from reliable sources, such as government publications and reputable research institutes, were analyzed to examine trends, patterns, and changes in inflation rates, household incomes, and expenditure patterns over time. Analysis of financial data and development of figures and graphs: financial data, including income and expenditure data from households, were collected and analyzed. Figures and graphs were developed to visually represent the relationship between inflation, household income, and expenditure patterns. Analysis of financial mass media: Financial mass media sources, including online publications, were analyzed to gain insights into public perceptions, expectations, and responses to inflation and its impact on urban households. Discussions and observations: Discussions with experts in the field of economics, policymakers, and individuals from urban households were conducted to gather qualitative insights and understand the lived experiences of inflation in urban settings. Direct observations of household behaviors and economic activities were also made to enhance the understanding of inflation's effects.

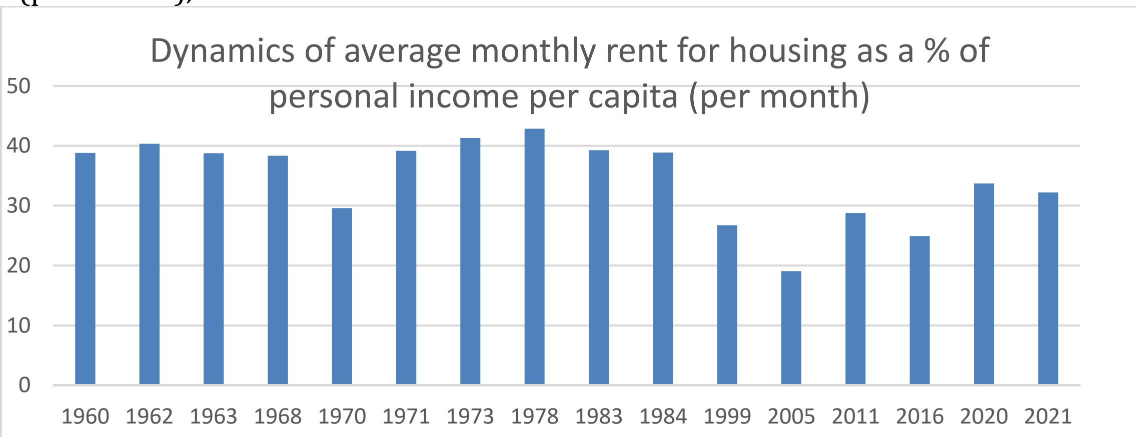
The combination of these methodologies allowed for a comprehensive analysis of inflation in urban households, considering both historical-economic parallels and contemporary dynamics. The integration of quantitative and qualitative data provided a well-rounded perspective on the characteristics and lessons learned from inflation in urban contexts.

Principal research analysis

Analyzing the inflationary situation in a country such as the United States, in relation to well-being through the prism of the consumer basket, helps to understand how households can react to inflation, not only in the U.S. but also globally, considering the significant impact inflation has on the majority of the population. In comparing the parameters of the consumer basket as the basis of our study, we will utilize relative evaluations, specifically the shares of the average monthly or annual cost of consumption items relative to the average wage level per month or year. These average indicators are derived from statistical estimates of the cost of living in the United States for different years in the 20th and 21st centuries. Since we analyze the indicators and responses from the perspective of typical households, we will rely on both scientific statistical handbooks and other sources accessible to them. In particular, we will refer to excerpts from the Handbook of Labor Statistics from various years, starting from 1924, which were published in the United States as popular almanacs and were available to households, providing straightforward explanations of key price and living standard parameters. We hope that the developers of these publications maintained objectivity in assessing the living standard parameters for the specified years, and we will strive to compare simple and comprehensible figures to identify general trends.

The graphs below illustrate the proportions of individual one-time expenditures relative to the average per capita personal income per month in specific years over the period from 1924 to 2021.

