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## Discouraged workers in the Turkish Labor Market: 1988-2014

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### **Abstract**

*This study investigates the trends of and factors behind discouraged workers in Turkey during the period 1988-2014. According to ILO (1982), discouraged workers are those who wanted to work, but are not employed, and not job seekers anymore because they believe there is no work available for them. In this paper, it is put forward that the number of discouraged workers in Turkey cannot be ignored. Using data from Turkstat, World Development Indicators, and Turkish Ministry of Development, locally weighted (LOESS) regressions are estimated for the possible determinants of discouragement. The results demonstrate that discouragement increases rapidly after a certain per capita income threshold is reached. Besides, as unemployment increases, people are more eager to become discouraged, which is an expected relationship. Surprisingly, in the recent period of increasing employment, a rise both in the number and share of discouraged workers is detected in Turkey. The crisis years (especially 2001) seriously accelerated discouragement at higher secondary and tertiary school enrolment rates. Furthermore, discouraged workers increased gradually as services value added share increased, whereas industrial and agricultural value added shrank. Urbanization also triggers discouragement. These findings are expected to have important policy implications for Turkey, which tackles with significant issues regarding unemployment levels and human capital development.*

**Keywords:** Discouraged workers, unemployment, labor market, labor force, Loess estimation

**JEL codes:** J21, J23, J24, E24

### **1. Introduction**

This article intends to investigate the problem of discouraged workers in the Turkish labor market, which has evolved as an issue to struggle against as far as the high unemployment rate in the country is concerned. Since unemployment rises as a significant problem, discouragement remains at the back of the policy makers' agenda. However, discouragement cannot be ignored simply because of its definition. These people who are classified as discouraged workers are available for work; however, after a hopeless period of job search, they quit looking for a job, and hence drop out of the labor force.

This paper aims to answer several questions from a macroeconomic perspective in order to understand the conditions and factors behind discouragement. Among these main questions are "what are the levels and rates of discouragement in Turkey and where do they stand among other countries?", "why has discouragement increased?" and "what are the main reasons of increasing discouragement?" This article seeks to answer these questions using data from Turkstat and other relevant data sources and tries to explain each indicator that might lead more people to become discouraged in the country.

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The organization of the paper is as follows: The second section summarizes the literature findings from different approaches ranging from supply side and demand side arguments to macroeconomic conditions and economic downturns. The third section examines the major characteristics of the Turkish labor market and brings the issue of discouragement into discussion with descriptive statistics. The fourth section describes the empirical methodology (locally weighted regression (LOESS)), presents the data, and discusses the results. Finally, the fifth section concludes and included a short policy discussion.

## 2. Literature findings

There is an extensive literature on the determinants of labor force participation as well as non-participation and discouragement. Here I classify them as follows: i) supply side arguments ii) demand side arguments, macroeconomic conditions and economic downturns. Finally a summary of the literature on the LFP characteristics of Turkey is provided.

### 2.1. Supply side arguments

Examining the labor supply of women in Western economies (especially in the U.S.), Killingsworth & Heckman (1986) note that female labor supply has important implications for fertility, marriage, divorce, differences between male and female wages, distribution of family income, and so on. At the same time many individual factors including the above-mentioned ones as well as age, education, health, household size, and presence of household members that need care affect labor force participation (LFP) decisions and characteristics. For instance, Kirkland & Katie (2002) point out that increasing school enrolment was one of the factors behind the decline in the labor force participation rate (LFPR). Bradbury & Katz (2005) examine the decline in female labor force participation rate since 2000 and detect that the decrease is intensive among highly educated women with young children. They also find that husband's earning is a significant factor for women to participate or not to participate in the labor force. Besides, unmarried women are stronger participants of the labor market than married women in the U.S. Maestas & Li (2006) investigate outcomes of older workers in the process of job search. They find that 13 percent of older job seekers drops out of labor force; that is, they become discouraged workers due to both supply side (individual) characteristics and demand side reasons (local labor market conditions). Juhn & Potter (2006) examine the demographic and social trends that influence the movements in LFP in the late twentieth century. They investigate past trends which also affect LFP in the 2000s in U.S. Their findings demonstrate that, after 1967, rapid increases were detected in LFPR, whereas post-2000s witness declining LFPR. Besides, they find slight decreases in male LFPR and gradual increases in female LFPR across all ages. Fallick & Pingle (2006) compare female and male LFPRs with respect to discrete age ranges in United States. They find that individual participation declines beyond age 50. Aaronson et al. (2006) examine trends in teenage labor force activity in the U.S. They show that teenage labor has been declining since the late 1970s. Hotchkiss (2009) presents a simple method to decompose the changes in the aggregate LFPR over time with respect to demographic groups. The decomposition exposes that low female participation rates and the decrease in the population shares of working-age men were the significant forces behind the drop in aggregate LFPR.

## 2.2. Demand side arguments, macroeconomic conditions and economic downturns

Another strand of literature investigates the effects of global as well as national macroeconomic changes on labor force participation decisions. For instance, one of the pioneer researchers, Flaim (1973), divides the reasons of discouragement into two: job market reasons and personal reasons. He finds cyclical ups and downs in the unemployed population, which supports the positive relationship between worker discouragement and unemployment. Similarly, Rosenblum (1974) examines the relationship between unemployment rate and number of discouraged workers and demonstrates that employers, affected by labor decline become more flexible in the period of high economic activity. Both young and old people are hired in huge numbers. What is more, Ondeck (1978) detects a significant connection between unemployment rates and discouraged workers similar to Flaim's conclusion of cyclicity-sensitive discouragement. Examining the trends and cyclical changes in the number of discouraged workers in the United States, Finegan (1981) finds that the social cost of economic downturn is put on the discouraged workers. Blundell et al. (1998) put forward a model which incorporates discouraged workers and unemployment. This model claims a clear-cut role of the business-cycle movements that alters expected market wages and hence unemployment and discouragement rates. DeLoach & Kurt (2013) explain this by emphasizing that high unemployment weakens the possibility of getting a job during an economic downturn in the labor market and thus gives rise to a higher number of discouraged workers. Besides, Van Ham et al. (2001) examine the process of discouragement, using the labor force survey of 1994-1997 in the Netherlands. They attract attention to poor labor market conditions along with the factors such as gender differentials and individual qualifications leading to discouragement. O'Brien (2011) points out that previously marginally attached workers are those whose labor force participation is highly influenced by cyclical fluctuations and who are eager to become discouraged workers in the process. Dagsvik et al. (2012) also derive an empirical model which estimates LFP decisions of married and cohabitating women in Norway during the period 1988-2008. Their results show that the discouraged worker effect is significant. Kesselring & Bremmer (2015) also argue that individual willingness to participate in the labor force is reduced by the lack of employment opportunities caused by an economic downturn.

From a different perspective, McCall (1970) argues that there is a critical value of discounted return in the decision-making process of a job seeker: If the employer's offer is less than the critical value, it is rejected and the job seeker continues to search for a job. On the other hand, if the duration of job search increases, the job seeker drops out of the labor force due to the costs of job search such as transportation costs.

