

# A Life Cycle Analysis of Income and Consumption Inequality in Türkiye<sup>1</sup>

İsa Sağbaşı, Prof. Dr., Afyon Kocatepe Üniversitesi, İktisadi İdari Bilimler Fakültesi, Maliye Bölümü, isasagbas@aku.edu.tr, ORC-ID: 0000-0002-9374-7247.

Uğur Akkoç, Doç. Dr., Pamukkale Üniversitesi, Uluslararası Ticaret ve Finansman, Uluslararası Ticaret, uakkoc@pau.edu.tr, ORC-ID: 0000-0002-9949-2097.

## Abstract

Life-cycle model offers current consumption should be proportional to lifetime income. It provides new insights into the examinations of economic inequalities. This study examines income/consumption inequality over lifecycle. The life cycle of inequalities are measured by using the Turkish HBAs. Findings confirm inequalities are dependent on ages. So, taking into consideration transforms the shape of age profile of inequalities. A hump-shaped figure over the life cycle appears in per capita terms. It is observed a significant increase in all type of inequalities at all age groups. Also, consumption inequalities take in place of income inequality by higher rises.

**Keywords:** *Income Inequality, Consumption Inequality, Life Cycle Model, Household Budget Surveys*

**JEL Codes:** *C83, D15, D31, E21*

## Türkiye'de Gelir ve Tüketim Eşitsizliğinin Yaşam Döngüsü Modeli ile Analizi

### Öz

Yaşam döngüsü modeli, mevcut tüketimin yaşam boyu gelirle orantılı olması gerektiğini öne sürmektedir. Ekonomik eşitsizliklerin incelenmesine yeni bakış açıları sağlamaktadır. Bu çalışma yaşam döngüsü boyunca gelir/tüketim eşitsizliğini incelemektedir. Eşitsizliklerin yaşam döngüsü TÜİK HBA'ları kullanılarak ölçülmektedir. Bulgular eşitsizliklerin yaşlara bağlı olduğunu doğrulamaktadır. Yani eşitsizliklerin dikkate alınması yaş profilinin şeklini değiştirmektedir. Kişi başına gelir ya da tüketime göre, yaşam döngüsü boyunca kambur bir şekil bir rakam ortaya çıkıyor. Her yaş grubunda her türlü eşitsizlikte ciddi bir artış gözlenmektedir. Ayrıca gelir eşitsizliğinin yerini daha yüksek artışlarla tüketim eşitsizlikleri almaktadır.

**Anahtar Kelimeler:** *Gelir Eşitsizliği, Tüketim Eşitsizliği, Yaşam Döngüsü Modeli, Hanehalkı Bütçe Anketleri*

**JEL Kodları:** *C83, D15, D31, E21*

<sup>1</sup> This study is carried out at London Brunel University, College of Business, Arts and Social Sciences.

## 1. Introduction

According to consumer behaviour theory, a household or individual decides about the timing of consumption and maximizes lifetime utility subject to a lifetime budget constraint. The life cycle model considers differences in income and consumption patterns of an individual's during the life span. The life cycle model is offered by pioneering works in this field such as Modigliani & Brumberg (1954) and Ando & Modigliani (1963). This measure is designed to answer the question 'What is a household's expenditure at different stages of its life?'. A number of individual life cycles are embedded in the life cycle of a family and, of course, they interact with each other.

In theory, individuals determine their consumption levels according to lifetime income. As stated in the permanent income hypothesis of Friedmann (1957) people spread their income at a level consistent with their expected long-term income. The expected long-term income is called permanent income. The stage people have reached in their life cycle affects their income and consumption. From a life cycle point of view, one can describe three stages of people's life: childhood, working life, and retirement. These periods start and end at different ages for each person. Also, the conditions of the stages may differ greatly for each person. During childhood, people are only allowed to spend the pocket money that their parents give them. Their consumption, expenditure, and earned income all rise quickly only once they begin working. Later on, they have savings in preparation for retirement, during which a drop in income, and hence consumption, is expected (Connolly and Munro, 1999, 246).

The life-cycle model gives fresh insights into the outcomes of studies that analyse public policies and inequalities. There are a bunch of studies that use the life-cycle model to analyse public policy or investigate different inequalities in society. For example, Erosa and Gervais (2002) theoretically take into consideration age in analysing optimal taxation. It causes the criticism of conventional models that take an instant picture of the effects of tax policies. The change on flowing income do change over time gives rise to this criticism. For example, Guran & Oğuz (2010) propose that tax policy on health should be designed in a lifetime perspective. Similarly, Poterba (2002) presents a piece of evidence that shows life cycle dynamics affect change in public intervention's efficiency on the US Medicare health system. Finally, there are a lot of papers, on the time patterns and cross-sectional charac-

teristics of inequalities that should be assessed from the life cycle perspective (e.g., Gourinchias & Parker, 2002; Storesletten et. al. 2004; Kaplan, 2012; Primiceri & Rens, 2009).

This study aims to investigate the income and consumption inequalities over the life cycle in the Turkish economy. Besides that, it provides information on trends of inequalities by measuring the age profile of inequalities for the years 2014, 2019, and 2022. The life cycle approach suggests consumption and income of the peoples are dependent on what stage they reach. Based on this, it could be argued that economic inequalities such as income and consumption are affected by the life cycle. Few studies have attempted to examine this relationship in emerging countries with time trends in the relevant literature. Also, this will be the first comprehensive study that measures the age profile of income and consumption inequalities in the Turkish economy. This study contributes to this area of interest by using Turkish household data.

