FEMALE EMPLOYMENT AS A RESERVE ARMY OF LABOR: CASE OF TURKEY, 1988-2013

Yedek İşgücü Olarak Kadın Emeği: Türkiye Örneği, 1988-2013

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Abstract

This work considers the role of female employment in the "industrial reserve army of labor" on the base of Turkish experience between 1988 and 2013. Unlike previous studies in which the relationship is investigated at the sectoral level, this study initially considers demographic categories and illustrates alternative utilization from reserve army of labor and the current status of female employment in Turkey accordingly. To this end, Ordinary Least Squares Method (OLS) is employed in order to detect whether female employment has higher volatility than total employment. According to the empirical results, some categories of female employment are more volatile than total employment and demographical categories are found to be more significant than production related categories. This fact shows that there are strong fundamental obstacles such as marriage institution, part-time female employment, ownership in production and lower education levels, which constraint female proletarianization in Turkey.

Özet

Bu çalışmada "endüstriyel yedek iş gücü" nde kadın istihdamının rolü 1988-2013 yılları arasında Türkiye örneği üzerinden incelenecektir. İlişkiyi sektörel boyutta inceleyen literatürdeki diğer çalışmaların aksine bu çalışmada öncelikle demografik kategoriler ele alınmış, daha sonra ise yedek işgücü ordusunun alternatif kullanımı ve Türkiye'de kadın istihdamının mevcut durumu sunulmuştur. Çalışmada kadın istihdamının toplam istihdama göre daha dalgalı olup olmadığını tespit etmek için Basit En Küçük Kareler Yöntemi uygulanmıştır. Sonuçlara göre, kadın istihdamının bazı kategorileri toplam istihdamdan daha dalgalı bulunmuş ve demografik kategoriler daha anlamlı bulunmuştur. Bu olgu Türkiye'de kadının proleterleşmesinin önünde evlilik kurumu, yarı-zamanlı kadın istihdamı, üretimdeki sahiplik ve düşük eğitim seviyeleri gibi güçlü temel engeller olduğunu göstermektedir.

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1. Introduction

This paper reconsiders the role of female employment in the "industrial reserve army of labor" on the basis of Turkish experience between 1988 and 2013. The concept of "industrial reserve army of labor" was put into words by Marx in order to explain the effects of capital accumulation on labor market conditions and structure. Marx and succeeding Marxists have concentrated on historical relationship between female employment and capital accumulation in terms of the reserve army of labor. (Humphries, 1983; Bruegel, 1979; Beechey, 1977; Rubery and Tarling, 1982; Benson, 1969; Power, 1983)

The existing literature, according to intellectual requirement of the time, put forth the effort to explain differences in female employment among sectors across time in order to illustrate the female proletarianization. Different levels of female employment among sectors had been a questionable issue in which Marxists, Feminists and Institutionalists made important contributions to explain the persistent differences between structures of male and female employment. Marxists qualify women in the 20th century as an industrial reserve army in the way that agriculture workers were in the 19th century. In early periods of capitalist production women were acting as latent reserves, as they would move between waged labor and domestic work. As capitalist production advances and capitalists start to take advantage of lower female wages, female labor gets fully attached to wage labor and thus becomes a floating reserve. In early periods of female proletarianization, women tend to be employed in secondary and relatively low paid jobs, which is indicative of being latent reserve. Spread of female employment to other production sectors through increased relative substitution of female workers to male counterparts, reduces female employment to floating labor reserve.

Persistent differences between male and female employment structures in both labor demand and supply showed the inability of Marxist predictions about transformation of female employment from latent to floating reserves. Marxist argument came in for a lot of stick particularly from Feminists and labor segmentation theorists. Common critique of both disciplines against Marxism is its inability of explaining persistency of gender divisions. These theories offer another perspective which focuses on occupational segregation and labor market segmentation as an explanation for the persistent gender division in the society. (Hartman, 1979; Folbre, 1994; Gibson-Graham, 1996; Hartstock, 1983).

The goal of this study is to discuss the role of female employment in the "industrial reserve army of labor" in Turkey over the period 1988-2013. Because there is no published study in the case of Turkey, this study is going to be the first attempt to fill this gap. Furthermore, previous literature directly investigates this issue at the sectoral level. Unlike those studies, this study initially considers demographic categories and illustrates alternative utilization from reserve army of labor and the current status of female employment in Turkey accordingly. Given these novelties, this study is expected to contribute to the existing literature. In section 2, a proper notion of 'reserve army of labor' is established from the works of Marx and a critique of existing literature on female employment and reserve army of labor. Section 3 depicts the conditions of female employment in Turkey between 1988 and 2013. Section 4, on the basis of different employment and demographic

categories, classifies female employment as latent or floating. Finally, sections 5 gives concluding remarks.

2. Marx on Reserve Army of Labor

Marx in *Capital I* in chapter 25 illustrates the general law of capitalist accumulation and investigates the effects of increase in capital accumulation on the working class. Marx, firstly, analyzes the relationship between capital accumulation and employment of working class under the conditions of constant organic composition of capital, ratio of invariable part of capital, the means of production to the variable counterpart, and labor time accumulated to expand existing capital. Under this condition as capital accumulation expands, demand for labor increases in a constant rate in proportion with organic composition of capital. Production of working class and capital accumulation goes hand in hand until it reaches the demographical constraint of society when it is unable to produce additional labor. After that point unemployment decreases and in turn increases the bargaining power of workers against capitalists. Finally, price of labor power or wages, tends to increase which curbs capital accumulation and in turn leads to an accumulation crisis. In the downturn period, unemployment increases and wages go down till a level where capital accumulation starts to expand again. (Marx, 1967)

