

# The impact of the economic crisis on joblessness in Turkey

The Economic and  
Labour Relations Review  
2014, Vol. 25(1) 130–153  
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sagepub.co.uk/journalsPermissions.nav  
DOI: 10.1177/1035304613519380  
elrr.sagepub.com



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## Abstract

This study explores the impacts of the 2008–2009 economic crisis on joblessness in Turkey, incorporating into the analysis the marginally attached who would like to work if the opportunity existed, but are not actively searching for a job. We find that women were more likely than men to have a marginally attached status over the whole period of analysis, and during the time of the crisis, the number of marginally attached grew significantly faster for women than for men. The transition probability for the employed to become marginally attached and move out of the labour force rose substantially more for women than it did for men. The results obtained have important implications. Using conventional criteria, it is not possible to identify the degree of motivation to work or search for work in the case of women in Turkey, where the possibilities of shifting the care of burden to someone else or an institution are very limited, as a result of inadequate provisioning of public care services.

**JEL Codes:** J64, O530, R63

## Keywords

Economic crisis, marginally attached, transition probabilities, Turkish labour market, unemployment, worker flows

## Introduction

The 2008–2009<sup>1</sup> economic crisis had substantial impacts on the labour market conditions of not only the developed countries but also many developing countries which are closely linked with the developed world in terms of their trade and financial structure. These

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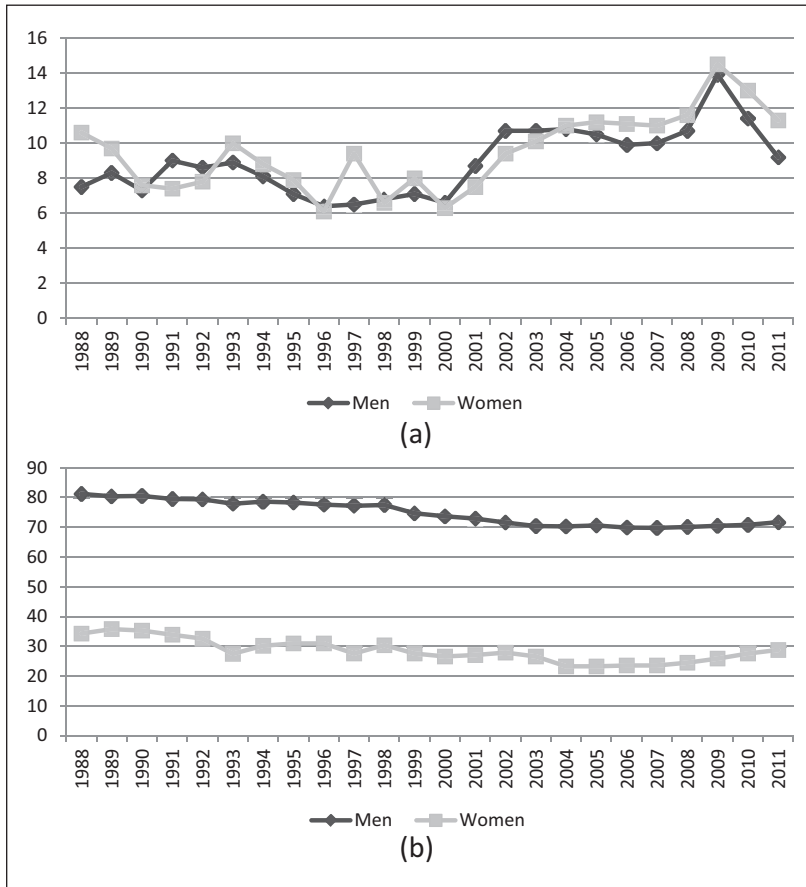
impacts included higher unemployment rates, lower employment-to-population ratios, and increasing informality of labour markets. American labour markets experienced the deepest downturn of the post-war era and most European Union (EU) countries faced high unemployment rates and lower participation rates, especially for the younger segment of the labour market (Farber, 2010; International Labour Organization (ILO), 2012). In less than a year, the impacts of the crisis were transmitted to the developing world and across the globe, and the army of unemployed had risen to over 200 million with a job deficit of around 50 million, in comparison to the pre-crisis situation of 2007–2009 (ILO, 2012).

Turkey was hit hard by the 2008–2009 crisis, even though it had been a fast-growing developing country during the 2000s. Prior to the crisis, during the 2000s, the economy experienced relatively high growth rates of real gross domestic product (GDP), but the period has been described as one of ‘jobless growth’, with stable double-digit levels of unemployment rates and lower labour force participation rates (Figure 1(a) and (b)). Over the last two decades, the Turkish economy has experienced three other crises, in 1994, 1998 and in 2001, yet it was only in the 2008–2009 crisis that the average unemployment rate reached unprecedented figures. The impact was more severe for women (Turkish Statistical Institute (TurkStat), 2010).<sup>2</sup>

Research on the employment impacts of the crisis tends to focus on changes in two conventional indicators – employment and labour force participation rates. Even within these standard measures, experience from earlier crises suggests that impacts differ according to gender. This study questions the validity of the official indicators used in crisis analyses and aims to uncover the real extent of joblessness<sup>3</sup> by redefining the concept ‘unemployed’ and bringing an uncounted group of unemployed into the picture through incorporating the marginally attached.

It is argued that the standard definition of the unemployment rate, while helpful for tracking general trends in labour markets, falls short of providing a thorough picture of the impacts of the crisis on employment – particularly in developing or emerging market economies. Turkey is a case in point. Incorporating the marginally attached when analysing the labour market impacts of the crisis not only provides additional information about experiences during the 2008–2009 economic crisis, it also has important implications for research on the *added worker effect* (that is the increasing incidence of labour force participation) and the *discouraged worker effect* (that is workers’ withdrawal from labour market due to the failed search for work) that occur during times of crisis.

So, what is missed out by the official definition of unemployed? Current job search criteria might serve well in identifying the unemployed in developed countries, where the majority of the population engages in regular paid employment and where information about available jobs is more easily obtained. However, this may not be the case in many developing countries, where labour market information channels are weak or do not exist. Owing to the significance of the rural sector and agricultural employment in these countries, both high seasonality and a large amount of unpaid family work during times of unemployment are commonly observed (Bulutay and Taştı, 2004). Agriculture is a female-dominated sector in much of the developing world, and most women workers in agriculture are unpaid family workers. In Turkey, in 2011, 42% of women workers



**Figure I.** (a) Unemployment rates, 1988–2011 and (b) labour force participation rates, 1988–2011.

Source: Turkish Statistical Institute (TurkStat) Household Labour Force Survey, from 1988 to 2011.

were in agriculture and 77% of them worked as unpaid family workers (TurkStat, 2012). The sociological literature on Turkey indicates that many women classed as ‘economically inactive’, in fact, wish to work in the market – although they do not qualify as active job seekers. Thus, the actual unemployment rates for women based on this argument may significantly differ from the officially reported low rates (Ecevit, 1998; Özbay, 1990).

Second, the existing unemployment insurance system is highly inadequate in reaching out to all individuals, owing to the relatively weak flows of labour market information in Turkey. In 2009, only 7.4% of those out of work were covered by unemployment insurance, with the amount of the payment corresponding to around 80% of the minimum wage. The majority of women in Turkey – given their very low official employment (26.2%) and participation rates (29.6%), were excluded from the insurance system.