Most studies focus on the impacts of economic recessions and downturns, which may lead to an added worker effect or a discouraged worker effect. The so-called effects arise depending on whether married women decide to participate in the labor force or leave it when their husbands (or household heads) become unemployed due to negative economic conditions. Two of the earlier studies, to begin with, belong to Humphrey (1940) and Woytinsky (1940), who argue that additional workers make up a supplementary workforce where workers have different age, work experience, sex, and skill backgrounds, and most of them come from multi-worker families. Lundberg (1985) notes that the employment situation of the head of a household, usually the male, affects female labor force participation rates in two ways: by changing income in the household and by changing the husband's nonmarket time, both leading to a change in the relative value of the nonmarket time of a wife. One of the most effective reasons of female participation in the

labor force is household income reduction. Hence, the added worker effect is significantly related to the efficacy of household wealth. Kuch & Sharir (1978) explore the discouraged and added worker effects with respect to improved and worsened labor market conditions in Canada. Testing the discouraged worker hypothesis, Raffé & Willms (1989) evidence that the 16 year-olds leaving school in Scotland are discouraged by local unemployment. Lee & Parasnis (2014) examine that the changes in unemployment rates might have different consequences, leading to either the added worker effect or the discouraged worker effect. They investigate the discrepancy between labor force participation rate and unemployment rate using panel data of developing countries and OECD countries and show that discouraged worker effect influences developed countries, while the added worker effect dominates developing countries causing an increase in the labor force.

### 2.3. Studies on Turkey

There have been several studies which investigate the situation of discouraged workers in Turkey. Among them, Yılmaz (2005) points out that individual qualifications of many discouraged workers are not enough for getting jobs. For instance, most discouraged workers in Turkey are either primary school graduates or illiterate (around 4.5 percent of discouraged workers in the year 2000). In addition, worker network is effective during job search, which is rooted in the problem of nepotism in Turkey. Despite worker experience and qualifications, nepotism provides unfair advantages for job seekers throughout the hiring process. Baslevant & Onaran (2003) examine the discouraged worker effect among married couples and find that it is more common in urban Turkish families. Karaoglan & Okten (2012) also exemplifies that married women whose husbands lost their jobs, started to look for jobs, which evidences the added worker effect in the period 2000-2010 in Turkey.

Finally, Gürbüz et al. (2014) point out that the Turkish economy has severe regional inequalities among urban and rural areas along with poor market conditions, which also causes discouragement.

### 3. Characteristics of the Turkish Labor Force and discouraged workers

Since the beginning of human civilization, employment has been a main concern for people. With the onset of the Agricultural Revolution, fertility rate was soared and it caused population explosion. Humanity faced a new controversial issue which included the questions of “Who will work, where to work?”. Excess population led to the birth of unemployment problems. People have been trying to struggle against this issue since those times. In the beginning of the Industrial Revolution, which was another significant step for human civilization, unemployment further climbed up. All countries were influenced by it to some extent. Therefore, unemployment became the most important phenomenon to handle for people. After the World War II, an economic expansion was witnessed and the post-war period 1945-1975 was even named as the “Golden Age”. Most countries reached sustained growth with almost full employment levels. However, after the Golden Age, especially in the decades following 1980, unemployment became a persistent problem.

Countless studies have been conducted about unemployment. Part of them addressed the issue of discouraged workers. According to ILO (1982), discouraged workers are those who want to work, but are not employed, and not job seekers anymore because they believe there is no work

available for them. Discouragement is a serious problem which arises due to various factors and considerably affects people's lives.

Turkey is a developing country with a young and dynamic population (over 75 million in total). Increased population faces the difficulty of finding jobs. One reason behind this is the weak expansion of employment-generating industrial and services sectors and a contraction in the agricultural sector. Migration from rural to urban areas keeps rising, which extends the labor force in urban cities and puts a pressure on those who are applying for the same pool of jobs. Because of low investment or failure to generate employment, non-agricultural sectors do not absorb this excess of labor force. Besides, labor force participation rate continues to decrease in Turkey. According to OECD statistics, labor force participation rate of Turkey was 55.1 percent in 2014, whereas labor force participation rate of OECD countries was 71.2 percent. In addition, Turkey's female labor participation rate was 33.6 percent in 2014, while OECD countries reached 62.8 percent female labor force participation rate in the same year. Also, Turkey's male labor force participation rate was 76.6 percent in 2014 which was 3.1 percent lower than OECD countries.

In Figures 1 and 2 below, regional female and male labor force participation rates in Turkey are shown. Female labor force participation rate is generally quite low in all the regions. South-Eastern Anatolia has a female labor force participation rate of around 16 percent, which is the lowest of all the regions. Cultural differences, religious tension, and high fertility rates can be indicated for low female participation in South-Eastern Anatolia. On the contrary, the Black Sea region embodies the highest female labor force participation. In this region, population generally lives off agriculture. There are a lot of small farms which are planted by villagers. Thus, most women in the region are employed in these farms.

Most Turkish industries are located in the western part of the country and investors prefer to invest to the west. The eastern part does not have well-developed transportation facilities and infrastructure and it is unsafe because of terrorism especially in the recent years. Istanbul, Izmir, and Ankara are the most developed urban cities followed by Bursa and Kocaeli which host lots of industrial firms. That is, the western part offers more job opportunities. Because of regional, cultural, and geographic differences, there are significant discrepancies among regions. Besides, the education level of Turkish labor is generally low. In Turkey, approximately 26 million people have 5 years of education or less than 5 years, which remains to be a significant problem that affects participation in the labor force. Owing to the same reason, a considerable number of people become discouraged.

Figure 1. Female labor force participation rate 2014



Source: Turkstat

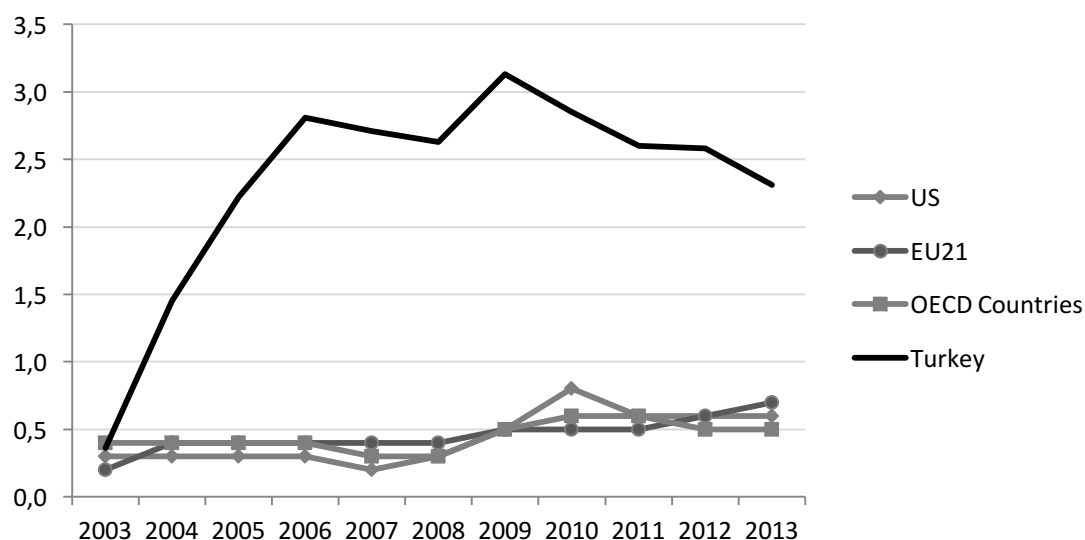
Figure 2. Male labor force participation rate 2014



