THE IMPACT OF RECESSIONS ON GENDERED EMPLOYMENT PATTERNS IN TURKEY

Özge İzdeş

The Objective of the Paper and Main Research Questions

The aim of the dissertation is to investigate the gendered employment patterns during recessions by looking at previous economic crises in the Turkish Economy Context after financial liberalization (1989)

The Questions We Are Posing Are:

- Are women more "disposable" compared to men during crises times?
- Are women protected due to the fact that they are clustered into narrow range of jobs?
- Do they become preferred type of labor under intensifying cost pressure?

The Motivation of the Paper

- Is to analyze the interplay between class and gender during economic recessions in terms of employment patterns in Turkish economy context:

- Which is highly prone to economic fluctuations and had four consecutive downturns (1991, 1994, 1999, 2001) since financial liberalization in 1989.
- Which shows strong gendered patterns in the labor market and has strikingly low Female Labor Force Participation.

Moreover, the current economic crises which is compared to Great Depression makes this discussion even more timely, and relevant.

The Framework of the Paper

- **In the relevant literature for the topic of discussion there are three hypotheses regarding the relationship between gendered employment patterns and recessions:**

The Buffer Hypothesis implies that gender specific characteristics make women more disposable in times of crises.

The Substitution Hypothesis suggests that the disadvantaged position of women as laborers function as a competitive advantage for them vis-à-vis their male counterparts during economic crises.

The Segmentation Hypothesis argues that incomplete and gender specific form of proletarianization keep women workers protected from cyclical fluctuations. – However women are not necessarily clustered into less cyclically vulnerable jobs hence we argue that the outcomes depend on the relative cyclical volatility of the sectors women are clustered into.

The Framework of the Paper

- The three hypothesis are not necessarily competing they may also be complementary and may co-exist with a certain tension.
- Gender and employment patterns during economic recessions should be studied with the recognition of the interplay of the secular and cyclical trends.
- The paper will analyze: 1) which of these hypotheses explain/s the gendered employment patterns in Turkey with the framework provided by Rubery and Tarling (1982, 1988)

The Contribution of the Paper

- The literature on gender and employment patterns in Turkey has emphasized the secular trends generally under the rubric of feminization of employment with Export-Oriented Industrialization or feminization U curve hypothesis literatures. (Cagatay and Berik (1990), Ozler (2000), Baslevent and Onaran(2004), Baslevent (2001), Tansel (2000), Bulutay (2000), Tunali(2003))
- However, the analyses of cyclical trends have been rather limited. Available studies have adopted micro-economic approach with selected years rather than macro-level long-term analysis.
  - They have focused on either labor supply of women within the added and discouraged worker effect framework (Onaran and Baslevent, 2003) or
  - The relative instability and displacement of women workers within sectors (Ozar, 2000)
  - The need for a macroeconomic analysis of cyclical trends in the gender composition of labor in the developing country context is addressed in the literature. (Erturk and Cagatay (1995))

The Contribution of the Paper

- The Study contributes to the Gender and Crises Literature by providing a recent application of the framework proposed by Rubery and Tarling and by applying it to a developing country context.
- The study will contribute to the feminist economic analysis of Turkish Economy by:

a) Providing a long-term macroeconomic analysis on the impact of economic recessions with 3 hypotheses framework.

Outline of the Presentations

- Review of Theoretical and Empirical Literature
- Overall Developments in Turkish Economy and Labor Market
- Gender and Employment in Turkey Secular Trends
- The Empirical Analysis
- Preliminary Findings on Economic Cycles and Employment Outcomes by Gender

Review of Theoretical and Empirical Literature (Feminist Approach)

- Feminist Critique: Social Conflict and feminist Approach to Distribution of Income
- We will be reviewing the feminist economics literature focusing on two complementary strands of the literature

1) Secular Trends in Women's Activities in Relation to the Economic Development, Urbanization and Economic Policies

- Feminization U-curve hypothesis (Goldin 1994, Durand 1975, Psarchapoulos, G. and Z. Tzannatos, 1999, Schultz, T.P. 1990, Pampel and Tanaka, 1986)
- Feminization of Employment and EOI (Joekes, 1995, Standing, 1989 and 1999, Wood, 1991, Cagatay and Ozler, 1995, Cagatay and Berik, 1991, Beneria, Floro, Grown and Mac Donald, 2000, Collier and Cox-Edwards 1994, Seguino, 2000a and 2000b)

2) Cyclical trends

Review of Theoretical and Empirical Literature 3 (Feminist Approach-Cyclical Trends)

A) The Buffer Hypothesis: Women function as a flexible reserve because they are less incorporated to the workforce compared to men.