Graph 1. Dynamics of average monthly rent for housing as a % of personal income per capita (per month), USA

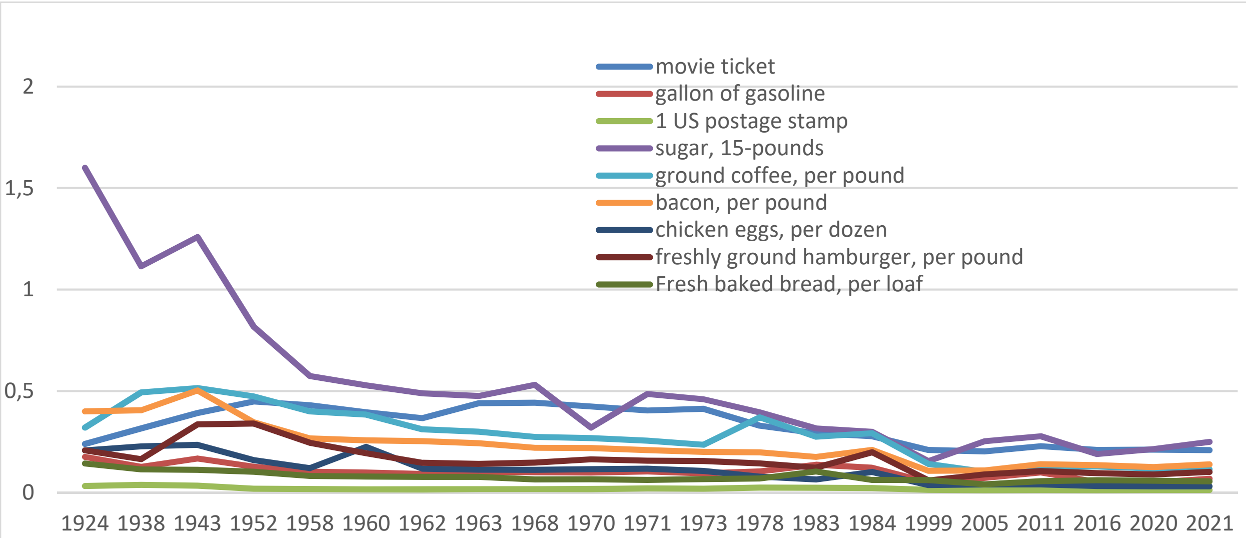


Source: authors' own research based on [1] and [2]

These graphs allow us to observe the changes in the proportions of individual one-time expenditures relative to the average per capita personal income per month over the examined period. By analyzing these trends, we can gain insights into the relationship between expenditures and income, providing valuable information for understanding the dynamics of living standards and economic conditions throughout the years.

The above graph shows the average monthly rent for housing from 1924 to 2021. The rent values fluctuate over time, with an overall increasing trend until 1952. From the late 1950s to the early 1970s, there is a slight decline in rent, followed by a gradual increase. There is a dip in the late 1970s and early 1980s, and then a moderate increase throughout the 1980s and early 1990s. From 1999 to 2005, there is a notable decrease, followed by mixed patterns with slight fluctuations in recent years. Additional factors like inflation and regional variations should be considered for a comprehensive analysis.

Graph 2. Percentage (%) of frequent small expenses as a share of per capita monthly income, USA



Source: authors' own research based on [1] and [2]