Because unemployment insurance is intended to benefit individuals who have been temporarily removed from the labour force, a prerequisite for the receipt of benefits is a demonstrated attachment to the labour force.

Low employment and participation rates in the Turkish labour market imply a tendency to stay out of the formal labour market (Figure 1(a) and (b)). This again indicates the inadequacy of the official definition of unemployment. In times of crisis, the unemployment rate does not capture effective job search, which increases following a rise in the fraction of the marginally attached, thus making transition to employment much more difficult for the unemployed (Centeno et al., 2010). Quantifying the uncounted labour force would contribute to an understanding of cyclical variations in the labour force over the business cycle (Gray et al., 2005).

We begin by discussing how we define the marginally attached and explaining why they should be included in measurements of unemployment. The section 'Alternative definitions of unemployment' also provides a descriptive analysis of the broadly defined unemployment rates adjusted by the inclusion of the marginally attached. The section 'Data and methodology' outlines the data and methodology used in the empirical analysis, along with a descriptive analysis of the marginally attached. In the section 'Empirical analysis', we explore flows into and out of unemployment and evaluate the transition dynamics of the marginally attached, examining their distribution by employment status in two consecutive periods. This section also summarises the estimated results concerning the determining factors for being marginally attached relative to other labour force states for women and men separately. The 'Conclusion' summarises the results obtained and suggests some implications of these findings.

The study makes two contributions. First, it presents additional information on the impacts of the crisis on unemployment, based on evidence from Turkey. Second, while there are some studies analysing labour force attachment in developing and emerging market economies, they do not discuss the issue in the context of an economic crisis (Byrne and Strobl, 2004; Kingdon and Knight, 2000). Conversely, there are other studies that provide analysis of the flows between different labour force states during times of crisis, but these studies do not consider the marginally attached as a distinct labour force status (Tansel and Kan, 2012; Tansel and Taşçı, 2005). This study thus breaks new ground by systematically incorporating marginal labour force attachment into an analysis of economic crises.

## Alternative definitions of unemployment

According to 1954 ILO guidelines, a person is unemployed if he or she is (a) not working, (b) currently available for work and (c) seeking work. ILO broadened the definition of unemployment in 1982, allowing for partial or full relaxation of the active job search requirement in situations

where the conventional means of seeking work are of limited relevance, where the labour market is largely unorganised or of limited scope, where labour absorption is, at the time, inadequate, or where the labour force is largely self-employed ... (ILO, 1982)

This definition of 'unemployed', which is currently used in almost all countries as the official definition, refers to individuals aged 15–65 years who did not work during the 7

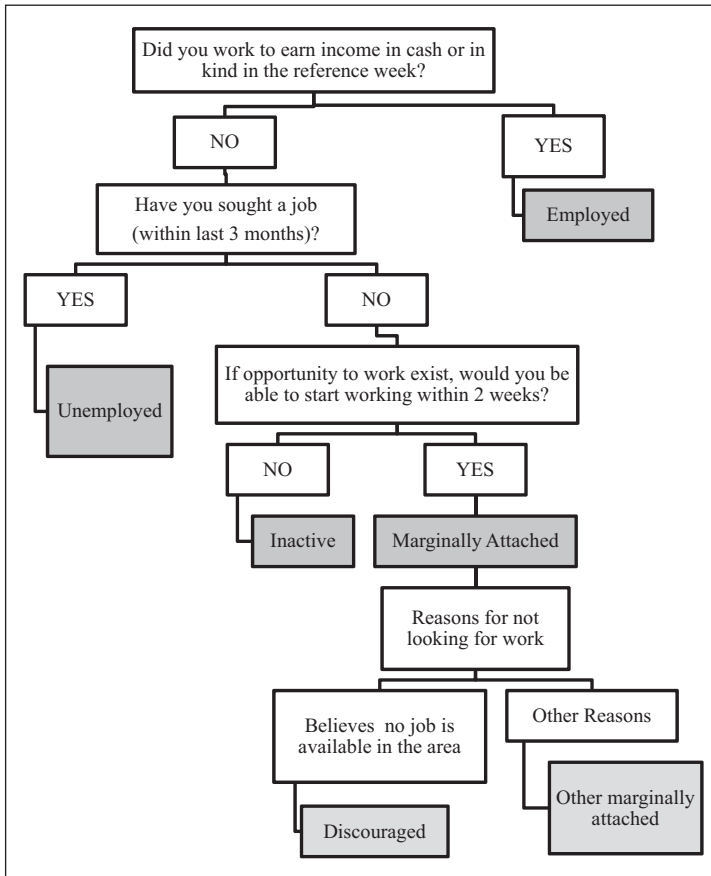
days prior to the interview, who want to work and are available to start working within a week after the interview, and who have taken steps to either look for work or create some form of self-employment in the 4 weeks prior to the interview. The expanded definition excludes the last criterion, allowing for the passive search for work. There are several developing countries<sup>4</sup> that report the rate either by fully or partially relaxing job search criteria and expanding the narrow definition of unemployment. However, this does not necessarily indicate that the expanded definition includes all the marginally attached who are not currently searching for work in either an active or passive way.

Based on ILO guidelines, the TurkStat defines the 'unemployed' as all persons 15 years of age and over who had not been employed during the reference week and who had used at least one channel<sup>5</sup> for seeking a job during the prior 3 months and were available to start work within 2 weeks. Persons who have already found a job and who will start working within 3 months, or who have established their own job but are waiting to complete necessary documents to start work are also considered to be unemployed.

Persons employed are defined as those who are at work and who were economically active during the reference week for at least 1 hour. The employed group includes all regular employees, casual employees, employers, self-employed or unpaid family workers who worked during the reference week for at least 1 hour. All self-employed and employers who had a job but were not at work in the reference week for various reasons are also considered as employed. Regular employees with a job who did not work during the reference period for various reasons are considered as employed only if they have an assurance of return to work within a period of 3 months, or if they receive at least 50% of their wage or salary from their employer during their absence.

Those outside the labour force include all persons 15 years of age and over who are neither unemployed nor employed. This group includes discouraged workers, who are those available to start a job but who do not seek one, either because they had looked for one before but were not able to find one, or because they believe that they cannot find a job matching their qualifications. Persons who are not seeking a job for reasons such as being a seasonal worker, student, retired, disabled or property income earner, or because they are occupied with household chores, are also counted in this group.

The distinction between unemployed and inactive depends on the search criteria; that is, a non-employed person who wants to work and is eligible for work is counted as unemployed if he or she is currently looking for a job and inactive otherwise. However, the inactive population consists of a highly heterogeneous group of individuals, including those who want to work but who are not actively searching for a job – such as discouraged workers – together with those who have caregiving responsibilities for household and community members (the 'forced' into inactivity), and those who prefer to stay outside the labour market (the truly inactive). In other words, among the inactive, the degree of attachment to the labour market varies significantly. The search criterion, therefore, becomes problematic: a person who wants to work and is eligible for work should be taken as closer to being unemployed than inactive, although he or she has stopped looking for a job. Accordingly, when we reclassify the labour market states based on the Household Labour Force Survey (HLFS) questionnaires and identify the persons marginally attached who are neither employed nor unemployed but would like to work if a job opportunity



**Figure 2.** Construction of the four-state classification of the labour force.

exists, we obtain a fourfold classification of the labour force. Figure 2 summarises how we construct the new labour force classification as (1) employed, (2) unemployed, (3) marginally attached and (4) out of the labour force. Table 1 presents the figures for the redefined unemployed and redefined labour force vis-a-vis the official ones. When compared to the official figures, women's shares in the redefined unemployed and labour force are much higher. We also observe that changes in unemployment and the labour force over the period of analysis are also underestimated by conventional indicators based on the official definitions.

