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## Household Structure, and Household Income and its Components over the Life-Cycle in Turkey

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**TURKISH ECONOMIC ASSOCIATION**

DISCUSSION PAPER 2012/63

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**HOUSEHOLD STRUCTURE, AND  
HOUSEHOLD INCOME AND ITS  
COMPONENTS OVER THE LIFE-CYCLE  
IN TURKEY**

**Seyit Mümin Cilasun and Murat Güray Kırdar**

**August, 2012**

# **Household Structure, and Household Income and its Components over the Life-Cycle in Turkey\***

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**Abstract:**

In this study, using the 2003 Turkish Household Budget Survey (HBS), we investigate the life-cycle profiles of household income and its components by educational attainment, and compare these profiles with those reported for various developed and developing countries. A key aspect of our analysis is that we examine the link between household structure and household income over the life-cycle. The most interesting finding of the study is that household income profiles conditional on educational attainment in Turkey are non-decreasing and quite flat over the life-cycle. This is in stark contrast to the hump-shaped household income profiles reported for developed countries. There are three main reasons for this fact in Turkey: i) Multiple nuclear families live together in the same household, especially when the household head is very young or old, and many adult children who are employed live in their parents' households. ii) Many household heads are still employed at end of their life cycle, especially among the less-educated. iii) Pension income levels, for those who are qualified for them, are relatively high compared to other components of income.

JEL Codes: D31, I24, R20

Keywords: Household income, life cycle income, household structure, income distribution by education.

# **Türkiye’de Hanehalkı Yapısı ve Hanehalkı Gelir ve Alt Kalemlerinin Yaşam Döngüsü Analizi**

## **Özet:**

Bu çalışmada, 2003 Hanehalkı Bütçe Anketi (HBA) kullanılarak, hanehalkı gelirin ve gelirin alt kalemlerinin eğitim seviyelerine göre yaşam döngüsü profilleri incelenmiş ve sonuçlar çeşitli gelişmiş ve gelişmekte olan ülke sonuçlarıyla karşılaştırılmıştır. Hanehalkı gelirin yaşam döngüsü içindeki değişimi yorumlanırken hanehalkı yapısı ile ilişkilendirilmiştir. Çalışmanın en ilginç sonucu, eğitime göre gelir profillerinin azalan olmaması ve yaşam döngüsü boyunca görece yatay seyretmesidir ki bu sonuç gelişmiş ülkeler için bulunmuş kambur şekilden oldukça farklıdır. Bu bulgunun sebepleri şunlardır: i) Özellikle yaşlı ve genç reislerin olduğu hanehalklarında birden fazla çekirdek ailenin beraber yaşamaktadır. Ayrıca, evlilik öncesi, bir çok çalışan evlat geç yaşlarda dahi aileleri ile yaşamaya devam etmektedir. ii) Pek çok hanehalkı reisi yaşam döngüsünün sonunda bile çalışmaya devam etmektedir ki bu özellikle daha az eğitilmişler için geçerlidir. iii) Emeklilik geliri, alabilenler için, diğer gelir kalemlerine görece yüksek değerler almaktadır.

JEL Sınıflaması: D31, I24, R20

Anahtar Kelimeler: Hanehalkı geliri, yaşam döngüsü geliri, hanehalkı yapısı, eğitime göre gelir dağılımı.

# 1. Introduction

Average household income is one of the fundamental indicators of the well-being of citizens. Unlike per-capita income as another such indicator, household income also accounts for the household structure like the number of earners in the household and the sharing of living expenses by all household members. Household structure changes in important ways over the life-cycle of the household head as a result of family formation and dissolution, births, children leaving the household, taking care of elderly parents, and so forth – all of which have important implications of the evolution of household income over the life cycle of the household head.

This paper investigates the life-cycle profiles of household income and its components in Turkey, along with the evolution of household structure, over the life cycle of the household head. A better knowledge of household income dynamics is important for understanding its response to unexpected economic events and to macroeconomic and social policies such as the retirement system and pension benefits, tax and transfer policies.

The analysis throughout the study is based on micro data obtained from 2003 Turkish Household Budget Surveys (HBS). We choose this particular year because the sample size is much larger in this year. The type of analysis is graphical. Age profiles of median and mean levels of various components of household income are constructed. In addition, the proportion of households that have a certain type of income over the life cycle of the household head is examined.

This paper makes a number of contributions. First, despite the importance of the issue, there exists no previous study on household income and its components over the life cycle in Turkey. Van Rijckeghem and Üçer (2008) and Cilasun and Kırdar (2009) derive the life cycle profile of aggregate household income, but not of the components of household income. Second, by also examining the change in the household structure over the life cycle, this study establishes important links between the household structure and household income as well as its components. Third, the analysis is conducted for the education of the household head, which allows us to understand the level of inequality in different components of income by

education, as well as the differences in labor market dynamics and household structure by education. Finally, this study contributes to the literature by providing a detailed analysis of household income over the life-cycle in a developing country context and by comparing the patterns to those in developed as well as in other developing countries – where there have been few such studies.

The previous studies on this topic in Turkey have mainly focused on income distribution and poverty (Çakmak and Kot, 1995; Dağdemir, 1999; Canbay and Selim, 2010). Yükseler (2004) reports the shares of labor income, real property income, and transfer income in total household income for 1994, 2002 and 2003 using the HBS; however, this study does not have a life-cycle perspective. A similar analysis is made by Yükseler and Türkan (2008), using data for 2002 to 2005, which reports that the highest share of household income in Turkey is labor income and that this share increases from 2002 to 2005.

We find that household income over the life cycle of the household head is much flatter in Turkey than those reported for several developed countries. An important reason for this is the type of the evolution of household structure over the life-cycle of the household head in Turkey. In particular, the facts that multiple generations of families live together in the same household and that several adult working children live in their parents' household prevent the drop at the end of the life-cycle, which is observed in several developed countries. This also means that household members smooth unexpected variations in their income over the life-cycle by living together.

Another important reason for the flatter life-cycle household income profile is that several household heads – especially those who have low education – keep working even at very old ages. The fact that pension income, for those who are qualified for it, is relatively high compared to labor income also prevents a notable drop at the old age of the household head. Finally, we find that only a small share of the households is able to build up financial assets that bear interest income; whereas, a much larger share have real property income.

The rest of the study is organized as follows. Section 2 introduces the data and method. The life cycle analyses of household income and its components are presented in Section 3. Section 4 concludes the paper.

## 2. Data and Method

We use the 2003 Household Budget Survey (HBS) in our empirical analysis. This survey provides detailed information on household income and its composition, as well as on household composition and household's socioeconomic characteristics. Household Budget Surveys have been conducted annually by Turkish Statistical Institute (TUIK) since 2002. We use the 2003 version of HBS because of the larger sample size in this year. In order to construct a harmonized index of consumer prices (HICP), a much larger sample of households, 25,920, was drawn in the 2003 survey. HBS represents the Turkish resident population. Nonetheless, the institutionalized population is excluded from the surveys. A two-stage stratified sampling procedure was applied in the selection process. Surveys covered urban (population with 20,001 people and above) and rural (population with fewer than 20001 people) households every month. The sample unit is a household that comprises one person living alone or a group of people living in the same dwelling who depend on pooled income for major expenses. In order to build the survey, households are visited eight times during the interview month, and the expenditure and income information are recorded by the interviewers. Non-respondents are replaced by households with similar characteristics.

The central pieces of information that are used in this study are income and its components. Income questions are directed to respondents at the end of the interview month, and they refer to the 12 months before the interview. The annual individual disposable income data are calculated by adding up four components; labor income (including wages, salaries, overtime bonuses, fringe benefits and payments in kind, agricultural and self-employed income and income from copyrights), capital and property income (including rent, interest income and dividends) and transfers (including tax refunds, pension benefits, unemployment and illness compensation, student grants, alimony, remittances and payments in kind).<sup>1</sup> In addition to individual-level disposable income, household-level disposable income is also available in the HBS. This variable is defined as the sum of disposable income of individuals' within the same

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1 Labor income is reported net of taxes and social security contributions. Capital and property income are reported net of taxes.



household plus imputed rent minus expenditures other than consumption (taxes such as property tax, customs; fines due to late payments, traffic fines and etc.; alimony and alms prescribed by Islam) and regular financial aid done by the households to institutions and other households. Due to fact that the questions on income refer to the 12 months before the interview, household disposable income data are inflated to the survey month. Any annual income that is lower than 100 TL is recoded as missing. HBS also includes information on socioeconomic characteristics of households such as age, gender, education, occupation, family composition, and detailed information on the house and other assets owned<sup>2</sup>.

Our methodology is based on graphical analysis of the life-cycle profiles of household income and its components. Ideally, one would need panel data that follow individuals for a long period of time in order to obtain pure life-cycle profiles. Since such data are not available in Turkey, we use cross-sectional data to investigate life-cycle profiles; however, this approach certainly has its limitations. By using a single cross-section (for year 2003), we follow the variable of interest at different ages for individuals who are born at different dates and potentially face different lifetime profiles of income, education and so forth—due to secular time trends in these variables. These secular time trends could certainly alter the shape and level of the life-cycle profiles. For instance, with positive real wage growth, people born later have higher lifetime earnings and this makes the cross-sectional income trajectories high among the young and low among the old households, resulting in a clockwise rotation of cross sectional profiles compared to the “true” age profile.