The obstacles on capital accumulation provide capitalists an incentive to increase the invariable part of the capital to the detriment of variable capital. In such conditions, the organic composition is no longer constant and increase in capital accumulation expands disproportionately in relation to invariable capital which decreases the labor demand relatively because of the increasing efficiency in labor as a result of the relative increase in invariable capital. Most important result of this type of expansion is the rise of relative surplus population or reserve army of labor. Hereby Marx contributes his critique to bourgeoisie political economy's theory of population which treats excessively high population as the condition for expanding capital accumulation. Oppositely Marx claims that excessive population is the direct result of expanding capitalist accumulation. As capital accumulation sets free relative surplus population, it makes more workers available to serve for the needs of capital to use in the different production activities without a decrease in the absolute quantity of labor, thus causing no interruption in capital accumulation. (Marx, 1967)

Following from illustrating the relationship between capital accumulation and reserve army of labor, Marx defines the presence of different types of reserve army of labor as floating, latent and stagnant. Floating reserve army of labor refers to workers who are located in industrial centers. Absolute quantity of the floating reserve decreases with more capital accumulation and increases when capital accumulation decreases. Latent reserve army is simply the workers' population who had been employed in the agriculture sector. As capital accumulation penetrates pre-capitalist types of production, the demand for labor in those sectors dramatically decreases and drags huge masses of workers to the industrial centers. Latent reserve army of labor tends to be more vulnerable than the floating reserve as the former are more sensitive to movements in capitalist accumulation, being inexperienced in capitalist production. As accumulation expands to more sectors, latent reserve army of labor becomes floating. (Marx, 1967) Last part of reserve army of labor is stagnant, which constitutes the bottom layer of the reserve army and comprises of disabled, wounded, petty

criminals etc. They tend to be employed with minimum wages and maximum working time and transformation from this type is almost impossible.

2.1. Women as a Reserve Army of Labor

In *Capital,* Marx tends to be race and gender blind due to the abstraction level applied in his analysis of capitalism. For this reason, Marx (just in a few passages in *Capital*) mentions female labor (including child labor) as a cheap substitute for male labor. Marx does not work so much on explaining this mechanism and does not illustrate a systematic categorization of female employment and its relationship with reserve army of labor. Following from Marx, socialist and Marxist literature on female employment mainly turned their attention to the relationship between capital accumulation and female employment in the way that Marx analyses the relationship between capital accumulation and total employment.

Beechey (1977) illustrates the role of domestic labor as a tool which expands the absolute surplus value of production through producing use values for the reproduction and maintenance of a working class family. From this perspective, domestic production is considered as non-capitalist and labor used in this type of production as "latent" reserve. Beechey then utilizes this concept in the process of capitalist production. Expansion of capitalist production penetrates the domestic labor through producing goods and services previously provided by domestic female labor and utilize women as wage laborers in order to produce these goods and services capitalistically. Power (1983) illustrates the historical processes which underlies the aforementioned relationship between domestic labor and capitalist production in US over the course of the 19th and early 20th century. According to Power, during this period, women's work in the home transformed from *predominantly production* to maintenance and hence transformed female employment to latent reserve. Differently from Beechey, Power illustrates social and economic conditions which allows a proper analogy between 19th century agriculture labor and 20th century domestic labor. Power then depicts the gradual incorporation of female employment into active wage labor again on the same basis. Additionally, Power mentions that this improvement in female employment is not irreversible and relates the freedom of women with engaging in wage labor. Finally, Power claims that this would undermine patriarchal society following Engel's conclusions about female labor.

Irrespective of whether Power's analysis gives an important insight about the relationship between capital accumulation and female employment, the higher volatility in female employment than the total employment posed a problem in the way to transition of female workers to be an active part of wage labor. Following from this evidence, Bruegel (1979) introduces the notion of disposability of female employment. Bruegel claims in periods of high unemployment, female employment is dispensed more than male employment. She analyses the effects of increasing woman labor force participation on elimination of women as a labor reserve and the role of gender segregated labor markets in protection of women from functioning as a reserve. According to Bruegel, once female labor is introduced as an active wage labor, it cannot act as a reserve again the way it used to. In order to overcome this problem and explain the increasing volatility in female employment, Bruegel utilizes the disposability of female employment and revises the reserve army of labor hypothesis on this basis. While disposable female employment is valid for part-time jobs

and for less labor-intensive jobs, female employment was also protected from the effects of high redundancy in sectors where pre-dominantly females are employed, such as service and public sector.

While Bruegel explains the higher volatility in female employment in terms of a revised version of reserve army, she disconnects the relationship between reserve army of labor and capital accumulation and reduces the reserve army of labor to a cyclical buffer instead of a relative surplus created through increasing capital accumulation.

This disconnection is criticized by Humphries (1983) by reconsidering reserve army of labor in its unique relationship with capital accumulation and in turn categorizing female employment as latent or floating reserves according to its volatility rate. Floating reserve refers to a full attachment to wage labor and floats with the capital accumulation and total employment; while latent reserve acts as a buffer and its volatility is higher than total employment and capital accumulation.

Based on this categorization, Humphries analyzes female proletarianization in the U.S. between two accumulation processes - 1965-1974 and 1974-1979 - by production sectors. According to results of the research, while female employment becomes less volatile than in the first period, in sector based results female employment evolves to floating reserve in some sectors such as wholesale and retail trade, finance, insurance and real estate, services and government sector. In addition, Humphries also captured a process of feminization of labor market structures by illustrating the distribution of growth in female industrial employment. The results reveal that industry groups that were predominantly male and undergoing a process of feminization experienced a substantial growth in female share of their employment.

Humphries' reconsideration of female proletarianization on the base of an updated categorization of female employment gives an important insight about female employment, but this categorization and female proletarianization is just considered in the labor market and in the distribution of female employment among production sectors which are economic concepts. This kind of research is not able to explain the obstacles in the path of total transfer of female employment from latent to floating reserve which is the main critique of feminist thought.

In order to capture constraints in the path to full proletarianization of female employment, demographical conditions such as marital status, level of education, condition in the work place, part-time employment must be considered and categorization of female employment must be established on this demographical basis. Demographical categorization of female employment can contribute to Marxist feminist thought in terms of the social constraints to female proletarianization. This contribution evaluates female proletarianization on the basis of demographic categorization.

