

PENSIONS AND ELDERLY POVERTY IN TURKEY

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1. Introduction

Social security systems are frequently considered as insurance mechanisms against poverty, especially at later stages in life. Provision of resources to be used at later stages in life can take two forms. One is the reallocation of resources between different sections of the society, especially between working young individuals and retired old individuals. This is the well-known pay-as-you-go (PAYG) system.

The second system focuses on the reallocation of the individual's resources through one's lifetime, with state supported compulsory or voluntary mechanisms. This is the funded system. Either way, retirement aspect of social security systems includes transfer of resources and has implications on income distribution. Thus the redistribution implications of these systems and the implied clash for resources are often debated in both academic and policy circles. If one considers pensions as a claim on output, along the lines of Barr (2002); then the struggle for claim on output becomes evident. Debating the Polish pension reforms, Gora (2013) implicitly connects such a struggle to the class conflict and points that the 21st century may see the rise of a new group on the political scene. This portion of the society is retired, but not old enough to withdraw from the daily life, and have an interest in the distribution of output with political implications.

This redistributive mechanism has important implications for old age poverty. In advanced ages, labour income is hardly an option and pensions become a crucial income source. Especially for those with limited alternative income sources, pensions may end up as the only protection against poverty. Hence the poverty reduction role of pensions in advanced ages is a frequently visited research area.

The already existing, or expected, poverty of the retired is already creating new dynamics. For the case of Germany, feeling the lack of sufficient resources, pensioners are emigrating out ("Germany's other migration wave" 2020). Such movements had already been identified by Holzmann et al. (2016). The dissatisfaction with the pension systems is already contributing to social turmoil

in the second half of 2019 through protests and strikes in Europe and Latin America.

Given the importance of retirement related debates, it becomes important to examine what pensions entail as income sources. Especially the impact of pensions on poverty reduction is important. Building upon this opinion, the aim of this study is to analyse the impact of pensions on elderly material well-being for the Turkish case, with an emphasis on poverty alleviation. The task is of an empirical nature that addresses two basic research questions. Firstly, we investigate the importance of diverse income sources for elderly individuals. Secondly, the impact of pensions on the poverty of elderly is studied. The paper proceeds with a literature review on measuring the elderly income sources and empirical works on poverty. Following section presents the data and the adopted analysis approach. The observations from the data are presented and the paper is concluded by a summary of the findings.

2. The Literature

Analysis of poverty is a broad topic. The research focus ranges across different portions of the society, as the researcher focuses on segments of the society deemed disadvantaged or materially vulnerable. Focus on elderly poverty is shaped by similar concerns. Leaving the work force, an old person is generally expected to become retired and to receive pension income. The question is then whether this pension income is sufficient to maintain a decent life.

The concern is actually quite intertwined with social security system reforms. The introduction of private pensions in 1990s and 2000s is especially important. As the World Bank (1994) recipe on social security system design spread, privatised social security with a funded aspect began to supplement or replace public PAYG (pay-as-you-go) systems. This inevitably gave way to whether pensions, public or private, aided in eliminating the reduction of poverty among older households or individuals.

There is an established expectation in the literature that stronger public pensions lead to reduced poverty and income inequality, due to the stronger solidarity feature of PAYG public pensions compared to the private, funded systems (Been et al. 2017, pp. 1081-1082; Sarıca 2019, pp. 488-489; d'Agostino et al. 2020; Narayana 2019; Verbic and Spruk 2014). Thus a considerable amount of effort has been spent on examining the impact of different pension system configurations on elderly or pensioner poverty.

The related research literature quite frequently employs various survey data available for a number of countries. Hauser (1999) considers the economic well-being of pensioners in 14 developed economies using the Luxembourg Income Study, but does not consider explicitly the effect of pension income (or lack thereof) on the position of retirees in income distribution. Behrendt (2007) states that ageing carries the potential to create new conflicts with respect to resource sharing and erode the social contract; therefore, proceeds to examine income sources of the elderly in 15 industrialized countries mid-1990s using the Luxembourg

Income Survey. An analysis of the re-distributive impacts of public and supplementary pensions reveals that total pensions as sum of private and public pensions significantly reduces elderly income distribution variation across the sample of countries. However, no significant pattern is identified with regard to poverty risk of the elderly. One possible pattern is that countries with basic income implementation have lower poverty risk.