Without taking into account the marginally attached identified above, the TurkStat reports only the narrowly defined unemployment rate. Statistics on discouraged workers are also published in monthly reports, but they are not counted as 'unemployed' in the official definition and no alternative unemployment rates are provided. The literature, though very limited, provides a few examples of countries that publish alternative definitions and measures of unemployment. For example, for the United States, the

**Table 1.** Official and redefined unemployed and labour force, Turkey.

Year	Employed			Unemployed (Official)			LF (Official)		
	Women	Men	Share	Women	Men	Share	Women	Men	Share
2004	5,047,000	14,585,000	0.26	622,000	1,762,000	0.26	5,669,000	16,347,000	0.26
2005	5,108,000	14,959,000	0.25	642,000	1,746,000	0.27	5,750,000	16,705,000	0.26
2006	5,258,000	15,165,000	0.26	658,000	1,671,000	0.28	5,916,000	16,836,000	0.26
2007	5,356,000	15,382,000	0.26	660,000	1,716,000	0.28	6,016,000	17,098,000	0.26
2008	5,595,000	15,598,000	0.26	734,000	1,877,000	0.28	6,329,000	17,475,000	0.27
2009	5,871,000	15,406,000	0.28	979,000	2,491,000	0.28	6,850,000	17,897,000	0.28
2010	6,425,000	16,170,000	0.28	959,000	2,088,000	0.31	7,384,000	18,258,000	0.29
	Marginally attached			Unemployed (redefined)			LF (redefined)		
2004	535,500	539,329	0.50	1,157,500	2,301,329	0.33	6,204,500	16,887,329	0.27
2005	833,413	686,708	0.55	1,475,413	2,432,708	0.38	6,583,413	17,390,708	0.27
2006	1,007,930	860,755	0.54	1,665,930	2,531,755	0.40	6,923,930	17,696,755	0.28
2007	927,193	793,793	0.54	1,587,194	2,509,793	0.39	6,943,193	17,891,793	0.28
2008	1,015,308	806,665	0.56	1,749,308	2,683,665	0.39	7,344,308	18,282,665	0.29
2009	1,145,064	845,178	0.58	2,124,065	3,336,178	0.39	7,996,064	18,743,178	0.30
2010	1,116,441	841,878	0.57	2,075,441	2,929,878	0.41	8,499,441	19,098,878	0.31

Source: Authors' calculations.

LF: labour force.

Bureau of Labour Statistics (BLS) reports five alternative measures of labour underutilisation in addition to the official unemployment rate. Among these, U1 corresponds to persons unemployed 15 weeks or longer, as a percent of the civilian labour force, U2 includes job losers and persons who completed temporary jobs, and U3 is the official unemployment rate, which refers to the total unemployed as a fraction of the labour force. The three others correspond to widened definitions; U4 includes discouraged workers with the other unemployed, U5 incorporates the other marginally attached, as well, and finally U6 includes all persons covered by U5 plus persons employed part-time for economic reasons and those who want and are available for full-time work but have had to settle for a part-time schedule. According to the BLS (2012) definition, persons who are marginally attached are those who have looked for a job sometime in the prior 12 months (or since the end of their last job if they held one within the past 12 months), but were not counted as unemployed because they had not searched for work in the 4 weeks preceding the survey.

It is not possible to derive from HLFS data whether the respondent has looked for work or not over the year, although he or she is currently not searching. In fact, the HLFS questionnaire asks about the respondent's labour force status in the same month 1 year before the survey, but does not include the appropriate questions to capture information on their status over the year. Similarly there is no certain time period specified in TurkStat's definition of discouraged worker. Unlike in the US case, in Turkey discouraged workers are officially defined as persons who have given a job market-related

reason for not currently looking for work, yet would like to work if the opportunity exists within 2 weeks. When choosing the definition of marginally attached used here, we took into account TurkStat's definition of the discouraged. Thus, unlike the BLS definition, we used the broadest definition of the marginally attached<sup>6</sup> without a time constraint with respect to the time elapsed after the last search activity.

The previous empirical literature on the 'marginally attached' includes studies with different definitions. In their research on the Canadian labour market, Jones and Riddell (1999, 2002) classify as marginally attached, those who are not searching for work but state that they want to work. In their Australian study, Gray et al. (2005) use a similar definition. This is the definition we use here. On the other hand, there are studies that use the definition with a time constraint. For example, Brandolini et al. (2006) in their study of EU countries, define all job seekers whose last search action occurred more than 4 weeks before the interview as members of a potential labour force. On the other hand, Byrne and Strobl (2004) define as marginally employed anyone who worked some time in the 3 months prior to the interview, and is willing and able to work, although not looking for a job at the time of the interview. Discouraged workers are, by definition, a subset of the marginally attached in the above-mentioned studies. With this in mind, in order to keep compatibility with official discouraged worker statistics, we, like Jones and Riddell (1999, 2002) and Gray et al. (2005), used the broadest definition.

Taking insights from earlier research, here we provide three alternative unemployment rates for Turkey besides the official rate: U4, U5 and U6. U4 here corresponds to the U4 in the BLS case. U5 is defined as the unemployed plus discouraged workers as a percent of the sum of the official labour force and the discouraged. U6 is the unemployed plus the marginally attached as a percent of the sum of the official labour force and the marginally attached. Table 2 and Figures 3 and 4 present unemployment rates for Turkey, by these alternative definitions.

As expected, Figure 3 shows that the redefined unemployment rates are higher than the official rate; U4 is approximately two percentage points higher than the official rate (U) throughout the period. Incorporating the marginally attached widens the difference remarkably: between U5 and U it is around six percentage points, on average, over the period. Disaggregating by sex enables us to show that the expanded rates substantially exceed the official rate in the case of women; U4 is about three percentage points higher than U, while the difference between these two rates is two percentage points, on average, for men. Conversely, inclusion of the marginally attached leads to a drastic divergence of U5 from the official rate for women: U5 is approximately 11 percentage points higher than U, whereas this difference is just around four percentage points in the case of men. During the years when the crisis impacts were more severely observed in the Turkish economy (2008–2009), the difference between U and U5 was as high as 12 percentage points for women. We also provide our calculations for U6. We observe a constant rise in U6 particularly for women over the whole period of analysis, but also during the crisis period, when the difference between U6 and the others expands significantly.