3. Conditions of Female Employment in Turkey

In this section, conditions of female employment will be illustrated in terms of ILO key indicators which evaluate the female labor market. Primary indicators are labor force participation, status in employment, employment by sector, part-time workers, and educational attainment of the labor force which are derived from Household Labor Force Survey collected by Turkish Statistical

Institute (TUIK). In addition to primary indicators, other indicators which are relevant with the aim of this paper, are also illustrated.

3.1.Labor Force Participation

Labor force participation rate is a "measure of the proportion of a country's working-age population that engages actively in the labor market, either by working or by looking for work. Its value as an indicator is to provide an overall indication of the available supply of labor." (ILO, p.10) From a gender perspective, its value gives information about access to labor market for females in comparison to males.

Figure 1 illustrates the labor force participation rates (LFPR) in Turkey between 1988 and 2013. Most striking insight from the figure is the uncompromising low female labor force participation rates. Total LFPR oscillates in the relevant time interval between 0.6 and 0.45 while female LFPR 0.36 and 0.23. This high gap illustrates that the access of female labor to labor market is quite strikingly low. In order to see whether this fact is a direct result of male dominance in labor markets, decomposition of women who are excluded from the labor force must also be illustrated.

Figure 1: LFPR in Turkey by Sex
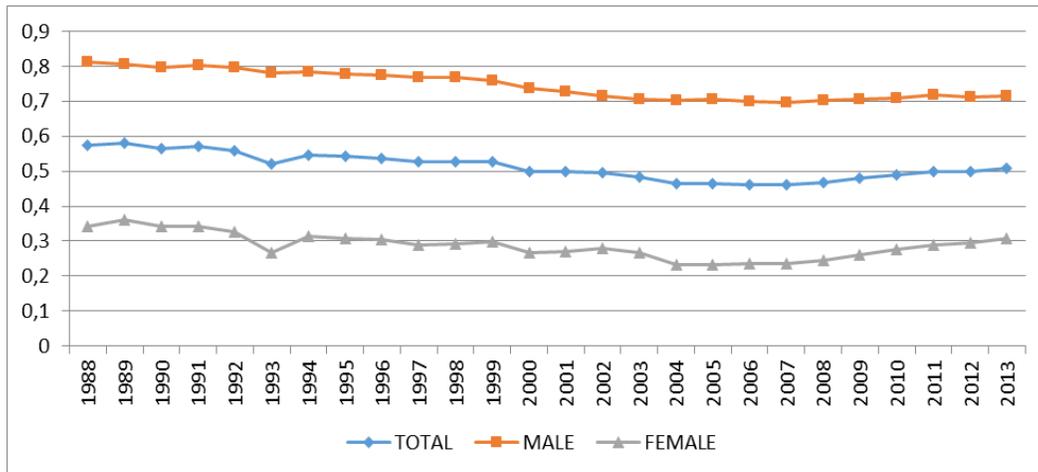
Source: www.tuik.gov.tr

Figure 2 summarizes the ratio of women who are excluded from labor force by their reason for exclusion. According to this information, women who are excluded from labor force because of house work constitute the major category despite its declining rate. This category of female population illustrates a good example for latent reserve army. This fact is also consistent with the literature on the social roles of women in Turkey. The social role of women is quite important in determination of labor force participation. Housework, child care and elder care are assigned as female tasks traditionally. Literature claims that traditional duties prevent women from labor market participation (Dayioglu,2000; İlkkaracan, 2012.). High number of housewives is also the result of

the urbanization process. Migration to cities disconnected women from agricultural production and transformed them to discouraged workers (Erman, 1998; Erman, 2001).

Figure 2: Ratio of Women Excluded from Labor Force by Their Reasons
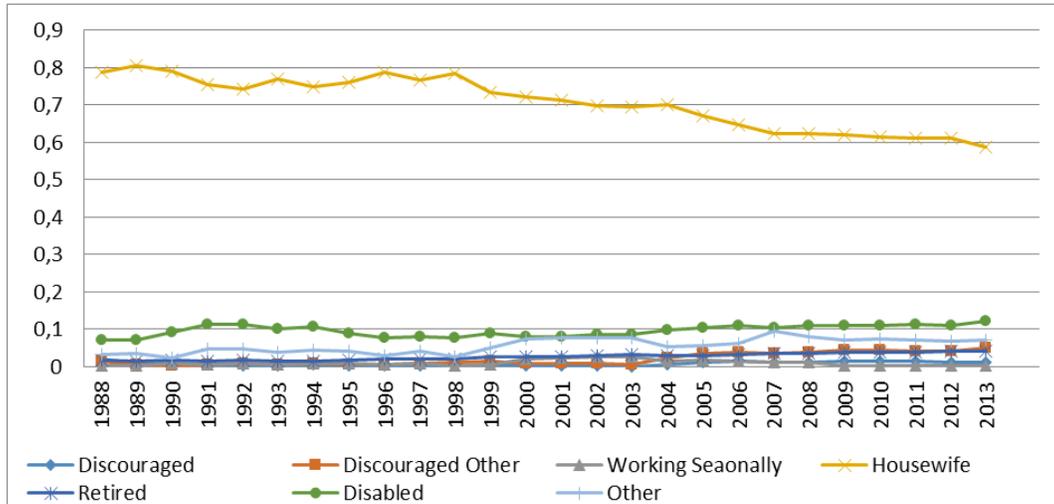
Source: www.tuik.gov.tr

Educational decomposition of female employment is also important and Figure 3 illustrates this decomposition. As per Figure 3, women who have tertiary degree constitute the highest rank among other educational attainments. This fact shows without hiding anything that uneducated women have low access to labor market and are highly discriminated. Gunduz-Hosgor and Smiths (2008) indicates that more educated women tend to increase women's participation to labor force. Aysit (2002) also states that education also affects non-agricultural participation.