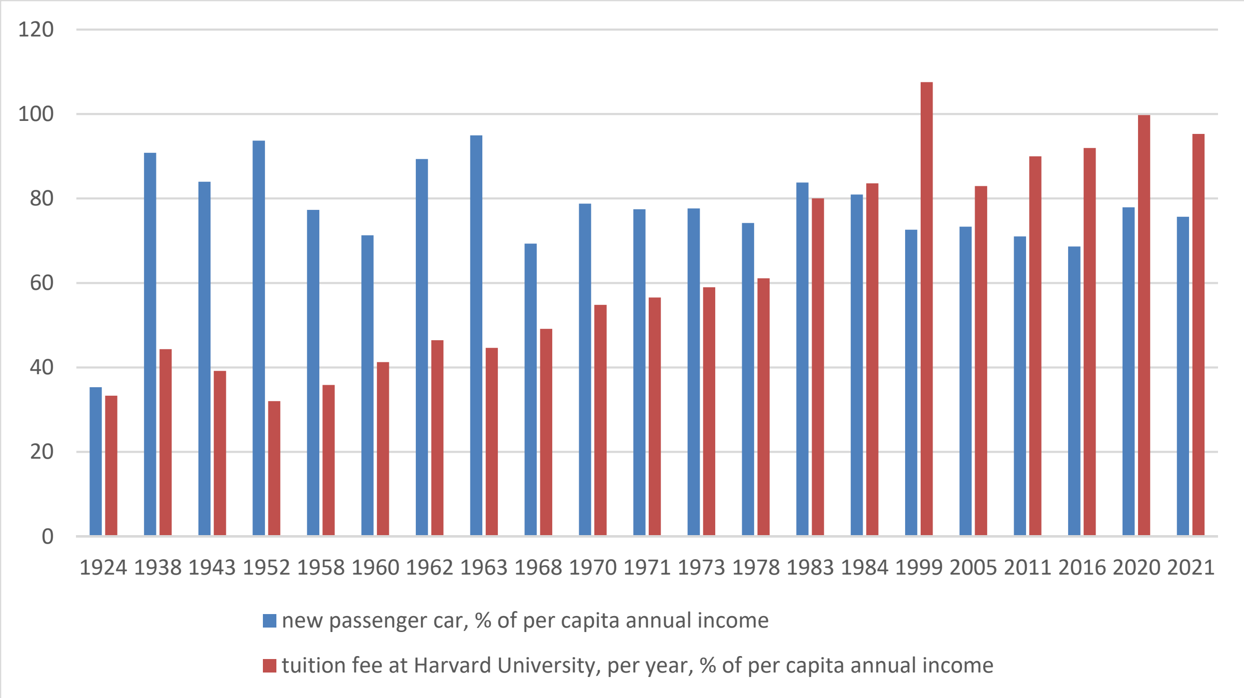
As observed, in the United States, the proportion of such expenditures has been decreasing over a long period, primarily due to the increase in wealth within the economy and at the household level.

Now let's examine more strategic purchases by comparing the proportions of individual expenditures to their average annual salary.

The graph above focuses on two specific categories of expenditures: automobiles and higher education. It illustrates the proportions of these expenditures as a percentage of the average annual salary. The y-axis represents the percentage value, while the x-axis denotes the years. Each data point corresponds to a specific year within the examined timeframe.

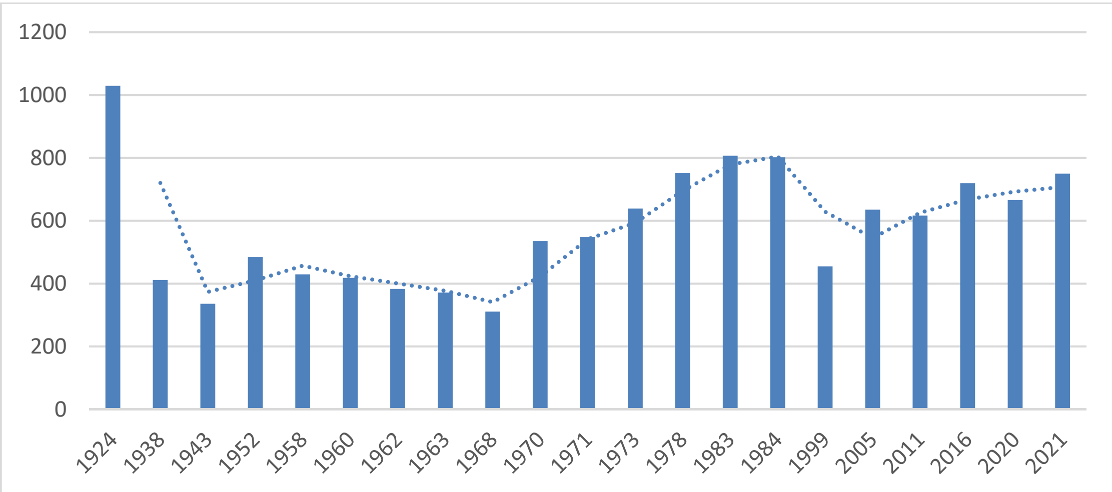
Analyzing the graph allows us to observe the changes in the proportions of individual expenditures on automobiles and higher education relative to the average annual salary. This analysis provides insights into the affordability and prioritization of these items over time. By comparing these proportions, we can identify trends and assess how individuals allocate their income toward significant purchases such as cars and education.

