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Socio-Economic Status Gradient in Health: Micro Evidence from Turkey

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ABSTRACT

Numerous studies have shown a strong relationship between health and socio-economic status (SES). However determining which aspect of SES affects health and how much more rapidly health declines for some individuals than others over life cycle are keys to policy debate. In this respect, by using TURKSTAT's 2010 Survey of Income and Living Conditions (SILC), the contribution of this study to the literature is depicting SES gradient in health over life course by using different aspects of SES for Turkey. Results show that the bottom of SES hierarchy are in much worse health than those at the top and average health among men is better than women. The health gradient exists in all indicators of SES. We observe relatively wide SES gradient in health in middle-ages and narrowing of it in old ages implying some mixture of cumulative advantage hypothesis and age-as-leveler hypothesis operates through life cycle.

Keywords
socio-economic status, health gradient, life-cycle, Turkey

JEL Classification
C10, D15, I10

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*This study is originated from the Phd thesis of the author.

1. Introduction

Huge literature on socioeconomic disparities reveals a persistent phenomenon of social inequalities in health in many countries and people at low socio-economic status suffer a heavier burden of poor health than their better-off counterparts. In this respect the following questions can be arised: Does the distribution of health change across generations? Do socio-economic disparities narrow or widen as people age? What dimensions of socio-economic status (SES) matter- financial aspects like income or wealth or non-financial aspects such as education? All of these questions address the strong relationship between health and socio-economic conditions in which individuals live and work both in rich and poor countries (Kunst & Mackenbach, 1994; Smith, 2004; Smith, 2007; Van Doorsleer & Van Kippersluis & O'Donell, &Van Ourti, 2008; Van Kippersluis & Van Ourti & O'Donnel & Van Doorslaer, 2009b; Willson & Shuey & Elder, 2007). These socio-economic inequalities in health are a major challenge for health policy, not only because most of these inequalities can be contemplated unfair, but also because a reduction in the burden of health problems in disadvantaged groups offers excessive potential for improving the average health status of the population as a whole (Kunst & Mackenbach, 1994).

However looking at socioeconomic differences only at certain ages would lead incomplete impression of the extent of health differences over the life course. Life cycle component to the SES gradient in health should be taken into account in order to reflect how health of certain individuals decline more rapidly than others. Knowledge of how the distribution of health changes over the life cycle is key to understanding individual behavior with respect to retirement, saving, health insurance and the utilization of health care and consequently, to the formation of public policy (Van Kippersluis et al., 2009b).

Turkey has undergone substantial changes in health policy and retirement schemes in the last several decades and the debate has focused on the age limit in retirement and pension systems. For instance two retirement reforms were passed in 1999 and 2008 that aim to regulate the retirement and work patterns and to increase retirement age. Additionally, the existing three social security systems have been merged under one system which covers the whole population. These changes offer the importance of understanding fundamental relationships between

education, occupation, work and health in order to form an efficient public policy concerning retirement, pensions, health financing, health and social care. Comprehending the nature and evolution of socio-economic status (SES) gradient in health in a developing country like Turkey, becomes crucial in policy designs and improving socio-economic and health status of the whole population. In this respect this study could be attributed as a precursor analysis to determine efficient health policies.

Literature is divided between two approaches on the evolution of socio-economic status (SES) gradient in health over life cycle; *cumulative advantage hypothesis* and *age-as-leveler hypothesis*. According to the cumulative advantage hypothesis differences in health by SES are established in life and subsequently widen as the economic and health disadvantages of less privileged interact and accumulate (Willson et al., 2007). On the other hand, age-as-leveler hypothesis suggests that deterioration in health is an inevitable part of the process of aging and irrespective of economic conditions or social position, with the result that SES-health gradient narrows at prime ages (Beckett, 2000). A compromise scenario, for which there is growing evidence, is that cumulative advantage operates though middle age, with the SES-health gradient widening until retirement age, before it narrows in older ages as the biological determinants of health strengthen relative to the socioeconomic determinants (Van Doorsler et al., 2008).

However there are important points remarkable in the process of analysis conducted here. One limitation of cross section data is that cohort effects may confound life cycle patterns. The strength of the relationship between SES and health may increase across cohorts (Van Doorslaer et al., 2008). Cohort effects can be covered by taking them explicitly into account by pooling the data or by following a single cohort as it ages (Willson et al. 2007, Herd 2006, Van Doorslaer et al. 2008). Due to data limitations we cannot observe cohort effetcs, however we believe that analysis applied here still gives the fundamental structure of the SES gradient in health in Turkey.

Another limitation would be due to selective mortality. At older ages the most robust of the lower socioeconomic groups survive given that mortality is correlated with SES. This situation can explain why socioeconomic differences in health among those surviving in old ages appear to narrow (Smith 2007; Van Kipperluis et al. 2009b, Van Doorslaer et al. 2008, Lynch

2003). In other words, less healthy people who are socioeconomically disadvantaged are more likely to die at relatively younger ages which will obscure the SES-health gradient. Once again due to data limitations we cannot observe selective mortality explicitly.

In the light of above discussion the rest of the study is organized as follows: Second section gives brief review on literature. Third section gives information about the data. Fourth section presents SES-health gradient over life cycle in which we provide information on income, education, work status and occupation gradients in self assessed health. Lastly, fifth section concludes.

2. Literature Review

Health is extensively regarded as an important part of human capital since the seminal work of Grossman. Grossman (1972) proposes the first model for demand of health capital in which health can be viewed as a durable capital stock which produces an output of healthy time and health capital differs from other types of human capital. Grossman (1972) assumes that health of individuals depreciate over time and can be increased by investment in health. Investment in health is produced by household production functions that depend on education.