1) Human Capital Approach (MacKay et al., 1971, Jennes et al. 1975)
2) Marxist Approach (Milkman, 1976, Connely 1978, Bruno, 1979, Bruegel, 1979, Enloe ,1980, Power 1983, Barone, 1998, Goldthorpe, 1983, Wright 2000).

B) The Substitution Hypothesis: Female labor is substituted for male labor during economic recessions

1) Neo-Classical Framework: recessions correct imperfectionsof the market (Becker, 1971)
2)Marxist Approach (Mies, 1998, Connely, 1978, Milkman, 1976)

c) The Segmentation Hypothesis: Rigid sex-typing of the occupations determine the gendered employment consequences of recessions (Milkman, 1976, Humpheries ,1988)

- **We use the framework developed by Rubery and Tarling (1982, 1988) to analyze the validity of these arguments.**

D) Segmentation and Wages: The typical finding is that earnings are lower in female dominated sectors or occupations. (Sorensen ,1989, Treiman and Hartmann,1981, Blau and Ferber ,1986, Jacobs and Lim ,1992)

Review of Theoretical and Empirical Literature (Feminist Approach-Cyclical Trends)

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Overall Developments in Turkish Economy and the Labor Market

- Turkey shifted from ISI to EOI in 1980.
- Two stages of structural adjustment

1) Phase 1 (1980-1989)
2)Phase 2 (1989 to the present)*

a) Changes in Labor Market Policies
b) Changes in Trade and Investment Regime
c) Increasing Macroeconomic Vulnerability to Economic Fluctuations After Financial Liberalization (1991, 1994, 1999, 2001 recessions)

Gender and Employment in Turkey : Secular Trends

1)Background on Gender Ideology and the Social Context
2) Feminization U-curve Hypothesis and LFP and employment of women:

- Urbanization and Decreasing female LFP: modernization and structural adjustment policies.
- International Comparison
- Studies regarding feminization U-curve hypothesis:

1) Tansel (2000) argues that Turkey has completed the down-turn phase of the U curve and projects to see a rising trend in LFP of women.
2) Tunali (2000, 2003) argues that female labor force participation is likely to rise as Turkey enters later stages of development and demographic shift with higher educational attainment and positive changes in society's attitude towards female work
3) On the other hand Ozar (2000) analyzes the development and female LFP in an international perspective and concludes that other countries show a better performance in female LFP, mainly due to low employment creation of Turkey . Onaran and Baslevent (2004) comes to the same conclusion in their study

Table 1 : Female Labor Force Participation International Comparison Labor force, female (% of total labor force)

Country Name	1989	2005	2006
Poland	45.8265	45.57673	45.67518
Hungary	44.38299	44.6839	44.95668
Uruguay	39.11219	43.90746	44.354
High income: OECD	41.74802	43.83067	44.1173
Euro area	39.19776	43.10181	43.44232
Argentina	33.78769	42.55468	43.05959
Brazil	34.60402	42.46995	42.87308
Georgia	52.1095	43.12793	42.73649
Greece	35.94112	40.23067	40.68336
Spain	33.90055	40.28896	40.63523
Italy	36.93857	39.35755	39.8981
Mexico	30.30063	34.73762	35.17475
Iran, Islamic Rep.	20.04902	33.67305	34.29497
Algeria	22.15476	30.52894	30.96494
Tunisia	21.23871	27.49137	27.91388
Turkey	30.39054	26.37338	26.49377
Morocco	23.4589	26.01571	26.05128

Source: World Bank –Gender Stats
http://ddp-ext.worldbank.org/ext/DDPQQ/report.do?method=showReport
downloaded On May 2, 2009

