DETERMINANTS OF FORMAL AND INFORMAL SECTOR EMPLOYMENT IN THE URBAN AREAS OF TURKEY

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ABSTRACT

By applying a multinomial logit model and economic theory to household budget survey data, this study examines the determinants of formal and informal sector employment in the urban areas of Turkey. The analysis is carried out for men and women separately. The findings show that determinants of formal and informal employment in Turkey`s urban labor market vary by gender. Special emphasis is placed on the importance of sex (being male rather than female), marital status, household-headship and education variables, of which the first three presents the disadvantaged position of women in the labor market. Most women work in the informal sector despite significant improvements in their education attainment. Overall results confirm that the urban labor market is heterogeneous and reveal how labor supply factors are valued in the labor market. They also indicate the existence of sex discrimination in the labor market.

Key words: Formal employment, Informal employment, Sector choice determinants, Turkey, Multinomial Logistic Regression

JEL Classification: J21, J82

1.INTRODUCTION

Both developed and developing countries have been experiencing transformations in their labor market structures as a result of globalization and economic structuring. The task of identifying development strategies that can generate new employment and income opportunities and reduce informality and unemployment is one of the important challenges governments are facing in developing countries including Turkey.

The need to create employment opportunities in Turkey is underscored by the fact that the size of labour force has been growing faster than the rate of growth of formal sector jobs. Slow economic growth in the public sector has forced many people into marginal activities in the urban informal economy.

The concept of the informal employment have been debated since the early seventies. . In practice a variety of definitions and indicators are used. But each definition refers to different conceptualizations (Perry et al, 2007, chapter 1).

Since we focus on the employment in this study, in the case of employment, two category are defined by International Labor Organization (ILO): ``employment in the informal sector`` and `` informal employment``. "Employment in the informal sector" includes all jobs in informal sector enterprises (Hussmanns, 2004). Informal employment, however, covers (*1*) own-account workers and employers employed in their own informal sector enterprises; (2) contributing family workers, irrespective of whether they work in formal or informal sector enterprises; (*3*) employees holding informal jobs; (*4*) Members of informal producers' cooperatives; and, (*5*) own-account workers engaged in the production of goods exclusively for own final use by their household.

In the existing literature, there are different views of looking into the issue of why informal labor market exist. Conventional view in the literature is that well-paid, secured and safe jobs are found in the formal sector, while the informal sector is defined as small-scale, often not legal, with low productivity and low wages (Lewis 1954, Harris and Todaro 1970). Studies for numbers of developing countries argue that informal employment may be in fact a voluntary choice, because, after weighing costs and benefits, they find that they are not better off working in the formal sector (Gindling 1991, Maloney 2004). Fields (2005) and others argue that in urban informal labour markets in developing countries there exists an "upper tier" and "lower tier". The "upper tier" comprises the competitive part, i.e. those who voluntarily choose to be informal and the "lower tier" is the part that consists of individuals who cannot afford to be unemployed but have no hope to get a formal job.

In this effort, it is critical to better understand individual choices: that is, which type of employment people prefer and why. The objective of this paper is to identify the main determinants of informal employment from an individual perspective. Most of the existing studies discuss determinants of informality from macro perspective by looking into its relationship with government policies and institutions. But this paper emphasizes the individual perspective.

In the Empirical evidence on labor supply factors that affect an individual`s labor participation decisions in the context of both developed and developing countries contain a subset of the following social and economic characteristics among the explanatory variables: female wage, male wage, age, schooling, marital status, number and age of children, occupation of primary job, region of residence, religion and non-labour income .(See for example, Loayza,2007;Wamuthnya, 2010; Gong and van Soest, 2002; Hunter and Gray, 1999; Shoshana and Shashana, 2008; Kolev, 1998; Lanot and Muller, 1997; Blundell et. All.,1987; Myint, 1985; Nwanganga, 1980; Ranis and Fei, 1961; Lewis, 1954)

Figure 1: Trends in informality rates in urban areas
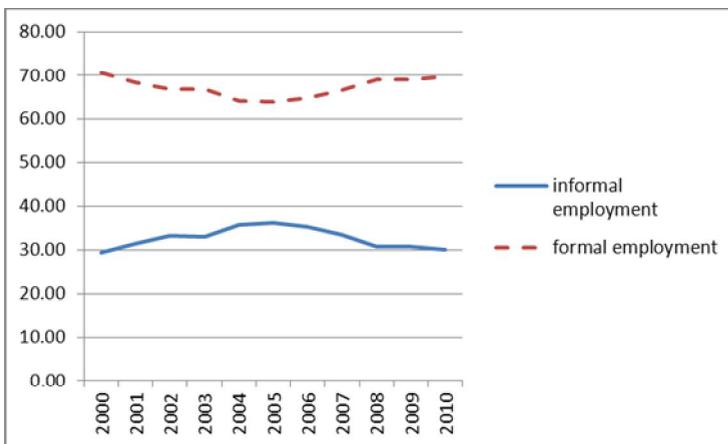
Source:Own computation based on TUIK data