After Grossman's work, numerous studies conducted to examine health demand and health determinants in which socio-economic inequalities in health over life cycle constitute a remarkable part. Deaton and Paxson (1998) examine whether inequality in health status increases with age and how the distribution of health and income evolve over life course. Their results show that health status decline with age and decrease in household income but the pace of decline is greater for women. Ross and Wu (1996) examine whether education based gap in health rises with age. According to their results the SES gap in health diverges with age. Beckett (2000) analyzes whether the educational differences in self reported chronic and serious conditions converge in old ages. The results show that age is positively and linearly related to the probability of reporting more health conditions and years of education is negatively related to chronic conditions. Mackenbach & Bakker & Kunst & Diderichsen (2002) compare inequalities in morbidity and mortality among Western Europe countries and conclude that inequalities in health exist all over Europe.

Lynch (2003) investigates how cohort structures the influence of education on life-cycle health trajectories. The results present that the effect of education is increasing in magnitude across birth cohorts, and that the life-course effect is quadratic in cross-sectional data but can be modeled as linear and is increasing in panel data. Case and Deaton (2005) discuss multiple causal links between health income and education, and third factors that affect both health and socioeconomic status. Their results suggest that self-reported health worsens with age and that it does so much more rapidly among those at the bottom of the income distribution. The differences in health and health decline in different parts of the income distribution are due to whether or not people are in the labor force.

Herd (2006) examines whether functional inequalities grow, stagnate, diminish, or disappear in old age for United States and provides support for the age-as-leveler hypothesis. In a detailed study Smith (2004) examines the different dimensions of SES-health relationship by looking at the both directions from SES to health and from health to SES. Smith (2004) finds out that new serious health events have a quantitatively large impact on work, income, and wealth. Smith (2007) also discusses the life cycle component of health-SES gradient by focusing on the dimensions of SES that effect health such as financial aspects (income, wealth) and non-financial aspects (education). He concludes that education plays the most important role.

Deaton (2007) investigates the relationship between life, health satisfaction, national income, age and life expectancy by using 2006 Gallup World Poll. According to Deaton (2007) national income moderates the impact of aging on self-reported health, and the decrease in health satisfaction and rise in disability with age and these affects are much pronounced in poor countries than in rich countries. Willson et al. (2007) investigate how multiple dimensions of socio-economic status are related to health differences as people age by examining if cumulative advantage hypothesis operates over life cycle. Their study is consistent with a path-dependent process of cumulative advantage. Cutler & Lleras-Muney & Vogl (2008) focus on four dimensions of socioeconomic status; education, financial resources, rank, and ethnicity. Among all age groups, each additional year of schooling is associated with a clear and consistent improvement in self reported health status and income is protective for all age groups, with the association strongest at lower levels of household income.

Van Doorslaer et al. (2008) investigate SES-health gradient in The Netherlands and compare the results to those of US. They show that socio-economic differences in health widen until middle age before narrowing in later years of life. Additionally they determine very similar pattern in the gradients both in The Netherlands and United States. Van Kippersluis & Van Ourti, & O'Donnel & Van Doorslaer (2009a) examine the evolution of health and income-related health inequality over life cycle across generations in 11 EU countries. They disentangle age and cohort effects for the mean level of self reported health as well as for overall and income-related health inequality. According to results, in most countries there is a steady decrease in mean health from early adulthood until around the age of 50 and the deterioration in health generally levels off in middle-age before accelerating rapidly beyond the age of 70. In another study Van Kippersluis et al. (2009b) adopt a life cycle perspective in the evolution of SES gradient in health for The Netherlands. The conclusions are similar to Van Doorslaer et al. (2008) in which socio-economic differences in health widen until middle age and then starts to narrow as individuals age.

Most of the studies mentioned above propose socio-economic status(SES) gradient in health exists for developed countries. However the studies related with developing countries, such as Turkey, is limited. This study contributed the literarure in the following manners: First, it is the first study that provides life-cycle picture of SES gradient in health for Turkey. Second, by presenting the relationship between health and socio-economic status, it gives information of the extent of health disparities since diversified dimensions of SES-health nexus are important for policy designs. Furthermore, Turkey has launced series of changes in health and retirement policies recently and nature of SES gradient in health would form a substructure to determine the effectiveness of these policies.

3. Data

The data is from the wave of Turkstat Income and Living Conditions Survey (SILC) of Turkey for the year 2010. SILC contains information on demographic characteristics, income, poverty, social exclusion and living conditions with respect to the region and population. There are 12106 households and 45389 household members. Since the analysis is focused on adults, we exclude observations under 25. After excluding individuals younger than 25 we have 25503 observations of whom 12310 are men and 13193 are women. The variables used are as the

follows:

Self Assessed Health Status: Self assessed health is obtained from the question "How do you rate your health" and categorized as good or bad in this study. Good health contains very good and good health status, while bad health contains very bad, bad and fair health status. Despite imposing measurement errors in its nature, self assessed health is known to be a very good predictor of health outcomes (Idler and Benyamini 1997, Kerkhofs and Lindeboom 1995).

Income Quartiles: Income quartiles are obtained from the incomes from certain activities, such as wage, salary, entrepreneurial income, unemployment benefit, disability benefit, pension and scholarship. Per-capita household income is calculated by using OECD equivalence scale which assigns 1 for the head of household, 0.5 for each other person if he is older than 14 and 0.3 if he is younger than 14.

Education Quartiles: Education quartiles are obtained from the education level variable in the survey. First two quartiles have illiterate individuals and primary education respectively. Third quartile contains secondary education and fourth quartile has high&vocational high school and higher education.

Work Status: Work status variable used in this study has two categories; working and non-working. Working category contains individuals who are employed-full time and employed part-time. Individuals who are unemployed, student, retired, disabled and in home production are regarded as non-working.

Occupation: Occupation gives the individual's occupation code according to ISCO88. Managers, professionals, associate professionals, office clerks, service workers and artisans are regarded as white collar-workers and agriculture workers, skilled&unskilled workers as blue-collar workers.

Labor Force Participation: Labor force participation shows whether the individual is in or out of the labor force. Individuals in the labor force are either employed or unemployed.

4. Behaviour of SES Gradient in Health in Turkey

In this section evolution of SES gradient in health is depicted by using Turkstat SILC 2010 data. First, differences in self-assessed health by household per-capita income over the adult life course are illustrated. Next, disparities in self-assessed health by education and labor are presented. The sample used in the study is restricted to the adults older than 25.