Figure 3: Female LFPR by Education
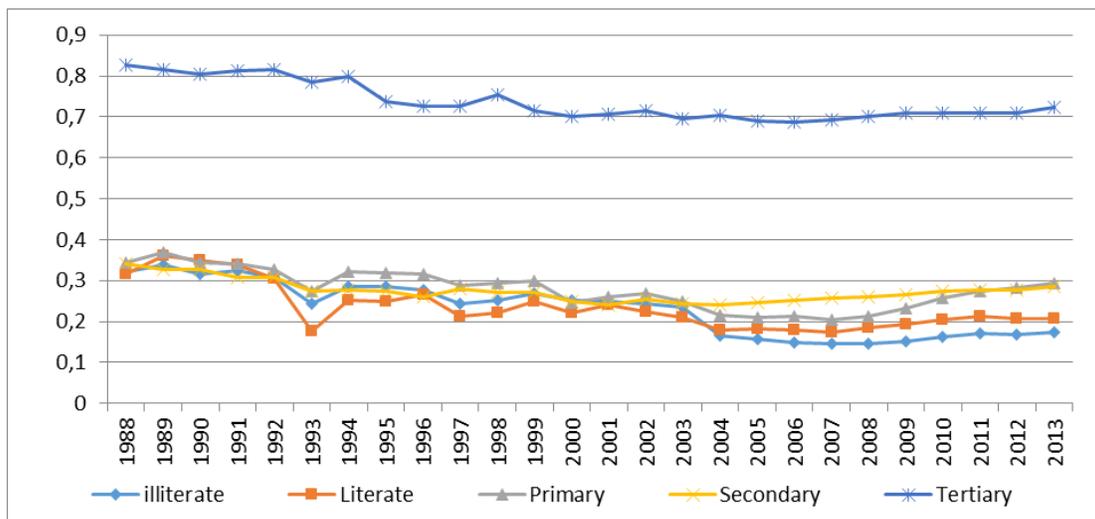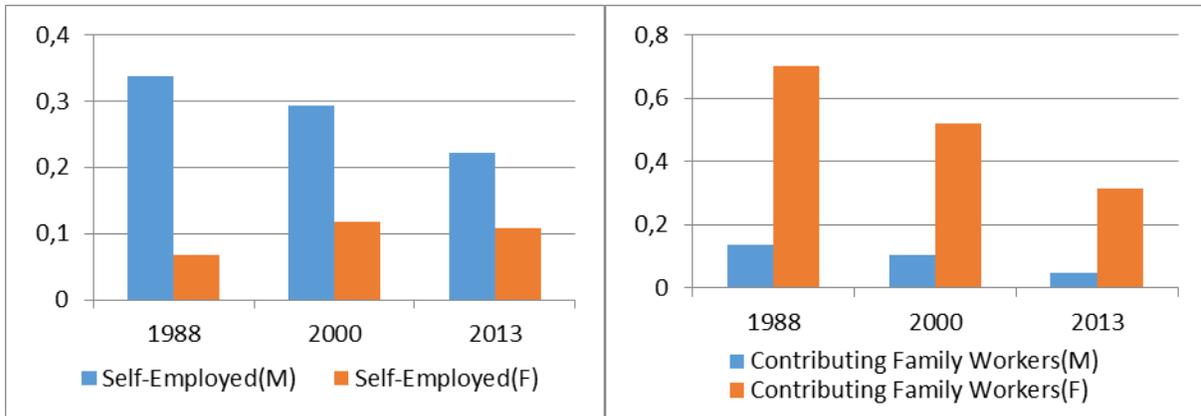

Source: www.tuik.gov.tr

3.2. Status in Employment

Status in employment consists of three categories which are wage and salaried workers, self-employed workers, and contributing family workers and employers. Employment structures in terms of status are a strong indicator of a well-developed labor market. Lower numbers of self-employed and contributing family workers indicates a developed structure of labor markets. For female employment, self-employed workers and contributing family workers are considered as "vulnerable employment". This definition is offered by ILO in the Millennium Development Goals "to achieve full and decent employment for all, including women and young people". (ILO, 2010, p.33)

Figure 4 summarizes the status in employment share by sex. The results show that between 1988 and 2013, despite the substantial decrease in vulnerable employment the gap between males and females in terms of status has been still quite high. A substantial increase in wage and salaried female share can be interpreted as an acceleration in female proletarianization. But increase in that share does not tell anything about the degree in volatility of female employment or working conditions. In order to make a proper assessment, its relationship with capital accumulation must be revealed.

Figure 4: Status in Employment in Corresponding Total Employment by Sex
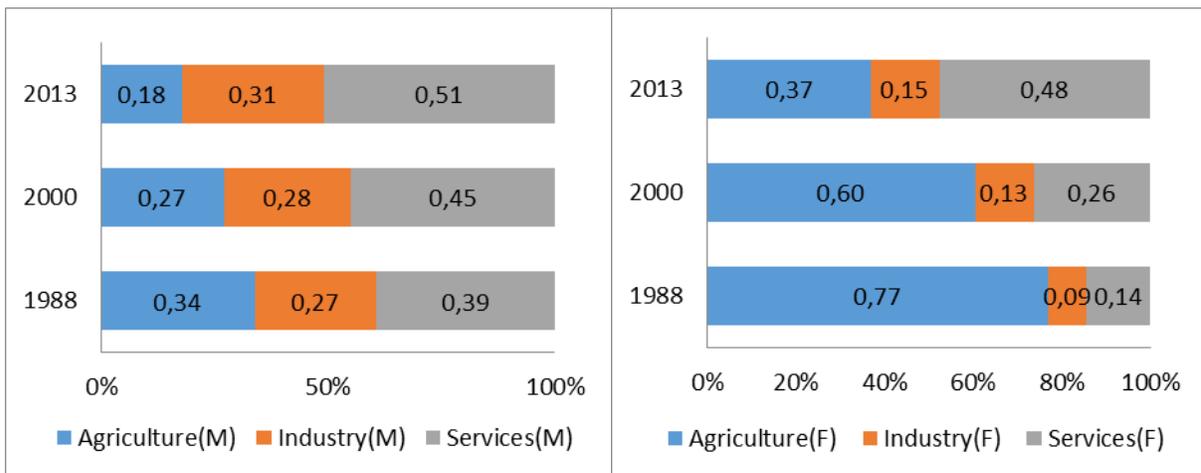
 Source: www.tuik.gov.tr

