

Labor Market Outcomes of Child Workers in Turkey: Employment Status, Wages, and Informality

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**Labor Market Outcomes of Child Workers in Turkey:
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Türkiye’de Çocuk İşçilerin İşgücü Piyasası Çıktıları:
İstihdam Durumu, Ücretler ve Kayıtdışılık

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ABSTRACT

The effects of having worked as a child on adult labor market outcomes are one of the recent strands in child labor literature. The dataset pooling the Survey for Income and Living Conditions of the years between 2006 to 2013 indicates that 22.2 percent of people in Turkey had started to work at their regular jobs in the ages between 8 and 15 years. In this study, three models are applied in order to examine the effects of child labor on adult labor market outcomes. The results indicate that working in the past as a child significantly decreases hourly real wages. Another finding is that there is no statistical relationship between working informally and working as a child in the past. It means that child workers do not feed informality in Turkey. The last estimation results also show that males who having worked as a child are significantly more likely to work as employer and unpaid family worker relative to those who had never worked in the labor market as a child.

ÖZET

Çocuk işçiliği yazınında, son zamanların inceleme konularından biri de geçmişte çocuk işçi olarak çalışmış olmanın, yetişkin işgücü piyasası çıktılarına etkileridir. Gelir ve Yaşam Koşulları Anketi'nin 2006-2013 yılı mikro kesit verilerinin birleştirilmesi ile elde edilen veriye göre, Türkiye'deki bireylerin yüzde 22,2'si ilk düzenli işlerine 8 ile 15 yaşlarındayken başlamıştır. Bu çalışmada, çocuk işçiliğinin yetişkin işgücü piyasası çıktılarına etkilerini incelemek amacıyla üç model uygulanmıştır. Modellerin sonuçlarına göre, çocukken çalışmış olmak bireylerin yetişkin olduklarında aldıkları haftalık reel ücretlerini istatistiksel olarak anlamlı bir biçimde düşürmektedir. Diğer bir bulgu ise, çocukken çalışmış olanlar ile şu anda kayıt-dışı çalışıyor olmak arasında istatistiksel olarak anlamlı bir ilişki bulunamamıştır. Dolayısıyla çocuk işçiliğinin Türkiye'deki kayıt-dışı istihdam problemini beslediğini söyleyemeyiz. Çalışmanın son bulgusu ise; çocukken çalışmış olan erkeklerin, çalışmamış erkeklere kıyasla ücretsiz aile işçisi olarak ve işveren statüsünde çalışma olasılıkları artmaktadır.

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1. INTRODUCTION

Child labor is a serious problem mostly in the underdeveloped and developing countries. Worldwide estimations held in 2012 show that 168 million of children (11 percent of the child population as a whole) are working. Regional distribution indicate that Sub-Saharan Africa (21% of child labor), Latin America and the Caribbean (8.8% of child labor), and the Middle East and North Africa (8.4% of child labor) are the regions which have the highest shares child labor in the world.¹ Some of the countries in these regions have been implementing many policies against child labor, particularly ILO's legal sanctions, and Turkey is one of them.

The issue of eliminating child labor plays an important role for ending abuse of child rights. In addition, eliminating child labor is vital for countries to progress on their fight against poverty. Hence, Turkey has exhibited remarkable improvement in order to eliminate child labor since 1998.

In 1998, Turkey has legislated a regulation about minimum working age which is set at 15 years of age. Beside this, Turkey has revised some regulations about the working conditions of child laborers focusing on the physical and moral health of children: Turkey allows the children in the ages between 13 and 15 to work if the jobs at which children work are not harmful to the physical and moral health of children. In addition to this restriction, Turkey is determined not to allow children below of the ages 18 years to work in any job which can be expressed as the worst forms of child labor to the children who haven't turned 18.

The regulations which are mentioned above and other supportive policies such as raising the compulsory education age resulted in impressive progresses against child labor in Turkey. Child labor ratio in the population aged between 6 and 14 years was 8.8 percent in 1994 and child labor ratio declined to 2.6 percent in 2006 ². In the years between 2006 and 2012, child labor ratio over the child population did not decrease. On the other hand, we don't have a reliable data about child labor in Turkey before the year of 1994 but it is reasonable to assume that child labor in Turkey was more extensive than today. Consequently, child labor is still an alarming problem for Turkey.

However, although there is a huge list of workings focusing on understanding the causes

of child labor, there exist limited studies interested in the effects of working as a child examining at the micro-level base. Moreover, there is no such a work done for Turkey.

In this study, I am examining the effects of working as a child on adult labor market outcomes. Therefore, the aim is to find out whether there is a significant difference in the labor market outcomes for those who worked as children.

Survey for Income and Living Conditions (SILC) enables to identify the age that the individuals started to their first regular job. I used repeated cross-sectional data of the survey which is conducted in the households during the years between 2006 and 2013. According to the dataset, the age for starting the first job is low in Turkish economy relative to the legal criteria. Overall, 22.2 percent of the individuals in Turkey started to their first regular job before the ages of 15 years (See Table 1.1). Furthermore, 39.3 percent of the individuals had started to their first regular job between the ages of 15 and 18 years. In detail, the first job which is mentioned above does not include temporary jobs or part-time jobs in which individuals worked during the pupillage.

When we consider average educational levels in Turkey, the situation is not much surprising. Indeed, previous findings suggest that there is a negative association between child labor and schooling. Nonetheless, it is important to find out what are the effects of working as a child on adult outcomes. In this way, we can understand the long-term effects of child labor to productivity of individuals in the economy and their welfare.

The studies on the countries where child labor stands a serious problem for the economy are mostly focused on the determinants of child labor. In addition to this subject, some of the researchers interested in child labor investigated long-term effects of working as a child. As we know that working as a child stands as a serious problem in many countries, examining the adult outcomes of having worked as a child laborer is crucial for understanding structural problems in the labor markets. However, there is no such work done in Turkey on this issue.

The labor market outcomes of the adults, which I am interested in this study, are employment status of the individuals in the labor market, wage earnings and their informality. Firstly, I used Mincer earning equation in order to estimate the wage differentials by their child labor status. Secondly, probit estimation method is applied in order to find out that whether there is significantly difference in the likelihood of being informal between the individuals who worked as children and those who didn't. Finally, I applied multinomial logit estimation to find out relative risk ratios comparing individuals who were child laborer in the past with non-child laborers for working in the employment status relative to wage-earners.

Tab. 1.1: Distribution of age for the first regular job in Turkey, 2006-2013

Conducted year	8- 14 years	15-18 years	19-24 years	25-29 years	+30 years	Total
2006	4224 21.00%	8180 40.70%	5571 27.70%	1583 7.90%	548 2.70%	20106 100.0%
2007	4410 21.10%	8593 41.10%	5795 27.70%	1531 7.30%	602 2.90%	20931 100.0%
2008	4709 21.30%	8940 40.40%	6271 28.30%	1561 7.10%	655 3.00%	22136 100.0%
2009	5062 21.40%	9482 40.00%	6685 28.20%	1681 7.10%	782 3.30%	23692 100.0%
2010	5074 21.00%	9456 39.10%	7065 29.20%	1711 7.10%	854 3.50%	24160 100.0%
2011	6699 22.10%	11719 38.70%	8615 28.50%	2133 7.10%	1081 3.60%	30247 100.0%
2012	16436 22.90%	27838 38.80%	19800 27.60%	4594 6.40%	3034 4.20%	71702 100.0%
2013	9704 23.70%	15697 38.30%	11133 27.20%	2624 6.40%	1822 4.40%	40980 100.0%
Pooled data (2006-2013)	56318 22.18%	99905 39.34%	70935 27.93%	17418 6.86%	9378 3.69%	253954 100.0%

Source: Survey for Income and Living Conditions , TurkStat

It is found that male wage-earners who worked as the child in the past have lower quality of human capital investment than those who never experience labor market conditions during their childhood. The interpretation about the negative effect of child working in the result is not localized in a period, but rather its overall effect. The analysis shows that the detrimental effects of child labor to human capital are stronger.