The rest of the paper is designed as follows. The second part presents a brief literature review on consumption inequality literature. The third part explains the data and methods that are used. The fourth part includes the main findings and measurements. Finally, the fifth part tries to evaluate the results.

## 2. Literature Review

According to Kaplan (2012), there are two motivating factors for studying consumption inequality with the life cycle model. The first one is that consumption reflects all risks and the ability to insure them individuals in their whole life. This part of the relevant literature provides insightful policy implications on designing mechanisms of insurance in financial markets. Answering the question that is how consumption, being a very good measure of welfare, on the life cycle is the second motivating factor. The literature suggests that consumption measures individual welfare better than income and other measures (Cutler & Katz, 1992; Meyer & Sullivan 2013).

Some studies measure how inequality in labour supply, wages, and consumption varies over the life cycle. The presence of the hump-shaped consumption profile is a key common finding of the literature on whether the size of the hump differentiates across countries. A large body of studies proves total consumption or expenditures vary greatly across age profiles (e.g., Deaton, 1992; Kotlikoff, 2001; Gourinchias & Parker, 2002). Krueger & Fernandez-Villaverde (2004) is one of the early studies that propagate the result that total consumption both of durables and non-durables display a hump shape over the life cycle even after controlling for changes in family size. Heathcote et. al. (2005) give support to the hump-shaped age profile of consumption by putting emphasis on the effects of age inequality over the life cycle and considering cohorts. Some of the followers attempt to propose that demographics can explain some degree of varieties of consumption over the life cycle if household equivalence scales are used by studies (e.g. Blundell et. al., 1994). Even so, a notable size of the hump in consumption over the life cycle remains an unexplained part of consumption behavior.

A part of the consumption over life cycle literature analyzes the shocks of labor market uncertainties on consumption inequalities (e.g. Gourinchias and Parker, 2002; Storesletten et. al. 2004; Kaplan, 2012). The studies on this issue give insightful information about how the transition of shocks to consumption differs in different age groups. It is possible to argue that there are two results that studies are agreed upon. The first one is that the uncertainties and shocks in working life are more important than others. Moreover, permanent income shocks can not lead to great changes in consumption inequality because of they are predictable by consumers (Primiceri & Rens, 2009). while the second consumption inequality rises with age. And the results are robust to different modeling techniques such as nonlinear modeling.

Newer studies on consumption inequality try to deep dive into consumption behavior over the life cycle by dealing with different goods and household types. Aguiar and Hurst (2009) analyzed consumption profiles of different nondurable goods according to age after re-documents of famous hump-shaped nondurable consumption. It reveals that the hump of nondurable consumption sources mainly from three categories of nondurables: food, nondurable transportation, and clothing). Finally, the paper concludes that life cycle consumption inequalities are driven by inputs into market work and home production.

Modern literature on consumption inequality over the life cycle expands with new dimensions of some heterogeneities of goods and households. For example, Yang (2009) tries to explore the life cycle dynamics of housing relative to other goods. It reproduces that the age profile of non-housing goods consumption is lump-shaped, however, consumption of housing increases monotonically first and then flattens out according to life cycle. On the other hand, some studies try to measure the effects of price searches on consumption inequalities (e.g. Arslan et. al., 2021; Griffy, 2021). The difference between consumption and expenditure inequalities is an important question. Consumption inequality can be lower by %30 than expenditure inequality thanks to price search efforts of households. They state that poorer households search more and pay lower prices compared to wealthier ones. Similarly, studies prove that differences in returns of household portfolios can have effects on consumption inequality (Daminato & Pistaferri, 2024).

In the development economics literature on the Turkish economy, consumption inequality has less attention than income inequality. A large body of studies analyses the income inequalities in the Turkish economy in very different dimensions. In comparison to them, it is possible to say that there are a few studies that use consumption as a welfare measure. Duygan & Güner (2006) measures the consumption inequality and the effects of education on it in 1994 and 2002. After this very first study, İpek (2019) finds that consumption inequality is lower than income inequality for 2003 and 2015. Tamkoç & Torul (2020) explain the cross-sectional facts of economic inequalities in the Turkish economy. It states that consumption inequality reduced in the period between 2002 and 2016 as well as income and wage inequality. It is possible to say consumption inequality mimics income inequality in this period. According to the results of the paper, despite there being parallel trends in inequalities, variations of consumption are lower than income. Finally, Gemicioğlu et. al. (2024) focuses on directly consumption inequality in the Turkish economy. It reveals the

effects of inflation and indirect tax burden on consumption inequality in a large period of 2003-2019. Another striking finding of the paper is that consumption inequality takes income inequality's place after 2015 in the Turkish economy.

Also, there is a small set of studies that analyse inequalities in the Turkish economy over the life cycle. Arslan et. al., (2021) focuses on the difference between dispersions of consumption and expenditure caused by price search in Türkiye. It reports that the total variance of consumption is %15 smaller than the total variance of expenditures. Besides general results on the difference of inequalities, it also predicts the age profiles of consumption and expenditure inequalities. It claims two main results about that. The first one is that the cross-sectional variance of consumption increases until middle age and stays flat after middle age. The second one is that the cross-sectional variance of total expenditure is higher for all ages than the variances of consumption while having a similar shape according to age. Kırdar & Cilasun (2013) investigates income and its components in the life cycle model for Turkish households. It does not contain any results about consumption; however, it provides good insight into relations between education, household type, and life cycle inequalities. According to Kırdar & Cilasun (2013), the median household disposable income profile is very slightly hump-shaped according to ages for the total sample. The median income reaches its peak in the middle ages. Yet, Kırdar & Cilasun (2013) find that the profile of household income conditional on educational attainment in Turkey is fairly flat over the life cycle. Daşkaya & Sağbaşı (2019) is one of the few studies that explores directly consumption inequality in the Turkish economy in the literature. It covers the years between 2003 and 2014 by using the Household Budget Survey. After it reports consumption inequality has a downward trend before the 2008 crisis and the crisis has led to a moderate increase in inequality, it investigates the age profile of consumption inequality. The paper proves that consumption inequality appears in greatest magnitude in the oldest age group of more than 65 years old.