3.3. Employment by Sectors

The distribution of employment by sector as a gender-relevant indicator summarizes the different compositions of female and male employment. (ILO, 2010) Figure 5 shows female and male employment distribution by sector. In female employment between 1988 and 2013 there is a huge shift in female employment from agricultural sectors to services sectors. The transfers to services to industrial sectors remained marginal with respect to services. Agricultural share of female employment with respect to its male counterpart is still higher despite high amount of transfers to services sector. Agricultural sector in Turkey is mainly based on rural family production. This fact is also consistent with the status of women in employment. As mentioned earlier, females are mostly employed as contributor to family income. This category also indicates properties of latent reserve army of labor.

**Figure 5: Female and Male Employment Distribution by Sector**

Source: www.tuik.gov.tr

3.4. Part-Time Workers

From the gender perspective, part-time worker is an important indicator for the gender structure of employment. Usually part-time workers do not have unionization rights and have more flexible working conditions. Their dismissal is much easier than full-time employment and they cannot benefit from labor rights fully as full time workers. Figure 6 illustrates the gender composition of part-time employment. Between 1988 and 2013 female and male employment shares in total part-time employment tends to be equal as it seems that both female and male workers are attached to part-time employment equally. But if the shares of part-time employment are considered in both total female and male employment, this equality disappears. Throughout the corresponding period, the gap between the share of part-time female employment in total part-time employment and share of part-time female employment in total female employment substantially decreased which in turn means that female workers tend to be employed more in part-time jobs. Aforementioned fact about part-time female employment illustrates that female workers become easily hurt from the effects of capital accumulation and their employment become more flexible.

Figure 6: Part-time Employment by Sex
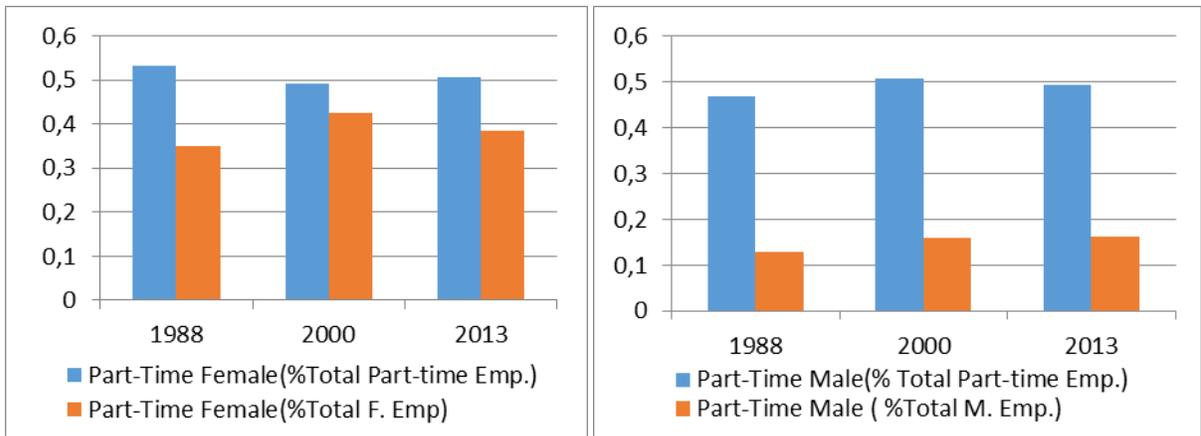
 Source: www.tuik.gov.tr

4. Latent or Floating?

In the previous part, the current condition of female labor is illustrated on the base of ILO's definition of job vulnerability. In this section, methodology of the paper and estimation results are illustrated.

4.1. Methodology

Differently from former studies about the qualification of female employment, in this work female employment and its qualification as latent or floating is investigated both on the base of demographical and industrial categories in order to explain the nature of reserve army of labor. In

this work a strong relationship between employment and capital accumulation is presupposed and following from Humphries, latent reserve army is defined on the basis of its volatility with respect to total employment. If employment of a certain social category is more volatile than total employment, it can be considered as a latent reserve army. In order to test this relationship Humphries (1983), following from Rubery and Tarling (1988), applies an ordinary least squares (OLS) regression analyses in which percentage change in female employment is regressed to percentage change in total employment. Estimating the slope coefficients through OLS technique helps us figure out whether female employment can be considered as latent or floating. Following equations illustrate the OLS regressions that would be tested in this analysis.

$$lnF_{it} - lnF_{it-1} = \alpha + \beta(lnT_{it} - lnT_{it-1}) + \gamma t + \varepsilon_t \qquad (1.1)$$

Equation (1.1) illustrates the OLS regression being estimated where dependent variable is percentage change in female employment in ith category at time $(lnF_{it} - lnF_{it-1})$; independent variables are the constant term (α), percentage change in total employment in ith category at time t $(lnT_{it} - lnT_{it-1})$, time trend (t) and the error term (ε_t).

Table 1 illustrates the summary interpretations of female employment parameters. If β coefficient is equal to 1, fluctuation in women employment is equal to total employment fluctuation. This in turn means that women labor can be considered as floating reserve labor. If β is greater than 1, fluctuation in women employment is higher than of total employment. In this case, women labor can be considered as a latent reserve labor. If β coefficient is lower than one, female labor is segmented in a favorable way and can be considered as floating reserve labor. If beta coefficient is smaller than zero women's labor can be considered as substitute. As testing procedure is applied to male labor in order to control whether male labor is in an advantageous position.