As a partial remedy to this problem, we conduct our life-cycle analyses conditional on the educational attainment of household heads. By examining the life-cycle profiles conditional on educational attainment, we at least avoid the problems associated with comparing birth-cohorts with very different average educational attainment. Moreover, since educational attainment is a good indicator of permanent income, by conducting the analysis conditional on educational attainment, we are able to examine income profiles over the life-cycle separately for subpopulations with different lifetime permanent income levels. For this purpose, the

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<sup>2</sup> Additional information regarding the variables used in the study will be given in the further parts of the study.

sample is divided into three groups on the basis of educational attainment of the household head: primary education or less, high school, and university.

In our graphical analysis by educational attainment, we group ages in 5-year intervals so that the number of observations in each cell is high enough. Table 1 presents the number of observations in each cell by age and educational group. These numbers are in fact quite high except for the oldest age-groups among the university graduates; in fact, they are at least about 100, except for the 65-69 age group among the university graduates.

Table 1: Number of Observations by Age Groups and Educational Attainment of the Household Head

Age group	Primary and below	High school	University	Total
25-29	780	783	215	1778
30-34	1489	1172	341	3002
35-39	2001	1209	380	3590
40-44	2177	1262	351	3790
45-49	1922	859	372	3153
50-54	1934	660	322	2916
55-59	1431	385	183	1999
60-64	1397	201	96	1694
65-69	1236	136	57	1429

In the analysis, both median and mean values of income are used in the construction of life-cycle profiles. Our preferred measure is the median because it is robust to the presence of outliers. However, when the median value for a component of income is often zero, we present the mean values only. Our calculations employ the sampling weights provided in the data, which are proportional to the reciprocal of the probability of each household being included in the survey.

### 3. Results

We first present the change in household structure over the life-cycle of the household head, and then examine household income and its components over the life-cycle using graphical methods.<sup>3</sup>

#### 3.1. Household Structure

Household income is obtained by adding up the individuals' income living in the same household. Therefore, analyzing the evolution of household size is critical for understanding the patterns in the income profiles. Figure 1 presents household size against the age of the household head by educational attainment of the household head, as well as for the whole population.

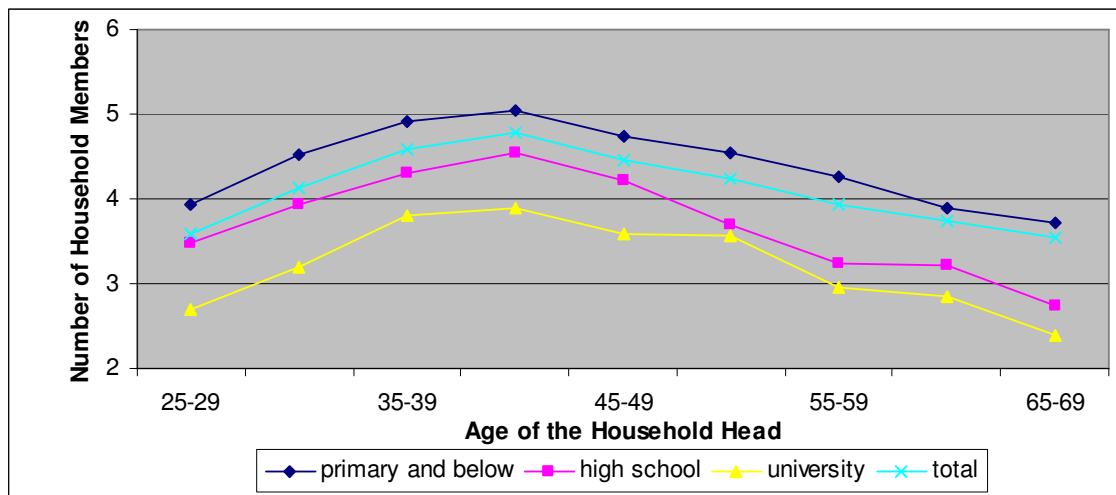


Figure 1: Number of Household Members by Educational Attainment of the Household Head (2003)

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<sup>3</sup> The member of the household who is assigned as the household head is provided in the data. This person is the member of the household who has the highest responsibility in household income and consumption.

According to Figure 1, household size presents a hump-shaped profile with a peak at ages 40 to 44 regardless of the household head's education. The number of household members increases mainly with the birth of children and decreases with their leave from their parents' household. It is also evident from Figure 1 that family size decreases with education. At all ages, household heads with the lowest education have the largest family. The larger family size of the less-educated households persists until late ages. In fact, the gap between the primary-and-below group and high-school group widens toward the end of the life-cycle. As a result, the hump of the profile is the least pronounced for household heads with the lowest education. The reason for this fact will become clear when we illustrate certain other features of the household structure over the life cycle of the household head below.

The hump shape in the profile of household size over the life-cycle for Turkey is not as pronounced as those for the US (Attanasio and Weber, 1995), Norway (Halvorsen 2003), and Iran (Marku 2004).<sup>4</sup> The reason for this could be the higher probability of the event that multiple generations of families live together in the same household, which we examine in Figure 2.

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<sup>4</sup> While the life-cycle profile of household size for Turkish households is similar to the one for Mexico, it is different from that of Thailand which exhibits a very sharp increase until the middle ages and stays relatively flat thereafter (Attanasio and Szekely, 2000). Moreover, the family size of Turkish households is higher compared to Thailand and Taiwan (Attanasio and Szekely, 2000) and lower compared to Iran (Marku 2004).

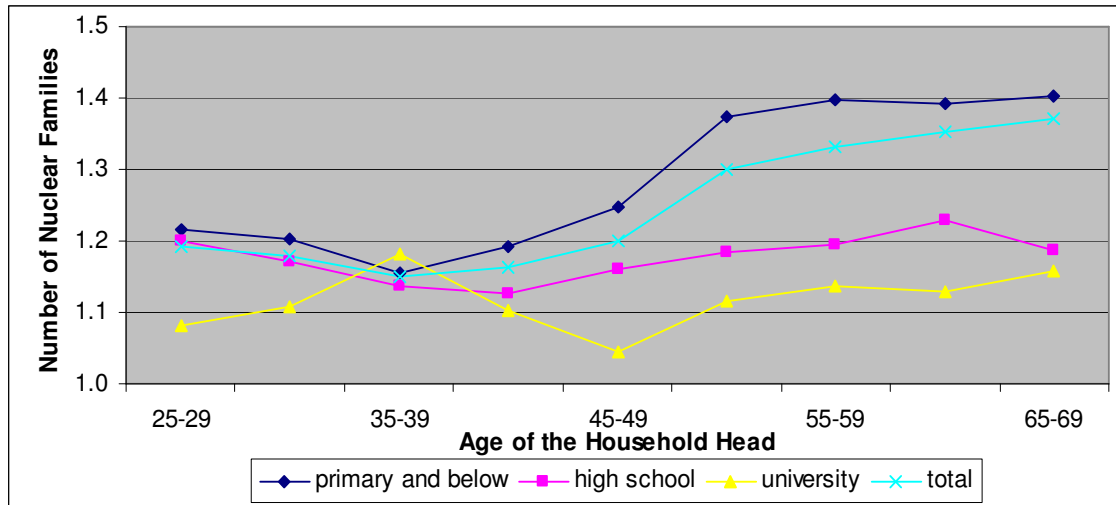


Figure 2: Number of Nuclear Families by Educational Attainment of the Household Head (2003)

Figure 2 illustrates how the number of nuclear families living in the same household changes with the age of the household head. The profile exhibits a somewhat declining trend until ages 35 to 39, except for university graduates, and increases sharply thereafter. Almost 20 percent of the household heads younger than 35 live with their parents, and more than 30 percent of the household heads older than 50 live with either their children or parents. Attanasio and Szekely (2000) report that many older individuals live in the household of their children in Thailand and Taiwan. This is also important in Turkey, as can be seen in Figure 2, but not as much as the opposite arrangement, where younger married individuals live in the household of their parents as can be seen in Figure 2.

Some other important features of Figure 2 are that the number of nuclear families living in the same households decreases with education, and the gap between those with primary or lower education and those with high school education significantly widens with age. This means that the fact that multiple generations of families living together in the same household is more common for the least educated group. This also explains why the hump-shape in the profile for household size in Figure 1 is the weakest for the least educated group.

The extended family structure in several households in Turkey would influence household income profiles over the age of household head. In order to examine the effects of this phenomenon further, we display the life-cycle profile for the number of household members with positive labor or pension income against the age of the household head in Figure 3. For the total population, the average number of positive labor- or pension-income earners is relatively stable at around 1.2 until age 40, when it starts increasing and reaches to almost 1.8 at ages 50-54. There could be two different reasons to this rise. First, as shown in Figure 2, the probability that the household head lives with parents who are labor or pension income earners increases with age. Second, the children of the household head who live in the same household would be entering the labor force. It is a well-known phenomenon in Turkey – like it is in several other Mediterranean countries – that children reside with their parents well beyond their 20s (see, for instance, Manacorda and Moretti [2006]). In fact, most live their parents until they get married, and as the age of marriage rises in Turkey, the duration of co-residence with parents also increases. To examine this fact, we plot the average number of children of the household head in the household with positive labor income in Figure 4.