Employing a number of measures of income and consumption poverty for Canada, Milligan (2008) examines how elderly poverty changes in Canada through time using headcount measures, i.e. Low Income Measure and Low Income Cut-Off provided by Statistics Canada. The author augments by introducing Elderly Relative Poverty Measure that compares the well-being of the population aged 65 and more to the benchmark case of the working age population. Milligan (2008, pp. 85-88) identifies a correlation between the fall in elderly poverty in 1980s and the increases in real income provided by the Guaranteed Income Supplement program, an income-tested pension for individuals aged 65 and more.

Rajevska and Rajevska (2018) consider the Latvian system and conclude it to be lacking in providing income security for the elderly. Rather than diving into the micro data they consider the Latvian case against the backdrop of a European average.

Hwang (2016) examines the income inequality impact of pensions for South Korea. Gini coefficient is used to trace the path of elderly poverty through time, with the observation that income inequality among the elderly is higher than that of the overall population. Higher education is observed to increase the likelihood of being a pensioner, compared to the cohort. Lower income quantiles are observed to be more reliant on assistance, public or private. Gini decomposition reveals that public pensions actually increase income inequality among the elderly, a result the author attributes to the institutional characteristics of South Korea where rapid expansion of the public pension system in the 1990s favoured the elderly with better socio-economic characteristics (Hwang, 2016: 94-95). Ku and Kim (2018) examine the evolution of old age poverty in South Korea and highlight the important, yet insufficient, role of public pensions in reducing old age poverty.

Some studies focus on country groups with aggregate data availability. Using OECD Social Expenditure data, Been et al. (2017) confirm for a dataset that covers 17 European countries for the time span of 1995 to 2011 that stronger public pensions imply lower elderly poverty and that a higher weight of private pensions in the pension mix has adverse effects on elderly poverty. Also working on the OECD countries, Jang (2019) investigates whether private pensions impact elderly poverty taking into account the institutional design of public pensions. It is stated that the coverage is an important factor, with high coverage implying reductions in income inequality. In another OECD focused analysis, Caminada et al. (2019, p. 24) report that fiscal redistribution reduces poverty, with pension-like transfers playing a non-negligible role.

The focus sometimes shifts to less developed countries as well, as long as the data permits it. But addressed research concerns diversify. Consider, for example, Mohd et al. (2018). They use Household Income Surveys to assess the evolution and determinants of elderly poverty in Malaysia, focusing on individual characteristics through a logistic regression rather than the importance of existence (or lack of) pensions.

For the Turkish case, Sarica (2019) investigates the impact of different social payments including, but not limited to, pensions on the poverty of pensioners. Using year 2017 version of Survey of Income and Living Conditions, the author conducts the investigation for different age groups and genders. It is confirmed that pensions reduce elderly poverty. The provided tables imply that special attention should be paid in the case of widow and orphan transfers. These are observed to contribute greatly in eliminating poverty for women. It can be thought that since women do not participate in the labour market, they are not entitled to pensions themselves but benefit greatly from the pensions left by their spouses. Hence these transfers can be considered as a form of pensions for women and be included in the analysis in this regard. We agree with this and include widow and orphan transfers in our analysis.

2. The Method and the Data

Although some studies of elderly poverty employ aggregate data for a group of countries (for OECD SOCX usage examples see Been et. al. (2017) and Jang (2019)), survey data is also used frequently for specific countries (Sarica (2019) for Turkey; Hwang (2016) and Ku and Kim (2018) for South Korea; Mohd et. al. for Malaysia) or groups of countries (Hauser (1999) and Behrendt (2007) with Luxembourg Income Study). This paper presents a country specific analysis through the Household Budget Survey (2016) conducted by the Turkish Statistical Institute.

The survey is applied on a sample of households¹. The sampling procedure starts with the National Address Database that includes the address based registrations of all the citizens. From this database, blocks are formed by probability proportional to size sampling, with the household living at the identified address being the final sample unit. The sampling method is the stratified two-stage cluster sampling method. Population projections are used to weight the population of the survey.