When only the official rates are considered, the difference between women and men is not very significant (less than one percentage point). However, as the broader measure (U5) shows, the gender gap widens drastically and the difference becomes nine times more than the officially identified gap. These findings reveal once again how official



**Table 2.** Alternative definitions of unemployment, Turkey.

Year	Women					
	Discouraged	Part-time	U3-Turkey	U4-Turkey	U5-Turkey	U6-Turkey
2004	104,000	362,930	0.12	0.13	0.19	0.25
2005	194,000	628,517	0.13	0.14	0.22	0.32
2006	261,000	913,480	0.13	0.15	0.24	0.37
2007	229,000	1,027,360	0.12	0.14	0.23	0.38
2008	241,000	1,130,752	0.13	0.15	0.24	0.39
2009	310,000	1,396,280	0.17	0.18	0.27	0.44
2010	300,000	1,528,167	0.15	0.16	0.24	0.42
	Men					
2004	207,000	267,072	0.11	0.12	0.14	0.15
2005	292,000	438,453	0.10	0.12	0.14	0.16
2006	364,000	645,509	0.10	0.12	0.14	0.18
2007	383,000	726,755	0.10	0.12	0.14	0.18
2008	371,000	832,866	0.11	0.13	0.15	0.19
2009	447,000	1,010,936	0.14	0.16	0.18	0.23
2010	416,000	1,113,647	0.11	0.13	0.15	0.21

Source: Authors' calculations.

U3-Turkey is the official unemployment rate. The total unemployed (official) as a ratio of the labour force (by official definition) (the figures by official definitions of employed, unemployed and labour force are presented in Table 1).

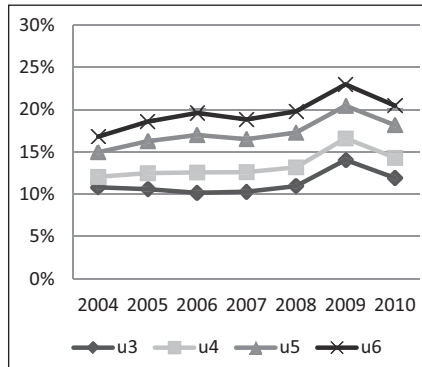
U4-Turkey is the total unemployed plus the discouraged workers as a ratio of the official labour force plus the discouraged.

U5-Turkey is the total unemployed plus the marginally attached (which includes the discouraged workers) as a ratio of the official labour force plus the marginally attached.

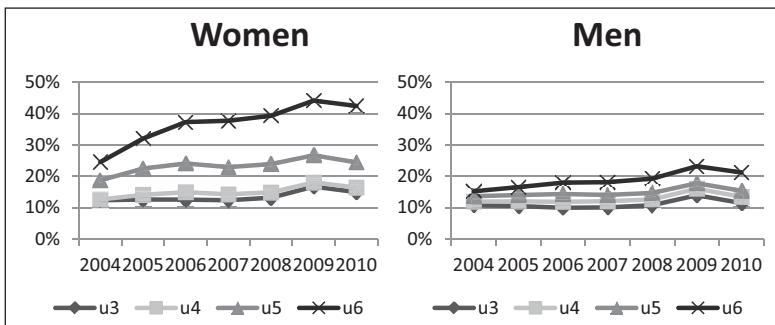
U6-Turkey is the total unemployed plus the marginally attached and part-time workers as a ratio of the official labour force plus the marginally attached.

unemployment rates underestimate the actual numbers, particularly when it comes to women's joblessness. If we look at the ratio of the marginally attached to the working age population in order to see the extent of the underestimation of the official rates, we see that approximately 4% of women of working age are marginally attached. For men, the figure is around 3%. As a ratio to the unemployed, the figures are much higher. Throughout the period, the marginally attached corresponds to around 41% for men, on average, while for women, in every year, it is more than 100% (marginally attached numbers are, on average, 1.16 times higher than the number of unemployed women).<sup>7</sup> These figures point to a major structural issue in women's participation and joblessness in Turkey. Despite their willingness to work, women in Turkey cannot engage in job searches and cannot participate in the market as employed. Thus, neither the labour force participation rates nor the unemployment rates reflect women's actual state regarding the labour market.

Beyond the structural pattern summarised, the size of the marginally attached also presents a cyclical trend over time,<sup>8</sup> which calls for special attention to the crisis period



**Figure 3.** Alternative unemployment rates: Turkey, 2004–2010.



**Figure 4.** Alternative unemployment rates by sex, Turkey 2004–2010.

in our case. When we focus only on the period from 2007 to 2009,<sup>9</sup> we observe that the increase in the marginally attached for women was five times more than that for men (225,000 vs 44,228, respectively) (Table 3). In all, 84% of the total increase in the number of the marginally attached were women, which indicates the disproportionate impacts of the crisis on women in Turkey. Conversely, we observe that 319,000 women (29% of the total increase) and 775,000 men became unemployed in official terms in the same period. The growth rates of the unemployed and the marginally attached by sex display these differences more evidently (Table 3).

## Data and methodology

We use the annual data derived from HLFS between 2004 and 2010 in this study. HLFS, which has regularly been conducted since 1988, is the main data source on the labour market situation of the country from the supply side. It gives information on economic activity, occupation, status in employment and hours worked for employed persons, as well as information on several specifications – such as the duration of unemployment and occupations sought by the unemployed. All geographic regions in

**Table 3.** Crisis in numbers.

Year	Marginally attached					
	Women	Annual % change	Men	Annual % change	Total	Annual % change
2007	929,332	–	791,654	–	1,720,986	–
2008	1,020,305	10%	801,669	1%	1,821,974	6%
2009	1,154,341	13%	835,902	4%	1,990,243	9%
2010	1,116,242	–3%	842,077	1%	1,958,319	–2%
Unemployed						
2007	660,000	–	1,716,000	–	2,376,000	–
2008	734,000	11%	1,877,000	9%	2,611,000	10%
2009	979,000	33%	2,491,000	33%	3,470,000	33%
2010	959,000	–2%	2,088,000	–16%	3,047,000	–12%
Marginally attached/unemployed						
	Women		Men		Total	
2007	1.41		0.46		0.72	
2008	1.39		0.43		0.70	
2009	1.18		0.34		0.57	
2010	1.16		0.40		0.64	

Source: Authors' calculations.

Turkey are covered and roughly 13,000 persons aged 15 years and over are interviewed every month.

From 2004 to 2010, the figure accounting for the marginally attached has almost doubled, reaching nearly 2 million people in 2010. Figures 5 and 6, when taken together, show how remarkable the increase is in the number of the marginally attached, particularly for women. The share of women in the total number of marginally attached is considerably higher than that of men for the whole period, and the gap widens throughout the period.

Distribution of the marginally attached by key individual characteristics shows that the majority of the marginally attached women (57%) report doing care work<sup>10</sup> as the reason for not looking for a job (Figure 7). The corresponding figure is only 5% for their male counterparts. There is, in fact, a large body of literature that explores the impact of unpaid care work responsibilities on the labour force status of individuals,<sup>11</sup> and these statistics support earlier findings. Conversely, for men, being discouraged is the main reason for not looking for work.

By levels of education and age, the majority of the marginally attached has lower levels of formal education and is younger in Turkey (Figures 8 and 9). This evidence supports the argument that education increases the probability of being in the labour force.<sup>12</sup> As can be seen by Figure 10, the highest proportion of the marginally attached

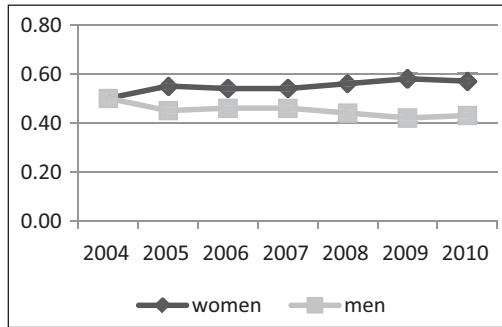


Figure 5. Distribution of the marginally attached by sex.