Source: Turkstat

Figure 3 displays the ratio of discouraged workers in the labor force of the US, EU21, OECD, and Turkey for the period 2003-2013. Discouragement seems to be an outstanding problem in Turkey when compared to the selected countries. In the demonstrated decade, Turkey's discouraged workers reached over 3 percent of its labor force in 2009, most probably due to the impact of the global crisis. The other countries in the figure remained at around 0.5 percent.

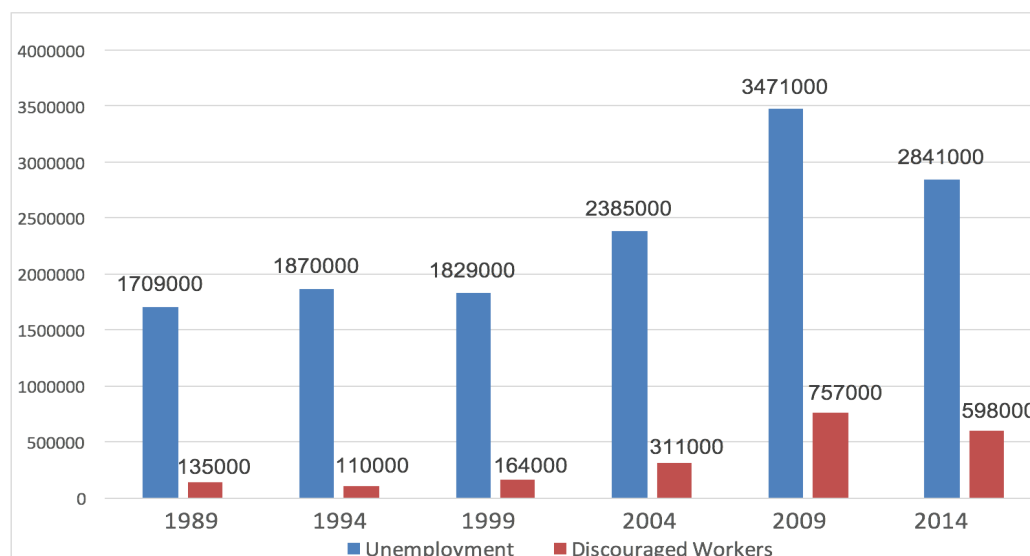
Figure 3. Discouraged workers (% of Labor Force) 2003-2013



Source: OECD Stats.

In Figure 4, the numbers of unemployed and discouraged workers are contrasted. It evidences a gradual increase in both unemployment levels and discouraged workers. Discouraged workers approximately doubled in the last 10 years. One factor that might have contributed to this increase could be migration towards urban areas. As such, urban labor force expands more than the employment capacity. In 2009, the amounts of both unemployment and discouraged workers reached a peak. According to 2014 data, the number of discouraged workers is one fifth of the unemployed; that is, approximately 600 thousand of potential workers gave up looking for a job. (Also see the appendix for the unemployment and discouraged worker statistics for each year from 1988 to 2014. It reveals that, if discouraged workers were added to the labor force as “unemployed”, the unemployment problem in Turkey would further prove to be alarming.)

Figure 4. Unemployment and discouraged workers in 5 Year-Periods



Source: Turkstat



#### 4. Empirical analysis and results

In order to determine the factors behind high discouragement rates in the Turkish labor market, one could make use of econometric analysis. Because of the fact that standard regression techniques such as the Ordinary Least Squares method requires a considerable number of observations, and because Turkish labor statistics are only available beginning from the year 1988, I prefer to use the LOESS analysis, which is a non-parametric regression technique, instead. It is a useful methodology when the number of observations is even below 30.

Developed by Cleveland (1979), LOESS provides locally-weighted polynomial regression and generates a series which includes predicted values of the dependent variable for every non-missing value of the independent variable. It permits to determine the order of the polynomial in the independent variable and the share of the data points to be used in each local regression.

It aims at an approximation to some smooth function,  $g(\cdot)$ , when the dependent variable,  $y$ , can be expressed as follows (Cottrell and Lucchetti, 2015: 308):

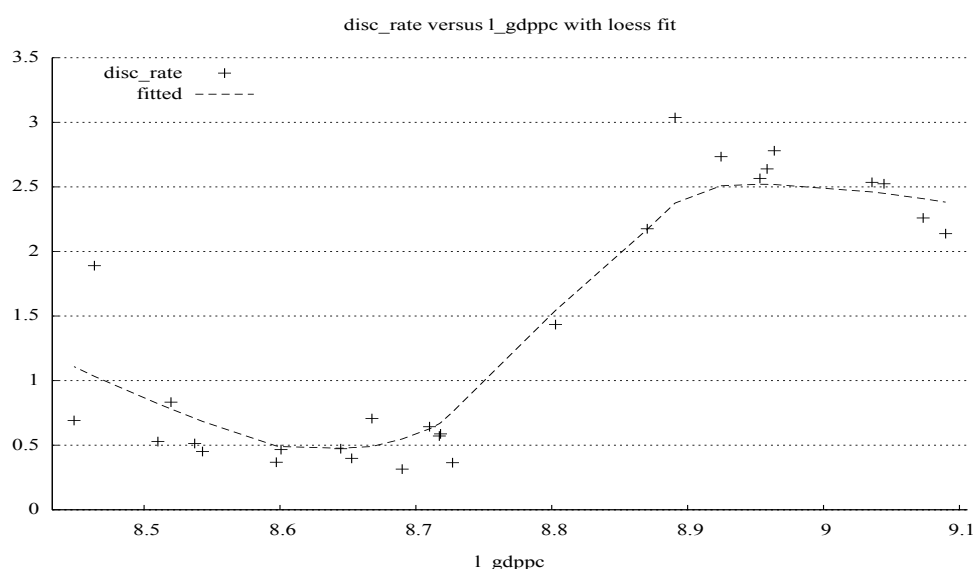
$$y_i = g(x_i) + \varepsilon_i$$

I have a sample of 27 observations on the variables  $y$ , which is the discouragement rate defined as the number of discouraged workers divided by the labor force) and  $x$ , which consists of a number of individual factors (such as GDP per capita; unemployment and employment rates; education levels; industry, services and agricultural value-added; and urbanization) that might determine discouragement. The LOESS curve is attained by running a weighted least squares regression (a polynomial of order  $d = 0, 1$  or  $2$  in  $x$ ) localized to each data point, in our case, to each year,  $i$  (Cottrell and Lucchetti, 2015: 308).