The analysis conducted here is of a descriptive nature and does not use econometric analysis to identify the determinants of old age poverty. An old individual is generally regarded to older than 55 years of age, which does not exactly confirm to the 60 or more age cut off chosen in the literature. The reason

¹ For details on the design and the implementation of the Survey by Turkish Statistical Institute, visit http://www.tuik.gov.tr/MicroVeri/HBA_2016/english/index.html

is the early retirement phenomenon in Turkey. In early 1990s, legislative changes introduced 25 years of premium payment for men (20 for women) as a condition to earn the right to retire. If an individual enters the workforce at the age of 18, retiring at age 38 for women or 43 for men becomes possible. This early retirement opportunity was removed from the legislation in 1999, but its impact on the retiree demography persists. One can quickly browse the passive demography tables of Annual Statistics of the Social Security Institution to see that the number of retired individuals peaks in the 50 to 60 age group.

We supplement this with the requirement that the individual must receive a positive pension income. The pension income is available in the used dataset. However, we expand the pension income to include survivor benefits, especially widow and orphan benefits designed for female survivors. The reason is that women in Turkey are at a considerable disadvantage in the labour market with low labour force participation rates. Thus they struggle to become eligible for pensions. Widow and orphan benefits remedy this lack of advanced age income considerably, as pointed out by Sarica (2019). Hence these are included in the definition of pensions as well.

The focus of the study is the old individuals, defined as individuals aged more than 55 and receiving positive pension income, where pension income is defined as the sum of pension income variable in the database, plus survivor benefits in the form of widow and orphan pensions. For comparison purposes, a benchmark group of worker individuals is also created. A worker individual is assumed to be in the 18-60 age group, with positive labour or capital income.

The study does not include private pensions, despite their existence in Turkey. The system is relatively young, having begun to function in 2003. It is currently difficult to consider it as a viable source of supplementary income for retirees. Değer (2019) considers three criteria regarding the Individual Pension System in Turkey. Firstly, the level of saving remains low and the accumulated funds fail to provide considerable resources for investment in physical capital. Secondly, they are observed to fail as long term saving plans. Thirdly, they are reported to fail significant pension incomes to partakers. Out of the 42625 individuals in the dataset, only 22 observations with positive income from the individual pension system exist. Hence private pensions are excluded from the analysis.

No cleaning of the data is done. However, given the diversity of the income variables available in the dataset, three distinct income groups in addition to pension income are identified to ease the exposition. First one is labour income, consisting of wage income and bonuses. Second one is capital income that includes entrepreneurial income, agricultural income, real estate income, bank and bond income and share-cropper income. Third is the sum of the transfer incomes excluding pensions. These transfers all originate from the state and include old age benefits, state housing aid, health aids, veteran benefits, scholarships, unemployment payments and agricultural supports.

Basic descriptive statistics have been calculated and are available in Appendix Tables 1 to 5. Appendix Table 1 presents the number of observations in the old and worker groups. For worker individuals, the number of females is nearly half of the males, reflecting the low labour force participation by females. The ratio improves slightly when one considers the old individuals, most likely due to the impact of survivor benefits. Regarding income sources, Appendix Tables A2 and A3 underline the gender gap in earnings, heavily in favour of males especially with regards to capital income. This gap appears to persist in pension incomes, as can be observed in Appendix Tables A4 and A5.

The analysis of the data starts with visually examining the shares of these income items within the aggregate incomes of old, retired individuals. We then proceed to present Gini coefficients for these individuals, with and without pensions to quantify the impact of pensions on income distribution. Lastly, headcounts below and above the poverty line, drawn at 50% of the sample median income are presented. All the calculations are done in R (R Core Team 2018), using the Rstudio (Rstudio Team 2016) interface and additional R libraries as they become necessary.

3. Analysis

As stated, we firstly consider the relative importances of different income sources for the elderly through Figures 1 to 3. Figure 1 presents the shares of different income sources in the total incomes of old individuals, in percentage units. First observation is the falling importance of labour income. Transfers do not appear to account for significant portions of older individuals' incomes. The last panel of the figure clearly shows the rising importance of pensions as the individual gets older.

The analysis is repeated for men and women in Figures 2 and 3, respectively. The findings are robust to gender. The variation in the number of observations in Figures 2 and 3 are evident. The sample includes 2778 old men and 1453 old women, where old is defined through age and pension income. This is because pension recipients are mostly men and has strong implications for further research as to why women are not receiving pensions, which remains outside the scope of this text.