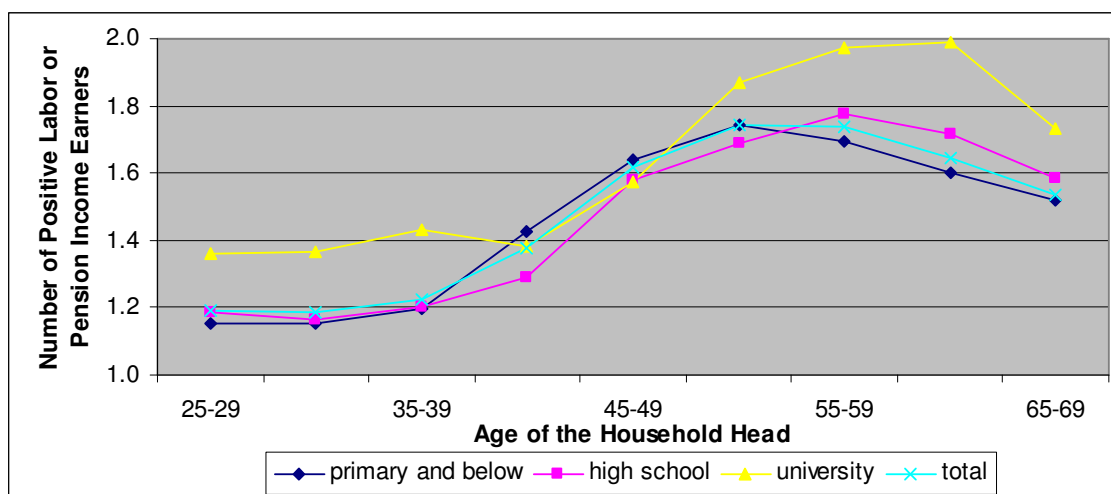


Figure 3: Average Number of Positive Labor or Pension Income Earners by Educational Attainment of the Household Head (2003)

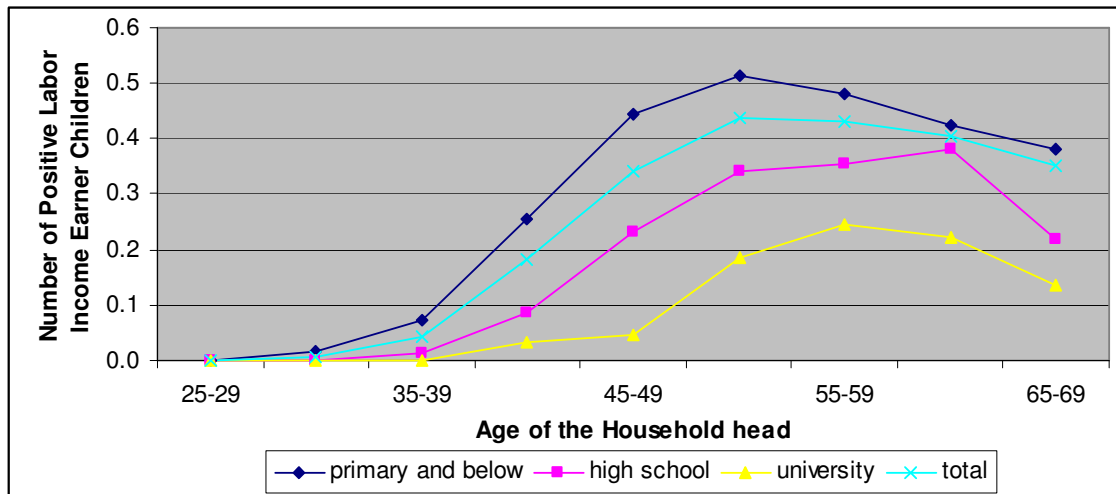


Figure 4: Average Number of Employed Children of the Household Head in the Household by Educational Attainment of the Household Head (2003)

Figure 4 reveals that children with labor income living with their parents is a very important contributor to the rise in the number of labor or pension income earners in the household after the household head reaches age 40. For the total population of household heads in their 50s, there is on average more than 0.4 children in the household with labor income. As can also be seen in Figure 4, the age of the household head at which children enter the labor force increases with the educational attainment of the household head. Presumably, household heads with higher education have children at later ages, and their children – who are more likely to have higher educational attainment as well – enter the labor market later. There is also substantial variation in the average of number of children with labor income in the household by household head’s education: among the 50-54 year-old household heads, this average is more than 0.5 for household heads with the lowest educational attainment whereas it is just below 0.2 for household heads with the highest educational attainment. After the household head reaches age 50, the number of children with labor income in the household starts decreasing as some children leave the household.

An important feature of the profile for the average number of positive labor or pension income earners by the age of the household head in Figure 3 is that it is at a higher level for

household heads who are university graduates before age 40 and also after age 50. This is despite the facts that household heads who are university graduates are less likely to live in extended families (especially at later ages), as shown in Figure 2, and that they have fewer children in the household who are employed, as shown in Figure 4. A factor that explains this contradiction is the probability of the spouse having positive labor or pension income earnings, which is displayed in Figure 5. This probability is much higher for university graduates; in fact, for household heads who are older than 45, it averages above 40 percent for university graduates whereas it is lower than 10 percent for those who have primary or lower education. In addition, since the employment rate increases with educational attainment in Turkey (McIntosh, 2008; Tansel, 1994), household heads who have university degrees are more likely to have labor income. Furthermore, since household heads with lower educational attainment are more likely to work in the informal sector, they would not be qualified for pensions at old age.

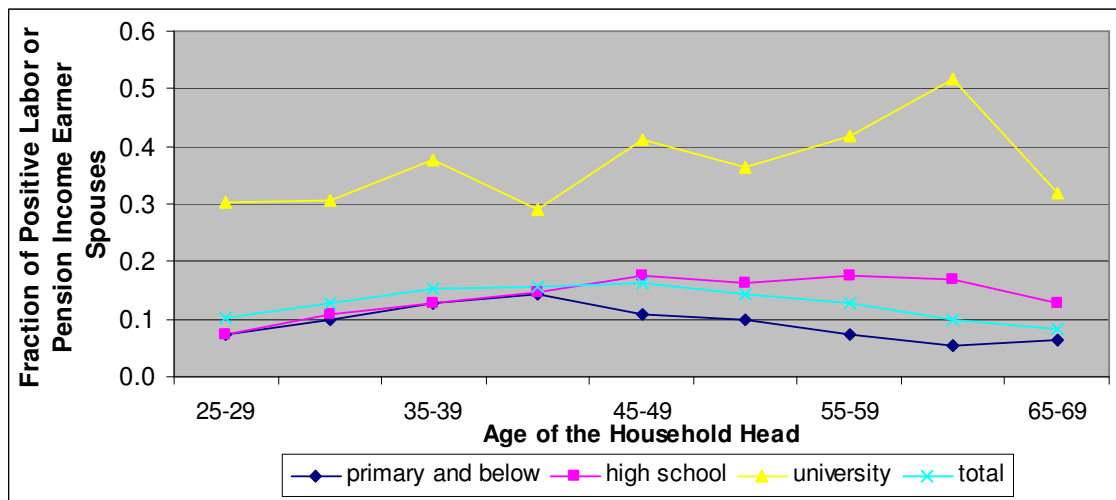


Figure 5: Fraction of Spouses with Positive Labor or Pension Income by Educational Attainment of Household Head (2003)

Given the difference for university graduates in the number of household members with positive labor or pension income in Figure 3, we would expect the household income for this



group to be higher than those of others, especially before age 40 and after age 50. As can also be seen in Figure 3, the fraction of household members with positive labor or pension income for high school graduates is somewhat lower between ages 40 and 54 and somewhat higher afterwards compared to that for the household heads with the lowest educational attainment. Therefore, we might expect the household income of household heads with high school degree to be somewhat higher at those ages than that of household heads with the lowest educational attainment.

### 3.2. Aggregate Income

Figure 6 displays the median household income over the life-cycle of household heads, by education groups and for the total sample. For the total sample, the median household disposable income profile is very slightly hump-shaped. It increases somewhat until the household head reaches mid-forties, stays flat until late fifties, and goes down slightly thereafter. As expected, aggregate household income increases in household head's education, and this increase is especially high for university graduates.