### 3. Methodology and data

This study aims to examine the characteristics of income and consumption inequalities over the life cycle. The life cycle models offer that income and consumption inequalities may differ according to age. In the working life era of the life cycle, ages between 20 and 60 are divided into four age groups. Moreover, the retirement age group after 60 is examined since they still earn income and consume. The age data of the head of household, regardless of male or female, is used for age classification.

The standard way to measure inequalities is using the Gini index in the literature. The main measure used to compare inequality differences between countries is the Gini. According to Trapeznikova (2019), perceptions of a policy's efficiency can vary based on the specific measure and the variable is being assessed. For example, officials should prefer use the Palma ratio<sup>2</sup> as their inequality metric instead of the Gini. This would demonstrate their concern for the impoverished. However, Kawachi & Kennedy (1997) compare the

<sup>2</sup> The Palma is a ratio of the welfare measure of the richest 10% to the bottom 40%.

behavior of six inequality metrics and conclude that the concentration measures are highly correlated, with Pearson correlations ranging from 0,86 to 0,99, and point out that the choice of inequality indicator is unlikely to influence the results.

This study uses the Gini index, Theil index, and Atkinson index are used in the line with Leiden approach in the measurement of income and consumption inequalities. Yet, the findings are only based on Gini<sup>3</sup>, Atkinson<sup>4</sup> and Theil<sup>5</sup>, which are the most used indicators of inequalities in empirical studies. As a sum, based on the Leiden Approach (Wang et. al., 2014), the following six equality measures are calculated.

**Table 1.** Inequality Measures

<i>Income inequality measures</i>	<i>Consumption inequality measures</i>
<ul style="list-style-type: none"> <li>• Gini for all individuals with nonzero <i>earnings</i> of classified age</li> <li>• Atkinson index for all individuals with nonzero <i>earnings</i> of classified age</li> <li>• Theil index for all individuals with nonzero <i>earnings</i> of classified age</li> </ul>	<ul style="list-style-type: none"> <li>• Gini for all individuals with nonzero <i>consumption</i> of classified age</li> <li>• Atkinson index for all individuals with nonzero <i>consumption</i> of classified age</li> <li>• Theil index for all individuals with nonzero <i>consumption</i> of classified age</li> </ul>

This study uses secondary data which is collected by the Turkish Statistical Institute (TurkStat) which is the official statistical body belonging to The Presidency. The first household income and consumption survey including all regions was carried out in 1987. The survey was begin to named as Household Budget Survey in 2003, and the estimation level was revised and the sample size was adjusted in accordance with NUTS. The household

- 3 The Gini is a standard and summary measure of any type of inequalities. The Gini coefficient provides the shares of data into a single statistic, which summarizes the distribution of income. The Gini measure take values that ranges from 0 (means perfect equality) to 1 (means perfect inequality). The Gini is calculated on the difference between the different shares of income distribution, called as the Lorenz curve, and the means of a perfectly equal income distribution.
- 4 The Atkinson index is more sensitive to changes at the lower end of the distribution as approaches one 1, while it approaches 0 inequality aversion falls. The percentage of total income that, in the case of perfect income distribution, would be needed to maintain the current level of social welfare can be determined using Atkinson values. With only  $1 - 0.20 = 80\%$  of income needed to obtain the same level of social wellbeing, according to the Atkinson index value of 0.20. Atkinson values have a theoretical range of 0 to 1, where 0 denotes an equal distribution state.
- 5 The Theil index is a statistic used to measure economic inequality. The Theil index measures an entropic distance the population is away from the ideal equality. The numerical result is in terms of negative entropy so that a higher number indicates more order that is further away from the ideal of maximum disorder. If the Theil index values is 0, that shows a state of equal distribution and values greater than 0 representing growing levels of inequality.

budget surveys have been disseminated continually between the years of 2002 and 2019. This study examines 2014, 2019 and 2022 household budget surveys. The household budget survey of 2014 was gathered from 1.104 households and the sample households were altered monthly base all the year reaching 13.248 households in total. 10.122 Households (76% of the sample) replied to the questionnaire. The household budget survey of 2019 and 2022 was gathered from 1.296 households and the sample households were altered monthly base all the year reaching 15.552 households in total. A randomised two-stage cluster sampling method is used.

Consumption structures and income levels of individuals could be examined by using household budget surveys. These surveys mainly reveal data according to socio-economic groups, rural, urban, and regions, types of consumption expenditures and dispersion of goods and services expenditures, socio-economic characteristics of households, working conditions of household members, total income of households, and sources of income. A household budget survey consists of three sections. The first section includes household variables that show ownership of some assets such as dwelling, household goods and facilities, transport vehicles and real estate. The second section presents individual variables about household composition, economic activity, and employment status, types of income. The third section of this survey has consumption expenditure variables. Interview, recording, and observation methods are used in data gathering. Each interviewer visits 6 times each household in a month. The interviewer meets the household and gets the socio-economic status of the household on the first visit. The members of a household write daily expenditures in a notebook given by TurkStat. In the last interview, the data for the earned disposable net income in the last 12 months is gathered. It should be also noted that disposable net income data is pre-tax, and consumption data is after-tax since indirect taxes are included in prices.