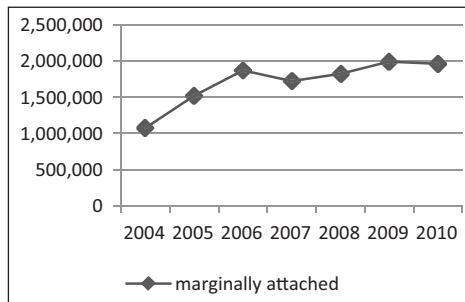
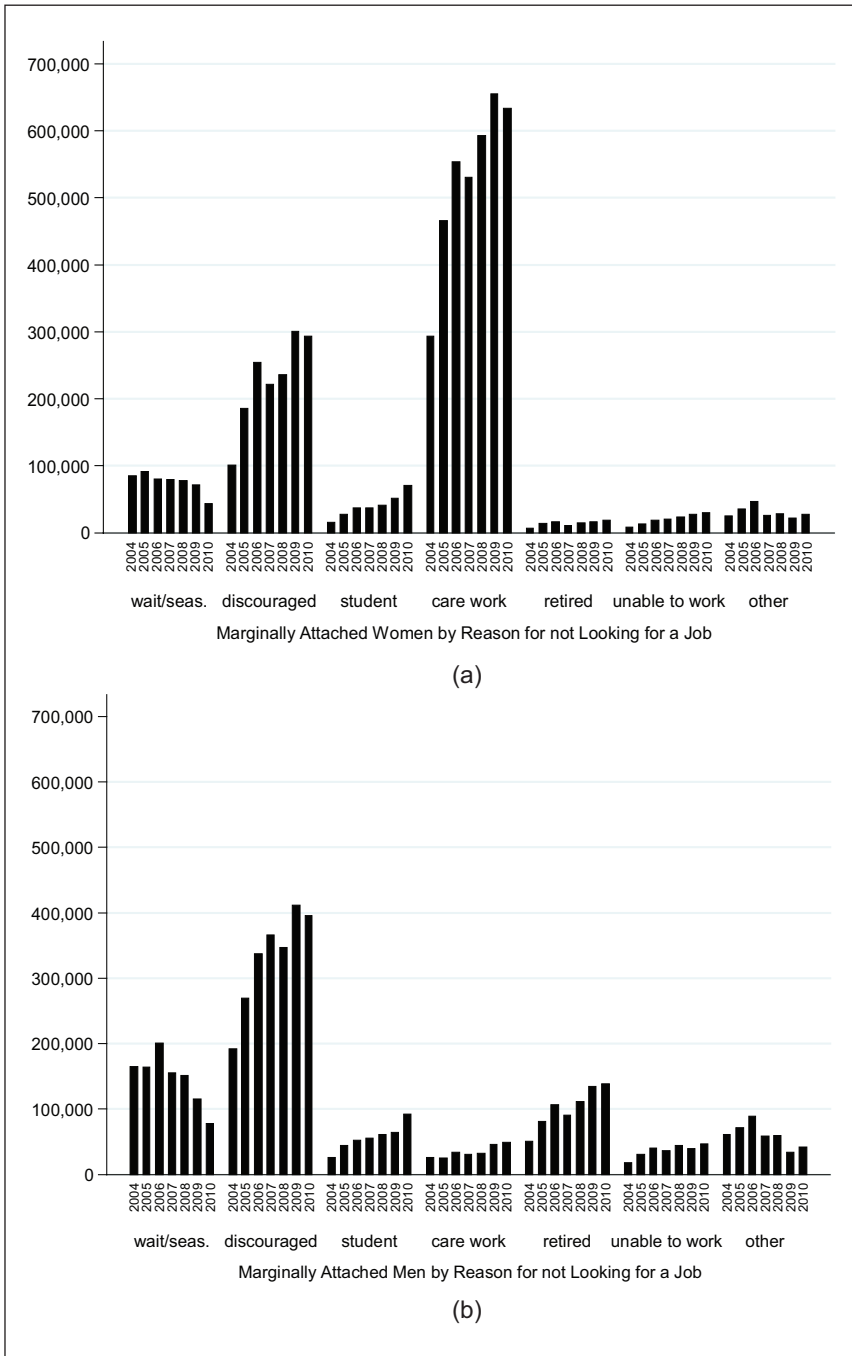


Figure 6. The marginally attached, 2004–2010.

corresponds to women living in urban areas (reaching almost 40% after 2007). Throughout the period, their share increased regardless of residential location, while the share of men, both in rural and urban areas, declined. Similar to many other developing countries, the recent economic crisis first affected the industry most, and thus the urban population experienced the crisis more severely in Turkey.

For the empirical analysis, we pooled the data collected in different years, adjusting their sampling weights. There have been some changes in the coding used in the survey along the period of analysis. In order to ensure compatibility, variables including the marital status, educational attainment and reasons for not looking for a job are checked and recoded. The methodology applied in empirical analysis has two parts. First, in order to observe the flows into and out of the pool of joblessness, we construct a transition matrix that consists of unconditional transition probabilities between different labour force states given by

$$P = \begin{bmatrix} P_{EE} & P_{EU} & P_{EM} & P_{EN} \\ P_{UE} & P_{UU} & P_{UM} & P_{UN} \\ P_{ME} & P_{MU} & P_{MM} & P_{MN} \\ P_{NE} & P_{NU} & P_{NM} & P_{NN} \end{bmatrix} \tag{1}$$



**Figure 7.** Distribution of the marginally attached by reason for not looking for job (a) women and (b) men.

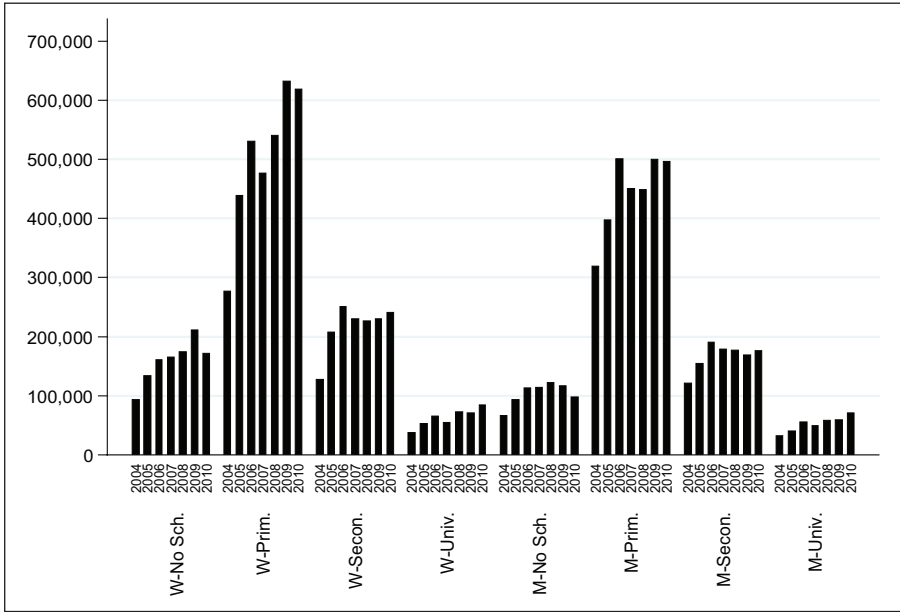


Figure 8. Distribution of the marginally attached by sex and education.