This study is motivated by the fact that the Turkish economy has witnessed a significant decline in formal employment's share of total employment and the reverse trend in the share of informal employment in the period 2001 to 2006 in urban labour market. Figure 1 shows that formal employment share dropped from 70.60% of total recorded employment in 2000 to 64.12% in 2006. Over the same period, the share of informal employment rose just as from   29.40% to 35.26% . This is an indication that over the considered period employment was becoming informalized. These trends call for an analysis of job attainment within the key sectors of Turkey's urban labor market by assessing the importance of human capital, individual and household characteristics on an individual's type of employment. An understanding of the sectoral determinants of the labor supply has policy implications to do with minimization gender gaps in employment, human capital investment, and the level and distribution of income.

The reminder of this paper is as follows. Section 2 presents theoretical framework, main characteristics of data and estimation results. Section 3 draws conclusions.

2. METHODS

2.1. Model

Based on the literature exist, two distinct sectors in urban labor markets in developing countries are widely recognized: covered formal sector and an uncovered informal sector (Pradhan and van Soest, 1995). According to the Mazumdar`s (1989) categorization, an urban labor market structure in a typical developing country is described as being subdivided into three main categories: the formal sector (public and private), the informal sector (comprising the informal sector wage labor, self-employed, paid domestic workers, those earning a monthly salary or those working on casual basis) and the unemployed.

Following the Mazumdar`s categorization this study uses a MNLmodel in which individuals are sorted into four labour force categories; public sector, private sector, informal sector and unemployed. In order to explain sector selection the model allows the dependent variable to take four mutually exclusive choices, j=0,1,2 or 3 and is defined as follows,

$$Y_i = \frac{e^{\beta_j X_i}}{\sum_{m=1}^{4} e^{\beta_m X_i}}$$

Where:

Y_i = 0 if individual is unemployed

Y_i = 1 if individual is employed in the public sector

Y_i = 2 if individual is employed in the private sector

Y_i = 3 if individual is employed in the informal sector

X_i represents a spesific explanatory variable

Individual level sample are used in the estimation of the multinomial logit equations. The data come from the 2006 Turkish Household Expenditure Survey conducted by the Turkish Statistical Institute (TUIK). Wage earners who are not covered by any social security program are considered informal sector workers in this paper. Wage earners who are covered by social security are considered formal sector workers. The wage earner in this study is defined to include regular wage earners and casual workers. Formal sector is broken down to two sectors:

public and covered private sectors. Uncovered wage earners and all of the self employed are taken to form the informal sector.

The independent variables include personal and household characteristics as well as the social economic backround. Personal characteristics include level of age, level of education, marital status and house hold-headship and wages in the market. Among household characteristics are childcare responsibilities such presence of pre-school age chidren and school-age children, the size of the household and the presence of the female relatives in the household. Age is included to pick up the life cycle effects and as a measure of potential labour market experience(Age was given in tha data set as level). Education is captured by the highest level of formal education completed. Locational variables (like regions of residence) are not included in the MNLequations since the survey does not have regional information. Wages are the sum of cash earning, bonuses. I considered only wages from the main job.

2.2. Data and Descriptive Statistics

The study uses 2006 budget survey data instead of 2006 labour survey data since budget survey also includes both labour force and income data. In these 8558 households interviewed and total 34939 individuals were interviewed.

The analysis focuses on the individuals in the labour force age (15-64) living in urban area. The sample for the analysis consists of 7085 observation, employed and unemployed together (1515 females and 5570 males) of which 1190 are public sector employees, 2810 are private sector employees and 2465 are informal sector employees. The remaining 620 are unemployed (because of paper length limitation, descriptive statistics tables could not be listed in the text).

Descriptive statistics give the main characteristics of the public and covered private wage earners, uncovered wage earners (informal sector employment)and unemployment. Considering the entire sample unemployment is particularly serious among the youth. The proportion of middle age workers is higher in private and public sector (about 73% and 70%). Mostly middle age workers are employed in all sectors.