Graph 3: Proportions of Individual Expenditures (Automobile and Higher Education) Relative to per capita annual income, USA



Source: authors' own research based on [1] and [2]

Graph 4: Proportion of Individual Expenditures (New Home) in per capita annual income, USA



Source: authors' own research based on [1] and [2]

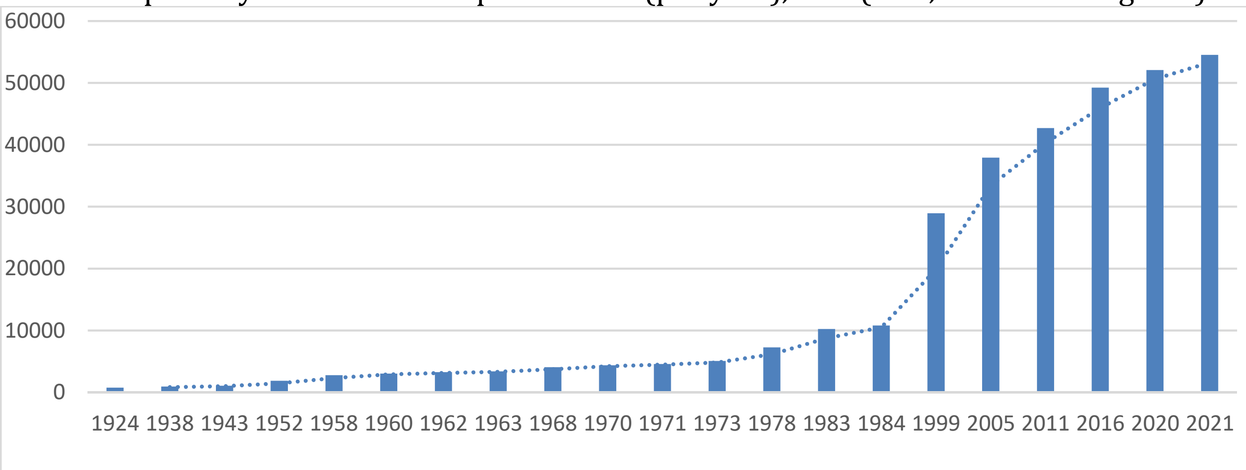
The graph above focuses on the proportion of individual expenditures on a new home relative to the average annual salary in the United States. It presents the changes in this proportion over time, with the y-axis representing the percentage value and the x-axis denoting the years.

Analyzing the graph allows us to observe the trends and fluctuations in the proportion of expenditures allocated to purchasing a new home compared to the average annual salary. It is evident that the affordability of new homes has varied over the examined period. Factors such as changes in housing prices, mortgage rates, and economic conditions have influenced individuals' ability to invest in residential properties. The graph indicates that the proportion of expenditures on a new home has experienced fluctuations, reflecting the dynamics of the housing market and economic factors. While it is subject to certain variations, there may be a general tendency for this proportion to increase over time due to factors such as population growth, urbanization, and the overall accumulation of wealth in the economy.

Certainly, the proportion of the cost of a new home has been increasing overall throughout the entire period under examination, with a noticeable growth trend particularly starting from 1999. From the tables above, we can observe that U.S. households have experienced both "golden years" and "crisis times," but this economy is far from an "inflationary collapse."