Appendix B: Table 2: Labor Force Characteristics By Gender, 1988-2006

	Labor Force Part. Rate %				Unemployment Rate %		
	Female	Male	Share of Females in Total LF %	Share of Females in Total Employed Pop. %	Female	Male	Share of Females in Total Unemployed Population %
Urban							
1988	17.7	78.1	18.13	14.94	28.3	9.7	39.25
1989	17.8	76.8	18.54	15.75	26.2	10.1	37.16
1990	17.0	76.8	17.93	15.60	23.4	9.5	35.01
1991	15.6	77.0	16.93	15.01	22.6	10.6	30.19
1992	17.0	76.8	18.26	16.51	20.9	10.7	30.44
1993	15.7	75.2	17.43	15.39	22.8	10.5	31.58
1994	17.4	75.3	18.89	17.16	20.4	10.5	31.09
1995	16.8	74.1	18.77	17.18	18.3	9	31.98
1996	16.0	73.2	18.04	16.95	15.4	8.7	28.01
1997	16.9	72.9	19.01	17.41	17.5	8.2	33.51
1998	16.8	72.8	18.79	17.54	16.5	9.1	29.47
1999	17.8	72.2	19.77	18.43	17.4	9.9	30.14
2000	17.2	70.9	19.54	18.64	13	7.8	28.82
2001	17.4	70.6	19.87	18.73	16.6	10.3	28.61
2002	19.1	69.8	21.51	20.40	18.7	13	28.20
2003	18.5	68.9	21.14	20.04	18.3	12.6	28.05
2004	18.3	70.8	20.65	19.63	17.9	12.5	27.11
2005	19.3	71.5	21.13	20.09	17	11.6	28.28
2006	19.9	70.8	21.79	20.73	16.4	10.9	29.41

Source: www.turstat.gov.tr Household Labor Force Survey (HLS)

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	Labor Force Part. Rate %				Unemployment Rate %		
	Female	Male	Share of Females in Total LF %	Share of Females in Total Employed Pop. %	Female	Male	Share of Females in Total Unemployed Population %
Rural							
1988	50.7	84.7	39.27	39.48	4.4	5.3	35.15
1989	55.1	84.8	40.98	41.57	3.9	6.2	30.35
1990	52.0	83.0	40.31	40.96	3.4	6.0	27.68
1991	55.5	84.1	40.56	41.68	2.1	6.5	17.95
1992	51.9	83.1	39.03	40.08	2.4	6.6	19.02
1993	40.5	81.6	33.84	34.79	2.8	6.9	17.44
1994	48.9	82.6	38.03	39.07	2.4	6.6	18.54
1995	49.3	82.6	37.86	38.81	2.4	6.3	19.01
1996	49.8	82.9	38.29	38.98	1.9	4.7	20.27
1997	45.0	82.0	36.02	36.42	2.7	4.4	25.98
1998	46.9	82.5	37.07	37.58	1.9	4.0	21.99
1999	47.4	81.2	37.80	38.40	2.3	4.8	22.74
2000	40.2	77.9	34.94	35.61	2.0	4.9	18.35
2001	41.7	76.4	36.13	37.28	1.7	6.5	13.08
2002	41.4	74.5	36.56	37.64	3.0	7.3	19.00
2003	39.0	72.9	35.90	36.81	4.2	7.9	22.79
2004	36.7	74.7	33.62	34.61	3.2	7.3	17.99
2005	33.7	73.5	32.56	33.49	4.1	8.1	19.65
2006	33.0	72.7	32.72	33.49	4.3	7.6	21.58

Source: www.turstat.gov.tr Household Labor Force Survey (HLS)

Appendix B: Table 3: Labor Force Characteristics By Gender

	Labor Force Part. Rate %				Unemployment Rate %		
	Female	Male	Share of Females in Total LF %	Share of Females in Total Employed Pop. %	Female	Male	Share of Females in Total Unemployed Population %
Turkey							
1988	34.3	81.2	30.19	29.48	10.6	7.5	37.91
1989	36.1	80.6	31.45	31.14	9.5	8.2	34.72
1990	34.1	79.7	30.57	30.41	8.5	7.8	32.46
1991	34.1	80.2	30.20	30.55	7.1	8.7	26.25
1992	32.7	79.6	29.45	29.69	7.7	8.8	26.81
1993	26.8	78.0	25.93	25.82	9.3	8.8	27.07
1994	31.3	78.5	28.91	29.07	8.0	8.8	27.22
1995	30.9	77.8	28.84	28.94	7.3	7.8	27.65
1996	30.6	77.3	28.70	28.91	5.9	6.9	25.77
1997	28.8	76.7	27.65	27.37	7.7	6.5	31.40
1998	29.3	76.7	27.95	27.97	6.8	6.9	27.69
1999	30.0	75.8	28.70	28.73	7.6	7.7	28.31
2000	26.6	73.7	26.81	26.88	6.3	6.6	25.83
2001	27.1	72.9	27.46	27.73	7.5	8.7	24.50
2002	27.9	71.6	28.38	28.67	9.4	10.7	25.89
2003	26.6	70.4	27.73	27.86	10.1	10.7	26.59
2004	25.4	72.3	26.30	26.47	9.7	10.5	24.82
2005	24.8	72.2	25.86	25.86	10.3	10.3	25.88
2006	24.9	71.5	26.15	26.02	10.3	9.7	27.38

Source: www.turstat.gov.tr Household Labor Force Survey (HLS)