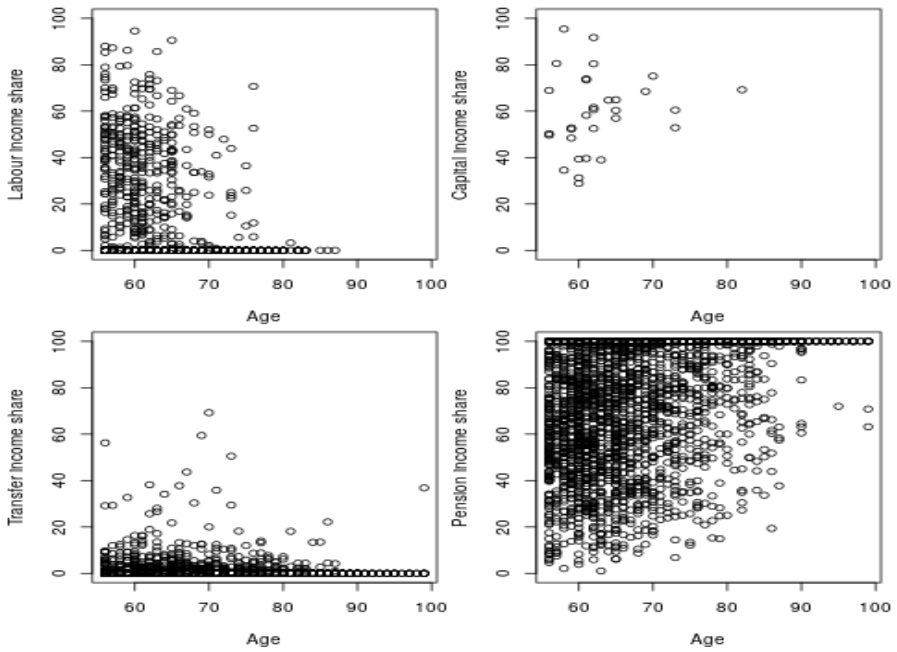


Fig. 1. Share of income from different sources (%), both genders
Source: Authors' calculations.

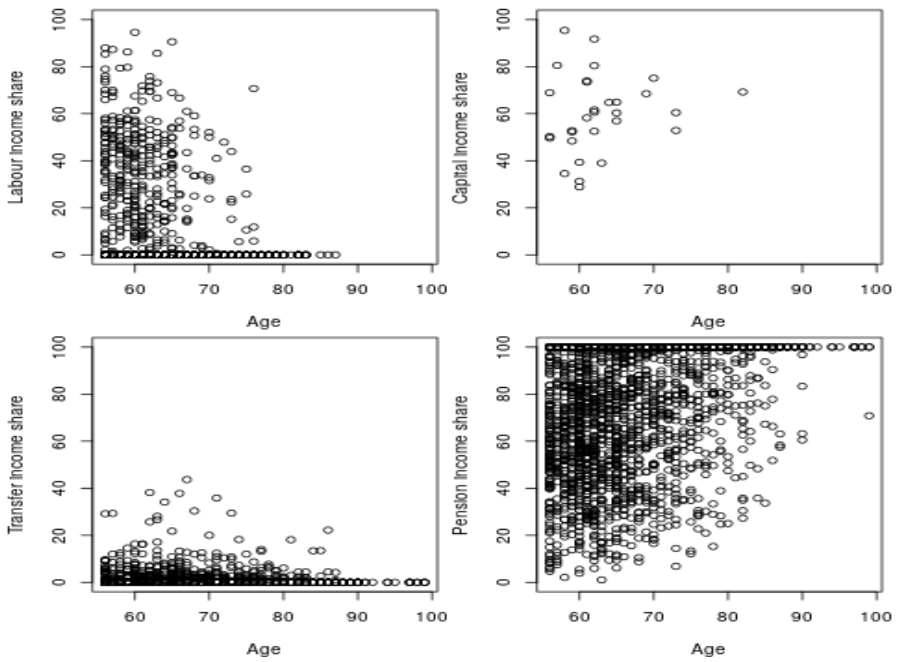


Fig. 2. Share of income from different sources (%), men
Source: Authors' calculations.