The data for the dependent variable, which is the discouragement rate, comes from Turkstat. The independent variables, GDP per capita, secondary and tertiary school enrolment rates, industry, services, and agricultural value added rates, and urbanization rates, are collected from the World Bank whereas the unemployment and employment rates are from Turkstat.

The results of the LOESS estimations are displayed in Figures 5 to 13 below.

Figure 5. LOESS Fit for the discouraged worker rate and GDP per capita, 1988-2014



To begin with, the correlation of the discouraged worker rate and GDP per capita in Figure 5 shows that after the 2001 crisis, discouraged worker rate starts to rise as GDP per capita increases. The figure further indicates that discouragement climbs up rapidly right after 2003 as GDP per capita accelerates. It starts with 0.36 percent in 2003 and reaches 2.73 percent in 2006. That is, it rockets by 7.5 times in those three years. In the recent years, the rate of discouraged workers has stabilized between 2 and 3 percent. At very high income per capita levels, discouragement rates have a tendency to decline.

As Figure 6 demonstrates, unemployment and discouragement have significant and positive correlation. In the economic downturns, unemployment soars and it has a strong potential to increase discouragement. The 2001 financial crisis and the 2008-2009 global economic turmoil appear to be responsible for climbing unemployment rates in these years. Flaim (1973) argues that the number of discouraged workers moves up and down in parallel with the number of unemployed, which creates a strong cyclical correlation. The strong correlation in Figure 6 supports the statement of Flaim (1973) showing that higher unemployment rates cause job seekers to lose their hopes to find a job. The peak point belongs to the year 2009. In that year, Turkey felt intensively the impact of the global crisis both in the financial sector and the real sectors such as manufacturing that are expected to generate employment. Unemployment rate reached beyond 14 percent and discouraged rate reached 3 percent. That means, according to these official statistics from Turkstat, 17 percent of people who would like to work if they could find jobs, were not able to work.

Figure 6. LOESS fit for the discouraged workers and unemployment rate, 1988-2014

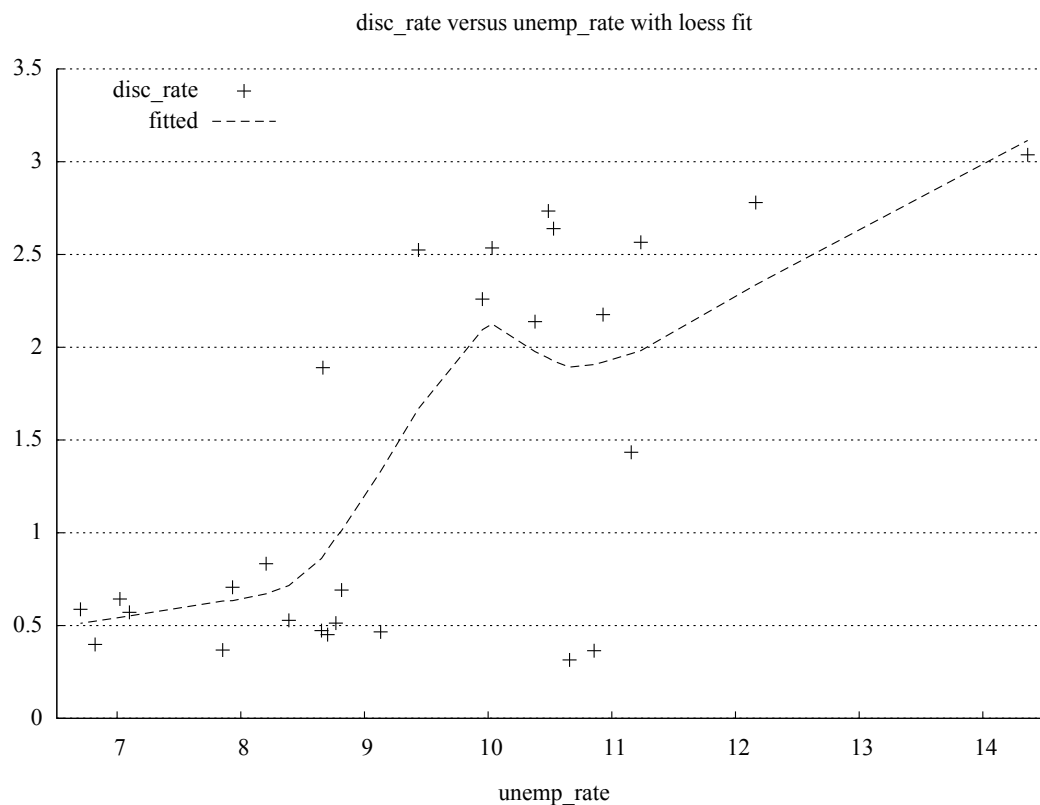
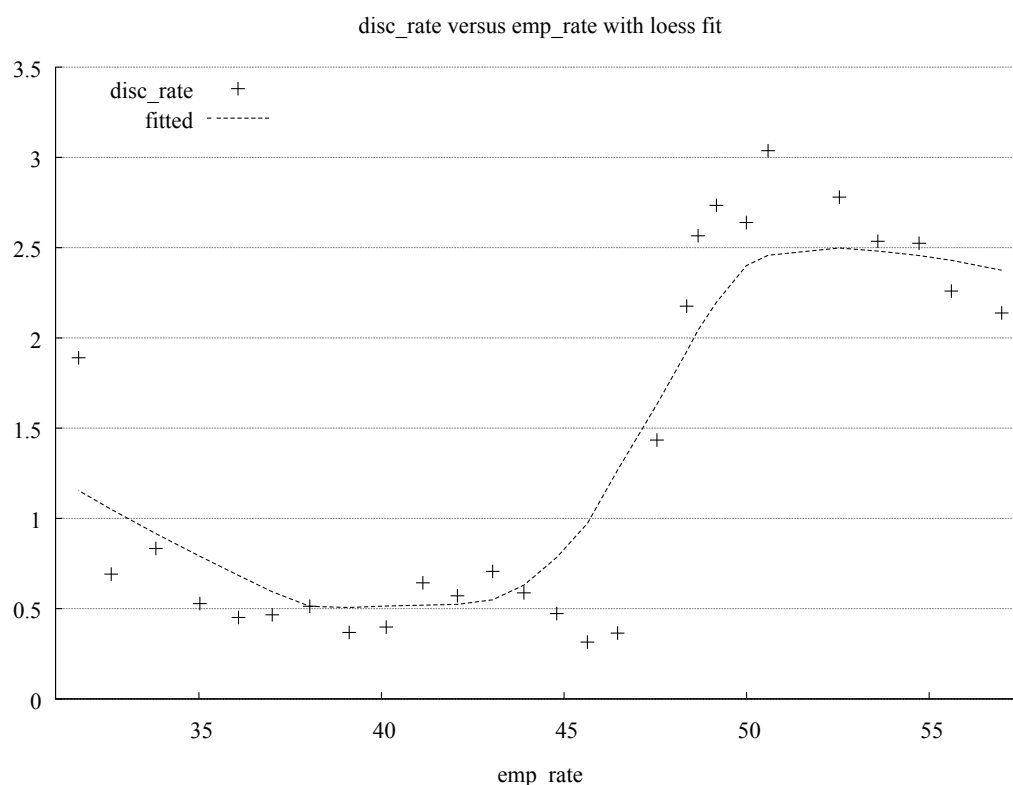