Appendix B: Table 4: Labor Force Participation Rates By Gender, Turkey, 1955-2007

Year	Men	Women	GNP at 1987 prices
Census Of Population:			
1955	95.4	72.0	15,917
1960	93.6	65.4	19,930
1965	91.8	56.6	25,413
1970	79.5	50.3	34,469
1975	80.9	47.3	46,275
1980	79.8	45.8	50,870
1985	78.3	43.6	63,989
1990	78.2	42.8	84,592
Household Labor Force Surveys:			
1988	81.2	34.3	76,108
1989	80.6	36.1	77,347
1990	79.7	34.1	84,592
1991	80.2	34.1	84,887
1992	79.6	32.7	90,323
1993	78.0	26.8	97,677
1994	78.5	31.3	91,733
1995	77.8	30.9	99,028
1996	77.1	30.6	106,080
1997	76.7	28.8	114,874
1998	76.7	29.3	119,303
1999	75.8	30.0	112,044
2000	73.7	26.6	119,144
2001	72.9	27.1	107,783
2002	71.6	27.9	116,338
2003	70.4	26.6	123,165
2004	72.3	25.4	135,308
2005	72.2	24.8	145,651

Source: 1955-1990: Census of population, TURKSTAT. Tansel (2000), p.118. 1988-2008: Household Labor Force Survey, TURKSTAT, www.tuik.gov.tr

Notes: The Population Census Figures for the years 1955-1965 include population 15 years of age and over while for 1970-1990 they include population 12 years of age and over. The Household Labor Force Survey Results include population 12 years of age and over.

Table 5: Urban and Rural Population

YEARS (1)	Total Population (In Thousands)	Urban Population (In Thousands) (2)	Proportion of Urban Population (%)	Rural Population (In Thousands)	Proportion of Rural Population (%)	Periods	Urbanization Rate (%)
1970	35,605	10,222	28.7	25,384	71.3	**1965-1970**	5.3
1975	40,348	13,272	32.9	27,076	67.1	**1970-1975**	5.4
1980	44,737	16,065	35.9	28,672	64.1	**1975-1980**	3.9
1985	50,664	23,238	45.9	27,426	54.1	**1980-1985**	7.7
1990	56,473	28,958	51.3	27,515	48.7	**1985-1990**	4.5
2000	67,420	38,661	57.3	28,759	42.7	**2000**	2.9
2001	68,407	39,709	58	28,698	42	**2001**	2.7
2002	69,388	40,823	58.8	28,565	41.2	**2002**	2.8
2003	70,363	41,924	59.6	28,439	40.4	**2003**	2.7
2004	71,332	43,036	60.3	28,296	39.7	**2004**	2.7
2005	72,065	44,747	62.1	27,318	37.9	**2005**	4
2006	72,974	45,754	62.7	27,220	37.3	**2006**	2.3

Source: TURKSTAT, SPO

(1) Years between 1970-2000 are census date results. Years between 2000-2006 are mid-year estimations.

(2) Urban refers to areas with population of 20.000 or more.

Gender and Employment in Turkey : Secular Trends

The Characteristics of Female Labor in Turkey

- LFP by Education and Gender –Gendered Patterns in Education and LFPR
- LFP by Age and Gender-Traditional M
- Declared Reason of Not Participating in the Labor Force-dominance of family centered reasons
- Findings of Micro-level Qualitative Analysis (Kuyas, 1982, Ecevit 1986, Bolak 1995, Erman et al. 2002, Bora, 2005)
- Responsiveness to the Wage Incentives

Baslevent (2001):

a)Labor Supply decision is related with non-wage factors

b)Full-time versus-part time work decision is effected by wages

The characteristics of the female labor force show that primary determinant for women to participate in the LFP is the social norms and is their non-market duties, and they are far from having regular "genderless proletarian" mindset.

Table 6: Labor Force Participation by Education and Gender (%)

LFP RATES BY YEAR AND EDUCATION LEVEL, (%)
TURKEY

	MEN				WOMEN			
	Illiterate	Lower than high school	High school and its equivalent	University	Illiterate	Lower than high school	High school and its equivalent	University
1988	70.5	82.9	78.0	89.5	32.3	32.4	47.4	82.5
1995	63.3	79.6	75.5	88.0	27.6	29.4	36.5	73.0
2000	56.7	74.9	70.8	83.2	25.2	23.0	31.8	70.1
2005	43.5	71.8	73.8	84.7	17.5	21.8	30.9	70.0