The analysis among male wage-earners shows that there is no statistical relationship between informally employed in adulthood and having worked as a child in the past when we control for other factors. The results for the choice of employment status indicate that child laborers in the past relative to non-child laborers are most likely to become unpaid family worker, followed by working as an employer.

The rest of this paper is organized as follows: Section 2 discusses the previous findings in the literature and its implications. Section 3 describes the methodology used in present study. Section 4 explains the data which is specified for this study. Section 4 presents the estimation results of this study and its implications. Finally, Section 5 discusses the results of this study.

2. LITERATURE REVIEW

The studying on the causes of child labor is one of the leading topics not only in underdeveloped countries but also in developing countries. Many researchers and policy makers are mostly interested in understanding the causes of child labor for the sake of eliminating child labor worldwide. Therefore, we can find a huge list for addresses on determinants of child labor in the literature.

Another piece of the literature about child labor is that the effects of working as a child to their adult labor market outcomes. Although, the consequences of working as a child to the labor market outcome takes an important part in the understanding the labor market conditions of these countries, the findings are limited. Moreover, this subject has been never examined on Turkey.

In this section, firstly I will give main findings on the adult outcomes of having worked as a child and discuss their contributions in Section 2.1. Secondly, I will summarize the child labor studies based on Turkey although they are only interested in the causes of working as a child. The second section will be useful to understand how households decide on the household labor supply in Turkey.

2.1 *Adult Outcomes of Child Labor*

Some of the researchers are focused how having worked as a child affecting their subsequent labor market conditions. Although all of the studies are done in the developing countries, there is no available study looking at labor market consequences for Turkey.

Emerson and Souza (2007) studied on the effects of working earlier in life to adult earning. The control variable used in this study are age started to work, years of schooling, race, father's education, mother's education, region. The study attempts to control the unobserved attributes effective on deciding on schooling and child labor such as ability and motivation. Luckily, historical data on their dataset such as numbers of schools by state and year, number of teachers, GDP data by state and year, population enable to overcome source of endogeneity. The instrumental variables used in the analysis are selected to control for cost of educational investment such as number of school per children

in individuals' state in the year that they are 7 (11, and 15) years old. The results from the instrumental variable earning estimation model indicate that child labor has a large negative impact of starting to work due to the trade-off associated with educational attainment. They find that the effect of entering the labor market is negative for young children. However, those negative effect turns positive between 12 and 14 years.

Country-level findings show that participating in child labor market has an impact on adulthood labor market outcomes. For example, Emerson and Souza (2003) study the children in the Brazil aged between the years of 10 and 14 old and examine on the effect of having a child labor parent to the probability of being child labor.

They find that the likelihood to get into labor market as a child increases with having a child labor parent although they control educational levels of both father and mother and other household characteristics. In addition, they find that probability of working as child in the labor market increases if educational attainment of their parents and grandparents are lower. Furthermore, both OLS estimations and Heckman model estimates are showed that working as a child labor in the past has a negative effect on the current earnings even the level of education, age effects and family backgrounds are controlled.

They emphasize that parental child labor history has over and above the effect of family income and parental education. Moreover, their overlapping-generations model in Emerson and Souza (2003) show intergenerational child labor persistence, at least in Brazil.

Many studies looking at the causes of child working put emphasizes on the relationship between educational performance and working in the child labor market. However, the causality was not the main subject in the literature. Beegle et al. (2009) examined on its causality and its implications to subsequent labor market outcomes. In detail, the study for Vietnam of rural areas using Living Standards Survey data for the year of 1992 and 1998, Beegle et al. (2009) , examined how being child labor for those attending educational activities in 1992 affects their labor market outcome in the year of 1998.

Beegle et al. (2009) estimate the consequences of child labor on wage earning, educational attainment, and occupation in the medium-run. They use instrumental variables specification method in order to eliminate potential selection bias (between household selection and within-household selection) in the model. One of the advantage of their data set is that it enables to find the variables which are exogenous to the outcomes mentioned above, but affect child labor decision such as rice price, crop shock and their interaction. It is interesting that their results show that participating in child labor market not only makes them more likely to become wage-earner, but also makes them more likely to have higher wages in the medium run. They also point out that the benefits of working as a

child exceed the detrimental effects of working at these ages. However, they anticipate that net positive effect of being child laborer will disappear over a longer time.

When the effects of child labor are taken in a broad perspective, Wahba et al. (2001) point out that the family decide on their children to work or school by considering discounted future benefits and costs of education and work. Wahba et al. (2001) find that the variables controlled in the model have opposite impacts on school choice and work choice. They find that having a mother or father who worked as a child are significant for decision making mechanism on sending their children to school and sending their children out to work. Having parent worked as child in the labor market makes higher incidence of sending their children out to work and lower incidence of sending their children to school. Therefore, they show that families are faced with a trade-off mechanism.

Wahba et al. (2001) conclude that if the households live in a poor state and if the parents were child laborer in the past, the probability of sending their children out to work increases. Accordingly, they find that there is an intergenerational transmission of child labor in Egypt and they argue that it plays an important role on transmission of poverty between generations.

2.2 *Child Labor Studies in Turkey*

Qualitative and quantitative impacts of child working on schooling are frequently examined for many countries, including Turkey. In the literature for Turkey, determinants of child labor are one of the mostly studied topics for child labor in Turkey. The studies which focus on this subject enable us to understand which one of the children are more likely to be work in their childhood and under which conditions families prompt them to work as a child in the labor market.

Many studies primarily focused on the household dynamics determining the decision of child to work or to educate. For example, Tunalı (1996), Tansel (1998), and Dayioğlu (2008) find that the higher the schooling level of parents, the higher is the likelihood that children will attend school. Tunalı(1996) suggests that relative to illiterate parents, literate parents are less likely to engage their children in market work.

Household poverty condition is also another factor affecting supplying the children in households to the labor market. A study for Turkey, Dayioğlu (2006), finds that children living in asset poor households stand at a higher risk of being child laborer and school dropout rate for child laborer. She also finds that school dropout rates are especially are much higher for wage-earners.

Another implication of this study is that child work mostly arises as an added-worker

during the crisis in order to minimize variations in household income. Parallely, employment of children are sensitive to paternal wages but not to maternal wages. In addition, Dayıođlu (2008) and Dayıođlu and Assaad (2003) find that women and children employment are not independent. That is, they find that they are positively correlated such that unobservables increases both the probability of women's employment and children's probability of work.

Household decision mechanism in Turkey is still gender-based. Many studies consider and highlight the treat even children in a traditional perspective. For example, Tunali (1996) shows that probability of finding female children in household work are much more compared to male children and his evidences suggest that educational attainment of mothers has an independent effect more significantly on the employment of children. Ertürk and Dayıođlu (2004) put emphasize on the decision mechanism for girls' about working as a child labor either in house works or in market places is different than their male relatives. Traditional gendered division of labor implies that males work outside and females work in households. In other words, girls like adult women (*which is not the case for boys and men*) may shoulder a double-shift when she works as a child in the labor market which rises to triple shift if she continues to education. In brief, there is no recent study about what is the consequences of working as a child in the labor market to subsequent labor market outcomes for these people.