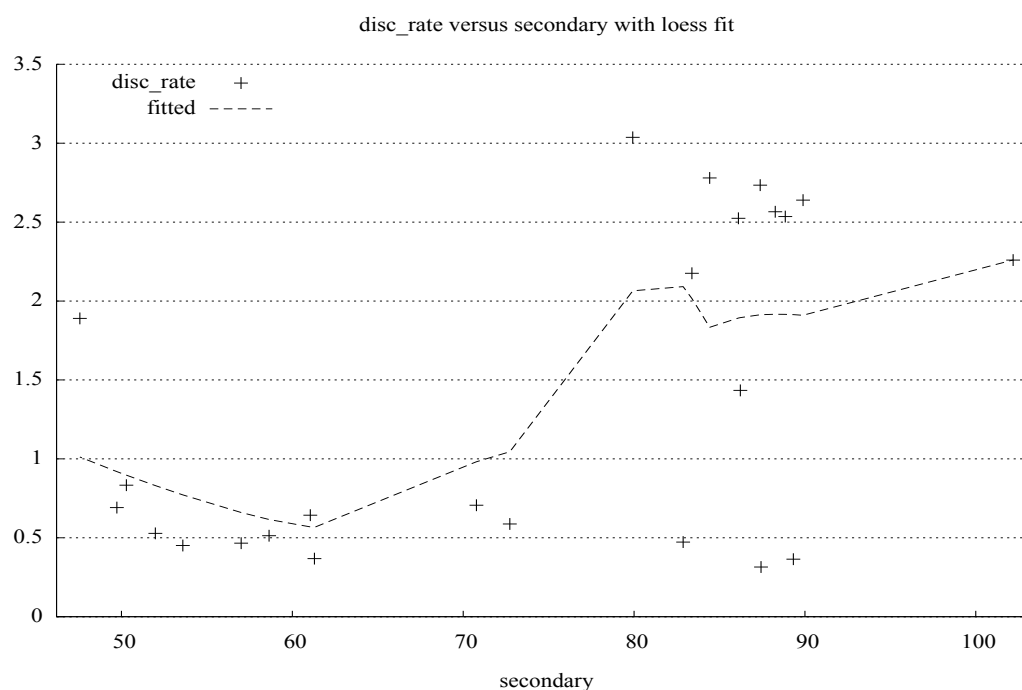
Figure 7 provides mixed results for the relationship between employment rate and discouraged workers. This gives a hint about Turkey's structural problems. Normally we would expect that the increase in employment rate could improve local labor market conditions generating hopes for the unemployed and those who expect to acquire jobs. However this figure suggests that there have been cases in Turkey, when higher employment did not bring together decreased discouragement. In the post-2000 period, the employment rate rises from 43.9 to 52.5 percent in a decade. However, in the same period, discouraged worker rate rapidly increases from 0.59 to 2.78 percent. In the beginning of the 2000s, labor force participation rate was equal to 48 percent. It remains stable during a decade, reaching only 48.8 percent in the end of 2010. Although employment rate rises in these years, the change in the labor force participation rate remains weak. This shows that the lack of labor force participation is one of the main structural problems. Especially, in the year 2014, female labor force participation rate was 33.6 percent which is too low when compared to OECD countries that had 62.8 percent of female participation rate. In Turkey, women do not highly participate in the labor force due to several reasons. One of them is the consideration of the reservation wage. For instance, if a woman has children or elder people to look after and if she wants to work, child or elder care problems occur. Kindergartens are either not sufficiently available or too expensive to afford. When other costs such as transportation and eating meals at work are considered, women may prefer not to work. Nursing homes are not preferred due to cultural codes. Another problem is the low education levels of females in the country. Besides there are cultural and religious reasons especially in rural areas where female labor participation rates are quite low. This is exemplified in Figure 1 above, which pictures the case of eastern and southeastern Anatolian women, having the least female participation rates among other regions. Also higher birth rate is the one of the other problems in these areas.

Figure 7. LOESS Fit for the discouraged worker rate and employment rate, 1988-2014



Flaim (1973) puts forward two reasons of discouragement: job market factors and personal factors. Personal factors include individual qualification or education level. Most Turkish labor market participants and non-participants lack individual qualifications. OECD (1995) points out that lack of skills, education or qualification is a reason for discouragement. Figure 8 displays that secondary school enrolment rate reaches to 100 percent only in 2013. Most discouraged workers have 8-year or below 8 years' of education. In addition, most discouraged workers share similar characteristics. For instance, these people might have proficiency in old technology requiring handwork, and may not have caught up with new technology. They grapple with the challenge of creative destruction as technology improves further. This is illustrated in Figure 8, where discouraged worker rate rises as secondary school enrolment increases. On the other hand, tertiary school enrolment rate was 25 percent in 2001 and increased to 79 percent in 2013. Figure 9 shows that discouraged worker rate generally decreases as tertiary school enrolment increases. This significantly implies that higher education level can facilitate hopes to find a job.

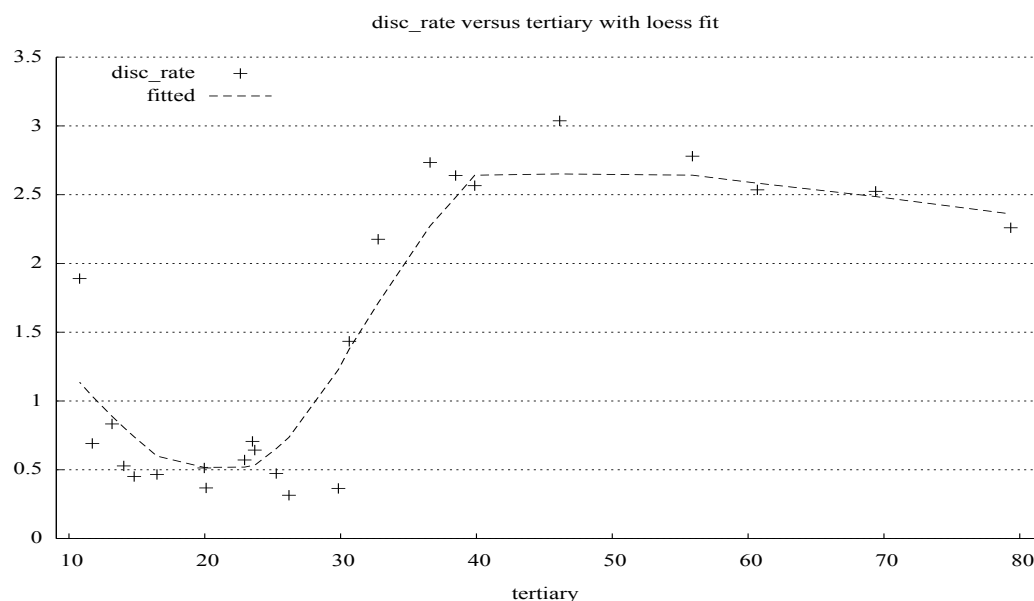
Figure 8. LOESS fit for the discouraged worker rate and secondary school enrolment ratio, 1988-2014



Another factor that might explain the reasons behind discouragement is the composition of economic activity in a country. Regarding this, we can have a look at the shares of industry, services and agriculture value-added (% of GDP) in Turkey.