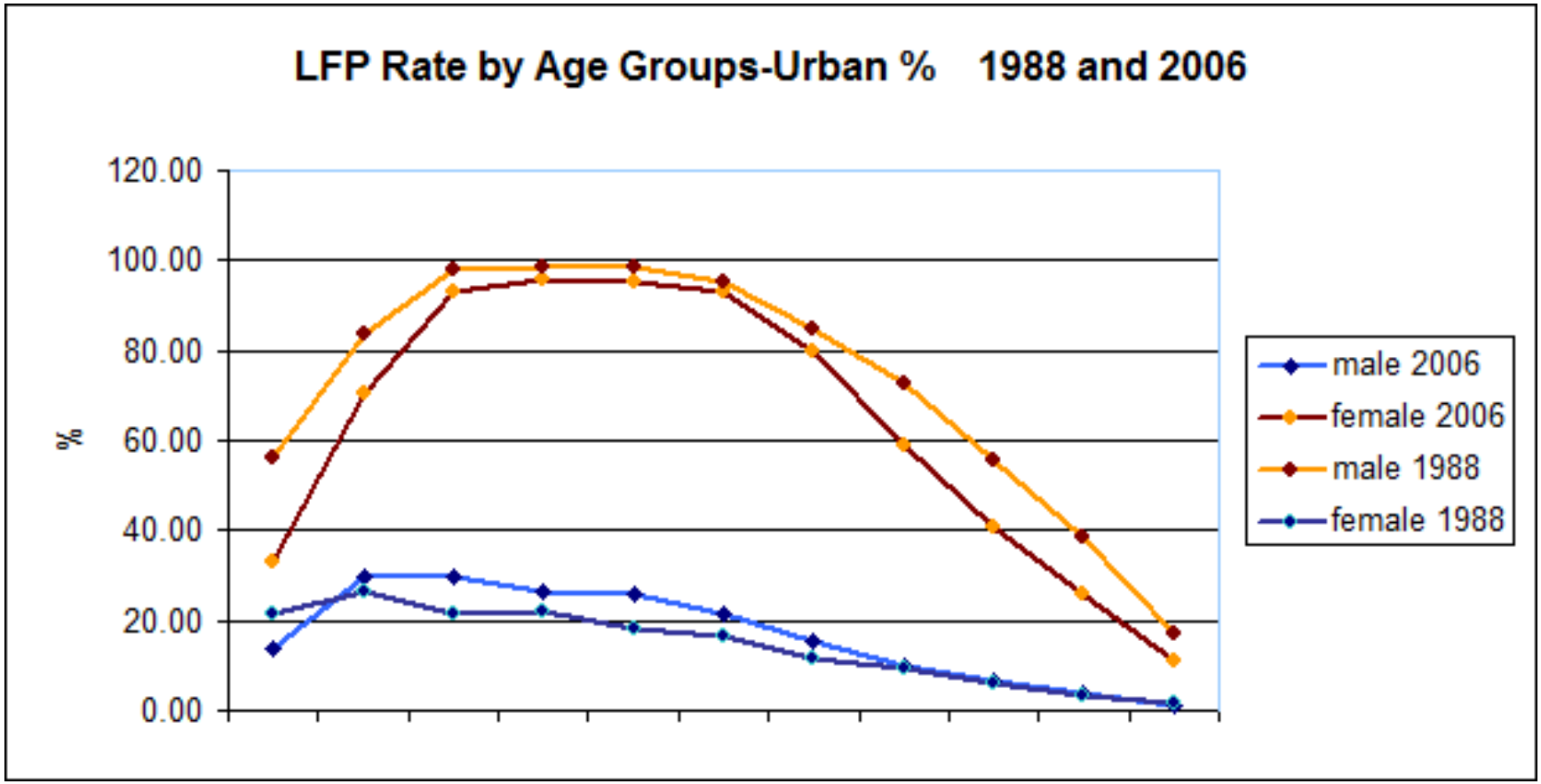
Source: WWHR (2009), Household Labor Force Survey (HLS)

Table 7: Literacy, Labor Force Participation and Public Spending on Education International Comparison

Country	LFP Rate female (% of female pop. ages 15-64)	Literacy rate, adult female (% of females ages 15 and above)	Public spending on education, total (% of GDP)
Argentina	59.90	60.08	3.78
High income:OECD	64.72	98.93	5.38
Brazil	60.60	88.81	4.01
Greece	54.60	94.24	4.22
Italy	49.50	98.04	4.59
Mexico	42.20	89.63	5.41
Iran, Islamic Rep.	39.10	76.80	4.87
Morocco	28.40	39.62	6.32
Turkey	29.00	79.58	4.05
Tunisia	30.40	65.35	7.45