3. METHODOLOGY

The aim of the study is to find out whether child labor status has a significant effect to adulthood labor market outcomes. It is an important question for Turkey because people who were child laborer in the past constitute 23 percent of the population in Turkey (See Table 1.1). However, there is no evidence on its effects to the labor market in Turkey, yet.

In this section, I will explain how having worked as a child affects their adult labor market outcomes such that their wages, their employment status, and their probability of working as an informally employed. The analysis is threefold:

First, I will examine on wage differences between wage-earners due to their child labor market status. Secondly, I will examine on whether having worked as a child-laborer has a significant effect on working informally today. At the end, I will start to analyze the impacts of having worked as a child to the employment status. In this direct, the likelihood to become un-paid family worker, self-employed or employed relative to be wage earners will be calculated.

3.1 Wage Differences

The model which will be analyzed for wage differences between follows Mincer (1996). The model used for wage equation is written in Equation (3.1).

$$\begin{aligned} \log(W_i) = & \beta_0 + \beta_1 ChildLaborStatus_i + \beta_2 Education_i + \beta_3 Experience_i \\ & + \beta_4 Experience_i^2 + \beta_5 X_i + \beta_6 Year_i + \varepsilon_i \end{aligned} \quad (3.1)$$

One of the reason for using this method is that working in the labor market even as a child labor means that people are investing in their human capital. The model enables to control for the educational level and actual years of experience and other factors causing wage differences among individuals.

Generally, we cannot observe the quality of investments to the human capital (education and labor market experiences). It would be interesting to find that qualitative

effects of their human capital investments. In addition, human capital formation of the children may be different when we consider they had worked during their childhood. In example, children who are investing in their human capital via getting experiences in the labor market may have chance to reduce their negative effect of educational quality to their labor productivity. It is currently uncertain that human capital formation may be advantageous relative to non-child laborers.

Outcome variable denotes log of real hourly wages of the individual i . The earnings come from the survey are regarding the previous year of annual earning. In this way, hourly wages of the individual i come from the survey conducted in the year of t are deflated using the consumer price indices for the time $(t-1)$.³

Child labor status is included as dummy variable. The vector of X_i indicates the socio-economic and demographic characteristics of individuals which consists of the variables of age, child labor market status, marital status, region, and non-labor income proxy for socio-economic status of the individual. For capturing the socio-economic differentials among individual, I included non-labor income variable, which is the sum of rental income and interest dividend income and other forms of income excluding social charges, into the analysis.

The literature that emphasizes socio-economic status of the individuals is significant for human capital accumulation. For example, Uysal and Kontar (2012) finds that two persons having same educational level, experiences and similar other conditions of labor market (such as informality) are earning differently if educations of the fathers differentiate. Chen and Feng (2011) explains the effect of paternal education as family connection, which is a hidden human capital quality, increases the wages.

Dayıoğlu and Tunalı (2003) also controlled for education, experience, region, firm size. Taking administrative responsibility in the workplace may differ earnings, so included. In addition, wage differences between regions and time-variant improvements in Turkey are controlled.

3.2 Informality

This model aims to analyze the likelihood of working informally today if he enters to the labor market as a child laborer. Hence, I used dependent variable for informality status on their current job.

Probit estimation method is applied to find the likelihood of being informal conditional on child labor status while controlling for other variables. The estimation model used for

informality is written in Equation (3.2).

$$P(Y_i = 1|X) = \phi(X_i\beta) \quad (3.2)$$

where ϕ is the cumulative density function of standard normal distribution and

$$X_i = [1, CHILDLABORSTATUS_i, EDUC_i, EXP_i, EXP_i^2, \\ REGION_i, TIME_i, MAR.STATUS_i, FIRMSIZE_i]$$

If Y is equal to zero, wage-earner is formally employed. Otherwise, wage earner is informally working. X is the vector of individual characteristics and labor market condition. It includes age, education, region, time dummy, year of actual experience in the labor force and its square, marital status, number of employee in the local unit of workplace, and child labor status. I controlled for year differences in informality rate since its rate between 2006 and 2013 sharply decreased. Baslevant and Acar (2015) summarized that informality rate for men working in non-agricultural employment as a wage-earner decreased from 23.0 percent to 16.0 percent from 2006 to 2012.

Gursel and Durmaz (2014) also point out that average firm size is negatively correlated with informal employment.

Although informality varies depending on their current employment status, employment status might be the outcome of child labor status. Furthermore, informality among non-wage earners is a consequence of preference-based decision. The determinants for the informality among wage-earners are much easier to explain. Because, it is mostly affected by the structural problems in labor market: low human capital and high costs of registering and low institutional quality are the main causes of informal employment among wage-earners. Therefore, the analysis of informality in an overall sample would make it much more complicated when we consider both the impacts of child labor status to employment status and frequency of informal employment among self-employed.

Examining on involunteer forms of informality helps us to get unbiased results about which of the individual characteristics increase the likelihood of being informal, especially for household-level micro data sets. As agricultural sector mostly consists of the persons working as an unpaid family worker or self-employed, the persons working as a wage-earner are limited. For these reasons, wage-earners in the agricultural sectors are excluded from the analysis.

3.3 Employment Status

The labor market outcome which I will investigate in terms of child labor status is current employment status of the worker. Therefore, I used the data in a way that it includes un-paid family worker, self-employment, employed, casual worker, and wage-earner. In this study, I assume that individuals in the labor market face 5 mutually exclusive choices:

- *Wage-earner* ($Y_i = 0$),
- *Unpaid family worker* ($Y_i = 1$),
- *Employer* ($Y_i = 2$),
- *Casual worker* ($Y_i = 3$),
- *Self-employed* ($Y_i = 4$).

$$P(Y_i = j) = \frac{\exp(X\beta_j)}{1 + \sum_{j=1}^3 \exp(X\beta_j)} \quad (3.3)$$

Employment status of individuals is dependent variable. Base outcome is chosen for wage-earners in order to compare the others to the largest group.

X_i is the vector of the characteristics of the individual i such as child labor status, education, years of actual experience and its square, age, region, and year dummies.

Child labor status, education, years of actual experience and its square, age group, region, and year dummies are included in the multinomial logit estimation model. The model estimated in the multinomial logit estimation is written in Equation(3.3).

4. DATA

The data used for the model is the repeated cross-sectional data generated from the Survey of Income and Living Conditions (SILC) waves 2006 to 2013 conducted by Turkish Statistical Institute (TurkStat).

SILC is a unique dataset which enables us to observe on child labor status of the individual at the national level. In other words, we use the data of SILC because the question about the age for the first regular job is only asked in this survey and it helps to identify which of respondents were the child laborer in the past.

The survey also enables us to differentiate the individuals not only by child labor status but also by current employment status and social welfare in households that they currently lived in.

Pooling the cross-sectional data will also enable us both to increase sample size for the analysis and to control the changes in labor market outcomes over time. The reason of selecting these years is that they are the latest available datasets generated by TurkStat.

4.1 Restrictions in the Data Set

The data that I used in the study have some limitations due to the structure of the data. For example, the way of asking the question to each individual in households about their age are changing in the surveys. Before the wave of 2011, we are not able to capture individuals' exact year of age. Rather, we are able to get information about the age-group that individuals belong to.