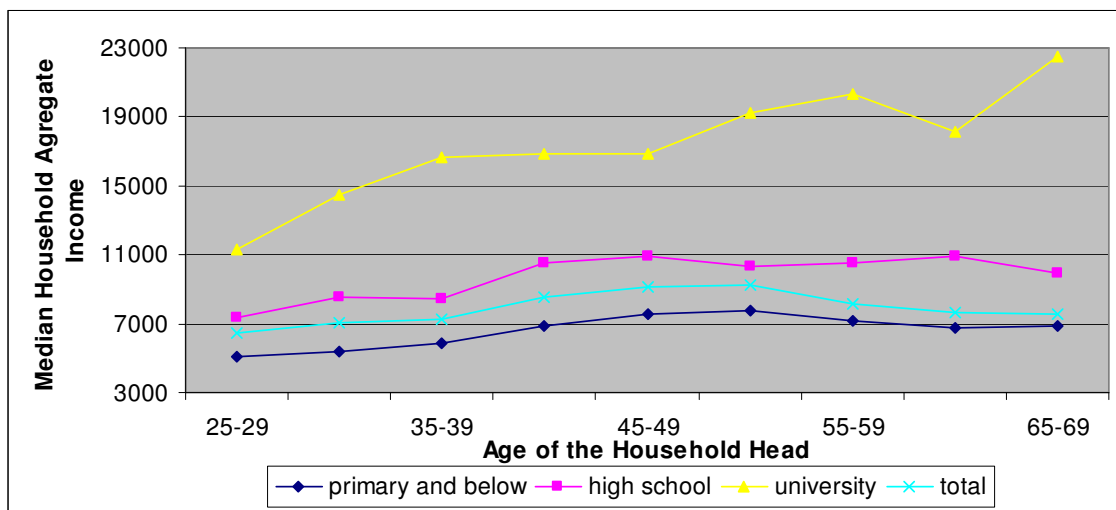


Figure 6: Median Household Aggregate Income by Educational Attainment of the Household Head (2003, TL)

For the two lower education groups, the median household income exhibits an increasing trend at first, and stays relatively constant afterwards. For university graduates, the median household income increases throughout the life cycle of the household head. In other words, we do not observe the hump-shaped median household income profile over the household head's life-cycle – which is reported for several other countries – when we condition on the educational attainment of the household head. Note that the household income profile for the total population in Figure 6 has more of a hump-shape than any of the household income profiles by education because of compositional effects. There is a lower fraction of university graduates, who have higher household income, among the older household heads. An examination of mean household income over the life-cycle by the educational attainment of the household head, as can be seen in Figure A1 in the Appendix, reveals that all of the above facts on median household income by education hold also for the mean household income by education.

The shape of the household income profile we find for Turkey is very different from those found for a number developed countries (see, for instance, Attanasio (1994) for the US, Japelli and Pagano (1994) for Italy, Banks and Blundell (1994) for the UK, Burbidge and Davies (1994) for Canada, and Takayama and Kitamura (1994) for Japan), where an obvious hump-shape is reported. For instance, the median household income at ages 50-54 in Japan (Takayama and Kitamura, 1994) is roughly twice as much as the median household income at ages 25-29, whereas the same ratio in Turkey is much less than 1.5. Similarly, while the median household income at ages 41-45 in the US is roughly twice as much as the median household income at age 66-70 (Attanasio, 1994), they are quite similar in Turkey as can be seen in Figure 6.

This relatively flat shape of the household income profile compared to those for developed countries arises from the peculiar features of the household structure over the life-cycle of household heads in Turkey. The fact that different generations of families live in the same household, especially when the household head is old, smoothens the household income profile over the life-cycle by preventing significant drops in household income at the two ends of the life-cycle profile. In addition, the fact that many employed children reside with the

household head increases the household income at the end of the household head's life-cycle. Besides, the higher life-time income of younger generations in Turkey, due to economic growth, would also tilt the household income of younger household-heads upwards.

On the other hand, the lack of a hump-shaped profile for the household income profiles conditional on educational attainment is not unique to Turkey. In fact, Attanasio and Szekely (2000) report that the household income profiles conditional on education are very flat over the life-cycle also in Mexico and Peru. In fact, in Mexico, it has a very slight hump-shape for household heads with low educational attainment, whereas it increases by age for household heads with higher educational attainment – which is very similar to the case for Turkey. Moreover, Attanasio and Szekely find that intergenerational co-residence is also common in these countries, especially for the less educated individuals – which is also common with our findings for Turkey.

### ***3.3. Labor Income***

We first examine household labor income as a component of household total income. Household labor income includes wages, salaries, overtime bonuses, fringe benefits and payments in kind, agricultural and self-employed income and income from copyrights. Figure 7 illustrates the fraction of households with positive labor income by age and education.

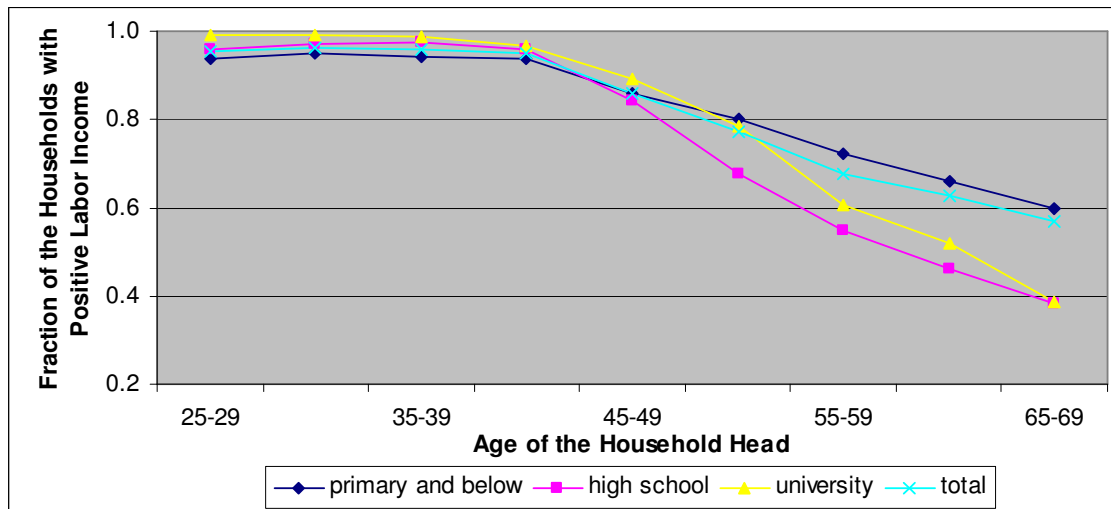


Figure 7: Fraction of Households with Positive Labor Income by Educational Attainment of Household Head (2003)

The percentage of households with positive labor income is, as expected, very close to unity until age 45 but declines thereafter with retirement. Even though the decline in the profile starts early, around age 45, due to the early retirement age for these birth cohorts, the speed of the decline is slow. Among household heads who are aged 60 to 64, more than 60 percent still have positive labor income. On the other hand, Attanasio (1994) finds a sharp decline in the percentage of households with positive labor income after the retirement age in the US. In fact, among the 50 to 54 year-old household heads, while less than 80 percent have positive labor income in their households in Turkey, this percentage is close to 100 percent in the US (Attanasio, 2000). On the other hand, among the 65 to 69 year-old household heads, while the fraction with positive labor income in their households is almost 60 percent in Turkey, this fraction is less than 50 percent in the US. This relatively slow decline in Turkey is in part due to the fact that several households in Turkey include adult children – single or married – who are in the labor force even when the household head is retired, as shown earlier. However, there could be another reason for this fact: it could be that some household heads keep working even at later ages. To examine this, we plot the fraction of household heads with positive labor income in Figure 8.

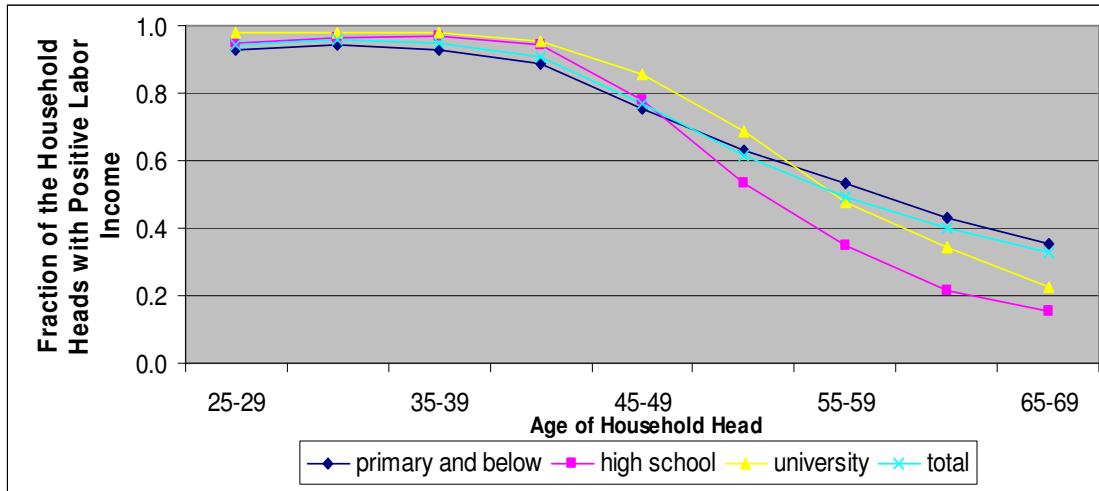


Figure 8: Fraction of Household Heads with Positive Labor Income by Educational Attainment of Household Head (2003)

A significant fraction of older household heads is in fact still employed despite the very early retirement age. Even though some Turkish household heads leave the labor force early – about 60 percent of the 50-54 year-old household heads have positive labor income – others are very persistent in the labor market – around 35 percent of the 65-69 year-olds is still in the labor force. Combining the facts in Figures 7 and 8, we can claim that of the households with positive labor income whose household heads are aged 60 to 64, the source of labor income is the household heads themselves in roughly 2/3 of the households and is the other members of the family in the remaining 1/3 of the households. In essence, despite the extended family structure and employed adult children staying in parents’ house for a long time, an important fraction of old household heads are still working.

Across different education groups, old-age employment is the most common among the least-educated group. Since a high fraction of this education group work in the informal sector, they are not qualified for pension benefits; therefore, many keep working until late ages. For instance, while almost 40 percent of the 65-69 year-old among the least educated group has positive labor income, this percentage is around 20 for the same age group of the other two

education groups. Beyond age 50, it is the high school graduates who are the least likely to have positive labor income. Presumably, most of the members of this education group work in the formal sector as do university graduates, and the opportunity cost of retirement is not as high for them as university graduates due to lower salaries.