Source: www.ilo.org **downloaded On May 2, 2009**
Notes: The average year for indicators is 2004, (exceptions: Greece, Italy, Argentina :2001; OECD and Iran Isl. Rep. :2005)

Graph 1: LFP-Age Profile by Gender



- Source: Based on www.turstat.gov.tr Household Labor Force Survey (HLS)

Table 8:Not in the Labor Force By Reason (Urban)

Years	Discouraged		Available for work but not seeking a job/Other		Seasonal worker		Busy with h.hold chores	Education		Retired		Having property income (rentals)		Disabled, old or ill		Family or personal reasons		Other *		total
	F	M	F	M	F	M	F	F	M	F	M	F	M	F	M	F	M	F	M	F/M
1988	1.76	3.25	1.73	2.46	0.03	0.26	82.96	6.02	35.38	2.27	36.84	0.98	4.72	2.90	11.01			1.33	6.03	100.00
1989	0.57	0.96	0.54	0.77	0.11	0.38	83.96	6.42	36.47	2.25	39.26	1.41	3.60	2.94	11.48			1.82	7.11	100.00
1990	0.47	1.20	0.37	0.69	0.12	0.41	83.29	6.48	34.07	2.25	39.97	1.31	4.84	4.75	13.69			0.97	5.16	100.00
1991	0.44	0.83	0.59	1.88	0.18	0.44	79.19	6.17	40.87	1.97	35.55	1.35	2.79	6.56	13.10	3.54	4.50	0.01	0.04	100.00
1992	0.27	0.99	0.74	1.49	0.33	0.54	76.50	7.03	41.17	2.41	36.17	1.52	2.32	7.61	12.40	3.58	4.84	0.00	0.08	100.00
1993	0.24	1.16	0.60	1.24	0.22	0.56	78.33	7.74	41.76	2.11	34.31	1.34	3.26	6.71	12.66	2.68	4.98	0.02	0.07	100.00
1994	0.41	0.83	0.80	1.52	0.17	0.54	76.72	7.86	40.63	2.16	36.26	1.51	2.46	7.01	11.85	3.17	5.16	0.20	0.79	100.00
1995	0.20	0.90	0.61	2.01	0.12	0.74	79.31	8.17	41.02	2.41	34.99	1.48	2.58	5.55	11.01	1.82	5.99	0.31	0.80	100.00
1996	0.21	1.12	0.71	1.58	0.28	0.56	80.54	7.88	38.61	2.64	38.18	1.44	2.55	4.66	9.99	1.56	6.77	0.08	0.68	100.00
1997	0.26	1.54	0.84	1.49	0.29	1.04	78.15	7.74	38.32	2.83	36.07	1.50	2.17	5.43	11.11	2.42	5.32	0.54	2.91	100.00
1998	0.21	1.30	1.14	2.15	0.15	0.65	79.30	8.41	39.40	2.74	37.03	1.25	1.16	5.24	11.29	1.36	5.08	0.20	1.89	100.00
1999	0.42	1.45	1.34	2.44	0.15	0.72	75.00	8.79	35.56	3.18	36.23	1.16	1.34	5.99	11.93	3.08	5.52	0.89	4.83	100.00
2000	0.31	1.17	0.88	2.24	0.31	1.20	73.54	8.23	32.90	3.59	35.57	1.38	1.12	5.67	8.94	4.53	8.82	1.56	8.02	100.00
2001	0.19	0.91	0.53	1.51	0.44	1.51	72.77	8.25	32.64	3.53	37.19	1.94	1.10	5.54	8.42	5.33	8.28	1.49	8.47	100.00
2002	0.12	0.52	0.63	1.43	0.75	1.27	72.05	8.52	32.51	4.18	38.16	1.73	0.82	5.34	8.42	5.38	9.47	1.28	7.40	100.00
2003	0.07	0.47	0.51	1.16	0.76	1.10	71.97	9.00	33.71	4.25	38.74	1.26	0.75	5.80	8.32	5.10	9.28	1.27	6.49	100.00
2004	0.59	2.43	2.35	4.78	0.73	0.98	72.74	8.20	31.65	3.39	39.67			6.25	11.38	4.51	4.58	1.24	4.51	100.00
2005	0.96	3.74	3.50	5.62	0.75	0.51	70.19	8.39	31.39	3.51	38.94			6.67	11.77	4.35	2.96	1.68	5.09	100.00
2006	1.22	4.29	4.02	6.47	0.51	0.48	67.42	9.01	31.68	3.92	38.11			7.14	12.13	5.04	1.79	1.73	5.06	100.00

Gender and Employment in Turkey : Secular Trends

3) Feminization of Employment and EOI in Turkey:

- The empirical literature on female employment shows that women hold low-skill, low-paying jobs, mostly in low-capital intensity and small scale plants in export-oriented sectors.
  (Cagatay & Berik, 1990, Ozler, 2000, Onaran & Baslevent, 2004, Kasnakoglu & Dikbayir 2002)
- Despite an agreement on the characteristics of the jobs and sectors women have been concentrated not all studies associate this trend with feminization of employment
- Even though the analyses for different time frames within EOI period agree on the role of export orientation on female employment they are rather careful about the extent of this effect.