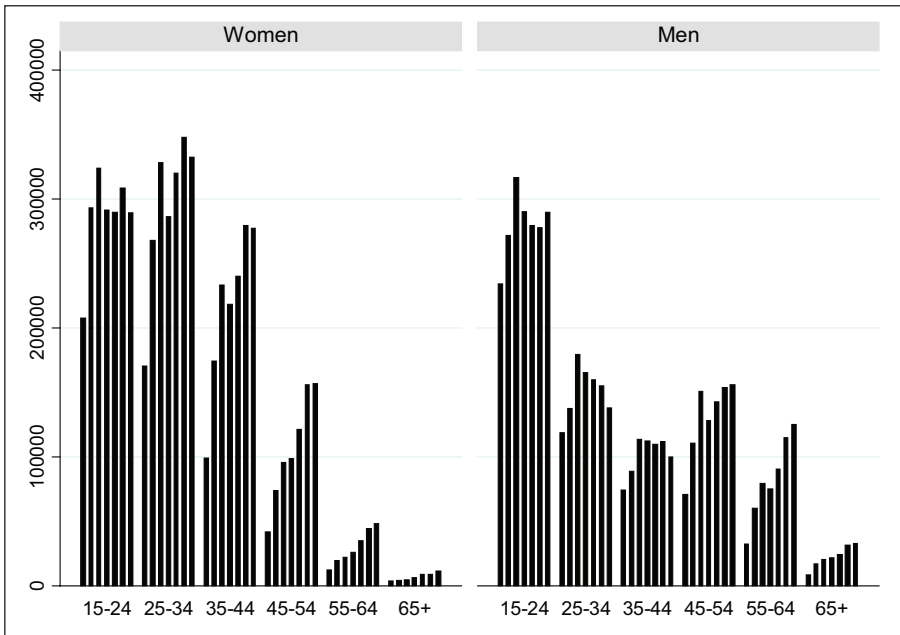
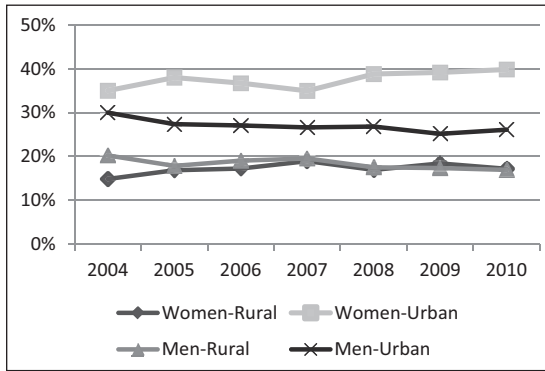


Figure 9. Distribution of the marginally attached by sex and age.



**Figure 10.** Distribution of the marginally attached by sex and location.

Here, we assume that at each period, individuals are in one of the four different labour force states: employed (E), unemployed (U), marginally attached (M) and not in the labour force (N).  $P_{ij}$  is the probability of moving from state  $i$  at the initial period to state  $j$  in the following period, defined as the ratio of the number of people who are in state  $j$  at time  $t + 1$  while they were in state  $i$  at time  $t$  to the total number of people in state  $i$  at time  $t$ . Accordingly,  $P_{EU}$  represents the probability of being unemployed at time  $t + 1$  while being employed at time  $t$ . There are supposed to be 16 transition probabilities in total as we assume four different labour force states. However, data we use do not allow us to observe whether the individual was marginally attached or not in the previous year.<sup>13</sup> This is partly because in the HLFS questionnaire, the question regarding the previous year’s status does not provide being marginally attached as a possible answer among the others. Additionally, the yearly data we pooled do not have a panel data structure, which would allow us to track the individual in previous years. Owing to these data limitations, the third row in matrix (1) cannot be calculated. Thus, we have a  $3 \times 4$  matrix.

Second, aiming to understand the determining factors behind being in different labour force states, we estimate the conditional probabilities of being marginally attached relative to other states. For our purpose, we use a logistic regression, as shown by the following equation

$$\Pr(Y_{k,t+1} = j | Y_{k,t} = i) = \frac{\exp(\beta_j, X_k)}{\sum_i \exp(\beta_i, X_k)} \tag{2}$$

Accordingly, the right-hand side of the equation shows the probability of transiting to state  $j$  at time  $t + 1$  of the  $k$ th individual who is in state  $i$  at time  $t$ .  $X$  is a vector of variables including key individual characteristics (age, sex, education and marital status) and household characteristics (location, number of children and elderly). We interpret the results calculating the marginal effects based on the estimates. Our estimations are done separately for women and men, as we aim to understand the relative impact of the crisis on unemployment, particularly by sex.

## Empirical analysis

Following the first step of the methodology described in ‘Data and methodology’ section, we first calculated the transition probabilities of individuals between different labour force states. We identified the current year status for each individual based on our fourfold classification of the labour force as (1) employed, (2) unemployed, (3) marginally attached and (4) not in labour force. However, for the previous year status, due to data limitations,<sup>14</sup> we stick to the conventional three-group classification as (1) employed, (2) unemployed and (3) not in labour force.

Our results show that the probability of transition from being employed to being marginally attached is higher for women than for men throughout the period of analysis. The probability of keeping an employed status decreases over the crisis period, and the decline is more significant for women than for men. This result indicates that women in Turkey are at a higher risk for losing their jobs when compared to their male counterparts, a pattern also observed during the previous crisis in Turkey.<sup>15</sup> Additionally, these reflect that the discouraged worker effect of the crisis is more pronounced for women in Turkey. Furthermore, the difference between women and men in terms of their transition probability from being employed to being marginally attached and to out-of-labour-force status displays an increasing trend over the crisis years (Table 4).

Conversely, although among the unemployed the ratio of those moving to a marginally attached status is higher for men compared to women, they have a higher likelihood of finding a job (changes from 38.1% to 45%). For women, the probability of staying unemployed is much higher and rises over the crisis period, 2008–2009 (changes from 44.3% to 50.2%) (in Table 4). These findings highlight the fact that existing gender-based inequalities in the labour market were deepened by the asymmetric impacts of the crisis.

Next, we analyse the probability of being marginally attached, conditional on factors including individual and household characteristics. Age is included to capture possible life-course influences on individuals’ attachments to the labour market. Dummies for educational attainment (primary, secondary and tertiary) are expected to reflect the close association between the levels of education and employment status. The indicators for household structure (number of children less than 5 years old, number of children aged between 5 and 14 years, and the number of elderly aged over 64 years) and marital status are significant in determining any household member’s labour market attachment given the fact that these variables are closely linked with household care needs. In a country like Turkey, where the prevalent division of labour between women and men in the household is strictly traditional and public provisioning of care services is very limited, these needs are covered, in general, by women in the household, which directly affects their degree of labour market attachment.

Additionally, we include a regional dummy as rural/urban (1/0) to control for the effect of regional disparities in labour market attachment. This would help capture the differences in the labour market conditions that arise more from the demand side. In order to observe possible impacts of the crisis, we also include the year dummies as explanatory variables.