All people living in households except the nomadic in all settlements within the borders of Turkey are included in the survey's population. These settlements are divided into urban and rural. The settlements with a population of 20.001 and more and less than 20.001 population are accepted as urban and rural, respectively.

TurkStat uses the Classification of Individual Consumption by Purpose (COICOP) to classify all goods and services expenditures made by households during the survey month. The data according to this classification is collected based on 12 expenditure groups: food and soft drinks; alcoholic beverages, cigarettes, and tobacco; clothing and shoes; housing, water, electricity, gas, and other fuels; furniture, appliances, and home maintenance services; health; transportation; communication; entertainment and culture; educational services; restaurant, catering, and hotels; miscellaneous goods and services. Household budget surveys offer data on consumption expenditures and how they are distributed among various factors, such as household size and type, socioeconomic characteristics, employment status of household members, income of households, and sources of income.

Numerous data on income and expenses from household budget surveys will be used in this investigation. It offers raw data on the members of the household as well as their income and spending patterns. In order to extract useful information from the survey, data mining is required. Furthermore, because household budget surveys are longitudinal, it is possible to track changes in the sources of income and patterns of spending within homes.

Long-term effects are considered in dynamic studies, which are recommended as an alternative to annual static methods. It is necessary to watch samples for the entirety of their lives while studying the life cycle model. In the social sciences, this is almost impossible. This study aims to address this issue by examining and comparing the income and spending patterns of various age groups, as has been done in previous empirical literature. The study presented here is made possible by the life cycle approach to taxation.

#### 4. The findings

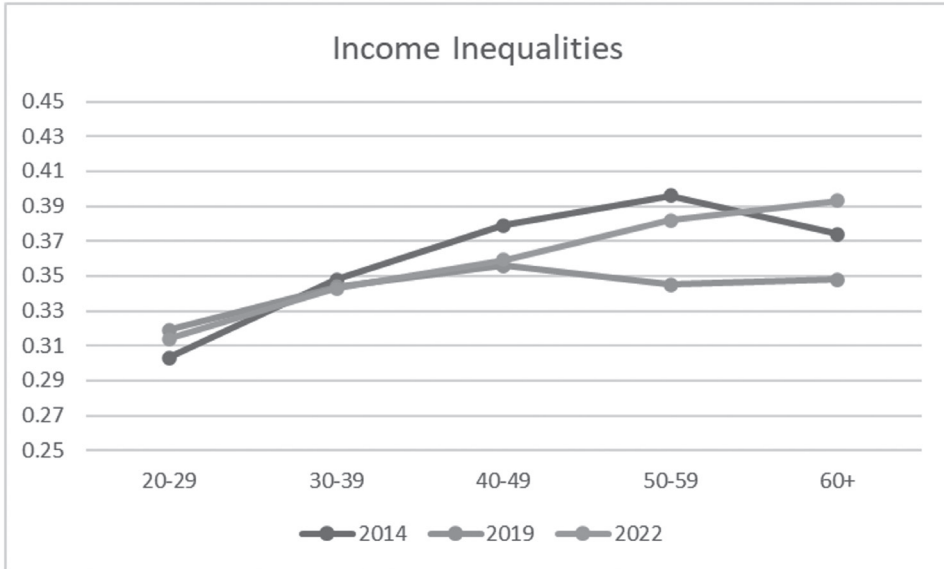
This part of the study presents the findings about income and consumption inequalities over the life cycle for the Turkish economy. This study tries to capture changes in inequalities profile in time also. To do this, the paper calculates all inequality measures for 2014, 2019 and the final year of the dataset 2022 as well as different welfare measures and age profiles. The following Table 2. shows values of Gini, Theil, and Atkinson indexes of income and consumption for the total sample in 2014, 2019, and 2022. According to Table 2. there are some facts about inequalities. The first one is that consumption inequality is notably greater than income inequality in 2022. After an increase on consumption inequality from 2019 to 2022, it outpaces the income inequality for 2022. The second fact is about the increase of inequalities in the year 2022. It is possible to say that there is a slightly increase from 2014 to 2019. However, both of income and consumption inequality increases significantly on 2022. Such that the increase in consumption Gini is about %20 of the 2019 level.

**Table 2.** Income and Consumption Inequalities for Total Sample

Concentration Measure	Income Inequality			Consumption Inequality		
	2014	2019	2022	2014	2019	2022
<b>Gini</b>	0,360	0,343	0,376	0,345	0,348	0,418
<b>Atkinson</b>	0,110	0,096	0,119	0,095	0,098	0,143
<b>Theil Entropy Index</b>	0,239	0,205	-	0,204	0,211	-

Figure 1. and Figure 2. present income and consumption distribution concentration measures according to age groups and their trends, respectively. While the 20-29 age group has the lowest income inequality, the highest consumption inequality appears in the 50-59 age group. But, the most unequal group was 60+ years old in 2014. Actually, the shape of consumption inequalities is similar in that increase with age and slightly drop in middle age. But, there are two different behaviors of 60+ years old for 2014 and other years. In 2014, consumption inequality continued to rise by age after 60+ years old, while there was a slight decrease in the 60s for 2019 and 2022. Also, it is clear that inequalities are far more than in past years in all age groups in 2022.