Meanwhile, the growth rates of the dollar money supply in the economy are well illustrated in the following graph:

Graph 5. Dynamics of Per capita income (per year), USA (USD, in absolute figures)



Source: authors' own research based on [1] and [2]

We have chosen to examine these data using the example of the United States because the U.S. dollar has been considered a reliable means of accumulation and the equivalent for major purchases in Ukraine for decades. Such significant growth in the money supply impacts the development of the economy, including inflation in the currencies of developing countries.

Since 2022, the United States has implemented a policy of artificial inflation restraint as a macroeconomic indicator by raising the federal funds rate of the Federal Reserve System. However, certain imbalances resulting from the abrupt increase in interest rates have already led to the bankruptcy of several banks, reflecting a sharp shift from a policy of "easy money" to a policy of "tight money." In the European Union (EU), inflation has not significantly decreased as of spring 2023. According to minfin.com.ua, in February 2023, the inflation rate stood at 8.5% on an annual basis. Although it slightly decelerated compared to January's 8.6%, the rate still exceeded expert forecasts. Furthermore, it is noted that the EU is experiencing an increase in the so-called "core inflation," and the implications of this indicator's impact on households in the EU will likely result in an increase in the cost of the consumer basket within the same year.

RESULTS

What should households do during times of destructive inflation and crisis?

For a household as an investor in the city, the increasing cost of the consumer basket is a macro factor that is difficult to combat, as the driving forces behind it are often of a more global nature and dictated by the collusion of major market players. Such an investor may attempt to sell their goods/services/labor at higher prices in response to the rising cost of living and invest in undervalued capital assets that will appreciate in the medium term. However, this is not easy to achieve in practice.

For businesses, raising prices on their products is possible as long as demand elasticity and administrative restrictions allow. For workers, it is challenging to increase the price of their labor, especially when they are completely dependent on a single employer/client. Consequently, a key long-term strategy for household-investors may involve accumulating a portfolio of savings and investments during periods of "rocket-like" consumption growth and employment levels. In years when signs of inflation and depression become apparent, the strategy would involve divesting/purchasing business assets with low demand elasticity, enabling price increases to earn additional income and offset potential declines in purchasing power and savings.

Undoubtedly, excessive consumer spending during boom times is incorrect for a household-investor, as it leads to a low savings and investment ratio. Consequently, the household may fail to accumulate and accumulate business assets that would work during inflationary and depressive periods. In other words, by consuming too much even during prosperous times, households expose themselves to a high risk of poverty during inflationary periods.

Lastly, if you observe that the powerful forces of this world have initiated rapid development processes of prosperity in your city, be aware that inflation is not far away – it may arrive in 2, or perhaps 3 years.

Household strategies to oppose inflation

We are increasingly coming to the conclusion that inflation, in addition to market mechanisms, can be artificially regulated by external players. For city residents (investors), inflation signifies rising prices and an accompanying increase in household expenditure and a decrease in savings. However, in developed countries, we would also expect to observe an increase in hourly wages. In macroeconomics, a high level of inflation is associated with increased purchasing power and low unemployment rates. However, in developing or "third world" countries, inflation often coincides with unemployment and economic downturn, a phenomenon known as stagflation.

Furthermore, inflation of payment equivalents has accompanied humanity, particularly in countries that cannot be classified as developed economies, at least within several cycles in the 20th century. According to historical data, this process was evident in ancient empires with respect to global currencies of that time over the centuries.

Moreover, we can argue that inflation has significantly contributed to the development of megacities in their current configuration. Investments in real estate and the rapid growth of trade, both in physical goods and financial services, serve as developmental and protective mechanisms in anticipation of the devaluation of payment equivalents. Resident-investors seek a "safe haven" for their savings during times when external forces provoke inflation and aim to impoverish the masses. Additionally, investors strive to earn margins on financial services and the turnover of physical goods, including during inflationary periods, in order to preserve and sometimes multiply wealth.

A household inflation readiness index

It is not possible to determine the probability of an impending inflationary crisis based solely on the provided information. Assessing inflationary expectations requires a comprehensive analysis of various economic indicators and factors. However, the household can measure its inflationary/crisis expectations using the following readiness index:

By assessing these indicators, the household can gauge its level of preparedness and readiness for potential inflationary crises.