4.1 Self Assessed Health by Age

Before analyzing the SES gradient in health through life course, we present the average picture according to gender. Figure 1 shows the percentage of individuals in good health by age according to gender. Good health refers to good and very good health. Percentages in good health could be treated as the probability of being in good health given age and gender, such as: *Prob(good health/gender&age).*

First, not surprisingly, percentage in good health decreases with age and men report better health than women in every age category. Second, percentages of individuals in good health are very close for men and women in the first age group and then the gap starts to widen immediately and reaches the biggest size in middle ages. The gap stays wide until age of 60s indicating the greatest difference in the range of middle age. We also observe that deterioration rate of health is higher for women. For instance, about 45 percent of women report good health in age group 45-49, while this ratio is attained in the age group 55-59 for men. After age group 60-64 the difference between men and women begins to narrow but we can not observe the trend after the age 65 due to data limitations. The convergence of health status for men and women in old ages would be due to selective mortality which leaves the healthiest individuals in the sample.

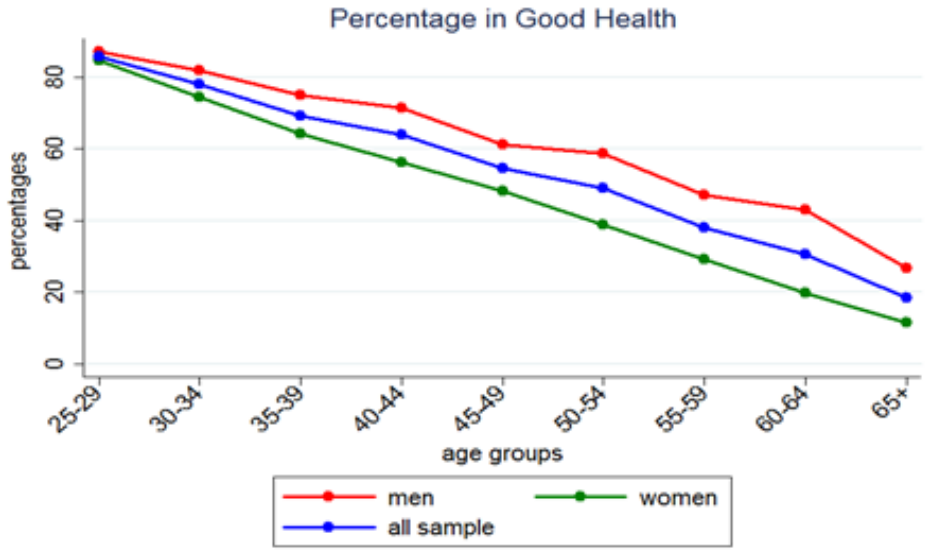

Figure 1. Self Assessed Health by Age According to Gender, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

Health-reporting differences between men and women could be related to the social welfare incentives, social roles that the society imposes on different genders, justification bias or selective mortality. Since labor force participation for women is very low in Turkey (about 30 percent in 2010), one reason for low level of health status for women might be to justify the fact that they do not work. Furthermore, selective mortality might obscure the deterioration in health in survey data, which is obviously restricted to the more robust survivors (Van Doorslaer et al., 2008). Social roles would also be the reason behind the different perception of health for men and women, since women spend more time in household work, child care and less time in employment and leisure. However correcting for justification bias, selective mortality and social roles are out of scope of this study due to data limitations.

4.2 Self Assessed Health by Income

Income is attributed as the first indicator of socio-economic status (SES). Income is the household income per capita adjusted by OECD equivalence scale in which 1 is assigned for the head of household, 0.5 for each other person if he/she is older than 14 and 0.3 if he/she is younger than 14. We compare self assessed health status of individuals from different income quartiles. First income quartile represents the lowest quartile (lowest income group), whereas the

fourth income quartile represents the highest quartile (highest income group).

Figure 2 shows self assessed good health according to income quartiles. Again one can think of percentages in the Figure 2 as: *Prob(good health/1st quartile & age & gender)*. Income gradient in health is clear from the figure. Individuals in higher income quartiles always report better health with respect to worse counterparts for both men and women.

Although the income gradient is obvious, we observe different patterns for men and women. Despite the fact that starting points of first (bottom) and fourth (top) income quartiles are very close to each other, the rate of deterioration, which is given by the slope of the curves, is greater for women. For men income gradient between the first and fourth income quartiles stays almost the same in young ages and income differences in health diverges at the beginning of the middle ages before it starts to converge after age of 64. On the other hand, the divergence in health starts immediately at young ages but convergence begin to occur at around age 45 for women. The immediate divergence for women would be due to justification bias and/or social roles.