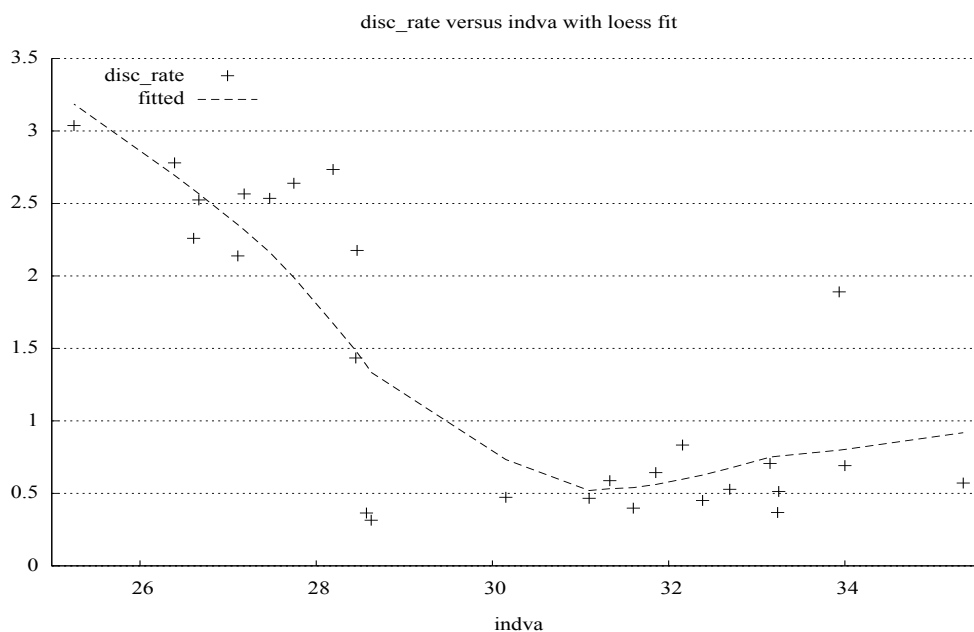
To begin with, the proportion of industry value added has declined in time. This directly affects the availability of job opportunities as industrial sectors are expected to generate jobs. Figure 10 evidences that discouraged worker rate increases as industrial value added declines. After 2000, industrial value added declines dramatically. In these years, privatizations were boosted and some state factories were closed. Therefore, lots of workers who worked in manufacturing lost their jobs.

Figure 9. LOESS fit for the discouraged worker rate and tertiary school enrolment ratio, 1988-2014



On the other hand, services value added fluctuates in the pre-2000 period. Then, it increases leading to more discouraged workers in recent years. In Figure 11, with five percent rise of services value added, discouraged worker rate increases to over 2.5 percent. To increase services value added may not provide new job opportunities for discouraged workers because the services sector mainly includes banking and financial services. These sectors need either highly qualified workers who are university graduates or do not create enough job opportunities as they rely less on people and more on computer and information systems.

Figure 10. LOESS Fit for the discouraged worker rate and industry value added



Third, Figure 12 reveals a strong correlation between agricultural value added and discouraged worker rate. The rapid increase of discouragement corresponds to the post-2000 period, when agricultural sector has shrunk tremendously. In rural areas, people usually live on agricultural production because rural areas lack diversified job opportunities. Moreover, declining agricultural value added shows decreasing gains from agriculture. Besides, in some areas like the Black Sea region, there are not large lands to plant and local people do not have access to modern agricultural machines. Thus, agriculture increasingly makes people less self-sufficient and may cause discouragement triggering migration to urban areas with the hope of finding jobs.