I consequently used age group which is designed for the surveys on and before 2010 in the analysis. In parallel, the form of age variable which following the wave for the year of 2011 are transformed into age groups, which can be seen in Table 4.2

Each wave is separated into the individual and household modules. Individual characteristics such as age, gender and educational level for all respondents reside in the households are available without any restriction. However, some part of personal module, which consists of the age for the first regular job, employment status and employment in the last job for non-employed, is only asked to each household member if they are above

of 14 years old. As a consequence of observing the age at first regular job, we are able to define the individuals who were child laborer and non-child laborer. I define the respondent as a child laborer before if they started to their first regular job when they were younger than 15 years old, which is the minimum of working age. In other words, our data enables us to define the people who were child-laborer if their age is above of 14 years old. Since exploring item in this study is potential labor market outcome differences in terms of child labor status, I restricted the data set to who are currently only in the working-age population. Unluckily, if we had available information about exact age of the individual in the survey year, it would be useful to observe who started their first regular job before and after 1998 which is the year that corresponds to the Turkey's sign on ILO Convention No. 138 about the child labor ban for the ages below 15 years.

Ertürk and Dayıoğlu (2004) and Tunali (1996) emphasize a gender-based decision mechanism in the household, and therefore including females into the analysis may probably cause a selection bias since female labor force participation rate in Turkey is low and women's complicated decision process for entering to labor market or schooling (double shift due to traditional gender roles) should be taken into account in the analysis. In order to simplify the analysis, I focus on only male workers. Additionally, non-agricultural employment is taken into the analysis. Because measuring earnings is difficult and informality status is most likely to be preference-based in the in agricultural sector.

4.2 Descriptive Statistics

After all restrictions mentioned above are made, the repeated cross sectional data which is used for wage and informality analysis is summarized in Table 4.1 , Table 4.2, Table 4.3, and Table 4.4.

I would like to point out that the descriptive statistics for the employment status analysis are given in Appendix and I will only describe the summary statistics specified in this section.

Table 4.1, Table 4.2 ,and Table 4.3 present the variables mostly describing the socio-economic status of the individuals in the sample by child labor status. It also provides statistics of the entire sample. In addition, the data used in main analysis consists of the responses of 3,950 individuals in the 2006 survey, 4,005 individuals in 2007, 4,325 individuals in 2008, 4,471 individuals in 2009, 4,498 individuals in 2010, 5,926 individuals in 2011, 7,063 individuals in 2012, and 8,236 individuals in 2013.

The sample includes 36,086 individuals (85.0 percent of the sample) who didn't work as a child labor and 6,388 individuals (15.0 percent of the sample) who worked as children.

Table 4.1 indicates that educational level of child laborers are clustered in the primary school. The shares of people who hold more than primary school degree sharply shrink relative to those were not child labor before. It seems that the individuals who were child labor in the past are less-educated.

Exploring the age distributions of workers by their child labor status is an interesting subject. The distribution seems to be so different when only consider the proportions at the same age group. However their sample size are different and the calculations for tests for binomial probability of success results indicate age group distribution are statistically same except for the age groups between 20-24 years and 35-39 years at 90 % of confidence interval. Child labor ban was legalized in the year of 1998 and policy improvements haven't yet able to be seen in these age group. Therefore, we cannot yet assume that the problem of child labor in Turkey is the problem in dusty pages of history.

Regional distribution of wage-earners who never been child laborer shows that 12.6% of child workers are living in Aegean. 16.5% of wage-earners who were child laborer before are unexpectedly living in Aegean. In addition, 11.9% (9.0%) of wage earners who are child laborer (non-child laborer) are living in Mediterranean region. These regions are relatively developed in many ways and internal migration receiving regions. Migrants who were child laborers before and had limited education opportunities might had moved voluntarily or involuntarily to these regions in order to improve their welfare. The proportions by their child labor status for both Aegean and Mediterranean regions are significantly different.

Tab. 4.1: Descriptives

Variables	Not worked		Had worked		Overall	
	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
Child labor status	36,086	84.96%	6,388	15.04%	42,474	100.0%
Education						
Non-literate	233	0.65%	79	1.24%	312	0.7%
Literate but non-graduated	622	1.72%	281	4.4%	903	2.1%
Primary school	8,981	24.89%	3,754	58.77%	12,735	30.0%
Secondary School	6,010	16.65%	1,198	18.75%	7,208	17.0%
Vocational or Technical High School	5,179	14.35%	339	5.31%	5,518	13.0%
General High School	5,803	16.08%	373	5.84%	6,176	14.5%
Higher Education	9,258	25.66%	364	5.7%	9,622	22.7%
Region						
TR1- Istanbul	5,506	15.26%	1,007	15.76%	6,513	15.3%
TR2- Western Marmara	2,236	6.2%	477	7.47%	2,713	6.4%
TR3- Aegean	4,531	12.56%	1,056	16.53%	5,587	13.2%
TR4- East Marmara	3,475	9.63%	637	9.97%	4,112	9.7%
TR5- West Anatolia	3,757	10.41%	570	8.92%	4,327	10.2%
TR6- Mediterranean	3,262	9.04%	759	11.88%	4,021	9.5%
TR7- Central Anatolia	2,409	6.68%	233	3.65%	2,642	6.2%
TR8- West Black-Sea	2,400	6.65%	446	6.98%	2,846	6.7%
TR9- East Black-Sea	1,526	4.23%	147	2.3%	1,673	3.9%
TRA- North-East Anatolia	1,920	5.32%	234	3.66%	2,154	5.1%
TRB- Central-East Anatolia	2,410	6.68%	275	4.3%	2,685	6.3%
TRC- South -East Anatolia	2,654	7.35%	547	8.56%	3,201	7.5%

Tab. 4.2: Descriptives (Continued)

Variables	Not worked		Had worked		Overall	
	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
Year						
2006	3,370	9.34%	580	9.08%	3,950	9.3%
2007	3,385	9.38%	620	9.71%	4,005	9.4%
2008	3,662	10.15%	663	10.38%	4,325	10.2%
2009	3,786	10.49%	685	10.72%	4,471	10.5%
2010	3,846	10.66%	652	10.21%	4,498	10.6%
2011	5,055	14.01%	871	13.63%	5,926	14.0%
2012	6,028	16.70%	1,035	16.20%	7,063	16.6%
2013	6,954	19.27%	1,282	20.07%	8,236	19.4%
Marital Status						
Single	21,868	60.6%	3,904	61.11%	25,772	33.2%
Married	14,218	39.4%	2,484	38.89%	16,702	66.8%
Age group						
15-19	3,390	3.25%	530	8.3%	1,701	4.0%
20-24	6,284	9.39%	460	7.2%	3,850	9.1%
25-29	6,496	17.41%	1,015	15.89%	7,299	17.2%
30-34	5,746	18.00%	1,105	17.30%	7,601	17.9%
35-39	5,420	15.92%	1,171	18.33%	6,917	16.3%
40-44	4,184	15.02%	930	14.56%	6,350	15.0%
45-49	2,219	11.59%	632	9.89%	4,816	11.3%
50-54	878	6.15%	342	5.35%	2,561	6.0%
55-59	298	2.43%	153	2.4%	1,031	2.4%
Age group						
60-64	298	0.83%	50	0.78%	348	0.8%

Tab. 4.3: Descriptives (Continued)