**Figure 1.** Income Inequalities over the Life Cycle



**Figure 2.** Consumption Inequalities over the Life Cycle

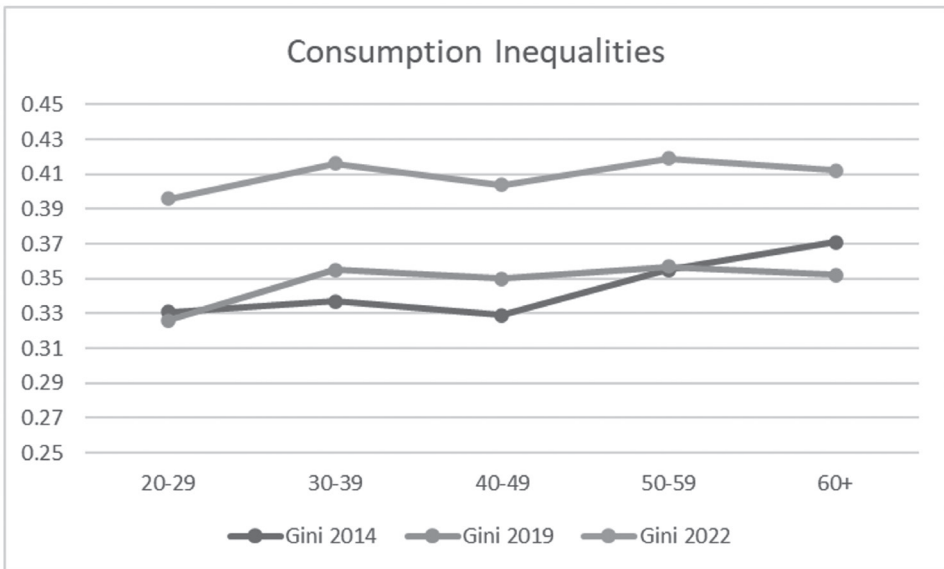


Figure 1. presents the same picture of income inequality. However, findings are a bit complicated. The first finding of the figure inferred that income inequality rose notably until the middle ages in all years. Trends after middle age depend on the years that are investigated. In 2014, there is a hump in the 50-59 age group. In 2019, the maximum inequality was reached in the middle ages. Income inequality reaches a plateau by the middle

ages. Finally, in 2022, income become more inequal as age increases steadily. There is an upward trend over the life cycle. This picture tells us that income inequalities at older ages increases dramatically in 2022. The great sources of equalizing between 2019 and 2022 may come from older ages.

**Figure 3.** Trend of Consumption Inequality

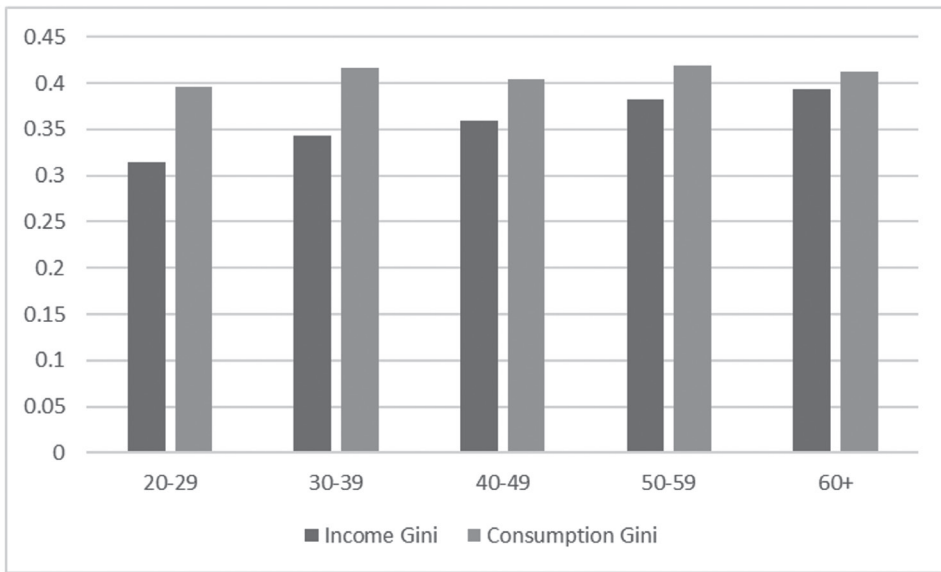
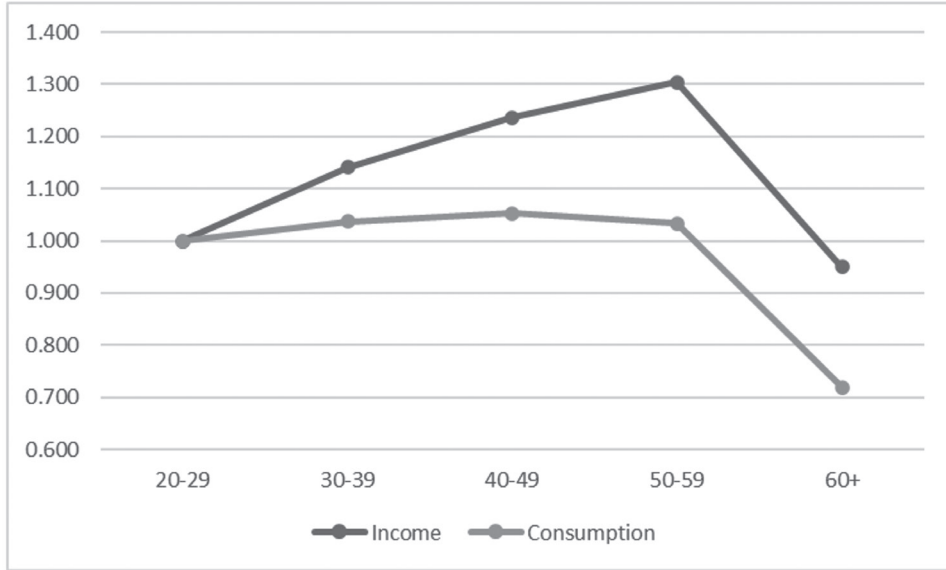


Figure 3. compares the age profile of income and consumption inequalities in 2022. The figures show that income inequality is less than consumption inequality in all groups. The age group of 20-29 has the lowest income and consumption inequality. On the other hand, while the age group of 50-59 has the highest consumption inequality, the age group of 60+ has the highest income inequality.