Figure 11. LOESS fit for the discouraged worker rate and services value added

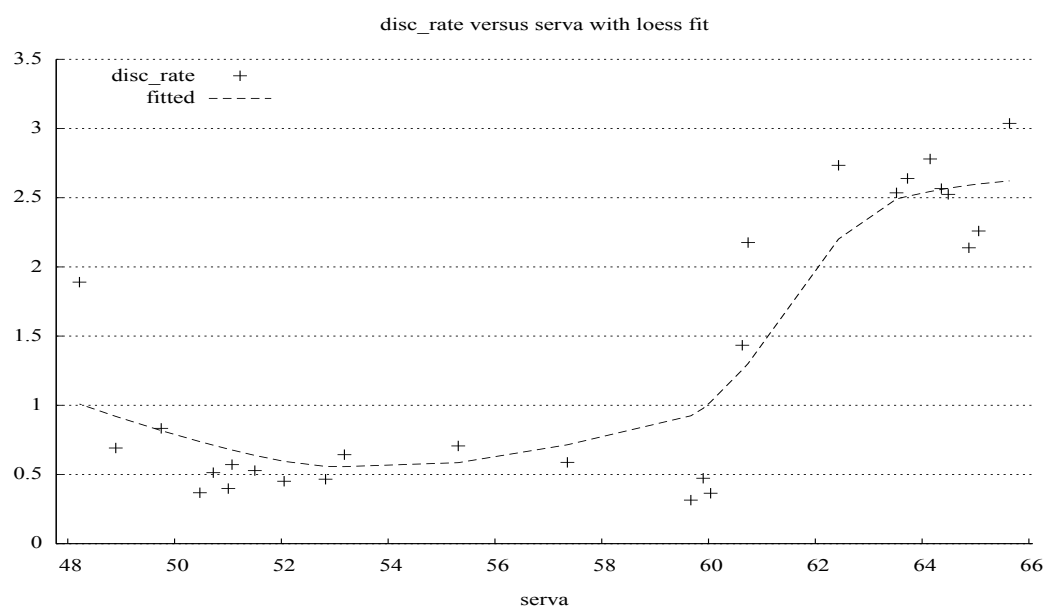
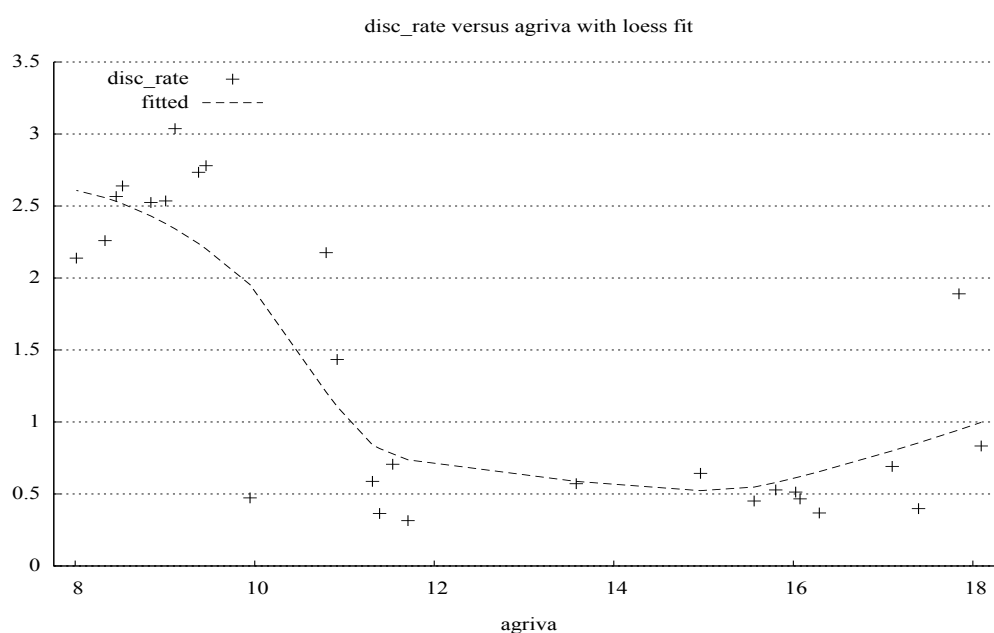
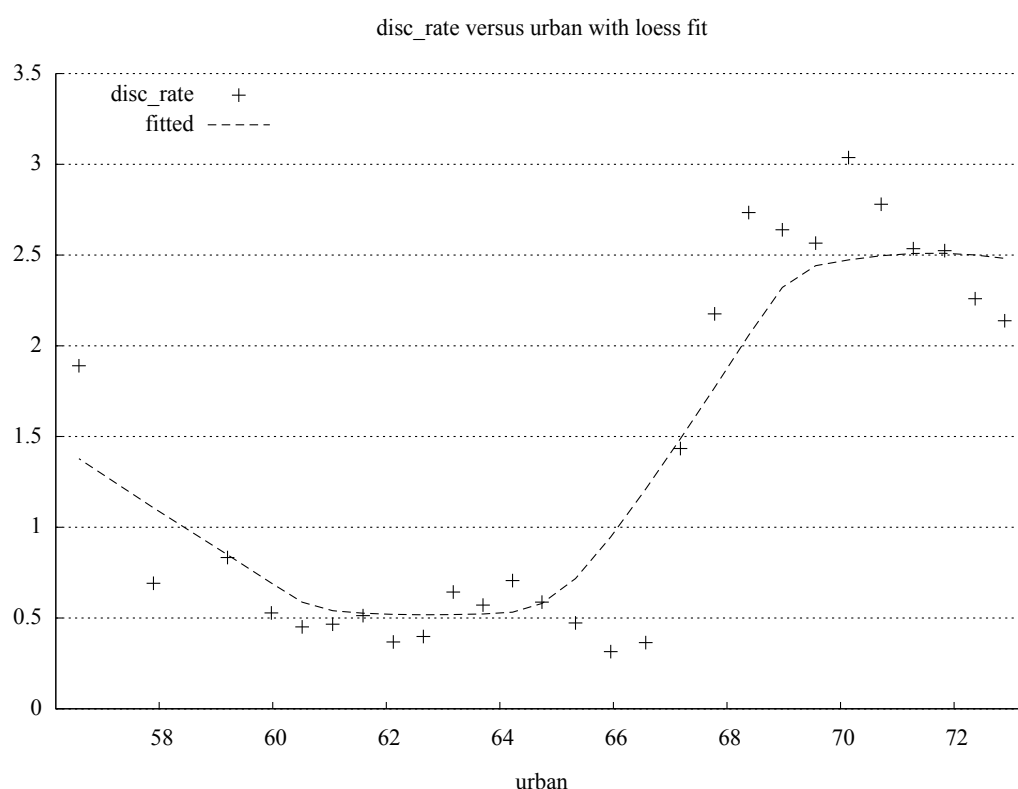


Figure 12. LOESS fit for the discouraged worker rate and agricultural value added



Finally, in Figure 13, the relationship between urbanization and discouragement is examined. After 2000, urbanization increases rapidly further adding to the number of discouraged workers. In line with the arguments regarding agriculture and migration from rural to urban above, people searching for jobs in urban cities face employment shortage there as a surplus of labor occurs. Also, these people coming from rural backgrounds usually have weak education. Thus, they first become unemployed and then discouraged workers. In the last five years, the relationship between the two indicators remains stable.

Figure 13. LOESS fit for the discouraged worker rate and urbanization, 1988-2014



## 5. Conclusion and policy discussion

Unemployment rate of Turkey is already too high, constituting a significant problem which waits to be solved. In addition, an increasing number of discouraged workers also creates a tension and should be struggled against as well. This paper evidences strong correlations between major socio-economic indicators and discouragement in Turkey. The paper also reveals several structural problems of Turkey. For instance, according to the common view, the rise of employment should boost hopes to attain job opportunities. However, it does not work as such in the Turkish labor market. Similarly, we would expect that higher GDP per capita could lead to a decline in the discouragement rate. Again it was proven to be the other way around for some years in Turkey. Turkey's high growth rates especially in the last decade did not generate enough employment opportunities and increasingly failed to flourish hopes to find jobs. These observations are coming to the fore along with other problems in the economy and also owing to individual factors. First, an inadequate level of labor force participation (especially female labor force) is one of the important indicators, which lies behind high discouragement. Second, weak individual qualifications

such as low levels of education and lack of expertise play a role to increase discouragement. Besides, the quality of vocational schools remains to be insufficient for people who prepare for the labor market. On the other hand, Turkish discouraged workers grapple with the transition process towards newer technologies and high education expectations of the employers. Third, Turkey has wide regional variety and high inequalities. People living in different regions have different cultures, behaviors, levels of education, and so on. While some regions are better at motivating people (especially women) to enter the labor force, some are lagging behind. The problem is to some extent reflected in increasing migration after 2000. People who have migrated from rural to urban areas constituted the new uneducated or unqualified reserve army for employers. A lot of them have become discouraged workers in urban areas. These problems are coupled with job market conditions as well as national crises or global economic downturns that set up the scene for the demand-side reasons of discouragement.

To cope with these challenges, supportive policies need to be designed for discouraged workers addressing both supply-side and demand-side problems. Lack of adequate education and training which is required by various jobs is one of the most significant problems in Turkey. To overcome discouragement via education, investments in human capital would be a beneficial solution.