Variables	Not worked		Had worked		Overall	
	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
Variables	Not worked		Had worked		Overall	
Firm Size	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
10 persons and less	9,993	27.69%	2,468	38.63%	12,461	29.3%
Between 11 and 19 persons	4,145	11.49%	780	12.21%	4,925	11.6%
Between 20 and 49 persons	5,890	16.32%	943	14.76%	6,833	16.1%
50 persons and more	15,519	43.01%	2,124	33.25%	17,643	41.5%
Do not know but less than 11 persons	173	0.48%	24	0.38%	197	0.5%
Do not know but more than 10 persons	366	1.01%	49	0.77%	415	1.0%
Administrative Responsibilities						
No	31,569	87.48%	5,882	92.08%	37,451	88.2%
Yes	4,517	12.52%	506	7.92%	5,023	11.8%
Informality						
No	31,312	86.77%	4,978	77.93%	36,290	85.4%
Yes	4,774	13.23%	1,410	22.07%	6,184	14.6%

Tab. 4.4: Descriptives (Continued)

	Sample size	Mean	Std. Dev.	Min.	Max.
For who worked as a child labor					
ln(real hourly wages)	6388	-1.84	0.60	-5.06	1.10
Actual experience	6388	19.98	10.20	0.00	52.00
For who wasn't child labor					
ln(real hourly wages)	36086	-1.52	0.68	-4.56	2.07
Actual experience	36086	14.59	9.35	0.00	49.00
Overall					
ln(real hourly wages)	42474	-1.57	0.68	-5.06	2.07
Actual experience	42474	15.40	9.68	0.00	52.00

SILC enables observing the informality status of the employees, i.e. whether the employees are registered in the Social Security Institution of Turkey. The results indicate that informality is widespread among those who started their regular job before the age of 15, i.e. 22.1 percent of those who worked in the ages defined as banned by the ILO Convention No. 138. 13.2 percent of those who never engaged in the employment during their childhood are working informally and they will not be able benefit from the social security system. Low level of labor productivity may cause to accept the jobs which are mostly informal and low wages for longer working hours in order to make ends family meets.

In the questionnaire of SILC, it is asked that how many employees are working at the local unit, which indicates firm size in the Table 4.3. The results indicate that 39.6 percent of people who had worked in their childhood now work in the firms with 10 persons and less. Even though, its share for those never experienced child worker is 27.7 percent, the proportions of two samples are significantly different at 99 percent confidence interval and the proportion among who were child labor before is significantly higher than the other at 99 percent confidence interval.

Hourly wages are calculated by using the information of annual income generated in previous year and number of months worked in previous year and the information comes from the question about usual working hour in the main job. After the calculation of hourly earnings for each individual, hourly wages are then deflated by using consumer price indices for these years. Summary statistics for logarithm of hourly wages are represented in Table 4.4. T-test for two sample with unequal variances results show that income at the mean for the people who worked as a child labor in the past are significantly different than those for who never worked as a child labor at 99.9 percent confidence interval.

SILC enables to get actual experience in the workforce rather than calculating estimated years of experience. Furthermore, the mean of actual experience for the people

worked as a child labor is 19.4 years and 13.9 years of experience in the labor market correspond for those never worked as a child labor in the labor market (See Table 4.4). The results are as expected since the younger enters to the labor market, the more standing in the labor market.

5. ESTIMATION RESULTS

In this section, I will firstly make an estimation for the link between earnings and human capital accumulation of male wage-earners. Secondly, I will focus on the incidence of informally working among the male wage-earners who worked as a child. Lastly, I will focus on the decision for forms of employment held by males who were child laborer in the past.

5.1 *Wage differences*

The estimation results estimating the determinants of wages in Turkey are reported in Table 5.1.

For the OLS estimation, the variables of education, age, child labor before, marital status, firm size, region, and year are included as dummy variables. "Primary school" for educational level, "age group of 25-29" for ages, "never worked as a child labor" for child labor status, "married" for marital status, "Istanbul" for region, "firm with employee between 50 persons and more" for firm size, and "year of 2013" for year are the reference categories for respective variables.

I had included interaction of age with child labor status because there would be an association between the age of the individual and their child labor status even though descriptives give insight on that the age distributions of two groups are symmetrical. The regression results from interaction was insignificant and they are not included as result.

OLS estimation result indicates that working in the past as a child labor results in 3.7 percent decreases in real wages relative to those had never worked as a child laborer. In other words, two persons with same characteristics in the regression model except employment history in terms of working as a child laborer have significantly different real hourly wages. Therefore, we can interpret the results as the quality of human capital investment of a child laborer is lower than a non-child laborer.

VARIABLES	logrealhourlyincome
Child labor before	-0.0371*** (0.00743)
Ages between 15 and 19	-0.293*** (0.0145)
Ages between 20 and 24	-0.0922*** (0.00985)
Ages between 30 and 34	0.0764*** (0.00838)
Ages between 35 and 39	0.137*** (0.0100)
Ages between 40 and 44	0.212*** (0.0118)
Ages between 45 and 49	0.240*** (0.0138)
Ages between 50 and 54	0.210*** (0.0170)
Ages between 55 and 59	0.215*** (0.0224)
Ages between 60 and 64	0.178*** (0.0328)
Non-literate	-0.178*** (0.0269)
Literate but not graduated	-0.0591*** (0.0164)
Secondary school	0.122*** (0.00750)
Vocational or Technical High School	0.291*** (0.00792)
General High School	0.351*** (0.00769)
Higher education	0.818*** (0.00728)
Actual experience	0.0207*** (0.00126)
Squared actual experience	-0.000446***

	(3.06e-05)
Single	-0.0239*** (0.00582)
TR2- Western Marmara	-0.160*** (0.0107)
TR3- Aegean	-0.130*** (0.00857)
TR4- East Marmara	-0.0805*** (0.00938)
TR5- West Anatolia	-0.0890*** (0.00923)
TR6- Mediterranean	-0.160*** (0.00942)
TR7-Central Anatolia	-0.124*** (0.0108)
TR8- West Black-Sea	-0.148*** (0.0106)
TR9- East Black-Sea	-0.129*** (0.0129)
TRA- North-East Anatolia	-0.0735*** (0.0117)
TRB- Central-East Anatolia	-0.173*** (0.0108)
TRC- South -East Anatolia	-0.207*** (0.0102)
Employee less than 10	-0.416*** (0.00569)
Employee between 11 and 19	-0.225*** (0.00760)
Employee between 20 and 49 persons	-0.134*** (0.00670)
Do not know but less than 11 persons	-0.313*** (0.0336)
Do not know but more than 10 persons	-0.206*** (0.0233)
Administrative responsibility	0.222***

	(0.00751)
Non-labor income	0.00154***
	(7.24e-05)
Non-labor income (sq.)	-5.59e-07***
	(6.93e-08)
Year - 2006	-0.101***
	(0.00912)
Year - 2007	-0.112***
	(0.00909)
Year - 2008	-0.0503***
	(0.00883)
Year - 2009	-0.0473***
	(0.00872)
Year - 2010	-0.0554***
	(0.00869)
Year - 2011	-0.0343***
	(0.00867)
Year - 2012	-0.0390***
	(0.00829)
Constant	-1.751***
	(0.0132)
Observations	42,474
R-squared	0.522
r2_p	.

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Tab. 5.1: Regression Results for Wage Estimation

We can simplify that there are two cases for child-laborers: In the first case, male child laborers can drop out of the school or never goes to school. In the second case, child laborer can both attend the education and work in the labor market in their leisure time. The results indicate that if the first case is valid for child-laborer, then it seems that the quality of experiences during the child labor does not make their human capital investment better relative to those in the same education level and working for similar

years of experience. Moreover, it makes him worse off. If we assume that the second case is valid for another male children, we can conclude that the quality of experiences and the quality of schooling is not enough to make him better off relative to the male students who are not engaged in child labor. However, current working children statistics demonstrates that the child laborer in Turkey is more likely to attend their education while they are working in the labor market, either as a paid or unpaid worker.