A majority of Turkish labour force is likely to be employed in the private and informal sectors. More males than females in the labour force are likely to be engaged in all sectors (about 77%, 87%, 74% for the public, private and informal sector respectively). Unemployment is also highest among males(about 65%). Most members of the labour force are married. However, unemployment is higher among unmarried people. The proportion of household head is higher

among public and private sector workers (about 73%, 66%, respectively, compared with 50% and 20% for informal sectors and unemployed respectively).

The distribution of females in the labour force according to the four labour force categories is as follows: about 18.3%, 24.4%, 43% and 14.2% for the public, private, informal sectors and the unemployed, correspondingly. Among males the distribution is 16.4%, 43.8%, 32.5%, 7.3%, respectively. Thus the majority of males in the labour force (60.2%) are engaged in formal sector employment. A majority among females are almost equally employed in formal (42.7%) and informal sectors (43%). Unemployment has remained high among females (14.2%) and is characterized by low education levels.

To sum up, women are mostly engaged in the informal sector and unemployed where education levels are low or moderate. The formal sector where education and skill levels are high is male dominated.

While persons engaged in the public sectors are more likely to have university and high school level of education (46% and 31% respectively), persons in the private sectors are likely have primary level of education (55%) although the proportion of those with high school level education is substantial (about31%). Most of those engaged in informal sector and unemployed have primary level education(67% and 44% respectively). The proportion of person with primary level education is lowest in the public sector . Greater shares of people with no education are found among informal sector (about 9.2%) and unemployed (about 5.8%), compared with only 0.3% and 1.8% for the public and private sectors respectively.

A smilar analysis by sex shows that mostly young male and female persons are likely to be unemployed (49% and 50%) . Although unemployment is relatively lower among females than males, it remains a youth problem even among females. Unemployment is also high in the middle age female and male cohorts. This raises a concerns that why a majority of female middle age cohorts are unemployed and if employed, in the informal sector. Most married females are public sector employees(68%), followed by informal and private sectors (66% and 44%) while most married males are public employees (97%) followed by private and informal (83% and 72%). Unemployment is higher among married men (40%) compared to married women (26%). The proportions of male and female household heads are highest in the public sector.

Most female and male employment in the public sector comprises those with university level education (71% among females and 38% among males) . The

proportions of high school level education for the private sector is the highest among female employees. Although low level of education characterize informal sector employment and unemployment, male employment in the private sector comprises mostly those with primary level education.

Wages in the public sector are the highest followed by those in the private sector for the entire sample. When the analysis is broken down by sex, the scenerio is changing. Earnings of women are lower than those of men. Among the female workers, the highest log wage is observed for public sector and the lowest for informal sector. The differential between the wages from formal sector (modern sector) and the rest of the economy is large. Modern sector hires more educated workers, hence their wages tend to be higher than those of workers in the rest of the sectors.

2.3. Results of Estimation

MNL estimates of sectoral choice are given in Table 1 for entire urban sample, Table 2 for men and Table 3 for women. The four emloyment alternatives considered are unemployment, public employment, private employment (covered wage employment), and informal employment (uncovered wage employment). There are clear gender differences in the choice of sector. In the interest of brevity, emphasis is placed on the importance of sex (being male as opposed to being female), marital status, household headship and education.

The results in Table1, for the entire urban sample indicate that sex is important for public (with a negative effect) and private sectors (with a positive effect). Marital status enhances the likelihood of all sectors` employment. All the three levels of education is important for both public and private sector employment, while only secondary and university level of education is important for informal sector employment. Household-headship is important for all sectors. Household-size is also important for all sectors (negative coefficient). If the number of household members increases in the family, likelihood of working in the public private and informal sector decreases.

Sex variable has a negative coefficient and is statistically significant in the public sector. It`s odds ratio is less than one in public sector but greater than one in the private sector. This implies that being male as opposed to being female reduces the likelihood of being in public sector employment and enchances that of being in the private sector employment.

Coefficient of marital status variable is positive and significant in all sectors. Odds ratios are greater than one. It could be that married people as opposed to

unmarried people more likely prefer to work in public, private and informal sectors over unemployment.