When we look at income and consumption levels of age groups directly instead of within-group inequalities in these terms, Figure 4. reflects reductions in income and consumption in older ages in 2022. Figure 4. presents the income and consumption levels of each age groups relative to youngest age group levels. Income rises as age increases, but in the 60+ age group which is the exit group from the labour market, we observe great income reduction. One can propose that retirement is very dominant in income reduction in that group. Also, a reduction in income passes through to consumption greatly. Income and consumption levels of the 60+ age group fall behind the 20-29 age group levels by losing approximately %30 of income and consumption.

**Figure 4.** Income and Consumption Levels over the Life Cycle



Overall, all figures help to understand that there is no significant hump shape in any type of inequalities for the Turkish economy. On that point, it is possible to take into consideration other issues that affect income and consumption distribution such as household type and education. We re-examined the income and consumption inequalities over the life cycle in per capita terms. To get per capita income and consumption, we use the OECD equivalence of household size. By dividing the total disposable income of household and total consumption by OECD equivalence size, we derived the per capita income and per capita consumption.

**Figure 5.** Income and Consumption Inequalities over the Life Cycle According to Equivalence Scale

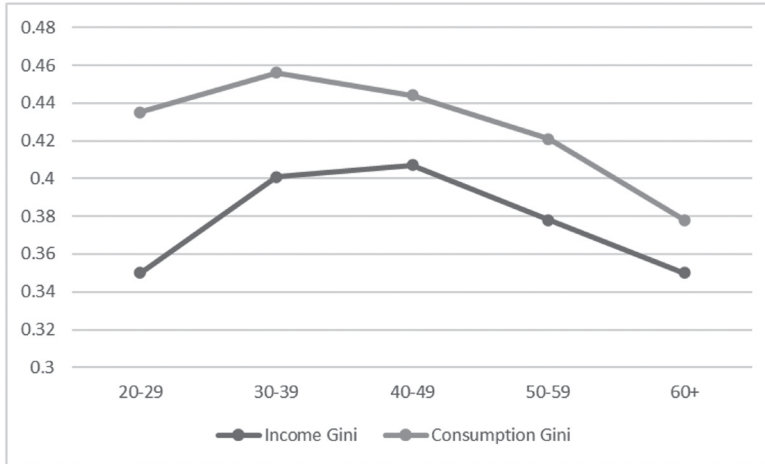
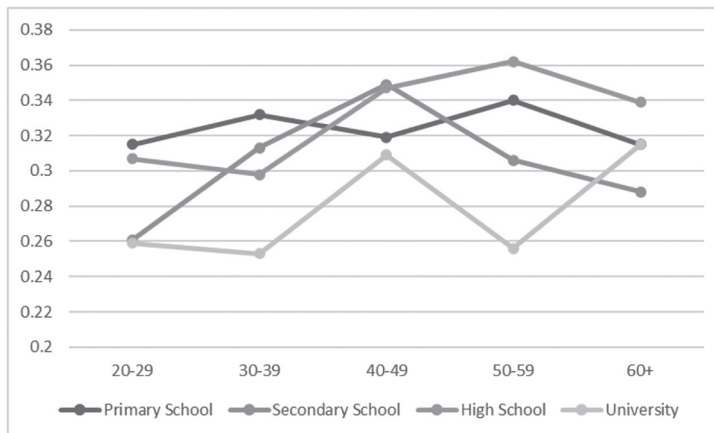
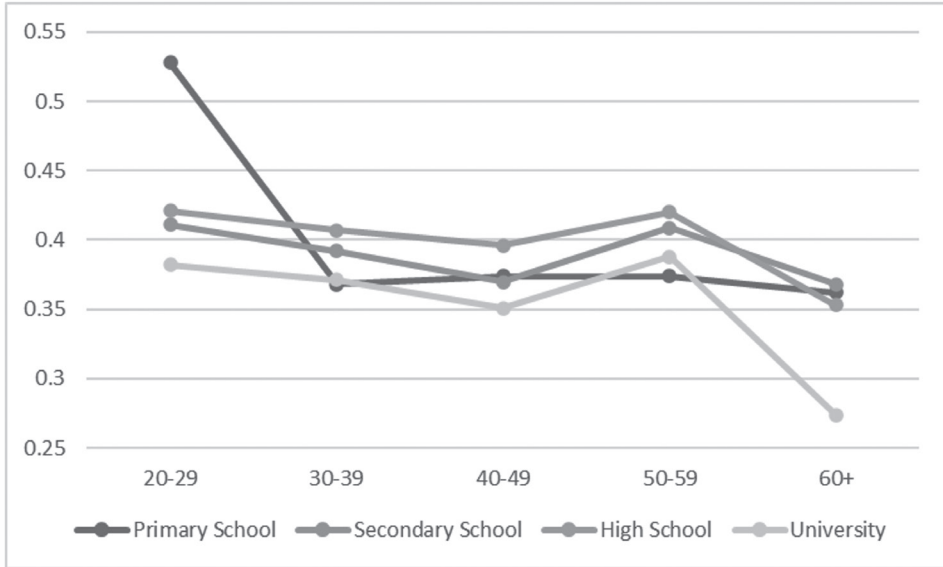