Although the medium run effects of engaging in the child labor market are examined in the literature, i.e. Beegle et al. (2009). We are not able to separate its impact to human capital investment. The reason behind this is that we cannot see how many years passed over child labor experiences because we are not available to know individuals' years of age. Moreover, the interaction of age with child labor status variable is not significant when potential heterogeneity among these variables is considered. To sum up, the interpretation about the negative effect of child working in the result is not localized in a period, but rather its overall effect. The analysis shows that the detrimental effects of child labor to human capital is stronger.

The impact of age to earnings is analyzed by using ages between 25 and 29 years as reference category. The results indicate that for the persons younger (older) than reference category are earning less (more) relative to reference category year.

It is interesting to find that elder people are earning more than young because we may expect that young are more adapted to new technologies and they become more productive as a result of having new skills which is demanded by the market. However, the results of wage determinants for Turkey indicate that aging has a positive effect on wages. A person in the ages between 15 and 19 years earn 29.3 percent lower compared to those in the ages between 25 and 29 years. As the wages are in terms of estimated hourly wages, it is not appropriate to attribute earning differences to working less. Consequently, the results shows that maturity in the labor market is significant for earnings since older workers are figured as more reliable and having better skills than average workers.

The age group of between 45 and 49 years is the maximum age for their earnings. The persons in this age group earn 24.0 percent higher than the persons in the age group of between 25 and 29 years. However, marginal productivity of labor decreases after it maximized. Higher health care costs and lower flexibility in accepting new assignments may be effective on their productivity.

Educational level and income differences relation consist of the core for the productivity differences among individuals. The idea is basic and it implies that the more (less) educated people earn more (less). The results are consistent with the theory.

It indicates that non-literate males are significantly earning less by 17.8 percent com-

pared to primary-school graduated males. Literate but non-graduated males are significantly earning less by 5.9 percent (relative to reference category). Secondary school graduates are significantly earning more by 12.2 percent relative to reference category. Although vocational or technical high school are aimed to grow intermediate members for the labor market and their education targets to give a profession to their students, vocational school graduates are earning more by 29.1 percent (compared to reference group) and general high school graduates are earning more by 35.1 percent (relative to reference group). Higher education graduates are significantly earning more by 81.8 percent relative to male primary school graduates.

The result shows that the effects of years of experience on income is increasing as actual years of experience increases. However, the gain due to one unit of increasing in the actual years of experience has a decreasing rate. The maximum level of earning can be achieved in 46.3 years of experience.

Another result of the study is that male married workers are earning more by 2.4 percent. The reason behind that may be specialization within household. In other words, as men are defined to take roles on working outside and women are defined to work inside of household and busy with household chores, married male workers can center their job on their life without loss of concentration due to household responsibilities. Therefore, it is seen that productivity differences by marital status is significant for the labor market in Turkey.

Wage differences between regions are significant in Turkey. Earnings in Istanbul region are significantly higher than other regions in Turkey. Although educational level, years of experience and some firm related factors are controlled, wage disparities between regions are seen in Turkey.

The number of employee in the local unit of enterprise is also important in explaining wage differences. For example, male workers in the firm with less than 10 employees are earning less by 41.9 percent relative to the workers working more than 50 employees in the local unit. Male workers in a firm with an employee between 10 and 49 earn less by 13.3 percent relative to male workers in the reference group. As the number of employees that a workers integrate increases, a worker in the workplace can specialize in their job and it helps workers to increase their productivity.

Lastly, the results indicate that people taking administrative responsibilities in the workplace significantly earn more by 22.2 percent relative to other workers not taking administrative responsibilities.

As explained in model section, I used non labor income variable as proxy variable for socio-economic status. The results indicate that socio-economic conditions of the

individual is significant for generating income.

According to the analysis, there exist wage differences between years. It seems that real wages earned by men in Turkey have substantially increased in 2007 and smooth increase in real wages later than 2008 has been observed in Turkey.

5.2 Informality

Probit estimation results depicted in Table 5.2 enables us to find the persons who are under the risk of being informal employment status. In addition, calculated average marginal effects are given in the second column in Table 5.2.

As child laborers are mostly working informally as a result of their forms of employment and their low reservation wage, it is then important to ask that whether working as a child makes the probability of working informally increase or not? The results indicate that there is no statistical relationship between working informal and working child laborer in the past when we control for other factors that may affect informality. Therefore, we cannot say that working child laborer in the past is a cause of informality in wage employment. A male who was child laborer in the past have similar probability of working in as formal as informal employment status compared to their relatives.

	PROBIT	AME
	Informal	Informal
Child labor before	0.00293 (0.0240)	0.0004988 (0.0040831)
Ages between 15 and 19	1.158*** (0.0423)	0.1970448*** (0.007014)
Ages between 20 and 24	0.391*** (0.0324)	0.0664671*** (0.0054963)
Ages between 30 and 34	-0.0966*** (0.0331)	-0.0164405*** (0.0056362)
Ages between 35 and 39	-0.0706* (0.0379)	-0.0120123* (0.0064575)
Ages between 40 and 44	-0.149*** (0.0442)	-0.0254379*** (0.0075235)
Ages between 45 and 49	0.184*** (0.0494)	0.0312468*** (0.0083985)
Ages between 50 and 54	0.659*** (0.0579)	0.1121912*** (0.00982)
Ages between 55 and 59	0.862*** (0.0723)	0.1466305*** (0.0122543)
Ages between 60 and 64	0.923*** (0.103)	0.1569993*** (0.0174434)
Non-literate	0.562*** (0.0750)	0.0955808*** (0.0127428)
Literate but not graduated	0.315*** (0.0448)	0.0536448*** (0.0076097)
Secondary school	-0.173*** (0.0244)	-0.0294233*** (0.0041446)
Vocational or Technical High School	-0.451*** (0.0282)	-0.0766714*** (0.0047631)
General High School	-0.551*** (0.0293)	-0.0937864*** (0.0049489)
Higher education	-0.938*** (0.0319)	-0.1595965*** (0.0053321)
Actual experience	-0.0175*** (0.00432)	-0.0029855*** (0.0007345)

Square of actual experience	0.000630*** (9.88e-05)	0.0001072*** (0.0000168)
Single	0.0743*** (0.0191)	0.0126457*** (0.0032505)
Employee less than 10	1.432*** (0.0225)	0.2436403*** (0.0034672)
Employee between 11 and 19	0.793*** (0.0290)	0.1349293*** (0.0048849)
Employee between 20 and 49 persons	0.428*** (0.0297)	0.0728633*** (0.0050476)
Do not know but less than 11 persons	0.941*** (0.0974)	0.160204*** (0.0165555)
Do not know but more than 10 persons	0.815*** (0.0749)	0.1387697*** (0.0127215)
TR2- Western Marmara	-0.125*** (0.0405)	-0.0211881*** (0.0068841)
TR3- Aegean	-0.208*** (0.0317)	-0.0353438*** (0.0053841)
TR4- East Marmara	-0.138*** (0.0348)	-0.023495*** (0.0059174)
TR5- West Anatolia	-0.135*** (0.0346)	-0.023052 (0.0058918)
TR6- Mediterranean	0.0396 (0.0331)	0.0067372 (0.0056282)
TR7-Central Anatolia	-0.0210 (0.0392)	-0.0035754 (0.0066671)
TR8- West Black-Sea	-0.115*** (0.0389)	-0.0196049*** (0.0066265)
TR9- East Black-Sea	-0.181*** (0.0478)	-0.0308659*** (0.0081269)
TRA- North-East Anatolia	0.134*** (0.0410)	0.0228585*** (0.0069823)
TRB- Central-East Anatolia	0.540*** (0.0345)	0.091888*** (0.0058341)
TRC- South -East Anatolia	0.499*** (0.0327)	0.0848736*** (0.0055321)