Table 1: Total sample

Variable	Public		Private		Informal	
	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio
Intercept	,199		-,530		2,059***	
Hhsize	-,139***	,871	-,148***	,863	-,076***	,927
Sex	-,540***	,583	,578***	1,782	-,112	,894
Married	1,255***	3,509	,907***	2,478	,836***	2,308
Head	1,715***	5,556	1,075***	2,929	,381**	1,463
Tenure	,054	1,055	,256***	1,292	,133	1,142
Relative	,048	1,049	-,003	,997	,030	1,030
Ch0_5	,146	1,157	,214	1,239	,322**	1,380
Ch6_19	,504***	1,656	-,073	,930	,129	1,137
Age15_24	-1,705***	,182	,148	1,160	-,744***	,475
Age25_44	-,230	,795	,647***	1,910	-,874***	,417
Primary	-,631***	,532	,664***	1,943	-,103	,902
Secondary	,952***	2,591	,933***	2,541	-,616***	,540
University	1,843***	6,317	,570**	1,768	-1,692***	,184

Note:The reference category is unemployed. (*p<.05; **p<.01; ***p<.001)

Number of obs, 7085;LR chi2, 3028;Prob>chi2, 0.00; log likelihood, 5970.19; pseudo R2, 0.17

The positive effect of education implies that it enhances the opportunities for working relative to having no education (omitted category). For the public sector,

the odds ratio of primary level education indicates that people who have primary level education are less likely to prefer public sector employment. People with secondary and university level education are more likely to prefer public employment. In the informal sector odds ratios are less than 1, thus diminishing the likelihood of being in the informal sector. Positive effect of education is highest in the public sector and the strongest for the university level education.

Younger cohort variable is important for public sector (negative coefficient) and informal sector (positive coefficient) employment. Young cohorts are less likely to prefer public sector employment while they are more likely to prefer informal employment. Middle age cohorts variable is important for private and informal sector employment. Being in the middle age group enhances the likelihood of being in the private employment and reduces that of being in the informal employment.

Presence of pre-school age children is positive and important for informal sector employment. People with younger children are more likely to prefer informal employment. Presence of older children is positive and only important for the public sector employment.

Ownership of a house is positive and important only for private sector employment. People who have the ownership of the dwelling unit are more likely to prefer private employment.

By sex, Table 2 shows that for females marital status has a positive positive correlation with sectoral choice for all sectors with the strongest probability being in the public sector. Household-headship is only important for the public sector. Being household-head enhances the opportunities for working in the public sector. Secondary and university level education have a positive effect on public sector employment, while only secondary education is important for private sector employment. Secondary and university level education is important for informal sector employment. Having these two level of education decreases the likelihood of being in the informal sector. Household size has negative influence on the public sector employment. Presence of pre-school age children and school-age children in the house diminishes the likelihood of being in the public employment. Only presence of school-age children is important for informal employment enhancing the likelihood of being in this sector. Age cohorts are important and have negative effect on the sector employments.

Among males (Table 3), household-headship is important for all sectors. Marital status has a positive correlation with private and public sector employment. This

result is not surprising since most married males are also the main economic caregivers and being married enchances their likelihood of formal employment. All three levels of education augment their chances for securing public sector job. Primary and secondary level education boost male participation in the private sector. Young cohort variable is significant with negative coefficient. This result implies that being age 15-24 interval discourages participation in public sector.

Table 2: Females Total Sample

Variable	Public		Private		Informal	
	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio
Intercept	,199		1,023		2,676***	
Hhsize	-,277***	,758	-,033	,968	-,038	,963
Married	1,411***	4,101	,745**	2,107	1,153***	3,167
Head	,967***	2,630	,005	1,005	-,031	,970
Tenure	,164	1,178	-,038	,962	,100	1,106
Relative	,430	1,537	-,103	,902	-,169	,845
Ch0_5	,773**	2,166	-,006	,995	,496*	1,641
Ch6_19	,803**	2,232	-,290	,748	,316	1,372
Age15_24	-2,643***	,071	-1,144*	,319	-1,895***	,150
Age25_44	-1,443*	,236	-1,005	,366	-2,129***	,119
Primary	-1,451**	,234	,600	1,822	,193	1,213
Secondary	1,106*	3,022	,835*	2,304	-,758*	,469
University	2,525***	12,490	,484	1,622	-2,248***	,106

Note:The reference category is unemployed (*p<.05; **p<.01; ***p<.001)

Number of obs, 1515;LR chi2, 961.01;Prob>chi2, 0.00; log likelihood, -1752.96; pseudo R2, 2.45

Middle age cohort is only important for for private sector employment with a positive correlation with private employment. These two age cohorts are significant for informal sector employment reducing male participation in informal sector. For males, the presence of school-going age children is positive and important for public sector employment. Being owner of the dwelling unit is important and positive for private sector employment.