Figure 5. provides the Gini indices of age groups in terms of per capita income and per capita consumption for 2022. It is clearly inferred from the figure that if we count in per capita terms, we can get a nearly hump-shaped age profile of inequalities. The Gini of income distribution in the 20-29 age group is 0,35. And by increasing reaches to 0,41 at 40-49 age group that is middle age group. After the middle age group, the Gini starts to decrease and back to 0,35 in the 60+ age group. There is a clear hump-shaped profile. On the other hand, consumption inequalities are similar to hump-shaped but there are some nuances. The Gini of consumption inequalities starts to decrease by the second age group which is 30-39. Also, the 50-59 and 60+ age groups have lower Gini indices and hence lower inequalities than then 20-29 age group.

**Figure 6.** Income Inequalities over the Life Cycle at different Education Level According to Equivalence Scale



**Figure 7.** Consumption Inequalities over the Life Cycle at different Education Level According to Equivalence Scale



Lastly, we investigate the role of education on the age profile of inequalities. Figure 6. Figure 7. includes income and consumption Gini values of each age group at different education levels. These figures provide some results about the educational groups. Firstly, for all ages, the minimum income and consumption inequality is experienced by the group that has a university degree. So, only the high school education level group has a hump-shaped age profile of income inequality. And finally, education is not a powerful explain of the shape of inequalities over the life cycle.

## 5. Concluding remarks

Musgrave identifies that there are three main reasons for government intervention in to market economy, resource allocation, redistribution, and macroeconomic stability. The importance of the redistribution function of government has increased more after globalization since income distribution is not only a national matter but also international. Governments combat to reduce income and wealth inequalities by using taxation and spending measures. The results of government redistribution policies should be examined whether these are successful and to what extent. Moreover, the causes of economic inequalities should be investigated so that the policies to reduce these inequalities should be based on the evidence of empirical studies.

The life cycle approach suggests that people's income and consumption are dependent on what stage they reach. Based on this, it could be argued that economic inequalities such

as income and consumption are affected by the life cycle. Few studies have attempted to examine this relationship. This study contributes to this area of interest by using Turkish household data.

The main findings of a cross-sectional examination of the 2014, 2019, and 2022 years are as follows. Firstly, the five age groups differ in terms of both income and consumption inequalities. It could be suggested that income and consumption inequalities are heterogeneous for all age groups. It is observed that income inequalities decreased in all age groups, except for the 20-29 age group, from 2014 to 2019. Consumption inequalities decreased in the 20-29 age group and 60+ age group, while increased in the 30 till 59 age groups from 2014 to 2019. In line with this prediction, the findings confirm that income and consumption inequalities are also dependent on age groups.

The second result is about the trends in inequalities. Both the income and consumption inequalities have notably increased between 2019 and 2022. The cause of the, most suspicious one is the Covid-19 pandemic, which may be the point of further research. Also, the fact that consumption inequality is greater than income inequality, especially after 2019. This situation tells us that while consumption inequality takes in place of income inequality after the pandemic, scholars and policymakers pay attention to consumption dynamics.

However, in contrast to literature, we can not observe a hump-shaped pattern neither income nor consumption inequalities. The third result that we can emphasize is that taking into consideration income and consumption in per capita levels transforms the inequality profiles to hump-shaped age. At the same time, education levels can not create a significant change in the shape of the age profile of inequalities. We conclude that inequalities at the person level are responsible greatly for the hump-shaped age profile of inequalities.

Fourthly, the change in income inequality reflects both transitory and permanent shocks, while the change in consumption inequality should reflect only permanent shocks (Jappelli, 2019). It is therefore theoretically expected that consumption inequality should be less than income inequality. The finding is that average consumption inequality is less than average income inequality confirming theoretical expectation. The age group of 20-29 has the lowest income and consumption inequality. While the age group of 50-99 has the highest income inequality, the age group of 60+ has the highest consumption inequality in all age groups. The findings should be evaluated with caution due to the limited scope of this study.

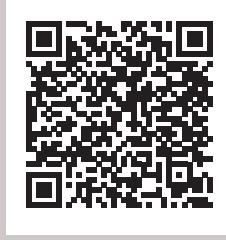
## References

- Aguiar, M., & Hurst, E. (2009). Home production, consumption, and labor supply. *NBER Reporter Online*, (4), 6-9.
- Ando, A., & Modigliani, F., (1963). The life cycle hypothesis of saving: Aggregate implications and tests, *American Economic Review*, 53(1), 55-84.
- Arslan, Y., Guler, B., & Taskin, T. (2021). Price Search, consumption inequality and expenditure inequality over the life cycle. *International Economic Review*, 62(1), 295-320.