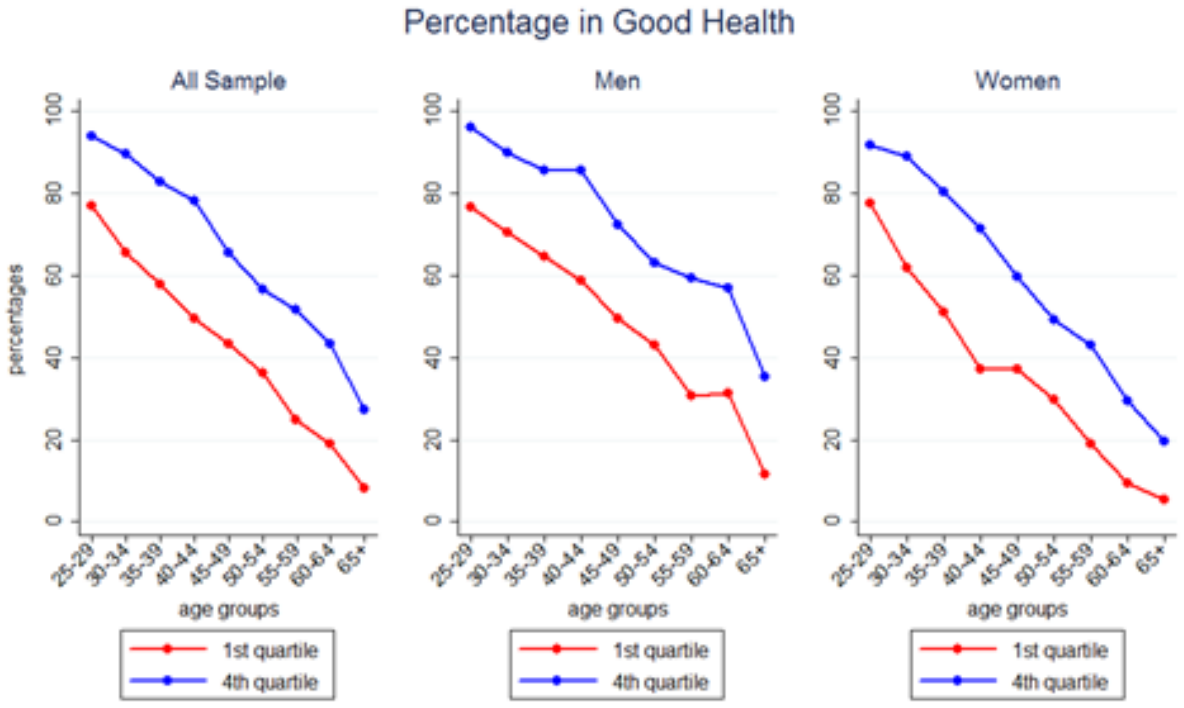

Figure 2. Self Assessed Good Health by Age According to Income Quartiles and Gender, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

About 60 percent of men aged 40-44 in first income quartile report good health, whereas the same rate is reached at 50-59 age group for fourth income quartile. About 38 percent of women aged 40-44 in first income quartile report good health and this ratio is attained between 55-59 and 60-64 for women who are in the fourth income quartile. Additionally one striking feature of the figure for men is the modest increase in share of good health in first income quartile between the age groups 55-59 and 60-64 which would be due to selective mortality which leaves healthier individuals in the sample.

As mentioned before, the pattern of divergence in middle ages before the convergence in old ages could reflect cumulative advantage hypothesis operates until the middle ages which is overtaken by age-as leveler hypothesis in which biological factors kick in at older ages. However these patterns could also be due to cohort effects and selective mortality confounding the cumulative advantage at older ages.

4.3 Self Assessed Health by Education

Educational attainment is an essential determinant of health in both consumption and investment models of the demand for health. Education increases the efficiency with which gross investments in health are produced, the more educated people would demand a larger optimal stock of health and they are more efficient producers of health (Grossman, 1972). Additionally, educational attainment hardly varies over adulthood and so it will not affected by adult health (Van Doorslaer et al., 2008). This structure of education does not hold for income which is contingent on labor market behavior.

In this section we use education quartiles as determinants of socio-economic status. First quartile includes illiterate individuals and fourth quartile involves individuals who have completed high/vocational high school and university or higher education. Figure 3 shows percentages of individuals who report good health by age according to education quartiles and gender.

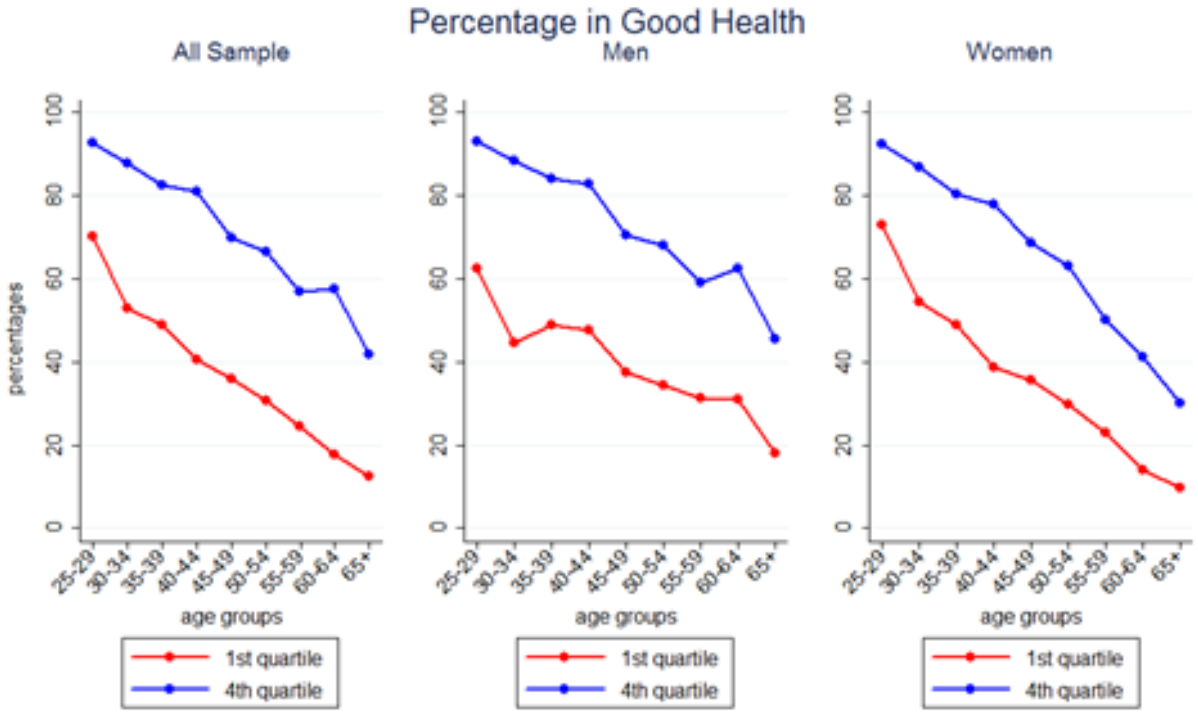

Figure 3. Self Assessed Good Health by Age According to Education Quartiles and Gender, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

As in the income gradient, men always report better health in every education and age category. For men widening of education gradient from young ages up to late middle age is immediately apparent. The magnitude of education gradient is biggest at the age group 30-34. In comparison with the picture for the income gradient in Figure 2, the size of the education gradient is larger both at younger and older ages. The relative bigger magnitude of education gradient with respect to income gradient is probably due to the fact that at younger and middle ages education provides a better indicator of social background than income that may affect health. Furthermore, despite the narrowing of the education gradient at older ages, it still remains larger than the income gradient. A plausible explanation would be cumulative advantage of educationally favored individuals. Additionally, unlike income, education is not responsive to health changes. Thus, the income gradient may strengthen with age, as health shocks increasingly lead to labor market exit and drop in income, but there is no such mechanism to drive the dynamics of the education-health relationship (Van Doorslaer et al., 2008).