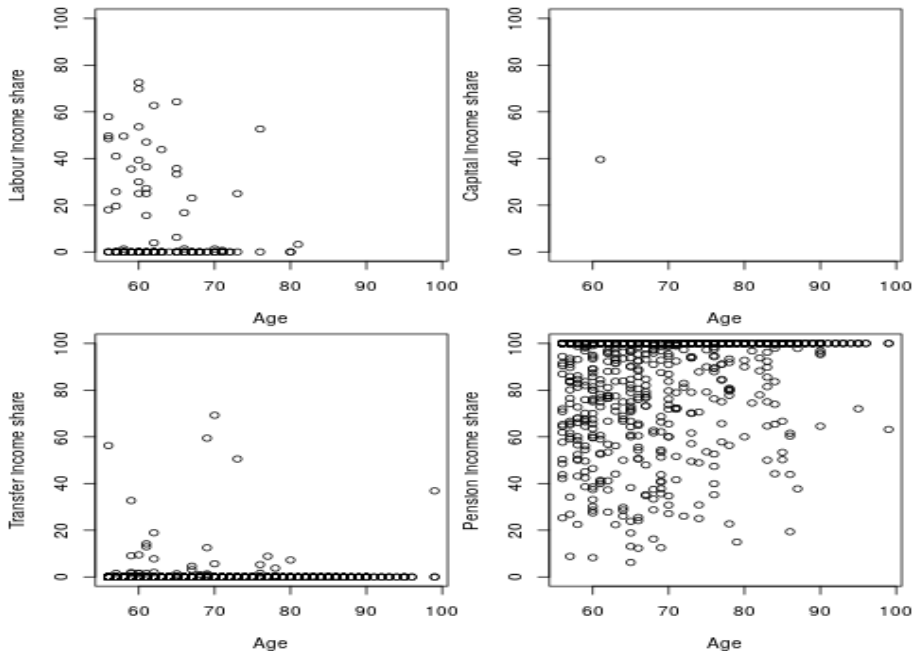


Fig. 3. Share of income from different sources (%), women
Source: Authors' calculations.

In order to further investigate the shares in income, Figures 4 and 5 have been prepared to present average shares of different income sources for ages 55 to 84, with six different five-year age groups. As a supplement, Table 1 shows standard deviations of labour and pension incomes. The fall in volatility from labour income is apparent from Table 1. But the fall in the number of observations as the age category progresses could also be playing a role in this reduced volatility. Volatility regarding pension income, however, does not display as strong a falling trend through age categories.

Figures 1 to 3 imply that capital and transfer income take a backward seat in advanced age income provision. Especially for women, the capital income item has practically no role in old age income provision. Hence Figures 4 and 5 leave out capital income while representing average shares in income for different age categories. These figures confirm the importance of pension income at older ages, with falling importance for labour income and negligible importance of transfer payments. Taken together, Figures 1 to 5 and Table 1 confirm the importance of pensions as an income source in advanced ages.

Table 1. Standard deviations of income sources by age group and gender, TL

	Men		Women		All	
	Labour Income	Pension Income	Labour Income	Pension Income	Labour Income	Pension Income
55-59	15932 (299)	6512 (507)	4825 (35)	7582 (223)	15236 (334)	16896 (730)
60-64	13144 (374)	6306 (796)	10329 (48)	6762 (295)	12848 (422)	6530 (1091)
65-69	14406 (227)	5667 (612)	3613 (27)	7148 (272)	13680 (254)	6377 (884)
70-74	3805 (102)	6158 (356)	2028 (14)	5886 (231)	3637 (116)	15087 (587)
75-79	4809 (52)	4294 (273)	5515 (2)	5706 (191)	4806 (54)	5128 (464)
80-84	0 (16)	7822 (147)	57 (3)	5379 (126)	22 (19)	7128 (273)

Source: Authors' calculations. Number of observations in each cell is reported next to the provided standard deviation.