Gender and Employment in Turkey : Secular Trends

Where Women Work:
Gender Segmentation in the Labor Market

- trends show that urban women are mostly employed in "community, social and personal services", "Manufacturing", "Wholesale trade, restaurants and hotels", "Finance real est. and business services" economic activities.
- The decrease in DI and WEI are mainly due to the increasing share of female employment in "community, social and personal services", "Wholesale trade, restaurants and hotels, finance real est. and business services" but not so much due to a relative gain in "manufacturing".

Gender and Employment in Turkey : Secular Trends

Where Women Work: Segmentation Measures for the Subsectors of the Manufacturing Sector indicates that:

a) there is significant gender segmentation in the manufacturing sector
b) women are over-represented in the food and textile industries and in non-production activities.
c) Within the two female-dominant sectors, women are usually employed as unskilled workers and do regular office work. They have a low representation at high-technical personnel level. In non-production jobs, women are not employed in high level administrative positions.
d) Segmentation is higher in the public sector which can be associated with governments' negative attitude towards women in a period of privatization and high unemployment.

Gender Segmentation and Wages

- Women are clustered into low-paying jobs.
- Food and textiles have been relatively low paying sectors and has performed more flexible under EOI regime especially during economic cycles.
- Feminization as a cost saving strategy
- Memis 2007, analyzes the profitability and concludes that higher share of female employment has a disciplining effect on wages in export-oriented sectors.

Table 8: Percentage Distribution of Female Employment by Economic Activity, 1988-2006 (urban)

	Agriculture, forestry,hunting and fishing	Mining and quarrying	Manufacturing	Electricity,gas and water	Construction	Wholesale and retail trade, restaurants and hotels	Transportation, communication and storage	Finance, insurance,real estate and business services	Community, social and personal services
1988	14.25	0.28	31.82	0.28	1.2	9.81	2.5	8.05	31.82
1989	12.68	0.17	30.97	0.17	0.78	10.87	2.85	8.37	32.96
1990	13.04	0.08	30.73	0	0.83	10.8	2.66	8.64	33.22
1991	9.19	0.33	29.8	0	0.83	11.59	3.06	8.94	36.18
1992	10.88	0.28	30.51	0.21	0.78	11.94	2.33	8.69	34.39
1993	7.14	0.15	31.84	0.3	1.29	12.54	3.8	7.6	35.33
1994	13.4	0.06	27.82	0.45	1.4	12.25	2.43	7.98	34.27
1995	9.42	0.06	27.65	0.31	1.36	14.07	2.11	8.12	36.95
1996	11.4	0.12	27.48	0.3	1.83	12.49	2.38	8.35	35.53
1997	8.83	0.11	28.87	0.57	1.65	14.64	2.22	8.09	35.08
1998	8.25	0.22	26.98	0.55	1.47	13.6	2.35	8.9	37.68
1999	10.57	0.15	26.83	0.36	1.17	14.68	2.03	7.98	36.33
2000	8.7	0.19	25.07	0.29	1.26	16.43	2.71	9.71	35.65
2001	10.95	0.05	25.46	0.29	0.96	16.25	2.7	8.49	34.76
2002	10.19	0.09	27.13	0.13	0.97	16.72	2.51	7.63	34.63
2003	9.5	0.13	26.88	0.22	1.15	17.24	2.48	7.78	34.66
2004	12.09	0.09	26.15	0.17	0.95	17.55	2.49	8.43	32.09
2005	11.09	0.08	25.15	0.16	0.91	18.26	2.57	8.28	33.5
2006	9.51	0.07	23.78	0.18	1.18	19.73	2.65	9.03	33.85

Source: Authors Calculations Based on HLS, www.turkstat.gov.tr

Table 8: Percentage Distribution of Female Employment by Economic Activity, 1988-2006 (rural)