About 50 percent of men aged 40-44 report good health in the first(bottom) education quartile whereas this ratio is reached at the age more than 65 for men in fourth(top) education quartile. Similar structure is also valid for women; about 40 percent of women aged 40-44 in the bottom education quartile report good health while this proportion is attained after age 60-64 for the top education quartile. Furthermore the magnitude of education gradient for women in almost every age group is smaller than men. Moreover, strong education gradient is observed which remains slightly stable through younger and early middle ages and then starts to narrow in late middle ages. Slight increase in good health between the age groups 55-59 for men and 60-64 for women for both first and fourth education quartiles would be due to selective mortality as in the picture in income gradient.

The difference in the magnitudes of income and education gradients might be due to the differential responsiveness of education and income to health. The difference with the pattern for men may be attributed to differential disease patterns, with low educated women being less prone to the onfall of cardiovascular disease than low educated men are, and education-determined occupational choice being less relevant to the health of women than men (Van Doorslaer et al., 2008).

4.4 Self Assessed Health by Labor Indicators

The theory predicts that individuals with physically demanding jobs will result in higher depreciation rates and will have a higher relative health decline over the life cycle (Grossman, 1972). Occupation is less predetermined than education, but is more so than income, offering another opportunity to examine whether the widening of income gradient until old ages may be influenced by the impact of health on work activity (Van Doorslaer, et al., 2008). In this respect this section presents the evolution of self assessed health through life cycle according to basic labor indicators such as labor force status, work status, employment status and work type.

Figure 4 shows the percentages in good health according to labor force status. Individuals in the labor force are the ones who are employed and unemployed. Theory predicts that working in a regular job has positive affect on health while unemployment has a negative impact since

losing a job leads to a lot of psychological distress. On the other hand, some individuals choose to exit the labor force voluntarily (i.e.maternity leave) while others do so involuntarily (discouraged workers) which makes expectations about the relationship between health satisfaction and being out of the labor force ambiguous (Bender & Habermalz, 2005).

Figure 4. Self Assessed Good Health by Age According to Labor Force Status, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

Figure 4 reveals many interesting patterns. First, individuals in the labor force report better health than individuals out of labor force for both men and women. Next, labor force gradient in health is more pronounced for men than the gradient for women. For men labor force gradient widens at the younger ages and reaches the maximum at the age group 30-34, then begins to narrow after age 45. Huge labor force gradient at young ages could be due to justification bias or serious health problems that make individuals to stay out of labor force. On the contrary, labor force gradient is not prominent for women implying low level of labor force participation for women and unresponsiveness of women's health to labor force status.

Figure 5 draws the same picture as the Figure 4, but this time according to work status.

Working category includes individuals who are employed full time and part time, non-working category refers to the individuals who are both unemployed and out of labor force. The picture is similar with the previous one, however work status gradient for men is less pronounced than the labor force status gradient. Narrowing of the gradient could be due to the drop in poor health for non-working individuals which covers people out of labor force and who are unemployed. A plausible explanation would be that health status is not responsive to unemployment as we expected. The gradient for women stays almost the same, again implying that women's health is not responsive to both work and labor force status.

Figure 5. Self Assessed Good Health by Age According to Work Status, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

Figure 6 shows the percentages in good health according to employment status. Employed category refers to only full-time employed individuals. Employment gradient in health do not follow a regular pattern like the previous SES gradients in health. The gradient widens from the young ages until middle ages and then starts to fluctuate implying the positive affect of employment on health until late-middle ages. After late-middle ages health status of unemployed individuals is better than the employed counterparts. Slight increase in good health of

unemployed individuals observed between the age group 45-54 and 55-64 for men, and between the age group 35-44 and 50-59 for women could be due to justification bias and withdrawal of unhealthy individuals from labor force. Furthermore the jumps seen in the Figure 6 could be due to small sample size observed in certain groups.