We use the probability of being marginally attached relative to unemployed and out-of-labour force as the dependent variable, and estimate logistic regressions for women and men separately as we look for the relative impact of the crisis particularly by sex.



Table 4. Transition probabilities.

Year	Previous status	Current year status							
		Women				Men			
		Employed	Unemployed	Marginally attached	Not in LF	Employed	Unemployed	Marginally attached	Not in LF
2004	Employed	92.0%	2.2%	0.9%	4.9%	94.0%	3.4%	0.8%	1.8%
	Unemployed	34.0%	47.0%	12.4%	6.6%	37.6%	38.8%	16.3%	7.3%
	Not in LF	1.2%	1.0%	1.5%	96.3%	8.8%	3.9%	4.1%	83.2%
2005	Employed	91.7%	2.2%	1.0%	5.1%	94.0%	3.4%	0.8%	1.8%
	Unemployed	34.2%	47.8%	9.9%	8.1%	37.6%	38.8%	16.3%	7.3%
	Not in LF	1.6%	1.0%	2.6%	94.8%	8.8%	3.9%	4.1%	83.2%
2006	Employed	91.1%	2.4%	1.3%	5.2%	94.2%	3.1%	0.9%	1.9%
	Unemployed	33.8%	46.5%	12.6%	7.1%	37.2%	39.9%	15.5%	7.4%
	Not in LF	1.8%	1.0%	3.1%	94.1%	4.0%	1.7%	2.3%	92.1%
2007	Employed	90.9%	2.7%	1.2%	5.2%	94.0%	3.4%	0.8%	1.8%
	Unemployed	34.4%	45.4%	12.6%	7.6%	37.6%	38.8%	16.3%	7.3%
	Not in LF	2.9%	1.4%	4.0%	91.6%	8.8%	3.9%	4.1%	83.2%
2008	Employed	89.4%	3.3%	1.4%	6.0%	92.9%	4.2%	0.9%	2.0%
	Unemployed	36.6%	44.3%	10.6%	8.5%	38.1%	39.3%	15.0%	7.5%
	Not in LF	1.9%	1.1%	3.0%	94.0%	3.7%	1.8%	1.9%	92.6%
2009	Employed	87.5%	4.7%	1.7%	6.1%	91.0%	6.1%	0.9%	2.0%
	Unemployed	35.5%	50.2%	8.1%	6.3%	38.1%	43.6%	12.9%	5.4%
	Not in LF	1.9%	1.3%	3.4%	93.4%	3.3%	2.1%	2.0%	92.6%
2010	Employed	89.1%	3.4%	1.3%	6.2%	93.1%	4.3%	0.9%	1.8%
	Unemployed	37.9%	47.9%	7.9%	6.4%	45.0%	38.4%	11.7%	4.9%
	Not in LF	2.2%	1.4%	3.4%	93.0%	3.6%	1.9%	2.2%	92.3%

LF: labour force.

**Table 5.** Determinants of being marginally attached relative to other employment statuses.

Marginally attached versus	Not in labour force		Unemployed	
	Women	Men	Women	Men
Age	-0.023*** (0.003)	-0.250*** (0.005)	0.149*** (0.006)	0.206*** (0.004)
Primary school	0.606*** (0.019)	0.170*** (0.023)	-0.600*** (0.035)	-0.465*** (0.024)
Secondary school	1.178*** (0.022)	0.434*** (0.027)	-1.112*** (0.037)	-0.318*** (0.028)
Tertiary school	1.736*** (0.028)	0.849*** (0.033)	-1.806*** (0.041)	-0.567*** (0.035)
Married	-0.317*** (0.017)	1.851*** (0.033)	0.524*** (0.024)	-0.716*** (0.023)
Divorced/ widowed	-1.900*** (0.029)	-4.649*** (0.058)	-0.546*** (0.038)	-0.878*** (0.054)
Rural	0.493*** (0.013)	0.713*** (0.015)	0.825*** (0.024)	0.880*** (0.017)
No. of children <5 years	-0.040*** (0.010)	0.332*** (0.010)	0.429*** (0.020)	0.120*** (0.012)
No. of children >4 and <15 years	0.054*** (0.006)	0.174*** (0.006)	0.179*** (0.010)	0.106*** (0.007)
No. of elderly >64 years	-0.321*** (0.016)	-0.346*** (0.014)	0.109*** (0.023)	0.0813*** (0.016)
2004	-0.061*** (0.024)	-0.038*** (0.027)	-0.327*** (0.037)	-0.260*** (0.030)
2005	-0.183*** (0.021)	-0.129*** (0.025)	0.08 (0.035)	-0.046** (0.028)
2006	0.011 (0.020)	0.083*** (0.024)	0.152*** (0.034)	0.215*** (0.028)
2007	-0.044*** (0.020)	-0.001 (0.025)	0.049 (0.034)	0.076*** (0.028)
2009	0.147*** (0.020)	0.088*** (0.024)	-0.265*** (0.032)	-0.258*** (0.027)
2010	0.121*** (0.019)	0.103*** (0.024)	-0.231*** (0.032)	-0.098*** (0.027)
Constant	-3.174*** (0.031)	-1.619*** (0.040)	-0.450*** (0.055)	-1.97*** (0.042)
Observations	1,250,413	650,841	85,753	126,420
Adjusted F statistics	1608.62	1223.81	641.10	409.46

The dependent variable takes the value 1 if the individual is marginally attached and 0 if in the comparison group. Sampling weights are adjusted when pooling multiple years of Labour Force Survey (LFS) data. Coefficients display the marginal effects of independent variables. Robust standard errors are in parentheses. \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ .

Results are reported in Table 5. Coefficients display the marginal effects of the independent variables, calculated as the effect of a one-unit change in an explanatory variable from the average level on the probability estimated, holding all other variables at their average value. Marginal effects of the binary variables reflect the effect of having the characteristic given all other variables again at their average value.

The younger the individual, the more likely he or she was to be marginally attached relative to being out-of-labour force. This is also supported by the results of the descriptive analysis in 'Data and methodology' section. Living in rural areas increased the probability of being marginally attached, which indicates a stronger attachment of the rural population to the labour market in Turkey. Labour force participation in rural areas was much higher for women and men, when compared to the urban areas.<sup>16</sup>

Higher levels of education increased an individual's attachment to the labour market. This was observed for both women and men. However, compared with single women,

married women were less likely to be marginally attached and more likely to be out-of-labour force, while the reverse was true for men. A similar influence is also observed for the number of children aged less than 5 years, which indicates that critical life transitions, such as marriage and having children, had asymmetric gender impacts.<sup>17</sup>

When we look at the results for being marginally attached versus being unemployed, we observe this time that the older the individual is, the more likely he or she is to be marginally attached rather than unemployed. Higher levels of education increase the likelihood of entering into the labour force and looking for a job actively. Marriage, again, has asymmetric impacts for women and men; married women are more likely to be marginally attached, whereas the opposite is observed for their male counterparts. For the population living in rural areas, there is also a higher incidence of being marginally attached relative to being unemployed. Further to these, the higher the number of children as well as the higher the number of elderly, being marginally attached compared to being unemployed is more likely for both women and men. As we have shown in a study based on time use data, performing unpaid care work taking care of children and/or the elderly exerts significant influence on the decision to enter into the labour force and look for a job.<sup>18</sup>

Regarding the possible impacts of the crisis, we find that before the crisis (except for 2006), women were more likely to stay out-of-labour force than to being marginally attached, but the reverse has been true for the years after 2008. This suggests that during the crisis, women in Turkey entered into the labour market and started actively looking for jobs. Although we observe similar impacts for both women and men, the likelihood of being marginally attached relative to being out-of-labour force was much higher for women over the period.