Table 1. Main indicator values, Household inflation readiness index

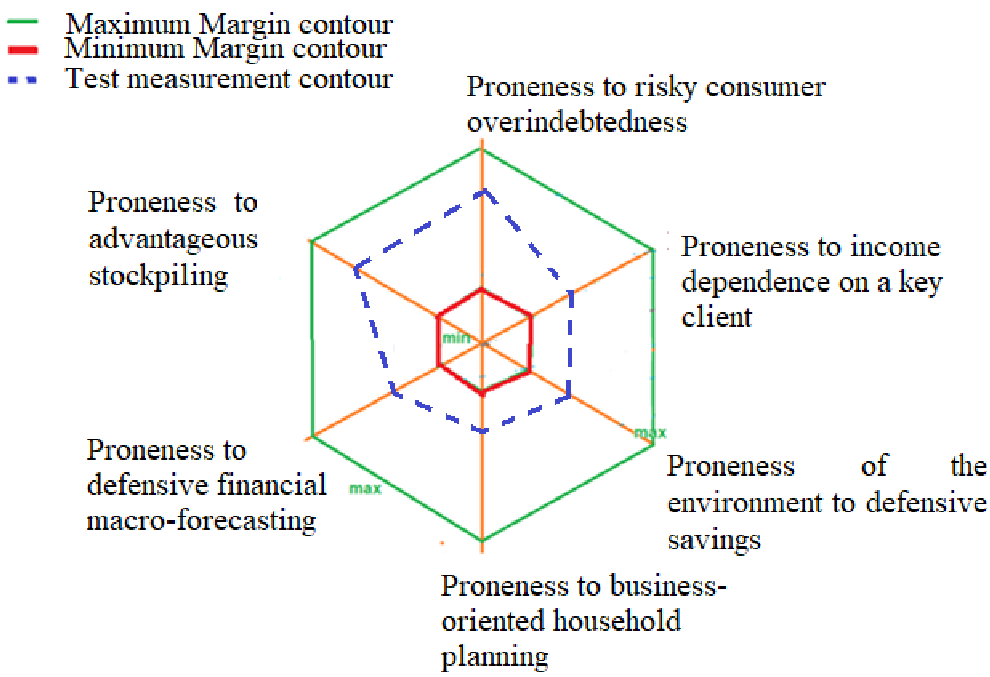
Description of indicators and their measurers	Maximum and minimum margins
Indicator 1: Proneness to risky consumer overindebtedness Question to ask: Do you/your neighbors excessively purchase expensive and unnecessary items, often using credit beyond your purchasing capacity?	Maximum Margin: The maximum margin for this indicator signifies a low level of proneness to risky consumer overindebtedness. In this range, individuals and their neighbors exhibit responsible purchasing behavior, avoiding excessive purchases of expensive and unnecessary items. They manage their finances within their purchasing capacity, avoiding heavy reliance on credit. Minimum Margin: The minimum margin for this indicator represents a high level of proneness to risky consumer overindebtedness. Individuals and their neighbors in this range engage in excessive and impulsive buying, frequently acquiring expensive items they cannot afford. They heavily rely on credit, exceeding their purchasing capacity and increasing the risk of overindebtedness.
Indicator 2: Proneness to income dependence on a key client Question to ask: Do you overly rely on a single job or income source, becoming highly dependent on your employer/key client?	Maximum Margin: The maximum margin for this indicator reflects a low level of proneness to income dependence on a key client. Individuals in this range demonstrate diversification in their income sources, reducing their reliance on a single job or client. They maintain a more secure and stable financial position. Minimum Margin: The minimum margin for this indicator signifies a high level of proneness to income dependence on a key client. Individuals highly depend on a single job or client for their income, making them vulnerable to fluctuations or potential disruptions in that source of income.
Indicator 3: Proneness of the environment to defensive savings Question to ask: Do people around you and within your status spectrum either dissipate the majority of their savings or actively accumulate them in different currencies?	Maximum Margin: The maximum margin for this indicator represents a low level of proneness of the environment to defensive savings. People within this range exhibit balanced savings behavior, neither dissipating the majority of their savings nor excessively accumulating them in different currencies. Minimum Margin: The minimum margin for this indicator signifies a high level of proneness of the environment to defensive savings. Individuals in this range either dissipate the majority of their savings or actively accumulate them in different currencies, indicating a lack of financial stability and preparedness.
Indicator 4: Proneness to business-oriented household planning Question to ask: Do you have operational funds that can sustain your household for several months, considering it a normal state?	Maximum Margin: The maximum margin for this indicator indicates a high level of proneness to business-oriented household planning. Individuals in this range have operational funds that can sustain their household for several months, demonstrating a proactive approach to financial planning and stability. Minimum Margin: The minimum margin for this indicator represents a low level of proneness to business-oriented household planning. Individuals in this range lack operational funds to sustain their household for several months, indicating a lack of financial preparedness and potentially compromising their socio-economic stability.
Indicator 5: Proneness to defensive financial macro-forecasting Question to ask:	Maximum Margin: The maximum margin for this indicator reflects a high level of proneness to defensive financial macro-forecasting. Individuals in this range have a clear vision of key economic indicators for their financial prospects in the next 2-3 years, enabling them to make informed decisions and adapt to potential