Year-2006	0.628*** (0.0321)	0.1068897*** (0.0054055)
Year-2007	0.479*** (0.0324)	0.0814485*** (0.0054733)
Year-2008	0.270*** (0.0327)	0.0459278*** (0.0055545)
Year-2009	0.347*** (0.0317)	0.059021*** (0.0053721)
Year-2010	0.307*** (0.0321)	0.0523166*** (0.0054481)
Year-2011	0.150*** (0.0311)	0.0255495*** (0.0052952)
Year-2012	0.0497 (0.0303)	0.0084637 (0.0051532)
Constant	-1.960*** (0.0503)	
Observations	48,609	48,609
r2_p	0.324	0.324

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Tab. 5.2: Regression Results for Informality

The impact of age on the likelihood of informality is expected. As age increases, workers' human capital improves and their probability to get into formal jobs increases. Average marginal effect results indicate that a person aged between 15 and 19 years is more likely to work in an informal job relative to reference group (ages between 25 between 29 years).

Average marginal effect of the age between 15 and 19 is the highest among other age groups. We can conclude that early labor market experiences has higher likelihood for get into informal job rather than employment history. Moreover, it seems that the likelihood of working informally increases for those elder than 45 years old because of early-retirement in Turkey.

Probit estimation results show that low educational levels increases the likelihood of working informally. Both higher level of education and higher year of experiences in the labor market makes the likelihood of working informally higher.

Single male workers are significantly more likely to be employed informally. The forms

of specialization within households may affect labor performance. In addition, the laws in Turkey are designed as a married women to be socially secured if her husband is working even she does not work in the labor market. Therefore, married men and their family may give more importance to formality in a job.

Another factor which is related with informality rate is the firm size of the enterprise. Gursel and Durmaz (2014) point out that firm size is a strong proxy for differentiate labor productivities of individuals. The results indicate that low levels of employees working in the local unit increases the probability of working in an informal job. Average marginal effect of working in a local unit with less than 10 employees increases the likelihood of working informally by 24.4 percent relative to reference group (working in a workplace with more than 50 employees).

The OLS estimation on wages had showed that there were a significant differences among regions in Turkey. In addition, probit analysis also shows that regional disparities are seen in terms of formality.

People live in more developed regions are less likely to be informal (i.e. Istanbul region) and people in less developed regions are more likely to get into informal jobs (i.e. South East Anatolia). Even we control for educational level and other labor productivity differences, we find large disparities in informality. Weaker rules of law and lower institutional qualities may be effective on differentiation between regions. As expected, year differences in informality is significant. The results capture the significant decreasing rate for informality in these years.

5.3 *Employment Status*

Relative risk ratio results of the multinomial estimation model are depicted in Table 5.3. The results of the relative risk ratios are summarized in a way that base group of the dependent variable is working as a wage-earner. I will only summarize relative risk ratios comparing people who were child laborer in the past with non-child laborers for working in the employment status except wage-earners relative to wage-earners.

The results for the choice of employment status indicate that child laborers in the past are most likely to become unpaid family worker. For those having worked as a child relative to other, the relative risk for being in unpaid family worker relative to wage-earner would be expected to increase by a factor of 1.40 given the other variables in the model are held constant.

	Unpaid Family Worker	Casual Worker	Self-Employed	Employer
Child labor before	1.400*** (0.083)	0.905*** (0.031)	1.086*** (0.034)	1.275*** (0.060)
Ages between 20 and 24	0.619*** (0.045)	0.609*** (0.034)	2.079*** (0.232)	5.772*** (1.908)
Ages between 25 and 29	0.323*** (0.031)	0.467*** (0.029)	3.677*** (0.400)	11.019*** (3.579)
Ages between 30 and 34	0.134*** (0.017)	0.457*** (0.033)	4.281*** (0.488)	14.045*** (4.614)
Ages between 35 and 39	0.061*** (0.010)	0.434*** (0.036)	4.585*** (0.548)	12.827*** (4.281)
Ages between 40 and 44	0.041*** (0.008)	0.374*** (0.034)	4.089*** (0.509)	10.226*** (3.462)
Ages between 45 and 49	0.046*** (0.010)	0.406*** (0.040)	4.567*** (0.589)	8.967*** (3.078)
Ages between 50 and 54	0.102*** (0.023)	0.489*** (0.053)	5.660*** (0.759)	9.365*** (3.263)
Ages between 55 and 59	0.203*** (0.052)	0.506*** (0.063)	8.227*** (1.158)	12.813*** (4.545)
Ages between 60 and 64	0.376*** (0.113)	0.545*** (0.086)	9.085*** (1.425)	16.880*** (6.191)
Not literate	1.273 (0.244)	2.272*** (0.179)	1.475*** (0.121)	0.427*** (0.107)
Literate but non-graduated	1.054 (0.113)	1.544*** (0.081)	1.186*** (0.069)	0.787* (0.100)

Secondary school	0.869** (0.060)	0.509*** (0.019)	0.708*** (0.024)	1.257*** (0.063)
Vocational or Technical High School	1.020 (0.075)	0.258*** (0.012)	0.593*** (0.022)	1.560*** (0.080)
General High School	0.484*** (0.041)	0.173*** (0.010)	0.408*** (0.017)	1.040 (0.058)
Higher education	0.290*** (0.029)	0.029*** (0.003)	0.170*** (0.008)	1.122** (0.053)
Actual experience	1.005 (0.011)	0.972*** (0.006)	0.998 (0.006)	1.052*** (0.009)
Squared actual experience	1.000 (0.000)	1.001*** (0.000)	1.001*** (0.000)	1.000 (0.000)
Single	1.452*** (0.071)	0.986 (0.029)	0.977 (0.035)	0.897** (0.047)
Constant	0.116*** (0.015)	0.658*** (0.047)	0.042*** (0.005)	0.002*** (0.001)

Regional differences are controlled

Year effect is controlled

Observation 76,780

Pseudo R-square 0.137

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Tab. 5.3: Regression Results for Employment Status

The result is acceptable because in Turkey, more than half of the child workers are working on the jobs as an un-paid family worker for making contribution to the family income. Therefore, the result supports that working in the labor market on their same their employment status is more likely for the child laborers.

For those having worked as a child relative to non-child laborer, the relative risk for being in employer relative to wage-earner would be expected to be 27.5 percent higher given the other variables in the model are held constant.

The interpretation of this result is relatively similar with those comparing working as a family worker: The child laborers, which we are interested in males, mostly work in the family farms or enterprises in Turkey. They work in these jobs without getting any gain. It seems that they take over the portfolio of the management in family businesses when males come into power or family members believe that they are mature enough to control the organization.

Another implication of the result is that the relative risk for choosing self-employed relative to be a salaried worker or wage earner for those who were child laborer in the past relative to were not is not statistically significant. Finally, the relative risk for choosing to be a casual worker relative to be salaried-wage earner is 9.5 percent lower for those who were child laborer in the past relative to were.