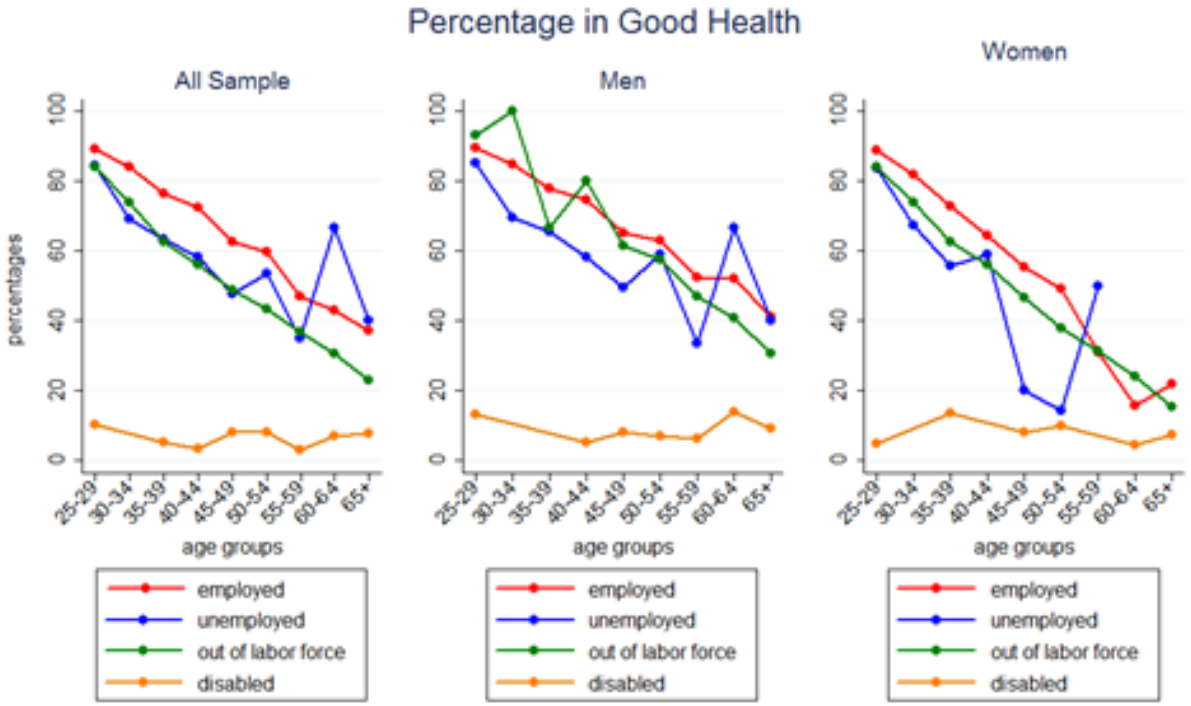

Figure 6. Self Assessed Good Health by Age According to Employment Status, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

Figure 7. Self Assessed Good Health by Age According to Work Type, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

As mentioned before, theory suggests that individuals with physically demanding jobs have higher depreciation rates and have a higher relative health decline over the life course. In this respect we distinguish between blue and white collar workers. Figure 7 presents slightly widening of occupational gradient in health until late middle ages and narrowing of the gradient in old ages. In the young ages differences in health between blue and white collar workers are evident but not marked. Given that little time has passed at this stage of the life cycle for occupation to plug an effect on health, the observed differences presumably derive from earlier childhood experiences that impact both occupational choice and health (Van Doorslaer et al.,2008). However health trajectories experienced by blue collar workers are steeper. For example, about 65 percent of blue collar workers report good health at the age group 40-44, whereas this ratio is reached by white collar workers at the age group 50-54 for men.

4.5 How Does the Picture Change When Education and Income is Conditioned on Work Status?

In order to understand the importance of work status versus income and education in determining the life cycle profile of health, we present the prevalence of good health according to income and education conditioned on work status. According to Case and Deaton (2005) Smith (2004 ,2007), Van Doorslaer et al. (2008), Van Kippersluis et al. (2009b) education increasingly affects health either directly or indirectly through choice of occupation and the depreciation of health leads to labor force withdrawal and a decline in income of economically disadvantaged groups.

We have argued in the previous sections that widening of income gradient might be due to an increasing effect of health on work and thus on income. To gain further insight about the importance of this mechanism, we now compare the evolution of self assessed health status according to income across workers and non-workers which are given in Figure 8 and Figure 9 respectively.

The first important feature is rather flat profile of self assessed health according to income quartiles for those who are working even if the magnitude of the income gradient slightly changes if we compare the picture with Figure 2. For example, the percentage of good health for working men at the age group 35-39 is about 50 percent in the first income quartile and this rate is reached at the age group 55-59 for fourth income quartile in Figure 8. The same ratio at the age group 35-39 was 63 percent and reached at age group 50-54 in Figure 2.

Second, the sizes of gradients for both working and non-working men and women change dramatically. The gradient for working men is relatively narrow at young ages and starts to widen at older ages where as the opposite is applied for working women. This disparity between men and women could be attributed to the fact that work is being a strong contributor to the widening of income gradient for men. Furthermore, since labor force participation is very low for women in Turkey and work status of women do not contribute as much as it does for men.

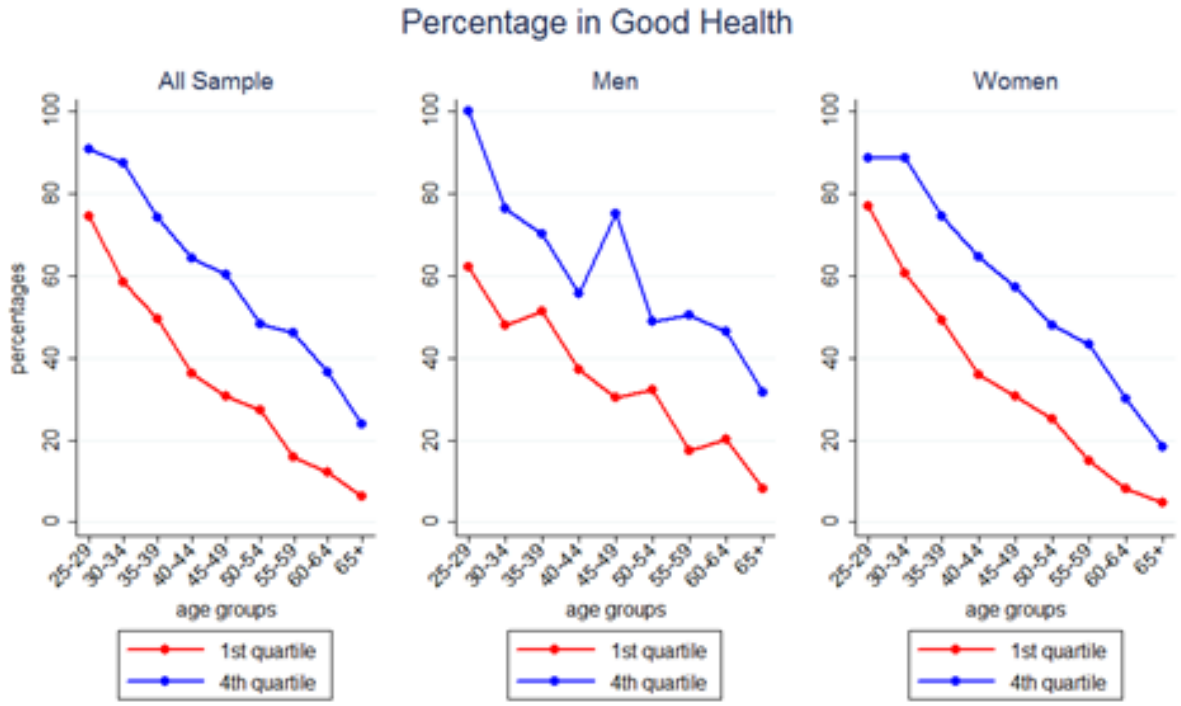

Figure 8. Self Assessed Good Health of Working Individuals by Age According to Income Quartiles and Gender, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