Figure 9 plots the median household labor income against the age of the household head by education groups and for the total sample. For the total sample, the profile is slightly increasing until around age 40-44 and declining thereafter. However, the decline at retirement age is not as sharp as those reported for other countries such as Iran (Marku, 2004), Taiwan (Deaton, 1997) or the US (Attanasio, 1994) due to the reasons discussed above. For instance, while the median household labor income for the 65-69 age group is zero in the US, it is positive in Turkey. Examining the household labor income by the educational attainment of the household head, we see a positive relationship between education and household labor income when the household head is younger. However, at the end of the life cycle, the least educated group has the highest household labor income – which is in accordance with the above finding that the least educated household heads are more likely to work at later ages.

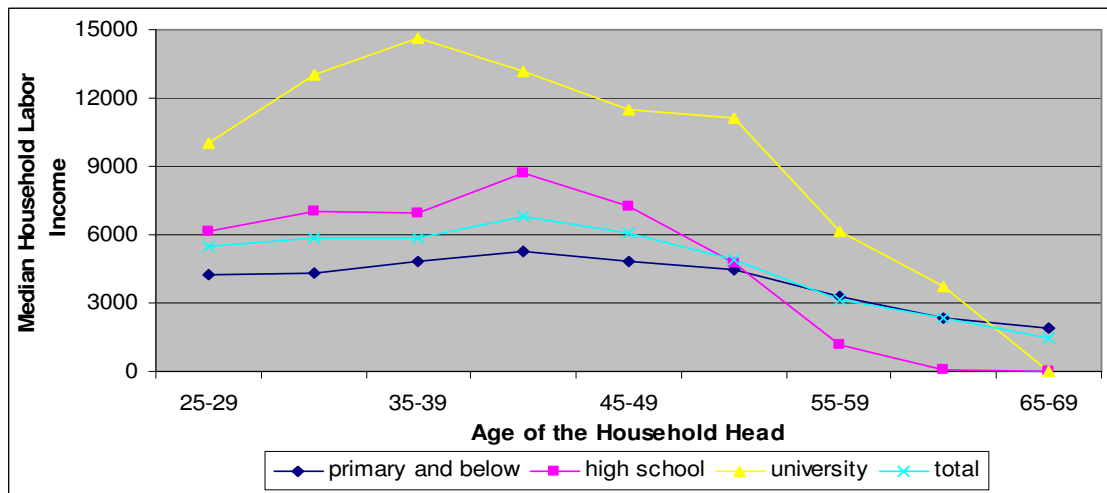


Figure 9: Median Household Labor Income by Educational Attainment of the Household Head (2003, TL)

### 3.4. Pension Income

Figure 10 presents the share of households with positive pension income. The fact that the fraction of households with positive pension income is above zero even for young household heads shows that some parents (with positive pension income) live with their children. The profile increases sharply after age 45, and becomes flat at around age 60. The rise in the profile at around age 45 is much earlier than that in the US, which takes place at around sixties in the US (Attanasio, 1994). The fraction of households with positive pension income remains at around 80 percent even for very old household heads. This shows that a significant fraction of households headed by older individuals—more than 20 percent—are not covered by any social security system. The profiles by educational attainment reveal that most of those who are not covered by any social security system belong to the least educated group.

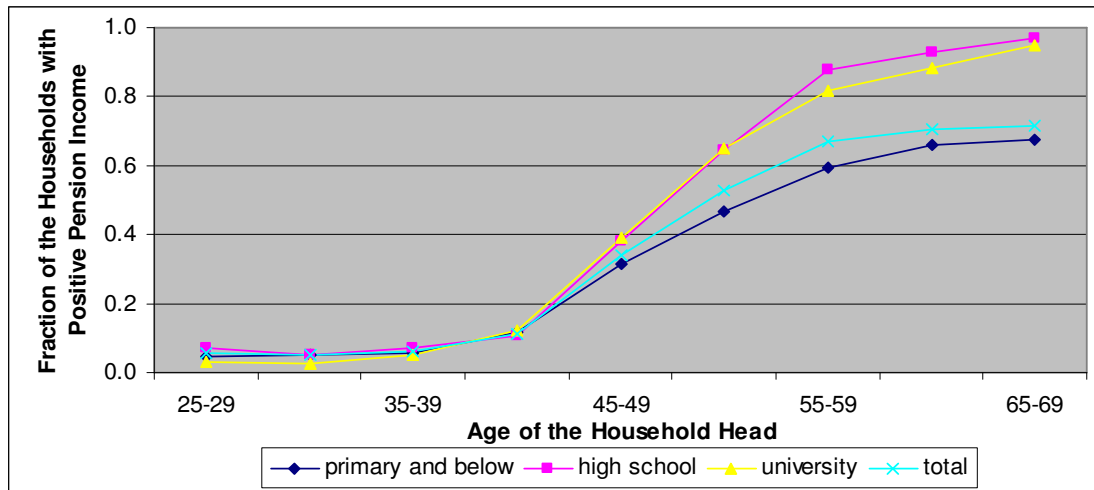


Figure 10: Fraction of Households with Positive Pension Income by Educational Attainment of the Household Head (2003)

The profile for mean pension income is presented in Figure 11. For the total sample, the mean household pension income averages above 3,000 TL after age 55. For high school and university graduates, this amount is much higher. For instance, for high school graduates, the

mean level of household pension income approaches 6,000 TL. This is a significant amount because, as can be seen in Figure A2 in the Appendix, the mean household labor income for this education group averages around 9,000 TL before age 50. In fact, Table A1 in the Appendix shows that pension income makes up almost 50 percent of total household income after age 65 for household heads who are high school graduates. This finding also implies that the weak hump-shape in the mean total income profile in part results from relatively high pension income of the older household heads, especially for those with higher levels of education.

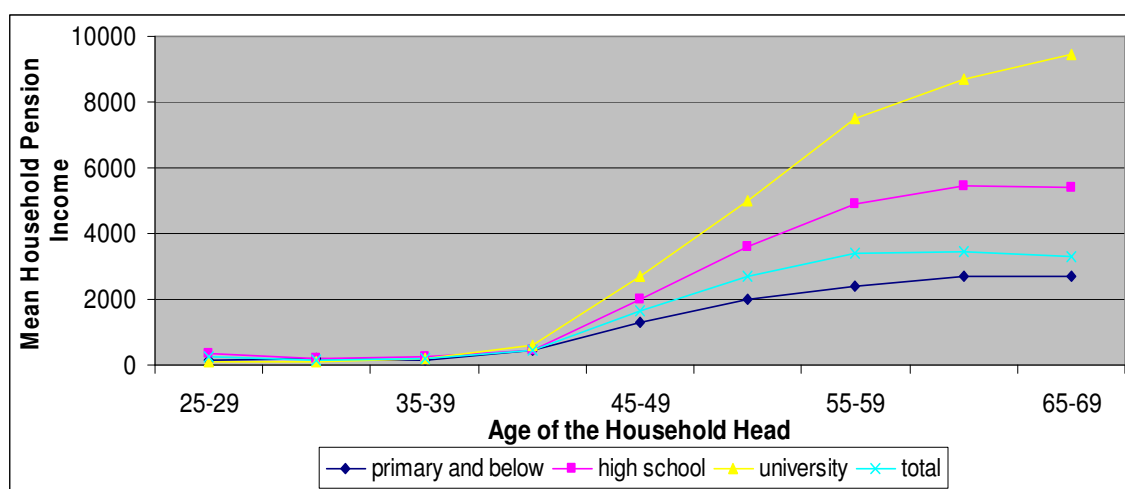


Figure 11: Mean Household Pension Income by Educational Attainment of the Household Head (2003, TL)

### 3.5. Interest Income

In this study, interest income includes both interest and dividends. Figure 12 displays the percentage of households with positive interest income by the age of the household head. For the total sample, the proportion of households receiving interest income increases until around age 45, then decreases until age 60, and is relatively flat thereafter. The proportion of households with positive interest income is low: it averages around 20 percent at its peak at



age 40. The shape of this profile is very different from that reported for the US: Attanasio (1994) finds an increasing shape with age for the US households. When we compare the fraction of households with interest income between the two countries, we find that it is higher at all ages in the US and the gap is sharply increasing with age. While the proportion of the US households receiving interest income is above 60% at the end of the life cycle, the proportion is just above 5% for Turkish households.

One possible reason for the observed shape of the fraction of households with interest income could be the motivation for housing. It could be that households accumulate interest-bearing savings during the early part of the life-cycle to buy a house – in a country where the mortgage system did not exist until recently – and when they purchase the house, their interest income goes down. In fact, while 40 percent of the 25-29 year-olds are homeowners, 87 percent of the 55-59 year-olds are homeowners. Another potential explanation for the decreasing proportion of households with positive interest income at old ages is that older generations could be less likely to invest their savings on interest bearing assets. There is also substantial variation across education groups in the fraction of households with interest income; among the 40-44 age group, the fraction among university graduates approaches 40 percent, whereas among the least educated group, it is around 6 percent.