## References

- Aaronson, D., Park, K. H., & Sullivan, D. G. (2006). The decline in teen labor force participation. *Economic Perspectives*.
- Aaronson, S., Cajner, T., Fallick, B., Galbis-Reig, F., Smith, C., & Wascher, W. (2014). Labor force participation: recent developments and future prospects. *Brookings Papers on Economic Activity*, 2014(2),
- Başlevent, C., & Onaran, Ö. (2003). Are married women in Turkey more likely to become added or discouraged workers?. *Labor*, 17(3), 439-458.
- Benati, L. (2001). Some empirical evidence on the 'discouraged worker' effect. *Economics Letters*, 70(3), 387-395.
- Blundell, R., Ham, J., & Meghir, C. (1998). Unemployment, discouraged workers and female labor supply. *Research in Economics*, 52(2), 103-131.
- Bradbury, K., & Katz, J. (2005). Women's rise: A work in progress. *Regional Review*, (Q 1), 58-67.
- Cottrell, A. & Lucchetti, R.J. (2015). Gretl User's Guide. Gnu Regression, Econometrics and Time-series Library.
- Dagsvik, J. K., Kornstad, T., & Skjerpen, T. (2013). Labor force participation and the discouraged worker effect. *Empirical Economics*, 45(1), 401-433.
- DeLoach, S. B., & Kurt, M. (2013). Discouraging workers: Estimating the impacts of macroeconomic shocks on the search intensity of the unemployed. *Journal of Labor Research*, 34(4), 433-454.
- Fallick, B., & Pingle, J. F. (2007). A cohort-based model of labor force participation. *SSRN Electronic Journal*
- Finegan, T. A. (1981). Discouraged workers and economic fluctuations. *Industrial & Labor Relations Review*, 35(1), 88-102.
- Flaim, P. O. (1973). Discouraged workers and changes in unemployment. *Monthly Labor Review*, 96(8).
- Gürbüz, A. A., Polat, S., & Ulus, M. (2014). In Limbo: Exploring transition to discouragement. *European Journal of Development Research*, 26(4), 527-551.

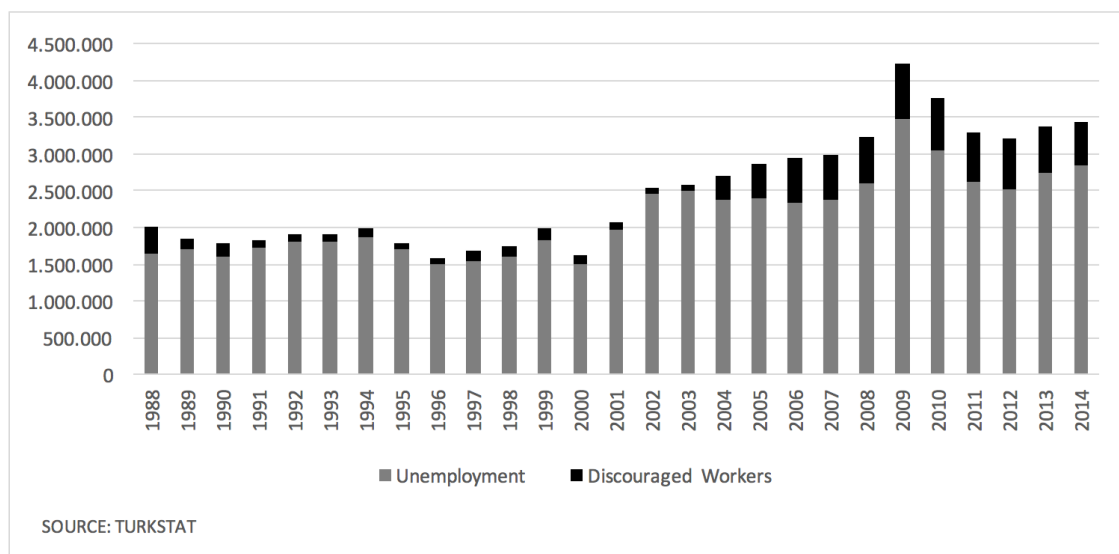


Özden, O. (2017). Discouraged workers in the Turkish Labor Market: 1988-2014. *International Journal of Social Sciences and Education Research*, 3(3), 734-750.

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- Hotchkiss, J. L. (2009). Changes in the aggregate labor force participation rate. *Economic Review-Federal Reserve Bank of Atlanta*, 94(4), I.
- Humphrey, D. D. (1940). Alleged "additional workers" in the measurement of unemployment. *The Journal of Political Economy*, 412-419.
- Juhn, C., & Potter, S. (2006). Changes in labor force participation in the United States. *The Journal of Economic Perspectives*, 20(3), 27-46.
- Karaoglan, D., & Okten, C. (2012). Labor force participation of married women in Turkey: Is there an added or a discouraged worker effect?.
- Killingsworth, M. R., & Heckman, J. J. (1986). Female labor supply: A survey. *Handbook of labor economics*, 1(1), 103-204.
- Kirkland, K. (2002). Declining Teen Labor Force Participation. Issues in Labor Statistics. Summary 02-06.
- Kuch, P. J., & Sharir, S. (1978). Added-and discouraged-worker effects in Canada, 1953-74. *The Canadian Journal of Economics/Revue canadienne d'Economiue*, 11(1), 112-120.
- Lee, G. H., & Parasnis, J. (2014). Discouraged workers in developed countries and added workers in developing countries? Unemployment rate and labor force participation. *Economic Modelling*, 41, 90-98.
- Lundberg, S. (1985). The added worker effect. *Journal of Labor Economics*, 3(1, Part 1), 11-37.
- Maestas, N., & Li, X. (2006). Discouraged workers? job search outcomes of older workers. *Job Search Outcomes of Older Workers (October 2006). Michigan Retirement Research Center Research Paper No. WP, 133.*
- McCall, J. J. (1970). Economics of information and job search. *The Quarterly Journal of Economics*, 113-126. OECD 1995, "Employment Outlook-Supplementary measures of labor market slack an analysis", 7
- O'Brien, M. (2011). Discouraged older male workers and the discouraged worker effect. *Australian Journal of Labor Economics*, 14(3), 217.
- OECD. (1995). Supplementary measures of labor market slack an analysis of discouraged and involuntary part-time workers. *Employment Outlook 1995*, 2
- Ondeck, C. M. (1978). Discouraged workers' link to jobless rate reaffirmed. *Monthly Labor Review*, 101(10), 40-42.
- Raffe, D., & Willms, J. D. (1989). Schooling the discouraged worker: Local-labor-market effects on educational participation. *Sociology*, 23(4), 559-581.
- Rosenblum, M. (1974). Discouraged Workers and Unemployment. *Monthly Labor Review*, 97(9), 28-30.
- Siedule, T., & Newton, K. (1980). Additional and discouraged workers revisited. *Atlantic Economic Journal*, 8(1), 92-92.
- Van Ham, M., Mulder, C. H., & Hooimeijer, P. (2001). Local underemployment and the discouraged worker effect. *Urban Studies*, 38(10), 1733-1751.
- Yılmaz, A. (2005). Unemployed Population in Turkey. *Firat University Journal of Social Science*, 6.
- Woytinsky, W. S. (1940). Additional Workers on the Labor Market in Depressions: A Reply to Mr. Humphrey. *The Journal of Political Economy*, 735-739.

## Appendix



In this Figure, y-axis shows the number of people, x-axis shows years, grey part of the columns shows unemployment level and black parts show discouraged workers in numbers.