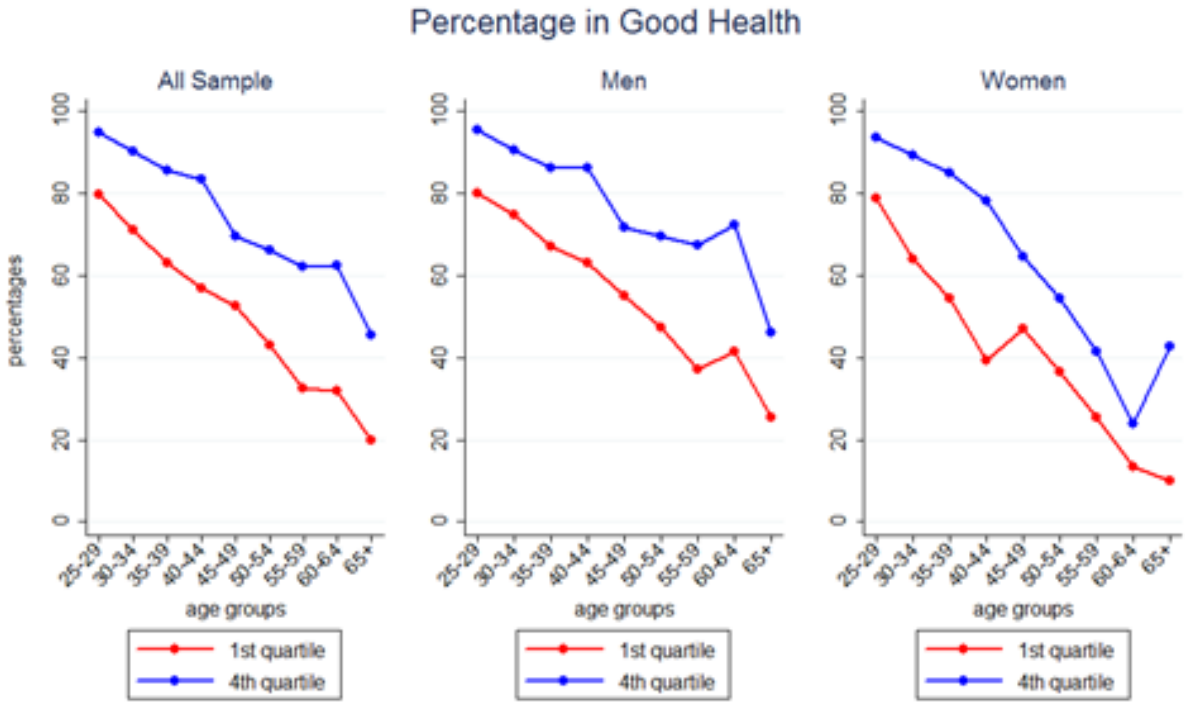

Figure 9. Self Assessed Good Health of Non-Working Individuals by Age According to Income

Quartiles and Gender, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

Non-working individuals are always in poorer health, and the widening of the differential suggests that health progressively becomes a more important reason for not working until the age group 50-54. Narrowing of the gradient after the age group 50-54 for both men and women could be due to the growing importance of non-health reasons for not working, principally voluntary retirement (Van Doorslaer, et al., 2008). The widening of gradient among workers at the same age groups is consistent with this explanation.

Now let's turn attention to the change of education gradient when we condition education quartiles on work status. Figure 10 and Figure 11 show the education gradients for workers and non-workers. The first striking observation is that the education gradient gets narrower for working men and wider for non-working men. Additionally we observe rather flat profile of reported good health for those working at each age category for both men and women. On the other hand, in almost every age group the magnitude of education gradient increases for both working and non-working women indicating the crucial importance of education on health for women. For example in Figure 3 the gap between highest and lowest education gradient for age group 50-54 was about 32 percent for women. However the gap between first and fourth quartiles for working women rises to 40 percent and to 20 percent for non-working women as depicted in Figure 10 and Figure 11 respectively.