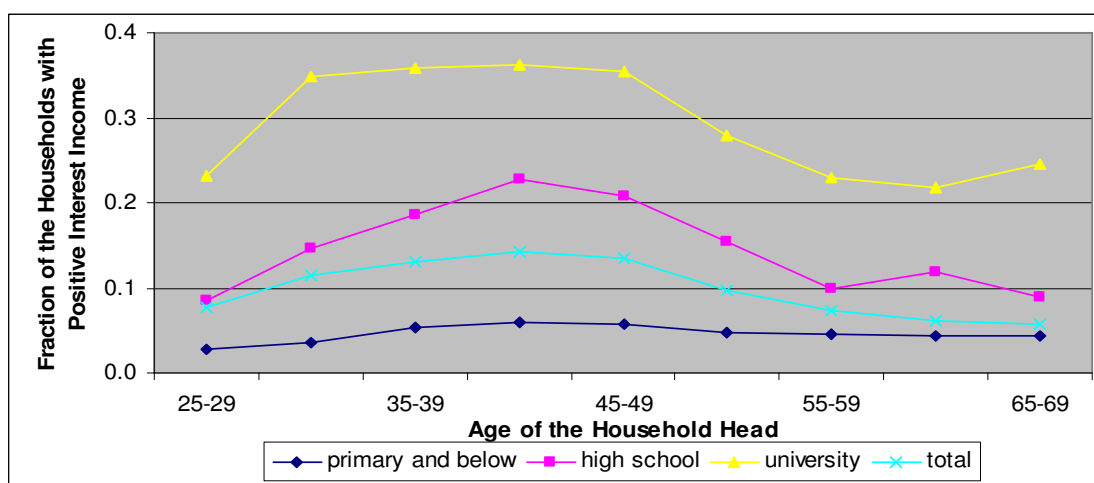


Figure 12: Fraction of Households with Positive Interest Income by Educational Attainment of the Household Head (2003)

The profile for mean interest income is plotted in Figure 13 for the total sample, as well as by education groups. For the total sample, the magnitude of interest income is very small: even at its peak (ages 60-64), it averages below 300 TL, which is 4% of the aggregate income at that age group. Only for university graduates do we find notable amounts of interest income. Moreover, for university graduates, we find a rising profile, which is similar to that reported for the US (Attanasio, 1994).

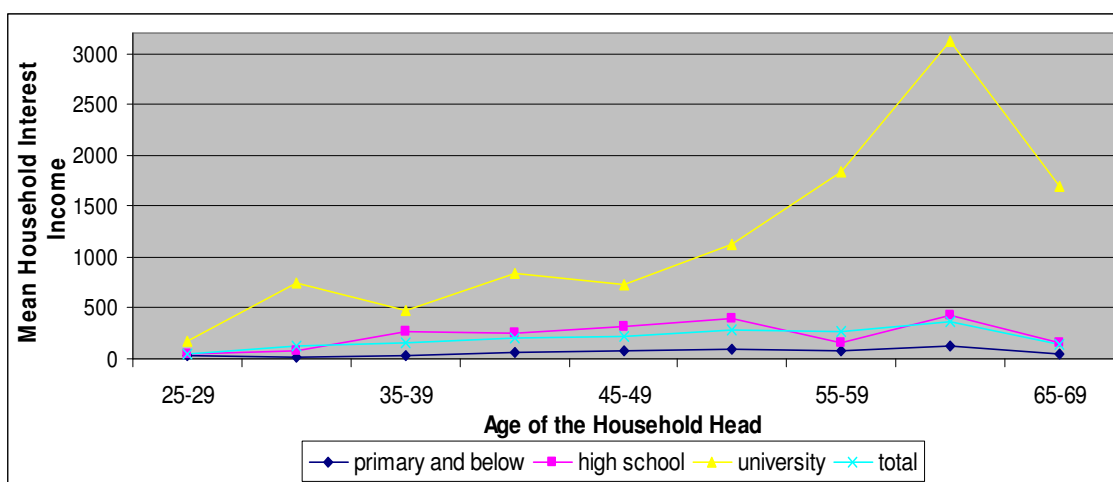


Figure 13: Mean Household Interest Income by Educational Attainment of the Household Head (2003, TL)

### 3.6. Real Property Income

Figure 14 displays the percentage of household heads with positive real property income, which includes imputed rent for those who live in their own dwelling, by the age of the household head. As expected, the proportion of households receiving real property income increases in age. At the beginning of the life cycle, household heads with lower education are in fact more likely to have real property income. For instance, among the 25 to 29 year-old

household heads, while almost 60 percent of those who belong to the lowest education group have real property income, less than 40 percent of the university graduates have. The higher proportion of university graduates living in urban areas, where home-ownership rate is lower, and the lower proportion of them living with their parents, as shown earlier in Figure 2, are the potential explanations to this fact. Nonetheless, the fraction of university graduates with real property income rises faster, and after age 45, there remains little difference in the fraction who owns real property income across the education groups.

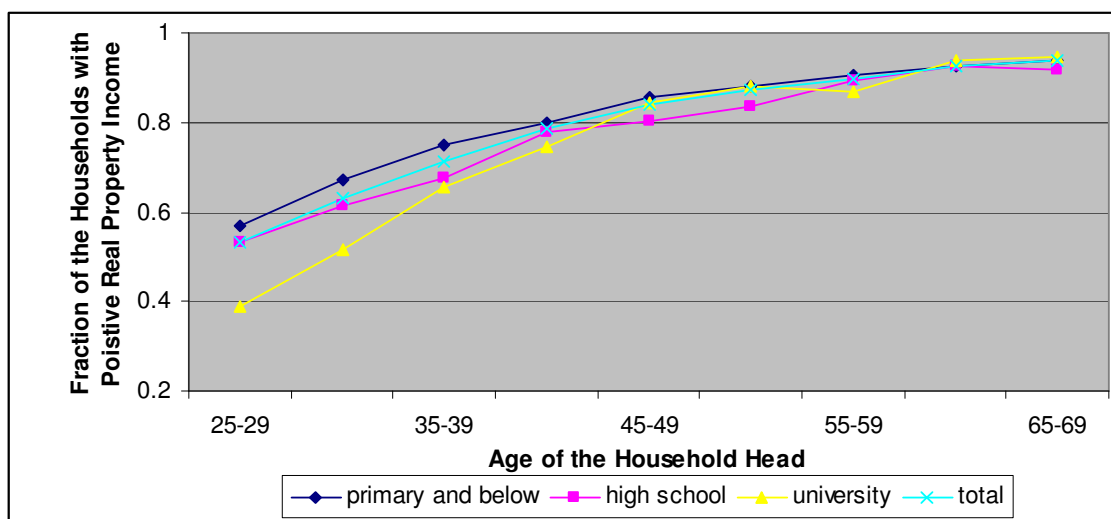


Figure 14: Fraction of Households with Real Property Income – Including Imputed Rent – by Educational Attainment of the Household Head (2003)

Figure 15 shows that the mean value of real property income exhibits an increasing profile over the life-cycle for all education groups, in particular for university graduates. In addition, as can be seen in Table A1 in the Appendix, the magnitude of the real property income is much higher than the interest income. In fact, for university graduates, real property income makes up as large a share of household income as pension income even when the household head is old. When the household head is older than 55, the total asset income (including interest and real property income) is higher than pension income for household heads with

university degree, whereas pension income is higher than total asset income for household heads with lower educational attainment. However, it is important to note that the rise in total asset income at old age is also related to the retirement system in Turkey because retirement provides a lump-sum severance payment, in addition to pension benefits.

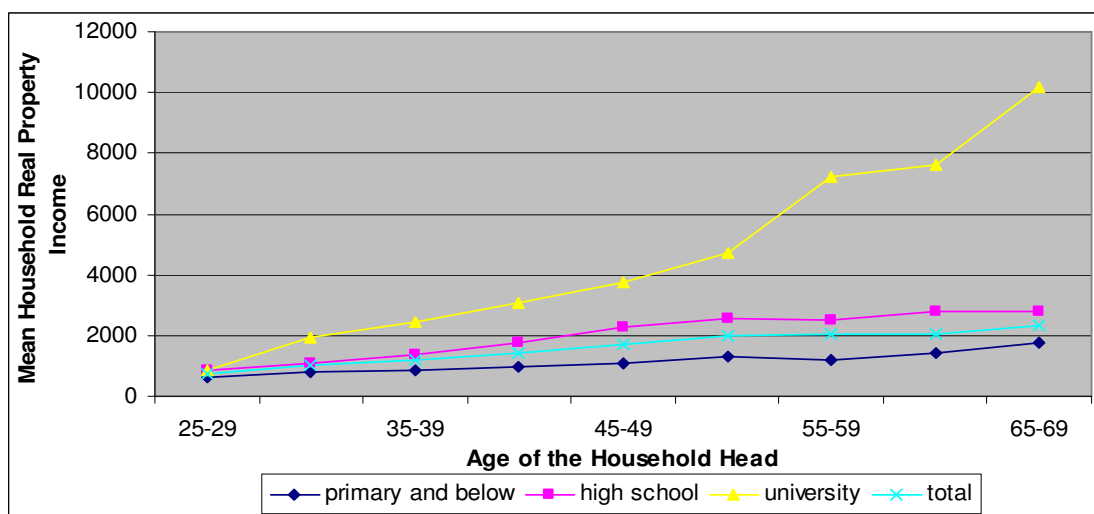


Figure 15: Mean Household Real Property Income – Including Imputed Rent – by Educational Attainment of the Household Head (2003, TL)

### 3.7. Transfer Income

Finally, we examine transfer income as a component of household income. Transfer income includes tax refunds, unemployment and illness compensation, student grants, alimony, remittances, and payments in kind. Figure 16 presents the percentage of the households with positive transfer income by education, as well as for the total population. While around 40 percent of the household heads receive transfer income in the early part of their life-cycle, this share increases to roughly 70 percent at older ages. An interesting feature of Figure 16 is that the fraction of households with positive transfer income is the highest among university graduates. This results from the components included in the definition of transfer income,

which includes tax refunds. Once we exclude tax refunds, the incidence of transfer income in fact decreases in the education level of the household head, as can be seen in Figure A3 in the Appendix. Also without the tax refunds, the fraction of households receiving transfer income is quite stable over the life cycle of the household head at around 20 percent for the total population, whereas this fraction declines by the age of the household head for high school and university graduates.