The overall implication of the analysis for choosing employment status comparing those who had worked as a child with those never entered to the labor market as a child emphasise that working as a child is significant on choosing the type of employment. Many participants in the labor market who worked during their childhood are more likely to continue or to choose to work as an un-paid family when they become an adult. The second possible choice for male participants in the labor market who were child laborer in the past is that choosing to become an employer in the labor market.

6. CONCLUDING REMARKS

Some of the children in Turkey start to work at the workplaces in order to contribute their family income. Low levels of household income mostly cause children to work. The adult labor market outcomes of male child laborer was the subject of this study. The model is designed with the aim of finding whether there is an effects of child labor to adulthood labor market outcomes such as employment status, wages, and informality.

The decision for the children to work or not is found that it is crucial for their future outcomes. They working conditions are not the determined by their child labor status, however working as a child or not makes changes in their earnings and affects their likelihood to choose the type of employment.

This study contributes that working in the past as a child labor results in 3.7 percent decreases in real wages relative to those had never worked as a child laborer. People who worked as the child in the past have lower quality of human capital investment than non-child laborer, through either educational channel or experiences gained in the labor market relative to those in the same education level and working for similar years of experience.

Another discussion of this paper is to contribute the effects of earlier experiences in the labor market during childhood to become informally employed. The analysis among male wage-earners shows that there is no statistical relationship between working informal and working child laborer in the past when we control for other factors that may affect informality. Therefore, we cannot say that working child laborer in the past is a reason of informality in wage employment for Turkey.

In Turkey, more than half of the child workers are today working on the jobs as an un-paid family worker for making contribution to the family income. In its parallel, the relative risk of working as un-paid family worker relative to working as a wage-earner conditional on having worked as a child is the highest and relative risk of working as an employer is following. It seems that they take responsibility in the family businesses when family elders believe that the person who were child laborer is mature enough to control the organization.

The results prove that eliminating child labor is one of the core subject for ending poverty. In order to increase social income mobility, the policies and incentives maintaining

discipline for ending child labor should be developed.

For further studies, not only males but also females can be subject of the study. However, the data is not good enough to evaluate which conditions of the children directed them to work. As historical data is not available and the properties of hometown during their childhood is not accessible, it will be needed to generate data until another survey enables to identify the child labor status.

Notes

¹“Marking progress against child labour - Global estimates and trends 2000-2012” International Labour Office, International Programme on the Elimination of Child Labor (IPEC) - Geneva: ILO, 2013.

²For further information, check Turkish Statistical Institute, Child Labor Statistics

³The source of annual consumer price indices is OECD (2015), Inflation (CPI) (indicator). doi: 10.1787/eee82e6e-en (Lastly accessed on 12 July 2015)

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APPENDIX

Tab. .1: Descriptives

	Sample size	Mean	Std. Dev.	Min.	Max.
For who worked as a child labor					
ln(real hourly wages)	11849	-1.895513	0.6933781	-7.145403	2.082647
Actual experience	14259	21.39344	11.67179	0	55
For who wasn't child labor					
ln(real hourly wages)	53317	-1.61537	0.7426825	-7.213225	2.775794
Actual experience	62521	15.18674	10.32992	0	50
Overall					
ln(real hourly wages)	65166	-1.666307	0.74187	-7.213225	2.775794
Actual experience	76780	16.3394	10.86343	0	55

Tab. .2: Descriptives (Continued)

Variables	Not worked		Had worked		Overall	
	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
Child labor status	36,086	84.96%	6,388	15.04%	42,474	100.0%
Education						
Not literate	888	1.42	260	1.82	1,148	1.5
Literate but non-graduated	1,948	3.12	892	6.26	2,840	3.7
Primary school	19,469	31.14	8,735	61.26	28,204	36.7
Secondary school	11,589	18.54	2,675	18.76	14,264	18.6
Vocational or Technical High School	8,571	13.71	607	4.26	9,178	12.0
General High School	8,465	13.54	616	4.32	9,081	11.8
Higher education	11,591	18.54	474	3.32	12,065	15.7
Region						
TR1- Istanbul	8,319	13.31	1,669	11.7	9,988	13.0
TR2- Western Marmara	3,915	6.26	1,146	8.04	5,061	6.6
TR3- Aegean	7,647	12.23	17.15	10,093	13.1	
TR4- East Marmara	5,424	8.68	1,206	8.46	6,630	8.6
TR5- West Anatolia	5,881	9.41	1,237	8.68	7,118	9.3
TR6- Mediterranean	5,895	9.43	1,757	12.32	7,652	10.0
TR7- Central Anatolia	4,394	7.03	610	4.28	5,004	6.5
TR8- West Black-Sea	4,177	6.68	1,164	8.16	5,341	7.0
TR9- East Black-Sea	2,895	4.63	270	1.89	3,165	4.1
TRA- North-East Anatolia	3,849	6.16	615	4.31	4,464	5.8
TRB- Central-East Anatolia	4,883	7.81	706	4.95	5,589	7.3
TRC- South -East Anatolia	5,242	8.38	1,433	10.05	6,675	8.7

Tab. .3: Descriptives (Continued)

Variables	Not worked		Had worked		Overall	
	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
Year						
2006	5,686	9.09	1,135	7.96	6,821	8.9
2007	5,882	9.41	1,243	8.72	7,125	9.3
2008	6,306	10.09	1,379	9.67	7,685	10.0
2009	7,881	12.61	2,059	14.44	9,940	12.9
2010	7,760	12.41	1,934	13.56	9,694	12.6
2011	8,351	13.36	1,807	12.67	10,158	13.2
2012	9,728	15.56	2,146	15.05	11,874	15.5
2013	10,927	17.48	2,556	17.93	13,483	17.6
Marital Status						
Single	38,254	61.19	8,855	62.1	47,109	61.4
Married	24,267	38.81	5,404	37.9	29,671	38.6
Age group						
15-19	3,036	4.86	1,377	9.66	4,413	5.7
20-24	6,704	10.72	1,018	7.14	7,722	10.1
25-29	10,066	16.1	1,887	13.23	11,953	15.6
30-34	9,983	15.97	2,174	15.25	12,157	15.8
35-39	9,180	14.68	2,286	16.03	11,466	14.9
40-44	8,598	13.75	1,898	13.31	10,496	13.7
45-49	7,039	11.26	1,548	10.86	8,587	11.2
50-54	4,467	7.14	1,064	7.46	5,531	7.2
55-59	2,390	3.82	622	4.36	3,012	3.9
60-64	1,058	1.69	385	2.7	1,443	1.9

Tab. .4: Descriptives (Continued)

Variables	Not worked		Had worked		Overall	
	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
Variables	Not worked		Had worked		Overall	
Firm Size	Sample Size	Its Share	Sample Size	Its Share	Sample Size	Its Share
10 persons and less	30,909	49.44	9,130	64.03	40,039	52.1
Between 11 and 19 persons	6,095	9.75	1,235	8.66	7,330	9.5
Between 20 and 49 persons	7,148	11.43	1,250	8.77	8,398	10.9
50 persons and more	17,395	27.82	2,476	17.36	19,871	25.9
Do not know but less than 11 persons	353	0.56	61	0.43	414	0.5
Do not know but more than 10 persons	621	0.99	107	0.75	728	0.9
Administrative Responsibilities						
No	43,292	90.07	8,888	94.14	52,180	90.7
Yes	4,772	9.93	553	5.86	5,325	9.3
Informality						
No	42,768	68.41	8,012	56.19	50,780	66.1
Yes	19,753	31.59	6,247	43.81	26,000	33.9