Table 3: Males Total Sample

Variable	Public		Private		Informal	
	Coef.	Odds Ratio	Coef.	Odds Ratio	Coef.	Odds Ratio
Intercept	-1,277**		-,164		1,507***	
Hhsize	-,090*	,914	-,181***	,835	-,047	,954
Married	,539*	1,715	,812***	2,253	,298	1,347
Head	2,407*	11,102	1,229***	3,418	1,078***	2,939
Tenure	,100	1,105	,344**	1,411	,222	1,248
Relative	-,125	,882	,029	1,029	,030	1,031
Ch0_5	-,036	,965	,195	1,216	,238	1,269
Ch6_19	,435**	1,545	-,012	,988	-,011	,989
Age15_24	-1,677**	,187	,243	1,275	-,374	,688
Age25_44	,106	1,112	,977***	2,657	-,534**	,586
Primary	-,632*	,531	,688**	1,989	-,109	,897
Highschool	,977***	2,657	1,018***	2,767	-,415	,660
University	1,529***	4,614	,501	1,651	-1,310***	,270

Note:The reference category is unemployed. (*p<.05; **p<.01; ***p<.001)

Number of obs, 5570;LR chi2, 2061.42;Prob>chi2, 0.00; log likelihood, -4000.43; pseudo R2, .339

3. CONCLUSION

The paper assessed the determinants of formal and informal sector employment in the urban areas of Turkey based on Household Budget Survey data of 2006. Descriptive statistics show that a majority of Turkey`s labour force is likely to be employed in private and informal sectors.

There are significant differences in public, private and informal sectors of employment when the analysis is broken by sex. Unemployment is clearly a youth problem and it`s incidence is more serious among men than women. Formal sector employment in both public and private sectors is male dominated while females occupy the inferior informal sector or unemployed.

The findings reveals that the key labour supply factors important for employment in the public, private and informal sectors of the Turkish urban labour market vary by sex. The results also give indications of discrimination in the labour market. Sex, marital status, household-headship and education are important variables determining the sector choice. First three variables reveal the disadvantages of position of women.

Results indicate that being male rather than female enhances the likelihood of employment in private sector as opposed to being unemployed. Females have a higher chance than men to work in the public and informal sectors as opposed to unemployment particularly the informal sector. It can be detected that whether this discrepancy is a result of discrimination against women for further research or is justified on the basis of human capital endowment.

As for marital status, being married as opposed to being single increases both women and men`s chance of employment in all sectors. Although getting married causes temporary interruptions from work because of reproductive responsibilities and care work by putting women at a greater risk of unemployment and informal sector, being married seems to have positive influence on women`s participation in modern wage employment.

Household headship is also important. Household heads are more likely to work than non-household heads. When the analysis is done by females and males, female household heads are more likely to work in the public sector while male household heads are more likely to work in all sectors as opposed to being unemployed.

This study identifies education as a major factor determining participation in modern wage employment. Education also appears to have negative impact on

the informal sector employment. Possible reasons are that informal sector employment requires skills and capital, rather than a high education level. The proportion of working women is relatively higher in the informal sector compared with the formal sector. There is need for policies to upgrade women`s education and skills so that they can compete with men in the labour market.

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Appendix : Variable descriptions
Table A1: Explanatory variables
Age
Age15_24 dummy variable in which 1= is in the 15-24 age interval; 0=in other age intervals
Age25_44 dummy variable in which 1= is in the 25-44 age interval; 0=in other age intervals
Age44-64 (omitted category)dummy variable in which 1= is in the 44-64 age interval; 0=in other age intervals
Head=whether one is a household head or not, dummy variable in which 1=household head; 0=not household head
Household size=total number of household members *(Hhsize)*
Sex= male or female, dummy variable in which 1=male; 0=female
Married =whether married or not, dummy variable in which 1=married; 0=not married
Education (highest level completed)
Primary, dummy variable in which 1=has primary level education; 0=other level or none
Secondary, dummy variable in which 1=has secondary level education; 0=other level or none
University, dummy variable in which 1=has university level education; 0=other level or none
None *(omitted category)*, dummy variable in which 1=has no schooling; 0=has primary, secondary and university
Presence of children and female relatives in a household
Presence of children 0–5 years in household, dummy variable in which 1=yes; 0=no *(Ch0_5)*
Presence of children 6–19 years, dummy variable in which 1=yes; 0=no *(Ch6_19)*
Presence of female relatives in a household, dummy variable in which 1=yes; 0=no *(Relatives*)
Ownership of a dwelling unit= dummy variable in which 1=owns a house or 0 does not *(Tenure)*
Log monthly wage earnings Salary,