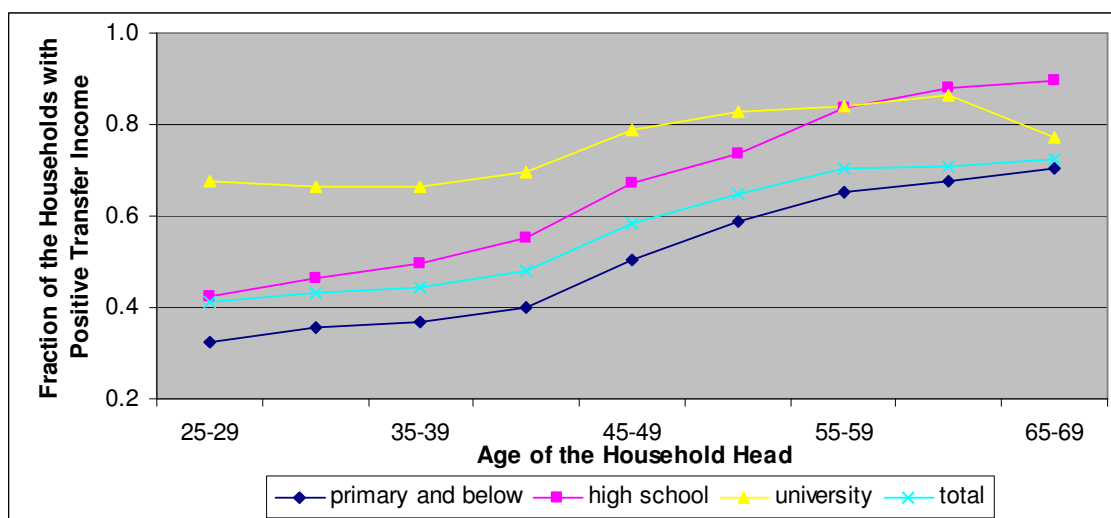


Figure 16: Fraction of Households with Positive Transfer Income by Educational Attainment of the Household Head (2003)

Even though the percentage of households receiving transfer income is high, its amount is limited. Figure 17 shows that the transfer income of households averages just above 300 TL and is relatively constant over the life-cycle. For instance, for the 45-49 year-olds, it is equivalent to 3.5% of aggregate income. For all education groups, transfer income is in fact relatively constant over the life-cycle; however, the profile for university graduates is very volatile due to the low number of observations for them. In terms of the amount of transfer income, there is little difference among the two lower education groups; whereas it is somewhat higher for university graduates. When we exclude tax refunds, however, the

amount of transfer income is higher for the least educated group, as can be seen in Figure A4 in the Appendix.

A further investigation of transfer income to understand the patterns across educational groups shows that tax refunds is responsible for the higher transfer income profile of the university graduates. Although tax refunds have significant contributions to transfer income for all education groups, university graduates have the highest ones. Welfare programs targeting the poor senior citizens have the highest contribution to transfer income for the least educated group and second highest for the high-school group. Moreover, financial aids from institutions and relatives are the other important components of transfer income for all education groups, particularly for the least educated group.

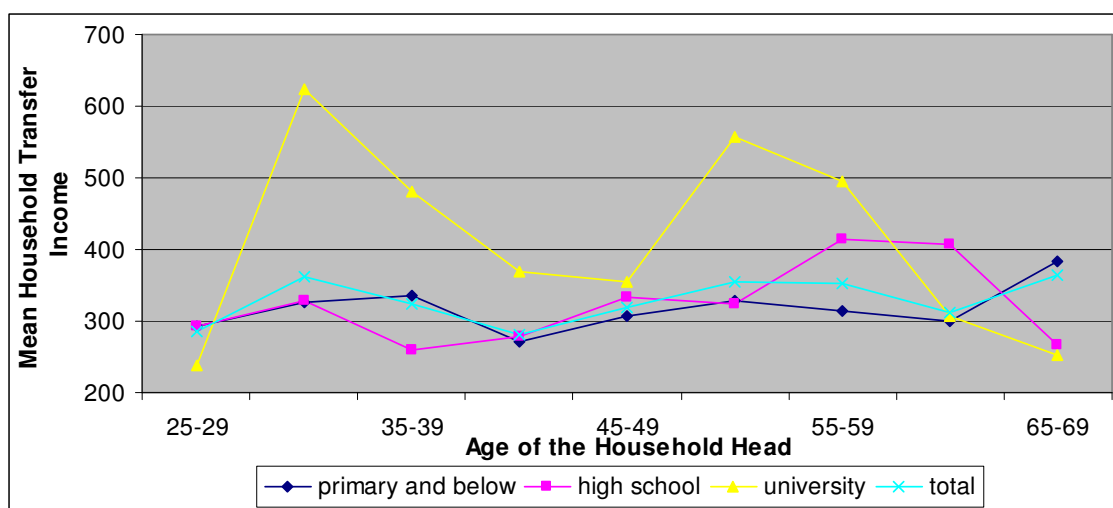


Figure 17: Mean Household Transfer Income by Educational Attainment of the Household Head (2003, TL)

## 4. Conclusion

This study examines the life-cycle profiles of household income and its components by the educational attainment of the household head using micro data obtained from the 2003

Turkish Household Budget Survey. Since household income and its evolution over the life-cycle depend critically on the household structure, we also examine the composition and change over the life-cycle of household structure.

A key finding of our analysis is that conditional on educational attainment, the household income profile over the life-cycle of the household head is quite flat. Even though household income rises in the early part of the life-cycle for all education groups, it does not decrease at later ages. In fact, for household heads with university degrees, it keeps rising even at later ages. This is quite different from the hump-shaped life-cycle profiles of household income reported for several developed countries. Nonetheless, similar life-cycle household income profiles have been reported in some developing countries like Mexico and Peru.

Our analysis of household structure reveals several important clues about the evolution of household income over the life-cycle. First, in several households, different generations of families live together. This is particularly common in households where the household head is older. In fact, in 40 percent of the households where the head is old and has primary or lower education, there are multiple nuclear families living together. Second, in households with an older head, there are several adult children with labor earnings because several children reside with their parents even when they are well beyond their 20s, and even 30s. This is also more common in households where the household head has lower education because they have on average more children and their children enter the labor market earlier. Consequently, the average number of household members who have positive labor or pension income significantly increases with the age of the household head. For instance, for the total population, there are on average 1.2 people with positive labor or pension income when the household head is younger than 40, whereas this number goes all the way up to almost 1.8 people when the household head reaches age 55. Therefore, we do not see a notable drop in household income in the later part of the life-cycle of the household head.

Another feature peculiar to Turkey that contributes to the flatter household income profile is related to labor market dynamics. While many Turkish household heads can and do retire at a relatively early age – the transition to retirement starts at age 45 – many others choose to work until very late ages. In fact, almost 40 percent of the 65 to 69 year-old household heads still have labor income. This phenomenon is particularly prevalent for household heads with low

levels of education because a significant fraction of them work in the informal sector and, therefore, are not qualified for pension benefits. Nonetheless, old-age employment is not limited to household heads with low education. Among the 65 to 69 year-olds who are high school or university graduates, 20 percent still have positive labor income. This persistence in the labor market at very late ages for household heads also prevents the drop in household income at the end of the life-cycle in Turkey.

Compared to other components income, pension income also makes a significant contribution to the household budget. Although there is a significant share of old household heads with no pension income in their households for the least educated group, pension benefits constitute an important part of total household income when it is in fact part of the household income. This is also part of the explanation to the non-decreasing household income conditional on education over the life-cycle.

Other notable findings of analysis of the components of household income are that real property income is much larger than interest income, and that the gap in the holdings of both real property income and interest income between households with a university-graduate household head and the other households significantly widens with age. Although the percentage of households receiving transfer income excluding tax refunds is around 20 percent all throughout the life-cycle, its share as a fraction of total household income is small.