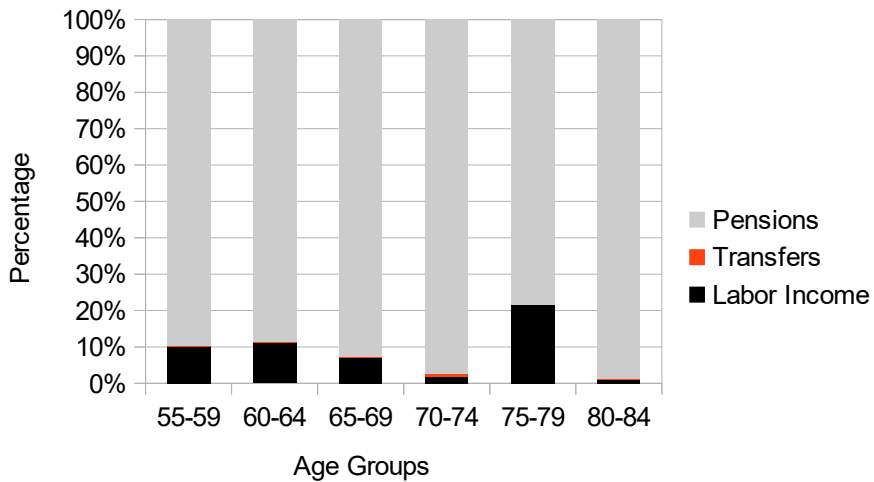


Fig. 4. Mean share of income from different sources by age groups (%), women

Source: Authors' calculations.

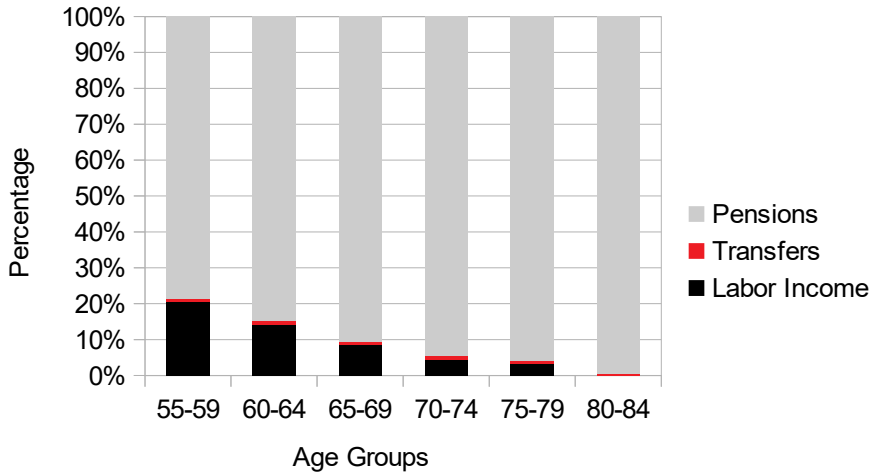


Fig. 5. Mean share of income from different sources by age groups (%), men
Source: Authors' calculations.

Table 2. Gini coefficients

	Full sample	Elderly	Elderly, less pensions
Both genders	0.4589	0.3364	0.5979
Men	0.4137	0.3173	0.5874
Women	0.5145	0.3009	0.6039

Source: Authors' calculations.

Secondly we consider Gini coefficients. The coefficients are calculated in R using the *ineq*, Inequality Measures, package (Zeileis and Kleiber 2014). Results are presented in Table 2. For the whole population, the coefficient is calculated as 0.4589. This is higher for women, implying a less equal distribution of income for women.

For the sample of old individuals, the parameter falls to 0.3364, 0.3173 and 0.3009 for both genders, men and women respectively. The income distribution is more equal across all subsamples of elders. An interesting point to note is that the distribution is more equal among women. When pensions are removed from the income definition, elderly are observed to display an income distribution that is more unequal than the full sample's distribution. Women, once more, display a more unequal income distribution. This points to a strong re-allocative function undertaken by pensions towards the elderly and, to a lesser degree, women.

Finally headcounts of individuals that satisfy a certain poverty criteria are considered. The headcounts present the percentages of individuals that fall below a poverty line, drawn at 50% of the median income calculated as the median of the total incomes of all the individuals in the sample. The relevant numbers are available in Table 3. The first row and the first column of the Table shows that for the full sample 68.28% of the individuals fall below the poverty line. Of these individuals below the poverty line, men account for 22.53% and women represent 77.47%.

The second column presents the same figures for the sample of retired individuals. Only 2.17% of elders are below the poverty line. For the elders, the poor are almost all women; the share is 96.74%. Old men under the poverty line are only 3.26% of the individuals below the poverty line. The third column of Table 3 shows the headcount with elderly incomes net of pensions. Now, 67.17% of the elders are below the poverty line; pointing out the role of pensions in moving elders out of poverty. The split between men and women is more even, highlighting an equalizing role of pensions in favour of women.

Table 3. Poverty headcounts (%)

	Full sample	Elder	Elder (less pensions)	Elder (compared to workers)	Elder (compared to workers, less pensions)
Share below poverty line, both genders	68.28	2.17	67.17	6.61	78.64
Men's share in poor	22.53	3.26	55.49	7.14	59.51
Women's share in poor	77.47	96.74	44.51	92.86	40.49

Source: Authors' calculations.