Table 1: Summary Explanations of Slope Coefficient

	PROCYCLICAL
$\beta > 1$	Women's employment is more sensitive to employment fluctuations than total employment (Latent Reserve)
$\beta < 1$	Women's employment is less sensitive to employment fluctuations than total employment. (Floating Reserve)
$\beta = 1$	Women's employment is equally sensitive and can be considered as floating reserve.
	COUNTER-CYCLICAL
$\beta < 0$	Women's employment moves counter-cyclically and can be considered as a substitute to male employment.

Source: Adopted from Rubery and Tarling (1988).

4.2. Estimation Results

Results of female and male labor are illustrated at Tables 2 and 3 respectively. Diagnostic checks are illustrated at Appendix. According to diagnostic results, autocorrelation is detected in

several categories. Autocorrelation problem is solved through Prais-Winsten procedure. Prais-Winsten procedure is the modification of Cochrane-Orcutt procedure and improves the Cochrane-Orcutt procedure in such a way that improves the efficiency of estimators.

Tables include some major demographic categories that can be summed under headings of educational attainment, marital status and status in employment. In addition to demographical categories, regression is applied to industrial categories similarly with earlier literature.

According to results illustrated in Table 2, as level of educational attainment of women increases, volatility of female become less sensitive to total employment fluctuations. Same trend is valid for male employment as it is shown at Table 3. However, the slope coefficients are significantly greater than one which means that women employment is more sensitive to employment fluctuations than men. This fact shows that women can be considered as latent reserve labor in all educational categories. Results do not change much when marital status is considered. Results show that married women employment's coefficient is almost twice times more than single women's. This fact shows that married women are not in an advantageous position than single women. However, slope coefficients of married and single women are greater than one significantly. While marital status affects the volatility of female labor negatively, it does not change the status of female labor as latent reserve labor. According to results in Table 3, contrary to the female case, single men's employment tends to fluctuate more than married men, but still both of their slope coefficients are smaller than one. Results show that marriage institution, as an indicator of patriarchal relations, effects volatility in male employment positively, however it increases the volatility of female employment.

Following category is the status in employment which has both demographic and economic aspects. Results show that part-time female employment acts like a floating reserve labor, because its slope coefficient is significantly higher than one. In contrast, male employment acts as a latent reserve. This fact cannot be considered as an advantageous position since (as mentioned earlier) part-time employment is more vulnerable than other types of employments due to job insecurity and flexible working conditions. Except part time woman workers and employers, slope coefficients of vulnerable jobs are significantly higher than one and women labor in these positions can be considered as latent reserve labor. According to Marxist literature, employer category cannot be considered as worker and results are in consonance with the literature. Both men and women employers' slope coefficient is close to one which means fluctuations in employment is close to total employment fluctuations.

Tables 2 and 3 illustrate results of sectoral categories. Slope coefficient estimates of female employment in mining and quarrying sectors and electricity, gas and water sectors are insignificant. Slope coefficient estimates of other sectors are found to be significantly higher than one which means that woman labor is latent reserve. Oppositely, fluctuations of male employment in all sectors are significantly lower than one or at least equal to one. This shows that male workers are usually employed as a floating reserve labor.

Table 2: Regression Results of Female Employment

Categories	a (t-stat.)	β (t-stat.)	γ (t-stat.)	Adjusted R-Square	Categories	a (t-stat.)	β (t-stat.)	γ (t-stat.)	Adjusted R-Square
Total Female Employment					**Industrial Sectors**				
Total Female	-1.273 (--0.67)	2.146* (10.05)	0.007 (0.68)	0.809	Agriculture, forestry, hunting and fishing	-0.871 (-0.39)	1.373* (12.84)	0.0004 (0.39)	0.871
Educational Attainment					Mining and quarrying	-19.058 (-0.57)	0.336 (0.627)	0.009 (0.57)	-0.059
Illiterate	1.922 (1.03)	1.267* (16.72)	-0.009 (-1.02)	0.921					
Literate	7.381 (1.39)	1.471*** (7.57)	-0.004 (-1.38)	0.717	Electricity, gas and water	-14.266 (-0.97)	0.197 (0.91)	0.007 (0.98)	-0.016
Primary	-5.691*** (-2.03)	2.043 * (8.44)	-0.002*** (-2.04)	0.731	Construction[1]	5.537 (0.90)	1.159* (3.83)	-0.003 (-0.89)	0.356
Secondary	-3.833 ** (-2.21)	1.302* (8.00)	0.002 (2.21)	0.721	Wholesale and retail trade, hotels and restaurants[1]	-4.334*** (-1.78)	1.039* (3.45)	0.002 (1.80)	0.305
Tertiary[1]	2.866 (1.29)	1.282* (5.54)	-0.001 (-1.29)	0.545					
Marital Status					Transportation, communication and storage**Hata! Yer işareti tanımlanmamış.**	-4.545 (-0.79)	2.808* (5.42)	0.002 (0.79)	0.549
Married	-2.342 (-1.18)	2.425* (9.93)	0.001 (1.17)	0.806					
Single	0.345 (0.15)	1.357* (7.56)	-0.0002 (-0.15)	0.698	Finance, insurance, real estate and business services	5.205 (1.30)	1.555* (7.05)	-0.003 (0.207)	0.699
Status in Employment					Community, social and personal services[1]	-1.178 (-0.49)	0.661* (2.98)	0.0006 (0.50)	0.242
Part-Time	-1.425 (-0.31)	0.783* (8.98)	0.0007 (0.31)	0.766					
Full-Time	-2.403 (-0.97)	1.579* (11.14)	0.001 (0.96)	0.839					
Wage and Salaried Workers	-1.034 (-0.62)	1.327* (6.27)	0.0005 (0.62)	0.646					
Employer[1]	-1.901 (-0.30)	1.067* (3.16)	0.001 (0.31)	0.313					
Self-Employment	-0.218 (-0.03)	3.386* (5.92)	0.0001 (0.04)	0.581					
Contributing family workers	-1.034 (-0.62)	1.327* (6.27)	0.0005 (0.62)	0.646					

*, **, *** refers for 0.01, 0.05 and 0.10 significance level

[1]Autocorrelation is detected and the problem is solved through Prais-Winsten estimation procedure.