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## APPENDIX

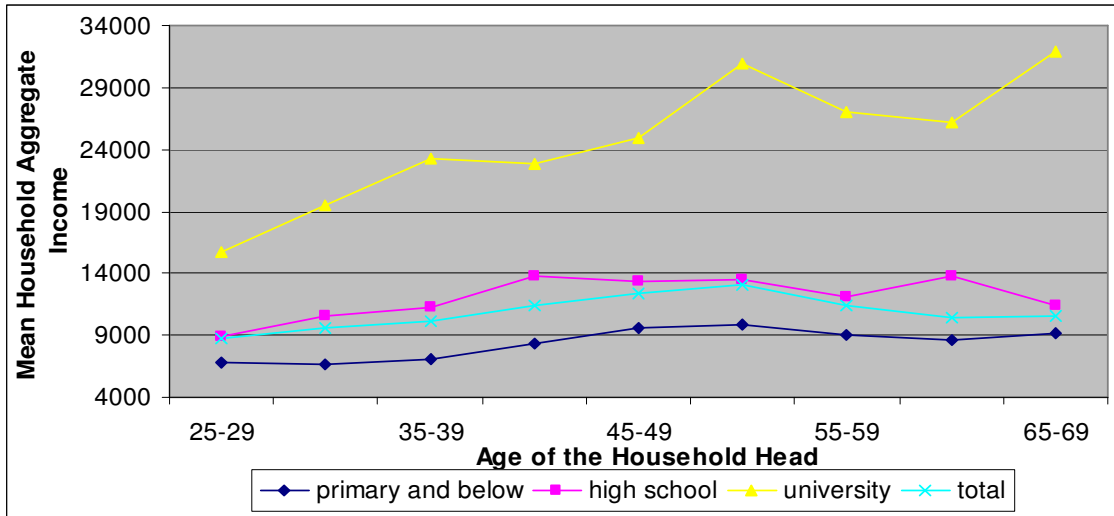


Figure A1: Mean Household Income by Educational Attainment of the Household Head (2003, TL)

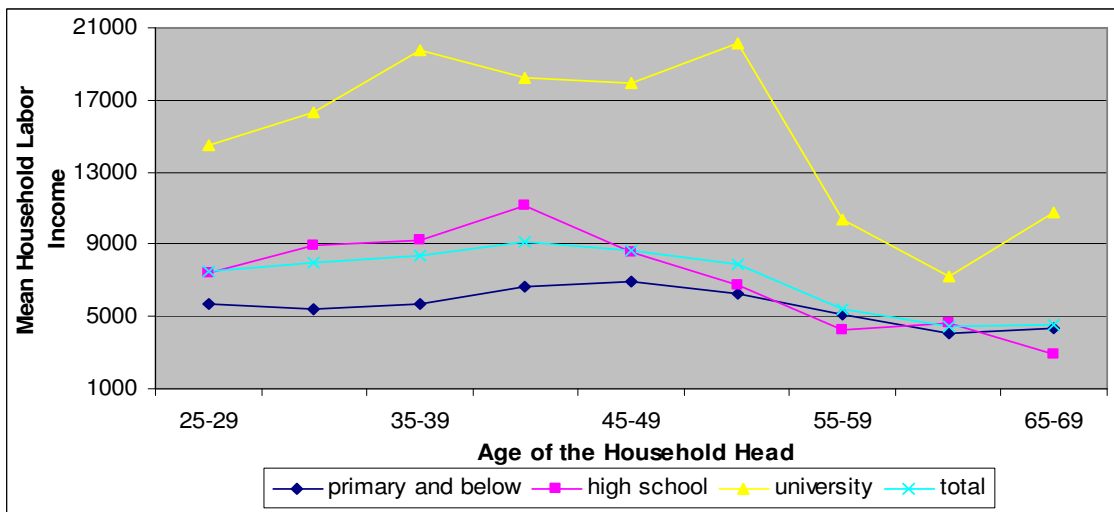


Figure A2: Mean Household Labor Income by Educational Attainment of the Household Head (2003, TL)

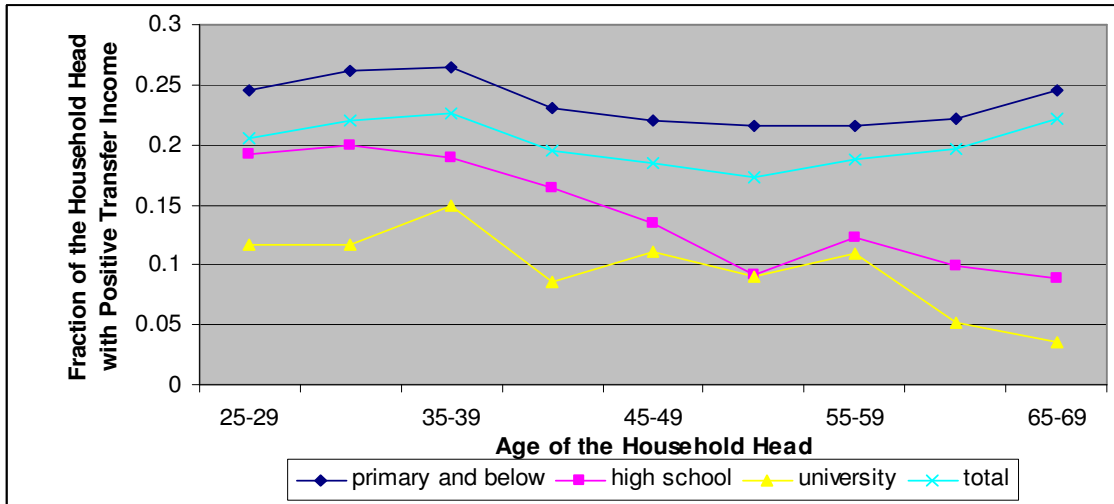


Figure A3: Fraction of Households with Positive Transfer Income – Tax Refunds Excluded – by Educational Attainment of the Household Head (2003)

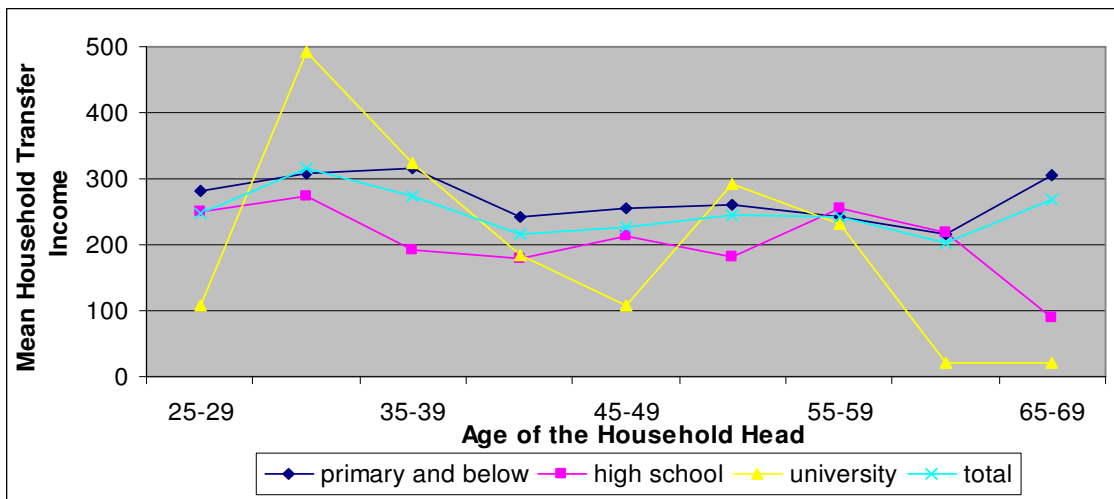


Figure A4: Mean Household Transfer Income – Tax Refunds Excluded – by Educational Attainment of the Household Head (2003, TL)

Table A1: Percentage of Various Income Components in Total Household Income by Age and Education of the Household Head

A) Primary School or Less					
	Labor	Pension	Interest	Real Property	Transfer
Age					
25-29	83.9%	2.4%	0.4%	9.0%	4.3%
30-34	80.1%	2.8%	0.3%	11.9%	4.9%
35-39	80.5%	2.4%	0.6%	11.8%	4.8%
40-44	79.0%	5.3%	0.8%	11.7%	3.2%
45-49	71.1%	13.5%	0.9%	11.3%	3.2%
50-54	62.5%	19.8%	1.0%	13.3%	3.3%
55-59	55.8%	26.4%	0.9%	13.4%	3.5%
60-64	47.6%	31.1%	1.4%	16.5%	3.5%
65-69	46.8%	29.0%	0.6%	19.4%	4.2%
B) High School Graduates					
	Labor	Pension	Interest	Real Property	Transfer
Age					
25-29	82.7%	3.8%	0.5%	9.7%	3.3%
30-34	84.1%	1.7%	0.8%	10.2%	3.1%
35-39	81.1%	2.2%	2.4%	12.0%	2.3%
40-44	80.0%	3.2%	1.9%	12.9%	2.0%
45-49	63.5%	15.0%	2.4%	16.7%	2.5%
50-54	49.5%	26.5%	2.9%	18.7%	2.4%
55-59	34.7%	40.2%	1.3%	20.5%	3.4%
60-64	34.0%	39.6%	3.1%	20.3%	3.0%
65-69	25.2%	46.8%	1.4%	24.2%	2.3%
C) University Graduates					
	Labor	Pension	Interest	Real Property	Transfer
Age					
25-29	91.1%	0.8%	1.1%	5.5%	1.5%
30-34	82.7%	0.4%	3.8%	9.9%	3.2%
35-39	84.7%	0.9%	2.0%	10.4%	2.1%
40-44	78.8%	2.6%	3.6%	13.4%	1.6%
45-49	70.3%	10.5%	2.9%	14.9%	1.4%
50-54	63.8%	15.9%	3.6%	15.0%	1.8%
55-59	37.9%	27.4%	6.7%	26.3%	1.8%
60-64	26.8%	32.3%	11.6%	28.2%	1.1%
65-69	33.3%	29.2%	5.2%	31.5%	0.8%