- Blundell, R., Browning, M., & Meghir, C. (1994). Consumer demand and the life-cycle allocation of household expenditures. *The Review of Economic Studies*, 61(1), 57-80.
- Carroll, C. D., & Summers, L. H. (1991). Consumption growth parallels income growth: Some new evidence. In *National saving and economic performance* (pp. 305-348). University of Chicago Press.
- Connolly, S., Munro, A., (1999). *Economics of the Public Sector*, Prentice Hall.
- Cutler, D. M., & Katz, L. F. (1992). Rising inequality? Changes in the distribution of income and consumption in the 1980s. *The American Economic Review*, 82(2), Papers and Proceedings of the Hundred and Fourth Annual Meeting of the American Economic Association (May, 1992), pp. 546-551.
- Daminato, C., & Pistaferri, L. (2024). Returns heterogeneity and consumption inequality over the life cycle (No. w32490). National Bureau of Economic Research.
- Daşkaya, N., & Sağbaşı, İ. (2019). Türkiye'de tüketim eşitsizliği: Ampirik bir çalışma. *Tüketici ve Tüketim Araştırmaları Dergisi*, 11(1), 23-41.
- Deaton, A. (1992). *Understanding consumption*. Oxford University Press.
- Duygan, B., & Güner, N. (2006). Income and consumption inequality in Turkey: What role does education play?. In *The Turkish economy* (pp. 63-91). Routledge.
- Erosa, A., & Gervais, M. (2002). Optimal taxation in life-cycle economies. *Journal of Economic Theory*, 105(2), 338-369.
- Friedman, M. (1957). The permanent income hypothesis. In *A theory of the consumption function* (pp. 20-37). Princeton University Press.
- Gemicioğlu, S., Kızıllırmak, B., & Akkoç, U. (2024). Relative contributions of indirect taxes and inflation on inequality: What does the Turkish data reveal?. *Review of Development Economics*, 28(1), 286-309.
- Gourinchas, P. O., & Parker, J. A. (2002). Consumption over the life cycle. *Econometrica*, 70(1), 47-89.
- Griffy, B. S. (2021). Search and the sources of life cycle inequality. *International Economic Review*, 62(4), 1321-1362.
- Guran, M.C. & Oguz, S. (2010). The new developments in public economics and directions for future, *The Journal of Public Finance*, 158, 75-102.
- Heathcote, J., Storesletten, K., & Violante, G. L. (2005). Two views of inequality over the life cycle. *Journal of the European Economic Association*, 3(2-3), 765-775.
- İpek, E. (2019). Consumption and income inequality in Turkey. *Yaşar Üniversitesi E-Dergisi*, 14(53), 13-20.
- Jappelli, T. (2019). Inequality and consumption. *European Investment Bank*, 27 March 2019.
- Kaplan, G. (2012). Inequality and the life cycle. *Quantitative Economics*, 3(3), 471-525.
- Kawachi I, & Kennedy B P., (1997). The relationship of income inequality to mortality: Does the choice of indicator matter? *Social Science & Medicine*, 45, 1121-1127.
- Kırdar, M. G., & Cilasun, S. M. (2013). Household structure and household income and its components over the life-cycle in Turkey. *İktisat, İşletme ve Finans*, 28(328), 89-116.
- Kotlikoff, L. J. (2001). *Essays on saving, bequests, altruism, and life-cycle planning*. MIT Press.
- Krueger, D., & Fernández-Villaverde, J. (2004). Consumption over the life cycle: Some facts from consumer expenditure survey data. In 2004 Meeting Papers (No. 173). Society for Economic Dynamics.
- Meyer, B. D., & Sullivan, J. X. (2013). Consumption and income inequality and the great recession. *American Economic Review*, 103(3), 178-183.
- Modigliani, F., & Brumberg, R., (1954). Utility analysis and the consumption function: An interpretation of cross-section data, (Eds: Kurihara, K.K.), *Post-Keynesian Economics*, Sage.

Sağbaşı, İ. & Akkoç, U. (2024). A life cycle analysis of income and consumption inequality in Türkiye. *Efil Journal of Economic Research*, 7(4), 130-145.

- Poterba, J. M. (2002). Taxation, risk-taking, and household portfolio behavior. In *Handbook of public economics* (Vol. 3, pp. 1109-1171). Elsevier.
- Primiceri, G. E., & Van Rens, T. (2009). Heterogeneous life-cycle profiles, income risk and consumption inequality. *Journal of Monetary Economics*, 56(1), 20-39.
- Storesletten, K., Telmer, C. I., & Yaron, A. (2004). Consumption and risk sharing over the life cycle. *Journal of Monetary Economics*, 51(3), 609-633.
- Tamkoç, M. N., & Torul, O. (2020). Cross-sectional facts for macroeconomists: wage, income and consumption inequality in Turkey. *The Journal of Economic Inequality*, 18(2), 239-259.
- Trapeznikova, I., Measuring Income Inequality. IZA World of Labor, doi: 10.15185/izawol.462. (2019).
- Wang, C., Thewissen, S., & Van Vliet, O. (2014). *Leiden LIS Sectoral Income Inequality Dataset version 1.1*, Leiden University.
- Yang, F. (2009). Consumption over the life cycle: How different is housing?. *Review of Economic Dynamics*, 12(3), 423-443.



**Değerli Efil Ekonomi Araştırmaları Dergisi Okurları,**

Dergimizi siyah-beyaz olarak basmak durumundayız. Bu sebepten, bazı komplike grafiklerin rahat anlaşılabilmesi amacıyla, bu grafikleri sizinle QR kod aracılığıyla paylaşma kararı aldık. Sağbaşı & Akkoç (2024)'teki şekillere erişmek için lütfen kodu okutunuz.

**Dear Reader of the Efil Journal of Economic Research,**

As we have to publish the journal in black and white format, we decided to share the colorful graphics and figures via QR code. To access the graphics of Sağbaşı & Akkoç (2024), you can use the QR code.