Table 3:Regression Results of Male Employment

Categories	a (t-stat.)	β (t-stat.)	γ (t-stat.)	Adjusted R-Square	Categories	a (t-stat.)	β (t-stat.)	γ (t-stat.)	Adjusted R-Square
Total Male Employment					**Industrial Sectors**				
Total Female	0.506 (0.68)	0.563* (6.77)	-0.0002	0.646	**Agriculture, forestry, hunting and fishing**	0.738 (0.40)	0.687* (7.62)	-0.0004 (-0.40)	0.702
Educational Attainment					**Mining and quarrying**	0.466 (0.61)	1.024* (65.57)	-0.0002 (-0.61)	0.995
Illiterate	-2.216 (-0.63)	0.550* (3.82)	0.001 (0.97)	0.376					
Literate	-3.007 (-1.13)	0.790* (8.11)	0.001 * (3.35)	0.795	**Electricity, gas and water**	1.61 (1.01)	0.987* (41.89)	-0.0008 (-1.01)	0.987
Primary	1.927** (2.10)	0. 656* (8.30)	-0.0009** (-2.11)	0.796	**Construction[1]**	-0.045 (-0.32)	0.999* (143.07)	0.00002 (0.31)	0.999
Secondary	0.903** (2.43)	0.935* (26.87)	-0.0004** (-1.96)	0.971	**Wholesale and retail trade, hotels and restaurants[1]**	1.281* (4.51)	1.002* 29.18	-0.0006* (-4.55)	0.980
Tertiary[1]	-0.926 (-1.00)	0.878* (9.08)	0.0005 (1.00)	0.8464					
Marital Status					**Transportation, communication and storageHata! Yer işareti tanımlanmamış.**	0.441 (1.29)	0.901* (29.6)	-0.0002 (-1.29)	0.972
Married	0.811 (1.21)	0.534* (6.46)	-0.0004 (-1.20)	0.627					
Single	-0.187 (-0.14)	0.807* (8.01)	0.00009 (0.14)	0.725	**Finance, insurance, real estate and business services**	-1.706 (-1.07)	0.786* (8.99)	0.0008 (1.08)	0.839
Status in Employment					**Community, social and personal services[1]**	-1.178 (-0.49)	0.661* (2.98)	0.0006 (0.50)	0.242
Part-Time	1.327 (0.32)	1.206* (15.36)	-0.0006 (-0.32)	0.907					
Full-Time	0.698 (0.99)	0.841* (20.84)	-0.0003 (-0.99)	0.947					
Wage and Salaried Workers	0.531 (1.86)	0.927* (18.77)	-0.0003 (-1.37)	0.9389					
Employer[1]	0.38 (1.67)	0.991* (79.99)	-0.0001 (-1.68)	0.9977					
Self-Employment	0.286 (0.31)	0.704*** (9.26)	-0.0001 (-0.31)	0.780					
Contributing family workers	0.531 (1.36)	0.927* (18.77)	-0.000 (-1.37)	0.9389					

*, **, *** refers for 0.01, 0.05 and 0.10 significance level
[1]Autocorrelation is detected and the problem is solved through Prais-Winsten estimation procedure

5. Conclusion

In this work female employment in Turkey and its role in the reserve army are investigated. Differently from existing literature on female labor, demographical categories are illustrated. According to test results, demographical categories perform better than production related categories. This suggests that there are strong fundamental obstacles such as marriage institution, part-time female employment, ownership in production and lower education levels which constraint female proletarianization in Turkey as opposed to Marx and Engel's (1967) inference. In this work the Marxist literature is criticized because they readily accept using slope coefficients of the Equation (1.1) as an indicator that shows whether female labor is latent or floating reserve labor. In order to overcome this problem, slope coefficients are tested on the basis of demographical categories. Slope coefficients of demographic categories approves that female labor performs as a latent reserve.

Departing from the finding indicating the strong fundamental obstacles including, for example marriage institution, part-time female employment, ownership in production and lower education levels, a couple of policy suggestions can be addressed in order to cope with the constraints in front of female proletarianization. Policymakers should develop appropriate policies in line with demographic categories presented in this study in order to keep the economy safe from the fluctuations in female employment. In addition, given the low female labor force participation rates in Turkey, policies towards increasing female labor participation could also assist policymakers in preventing female employment volatility resulting from economic fluctuations.

Although this study is different from previous ones by focusing demographic categories, it could not be useful to compare the findings of existing study with those of previous literature. However, it is possible to address some points which encourage future studies in terms of model specification. Firstly, this work shares the same deficiency with Bruegel (1979). It presupposes an ongoing relationship between capital accumulation and employment levels and uses the concept of 'latent reserve' in an arbitrary way. Basic illustration of higher female employment volatility with respect to total employment is not a sufficient demonstration of female employment as 'latent reserve'. The relationship between different categories of female employment (labeled as 'latent' in this work) and capital accumulation must be investigated on the base of monthly data. This type of work can improve the results of this analysis by means of larger data.

Secondly, the work can be improved through introduction of more detailed demographic categories in order to test the net effect of fluctuations of total employment (for instance, investigation of fluctuations in employment of married women who had a tertiary level education). Finally, female and male employment in part-time jobs is another important finding of this work. As mentioned in section 4, part time male labor is disposed more than women when total employment declines and in contradiction with this fact, women labor employed in part-time jobs is disposed more than men. This fact needs more explanation through further analysis.