The fourth column adopts another poverty line, based on the incomes of workers where a worker is defined to be aged 18 to 60 with positive labour or capital incomes. This new poverty line is calculated as 50% of the median of the incomes of these working individuals. Fourth column of Table 3 shows that with this new poverty line, 6.61% of the retired individuals are below the line. As expected, poverty increases with the new income definition. Once more, the poor are predominantly women. Last column deducts pensions; share of the individuals below the poverty line is now 78.64%. The split between men and women has closed.

4. Conclusions

This paper examines the income sources for the old, retired individuals in Turkey. The analysis extends to the role of pensions in alleviating poverty and reducing income inequality. The analysis employs the Household Budget Survey data from the Turkish Statistical Institute, year 2016. The analysis is a descriptive nature and is conducted using the R statistical computing language.

A visual inspection of the income sources of individuals by age reveals that as age progresses, the importance of pension income increases. Based on Gini coefficients, it is observed that the income distribution is more equal among the elderly population. For the full sample the distribution is more unequal for women but for the elders it is more unequal for men. When pensions are dropped from the income definition, income inequality worsens especially against women. This points to a strong redistributive function by pensions that favours elders and women.

Surprisingly low number of old individuals are below the poverty line, and nearly all of these are women. When pensions are excluded, the share of elders below the poverty line dramatically increases and men and women converge in poverty headcounts; pensions favour women in poverty elimination. A new poverty line is drawn based on the incomes of working individuals. The new line confirms the previous findings.

The analysis confirms the importance of pensions as income sources for higher ages. Further, the poverty preventing and inequality reducing roles of pensions is confirmed. Along the gender dimension, the pensions in Turkey are observed to favour women.

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Appendix: Tables

Table A1: Number of observations

	Worker	Old
Male	7867	2778
Female	3277	1453
Total	11144	4231

Source: Authors' calculations based on Household Budget Survey, 2016. Worker individuals are defined to be in the 18-60 age group with positive labour or capital income. Old individuals are defined to be aged 56 and more with positive pension income or positive survivors benefits in the form of widow and pensions benefits.

Table A2: Descriptive statistics, worker male individuals, Turkish Liras

	Labour income	Capital income	Transfer income	Pension income
Mean	20 588	40 375	166	1178
Std Dev	17 957	36 321	1842	4663
Median	16 800	29 750	0	0

Source: Authors' calculations based on Household Budget Survey, 2016. Worker individuals are defined to be in the 18-60 age group with positive labour or capital income. Old individuals are defined to be aged 56 and more with positive pension income or positive survivors benefits in the form of widow and pensions benefits.

Table A3: Descriptive statistics, worker female individuals, Turkish Liras

	Labour income	Capital income	Transfer income	Pension income
Mean	16 929	8 075	71	476
Std Dev	17 087	813	567	2 908
Median	12 900	8 075	0	0

Source: Authors' calculations based on Household Budget Survey, 2016. Worker individuals are defined to be in the 18-60 age group with positive labour or capital income. Old individuals are defined to be aged 56 and more with positive pension income or positive survivors benefits in the form of widow and pensions benefits.

Table A4: Descriptive statistics, old (retired) male individuals, Turkish Liras

	Labour income	Capital income	Transfer income	Pension income
Mean	4 825	32 391	242	16 863
Std Dev	13 487	31 403	1 145	6 181
Median	0	25 305	0	15 600

Source: Authors' calculations based on Household Budget Survey, 2016. Worker individuals are defined to be in the 18-60 age group with positive labour or capital income. Old individuals are defined to be aged 56 and more with positive pension income or positive survivors benefits in the form of widow and pensions benefits.

Table A5: Descriptive statistics, old (retired) female individuals, Turkish Liras

Retired female	Labour income	Capital income	Transfer income	Pension income
Mean	2 588	8 204	42	13 227
Std Dev	7 102	NA	492	6 631
Median	0	8 204	0	12 300

Source: Authors' calculations based on Household Budget Survey, 2016. Worker individuals are defined to be in the 18-60 age group with positive labour or capital income. Old individuals are defined to be aged 56 and more with positive pension income or positive survivors benefits in the form of widow and pensions benefits.