Do you have a clear vision of key economic indicators for your financial prospects in the next 2-3 years?	changes. Minimum Margin: The minimum margin for this indicator signifies a low level of proneness to defensive financial macro-forecasting. Individuals lack a clear vision of key economic indicators for their financial prospects, making it difficult for them to anticipate and respond to potential economic changes.
Indicator 6: Proneness to advantageous stockpiling Question to ask: Do you have a substantial stock of consumer goods purchased in large quantities at advantageous prices?	Maximum Margin: The maximum margin for this indicator represents a high level of proneness to advantageous stockpiling. Individuals in this range have a substantial stock of consumer goods purchased in large quantities at advantageous prices, allowing them to benefit from cost savings and ensure a stable supply of essential items. Minimum Margin: The minimum margin for this indicator signifies a low level of proneness to advantageous stockpiling. Individuals in this range have limited or no stockpiling of consumer goods, potentially missing out on cost-saving opportunities and facing challenges in times of scarcity or price fluctuations.

Source: author's own research.

A sample index drawing shows how the index can be displayed:

Figure 6. 2-dimensional presentation of the Household inflation readiness index



Source: authors' own research.

SUMMARY AND CONCLUDING REMARKS:

This study examined the characteristics and lessons of inflation in urban households, drawing on statistical analysis involving the period of 1929 to 2021 in the United States. The findings highlight the importance of understanding inflation and employing proactive financial strategies, such as asset investment, crisis-resistant business structuring, and income diversification, to mitigate the adverse effects on purchasing power, financial stability, and well-being.

The readiness index developed in this study provides a comprehensive framework for assessing households' preparedness and expectations in the face of inflation. By considering indicators such as consumer overindebtedness, income dependence, defensive savings, business-oriented planning, defensive financial macro-forecasting, and advantageous stockpiling, households can enhance their ability to navigate through inflationary periods.

Excessive consumption and reliance on credit during inflationary periods can exacerbate households' financial vulnerability. Prudent financial management, avoiding unnecessary and expensive purchases, and maintaining a sustainable level of debt are crucial in mitigating the negative impact of inflation.

Diversification of income sources and reducing dependence on a single employer or key client can enhance households' resilience to inflation. By exploring alternative income streams and fostering a diversified portfolio of economic activities, households can minimize the risks associated with income shocks.

Generally, this study highlights the significance of understanding inflation and its implications for urban households. By drawing lessons from past experiences, households can develop proactive strategies to navigate inflationary periods, protect their financial well-being, and improve their resilience in the face of economic challenges.

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