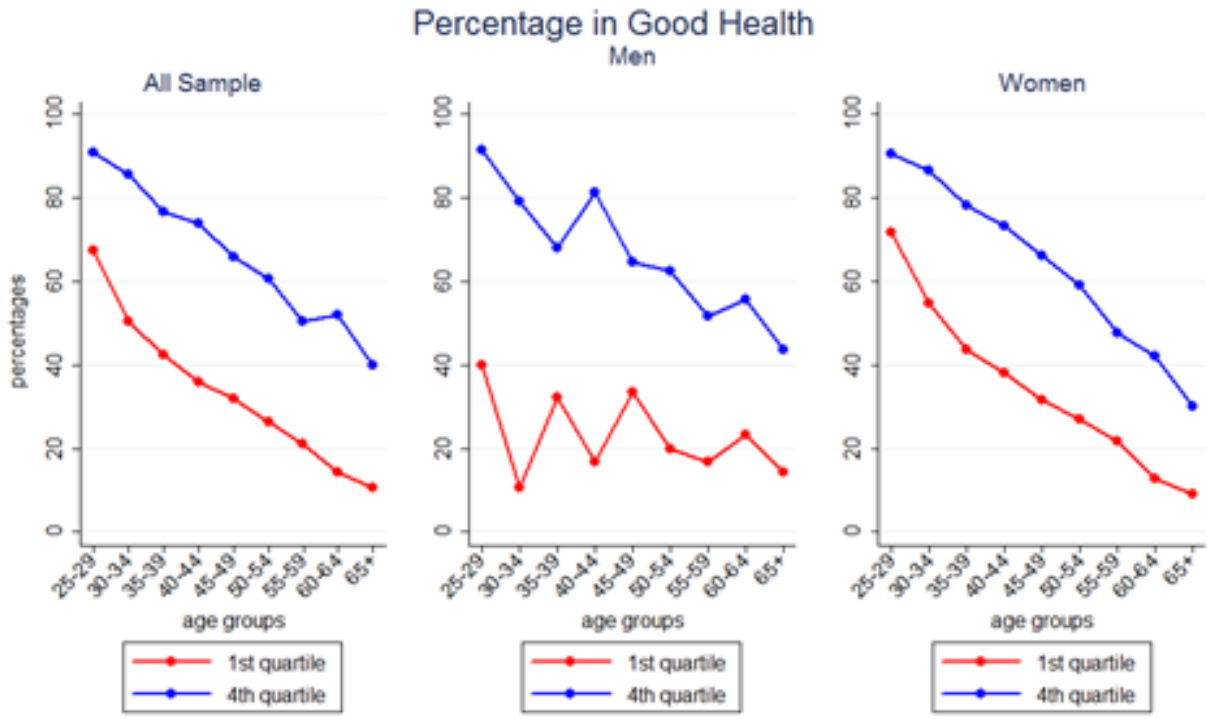

Figure 10. Self Assessed Good Health of Working Individuals by Age According to Education Quartiles and Gender, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

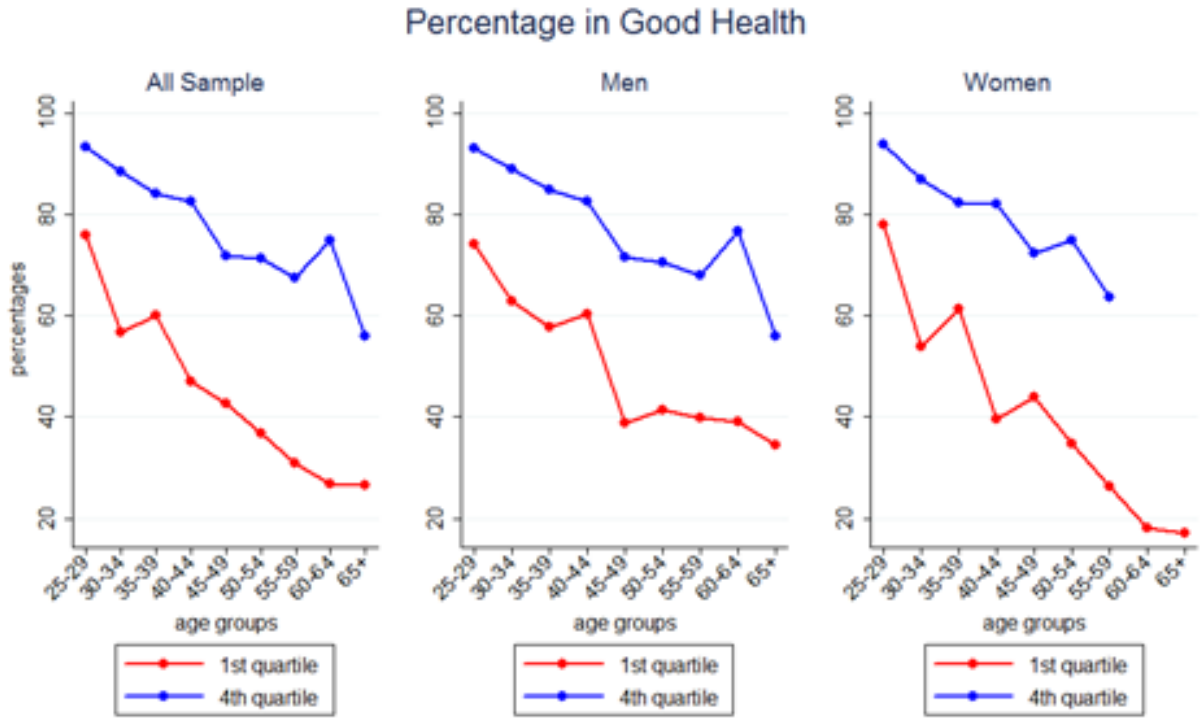

Figure 11. Self Assessed Good Health of Non-Working Individuals by Age According to Education Quartiles and Gender, Source: TURKSTAT SILC 2010 and author's calculations. Percentages are adjusted by sample weights.

5. Conclusion

We mentioned that socio-economic status (SES) has a substantial impact on health in which socially and economically favored individuals enjoy better health and individuals with lower SES suffer from poor health. However a snapshot of socio-economic differences in health at a given age gives rather an incomplete information of the extent of health disparities over life cycle since diversified dimensions of SES-health nexus are important for designing economic and social policies (Smith 2005, Smith 2007, Van Doorslaer et al. 2008, Van Kipperluis et al., 2009b). For instance if fundamental relationships between income, education, work, occupation and health do not vary over life course or varies identically in all countries then SES gradient in health would be unresponsive to policy environment. In this respect we try to bring a life cycle perspective on the relationship between health status and SES in Turkey. Our basic objective here is not to form causal relationships but to develop precedent analysis. But the descriptive analysis conducted here would reveal the nature of the relationship and be helpful in suggesting the mechanism that operates from SES to health.

Relatively wide SES gradient in health in the middle ages and narrowing of it in old ages is a sign of cumulative-advantage hypothesis operating in middle ages before age-as-leveler hypothesis begins to play the major role in old ages in Turkey. Although we cannot explicitly observe selective mortality and cohort effects, the evolution of gradients reveals many interesting features. Education, work and income gradients imply that they are important for the production of adult health. Moreover we observe significant difference between men and women over life cycle. Women's health status is always worse than men in every SES group in any age category. However health of women seems to be much more responsive to education than men. On the other hand, we observe that women's self assesed health is not responsive to labor force and work status. We can argue that policies directed at increasing female education would contribute to increase labor force participation and achive better health status for women.

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