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APPENDIX

Table A.4:Female Diagnostic Checks

	Female Diagnostic Checks						
Categories	Breusch-Pagan /Cook-Weisberg Test Statistic (P-Value)	White Test Statistic (P-value)	Durbin's Alternative Test for Autocorrelation Test Statistic (p-value)	Categories	Breusch-Pagan /Cook-Weisberg Test Statistic (p-Value)	White Test Statistic (p-value)	Durbin's Alternative Test for Autocorrelation Test Statistic (p-value)
Total Female	0.26 *** (0.60774)	4.73*** (0.4498)	0.082*** (0.7745)	Self-Employed	6.94*** (0.2252)	0.07*** (0.7849)	1.283*** (0.2573)
Illiterate	1.82*** (0.1776)	5.30*** (0.38)	0.211*** (0.6457)	Contributing family workers	5.11*** (0.4027)	0.41*** (0.5222)	5.595* (0.0180)
Literate	1.13*** (0.2875)	3.45*** (0.6306)	1.108*** (0.2925)	Manufacturing	0.15*** (0.7023)	9.00*** (0.1090)	1.83*** (0.267)
Primary	0.02*** (0.8975)	4.10*** (0.5350)	0.001*** (0.9711)				
Secondary	0.63*** (0.4260)	3.67*** (0.5980)	3.15** (0.0687)	Mining and quarrying	1.68*** (0.1944)	3.85*** (0.5715)	4.863* (0.0274)
Tertiary	0.00*** (0.9891)	4.52*** (0.4770)	5.425* (0.0198)	Agriculture, forestry, hunting and fishing	3.17*** (0.6734)	0.85*** (0.3557)	0.139*** (0.7089)
Married	1.79*** (0.1807)	7.72*** (0.1725)	0.330*** (0.5659)	Electricity, gas and water	1.38*** (0.2409)	3.18*** (0.6724)	1.898*** (0.1683)
Single	0.04*** (0.8468)	7.64*** (0.1772)	0.427*** (0.5133)	Construction	0.31 (0.5779)	5.61 (0.3457)	6.755[1] (0.0094)
Part-Time	0.93*** (0.3350)	5.71*** (0.3357)	4.263* (0.0389)	Wholesale and retail trade, hotels and restaurants	1.52** (0.2174)	11.20* (0.0476)	12.35[1] (0.0004)
Full-Time	1.17*** (0.2801)	6.82*** (0.2342)	0.122*** (0.7267)	Transportation, communication and storage	0.02*** (0.8978)	14.05* (0.0153)	1.215*** (0.2703)
Wage and Salaried Workers	0.41*** (0.5222)	5.11*** (0.4027)	5.595* (0.0180)	Finance, insurance, real estate and business services	1.74*** (0.1872)	11.24* (0.0469)	0.074*** (0.7863)
Employer	0.21*** (0.6476)	5.13*** (0.4001)	12.402[1] (0.0004)	Community, social and personal services	0.18*** (0.6752)	9.48** (0.0915)	5.30* (0.0213)

[1] Autocorrelation is detected.

(*,**,*** refers for 0.01, 0.05 and 0.10 significance level)

Table A.5: Male Diagnostic Checks

	Male Diagnostic Checks						
Categories	Breusch-Pagan /Cook-Weisberg Test Statistic (p-Value)	White Test Statistic (p-value)	Durbin's Alternative Test for Autocorrelation Test Statistic (p-value)	Categories	Breusch-Pagan /Cook-Weisberg Test Statistic (P-Value)	White Test Statistic (P-value)	Durbin's Alternative Test for Autocorrelation Test Statistic (p-value)
Total Male	0.20 *** (0.6561)	5.26*** (0.3855)	0.110*** (0.7398)	Self-Employment	6.26*** (0.2819)	0.09*** (0.77)	0.424*** (0.5149)
Illiterate	2.29*** (0.3567)	7.13*** (0.2114)	0.524*** (0.4692)	Contributing Family Workers	2.41*** (0.7902)	1.22*** (0.2691)	3.753** (0.0527)
Literate	3.34** (0.0677)	8.52*** (0.1299)	1.480*** (0.2238)	Agriculture, forestry, hunting and fishing	0.85*** (0.3579)	3.08*** (0.6874)	0.074*** (0.7851)
Primary	0.25*** (0.6198)	4.16*** (0.5269)	0.000*** (0.9886)				
Secondary	0.04** (0.8330)	4.09*** (0.5370)	3.048** (0.0649)	Mining and quarrying	0.01*** (0.9073)	3.79*** (0.58)	6.485* (0.0109)
Tertiary	0.49 (0.4830)	3.64 (0.06020)	4.358* (0.0368)	Manufacturing	0.10*** (0.7562)	8.83*** (0.1161)	1.152*** (0.2831)
Married	1.09*** (0.2960)	9.38** (0.0949)	0.423*** (0.5153)	Electricity, gas and water	2.07*** (0.1502)	9.72** (0.0834)	0.929*** (0.3351)
Single	0.02*** (0.887)	7.50*** (0.1858)	0.392*** (0.5312)	Construction	0.01*** (0.9028)	11.51* (0.0422)	9.146[1] (0.0025)
Part-Time	0.93*** (0.335)	5.71*** (0.3357)	3.107** (0.0779)	Wholesale and retail trade, hotels and restaurants	3.58** (0.0586)	7.85*** (0.1644)	8.705[1] (0.0032)
Full-Time	1.09*** (0.2969)	6.62*** (0.2507)	0.116*** (0.7334)	Transportation, communication and storage	0.06*** (0.8014)	11.10* (0.0495)	1.630*** (0.2016)
Wage and Salaried Workers	1.22*** (0.2691)	2.41*** (0.7902)	3.754** (0.0527)	Finance, insurance, real estate and business services	1.36*** (0.2437)	8.01*** (0.1555)	0.033*** (0.8553)
Employer	6.42*** (0.2676)	0.56*** (0.4533)	16.42[1] (0.0001)	Community, social and personal services	1.03*** (0.3104)	5.45*** (0.3633)	5.860* (0.0155)

[1] Autocorrelation is detected.

(*,**,*** refers for 0.01, 0.05 and 0.10 significance level)