## **Conclusion**

A more complete understanding of the impacts of the 2008–2009 economic crisis on joblessness in Turkey is gained by including marginally attached persons, who are not counted as unemployed in official statistics. The marginally attached would like to work if the opportunity existed, even though they are not actively engaged in job search. It has been argued that standard definitions of unemployment rates are questionable from a developing country perspective. The search criteria used to identify who is unemployed and who is inactive could be very problematic in a country where agricultural employment is relatively significant for the economy (a large portion of which consists of unpaid family workers) and where there is a lack of adequate unemployment insurance systems.

Calculation of broader measures of the unemployment rates has revealed that the extent of joblessness is significantly underestimated by the official definitions of unemployment, and this effect is more marked for women than for men. The recent economic crisis has sharpened these existing gender-based differences in employment. The article has shown that women are more likely to be marginally attached than men in Turkey, and over the crisis period, the number of marginally attached grew significantly faster for women, and women had a higher risk of losing their jobs. These findings emphasise the importance of marginal attachment in analysing the extent of joblessness in Turkey.

The study presents results that may help address gender-based inequalities, by contributing to analyses of the factors underlying the low employment and participation rates of women in Turkey. It suggests a major obstacle that will need to be overcome in order to achieve the current policy targets in the National Employment Strategy (2012–2023) – of decreasing women’s unemployment rate by half, while increasing their labour force participation rate from 27.6% to 35% by 2023. Care work is the main reason behind women’s ‘weaker’ attachment to the labour market, so any policy that promotes women’s employment in the market should develop strategies that enable the sharing of this burden, as well as providing employment opportunities in the market. Using conventional criteria, we believe it is not possible to identify the degree of motivation to work or search for work, in the case of women in Turkey, where the possibilities of shifting the care burden to someone else or an institution are very limited, as a result of the inadequate provisioning of public care services.

### Acknowledgements

The authors would like to thank the anonymous reviewers for their comments and suggestions on an earlier version of this study. They also wish to acknowledge valuable inputs of Rania Antonopoulos, Nilufer Cagatay and Tamar Khitarishvili throughout the conduct of the research. The usual disclaimer of errors and omissions applies.

### Funding

The authors acknowledge the generous support provided by the Scientific and Technological Research Council of Turkey (TUBITAK-112K516) for this research.

### Notes

1. The crisis emerged in the United States in 2007; however, its negative impacts were most severely felt in 2008 in developing countries. As this study explores the Turkish case, the crisis is specified as 2008–2009 economic crisis.
2. In Turkey, unemployment rates for the years 2008–2010 were 11%, 14% and 11.9%, respectively (Turkish Statistical Institute (TurkStat), 2010).
3. We use the term joblessness in order to differentiate our definition of unemployed from its official definition.
4. Out of 55 developing countries, 22 of them use a more flexible definition of unemployment (Byrne and Strobl, 2004).
5. The channels for seeking a job include applying directly to an employer; asking friends and relatives; contacting the Turkish Employment Office (İŞKUR) and/or private employment agencies; studying; placing or responding to advertisements in newspapers or journals; searching the Internet; taking a test, interview or examination; looking for land, premises or equipment to establish a personal business; looking for permits, licences and financial resources to establish a personal business; waiting for a call from the Turkish Employment Office; awaiting the results of an application for a job and/or competition for recruitment to the public sector; or using any other methods to find a job.
6. A recent study by Ilkcaracan et al. (2013) provides differences in wage elasticity of alternative unemployment rates in Turkey where one of the alternative unemployment rates they use includes the marginally attached. The definition of marginally attached they use differs from our definition as the marginally attached category they constructed does not cover the

discouraged workers. For compatibility, we preferred the broader definition of marginally attached where discouraged workers can be derived as a subset.

7. Empirical studies in the literature show that the number of the marginally attached is quite significant compared to the unemployed in other countries' cases, as well, but the numbers are not as high as in the Turkish case; 25%–30% of the unemployed in Canada, two-thirds of the unemployed in the United States (Jones and Riddell, 1999); and in Portugal, between 1992 and 2003, they represent 30% of the unemployed for men and 50% for women (Centeno and Fernandes, 2004).
8. Studies on the US economy display similar patterns regarding the marginally attached labour force; among those who are not in the labour force, the number of marginally attached individuals increased by 474,000 between the last quarters of 2007 and 2008 and has been 1.8 million in the fourth quarter of 2008 (Borbely, 2009).
9. Different methodologies are followed in the literature, in determining the duration of economic cycles. In this study, we used the available information provided by Boratav (2009) who identifies the period between 2008 October and 2009 October as the crisis period in Turkey. See also Alp et al. (2012) for the determination and analysis of the duration of business cycles in Turkey based on output growth. Instead of the method based on output growth, the changes in unemployment rate are also used in identifying the peaks and troughs of the cycles. See Izdes (2012) for a comparison of these two methodologies for Turkish economy. In the former, the downswings are determined by comparing the years of low gross national product (GNP) growth with the nearest high GNP years. For the latter, the study combines the low economic growth years with the nearest low unemployment year to pinpoint the downswing, and the high unemployment years represent thorough years and when combined with the nearest low unemployment years the peak of the cycle is determined.
10. Care work as a reason for not looking for work includes household maintenance; household chores; taking care of children, elderly and other household members in need of care; and other family-related reasons.
11. To illustrate, Bittman et al. (2007) indicate that caregivers of working age have disadvantages in the labour market; they reduce their working hours or exit from the labour force. Another study on the labour supply behaviour of the indigenous Australian people shows that for more than 50% of marginally attached women, the reason for not looking for work is *care work*, whereas the ratio of men who do not look for jobs because of their care work responsibilities is less than 10% (Hunter and Gray, 2012).
12. However, being in the labour force does not necessarily mean being employed; as shown by a recent study in Turkey, the highly educated young population face much higher risk of job insecurity and unemployment in Turkey due to the rise in unemployment rates of white collar workers (Bora et al., 2011).
13. It would be ideal to do the current analysis using the Survey of Income and Living Conditions (SILC) panel dataset; however, at the time when we were doing this research, the released copies of the SILC data were called back by TurkStat for a needed correction.
14. The question about the respondent's labour market status in the previous year includes only the official labour force statuses as possible answers. Hence, it is not possible to derive four-group classification for the previous year status using this information. Additionally, HLF5 surveys in different years do not provide a panel dataset, which would enable us to track the previous year's status of each individual.
15. Tansel and Taşçı (2005) provide supporting evidence for this finding where they analyse the 2001 financial crisis in Turkey.
16. As of 2011, women's labour force participation is 37.5% in rural areas, while it is only 24.8% in urban areas. For men, these figures are 73.3% and 71%, respectively.

17. Memiş et al. (2011) provide supporting evidence for these results by analysing paid and unpaid work time through a life-course analysis using Turkish time use data.
18. See Bahce and Memiş (2013) for a more detailed discussion on links between unemployment risk and unpaid work.

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