	Agriculture, forestry,hunting and fishing	Mining and quarrying	Manufacturing	Electricity,gas and water	Construction	Wholesale and retail trade, restaurants and hotels	Transportation, communication and storage	Finance, insurance,real estate and business services	Community, social and personal services
1988	93.07	0.1	2.26	0	0.05	0.89	0.39	0.39	2.87
1989	93.02	0.09	2.9	0	0.04	0.66	0.2	0.4	2.7
1990	93.89	0.05	2.55	0	0.05	0.5	0.16	0.32	2.5
1991	94.81	0.02	2.58	0	0.02	0.32	0.11	0.21	1.94
1992	91.98	0.02	4.47	0	0.11	0.69	0.25	0.32	2.15
1993	92.4	0	3.32	0	0.12	0.84	0.29	0.17	2.86
1994	92.84	0.02	3.44	0	0.07	0.89	0.07	0.26	2.42
1995	94.77	0.02	2.3	0.05	0.05	0.6	0.07	0.28	1.89
1996	94.34	0	2.59	0.04	0.07	0.6	0.04	0.18	2.14
1997	93.48	0.02	3.01	0	0.07	0.96	0.1	0.25	2.12
1998	93.38	0	3.05	0	0.05	0.87	0.16	0.16	2.37
1999	91.64	0	4.17	0	0.05	1.31	0.05	0.39	2.4
2000	89.2	0.03	5.39	0	0.16	1.29	0.35	0.54	3.06
2001	91.19	0.05	4.24	0.03	0.03	1.26	0.15	0.46	2.62
2002	89.31	0.08	5.01	0.03	0.03	1.76	0.16	0.49	3.16
2003	89.04	0	4.02	0.03	0.08	2.29	0.19	0.47	3.86
2004	87.66	0	4.97	0.03	0.12	2.73	0.12	0.58	3.8
2005	83.87	0.03	5.89	0.03	0.16	3.84	0.19	0.85	5.17
2006	82.54	0.03	5.91	0.03	0.13	4.62	0.16	1	5.58

Source: Authors Calculations Based on HLS, www.turkstat.gov.tr

Table 9: Coefficient of Female Representation (CFR), Dissimilarity Index and Women and Employment Index Urban Turkey 1988-2001

	Agriculture, forestry, hunting and fishing	Mining and quarrying	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade,restaurants and hotels	Transportation,communication and storage	Finance,ins.,real estate and business services	Community,social and personal services	DI (URBAN)	WE
1988	2.46	0.19	1.15	0.87	0.14	0.48	0.36	1.72	1.35	28.32	48.16
1989	2.52	0.13	1.10	0.60	0.10	0.51	0.39	1.72	1.42	28.11	47.36
1990	2.63	0.07	1.10	0.00	0.11	0.49	0.38	1.93	1.34	28.00	47.25
1991	2.09	0.32	1.10	0.00	0.10	0.52	0.43	1.88	1.47	27.36	46.52
1992	2.07	0.26	1.11	0.48	0.09	0.54	0.34	1.76	1.47	27.92	46.60
1993	1.77	0.15	1.22	0.33	0.13	0.56	0.49	1.74	1.51	28.36	47.95
1994	2.49	0.06	1.03	0.60	0.15	0.55	0.35	1.72	1.50	28.48	47.23
1995	1.99	0.10	1.04	0.42	0.15	0.61	0.31	1.82	1.56	27.45	45.49
1996	2.18	0.24	1.00	0.58	0.19	0.55	0.37	1.80	1.53	26.90	44.70
1997	1.95	0.19	1.03	0.69	0.18	0.64	0.34	1.75	1.54	25.27	41.76
1998	1.88	0.41	0.99	0.70	0.15	0.60	0.35	1.90	1.62	27.29	44.99
1999	2.06	0.25	1.02	0.58	0.13	0.62	0.32	1.67	1.53	26.55	43.31
2000	2.30	0.58	0.95	0.44	0.16	0.60	0.39	1.69	1.69	28.85	46.96
2001	2.51	0.14	0.96	0.45	0.13	0.60	0.39	1.56	1.64	28.56	46.43
2002	2.34	0.20	1.02	0.22	0.15	0.60	0.39	1.41	1.58	26.80	42.66
2003	2.24	0.32	1.01	0.35	0.19	0.62	0.38	1.42	1.57	25.52	40.80
2004	2.09	0.16	1.01	0.32	0.15	0.65	0.37	1.46	1.50	24.63	39.61
2005	2.07	0.16	0.96	0.36	0.14	0.67	0.40	1.40	1.58	25.49	40.73
2006	2.00	0.15	0.93	0.35	0.17	0.72	0.41	1.38	1.60	25.13	39.84

Source: Authors Calculations Based on HLS, www.turkstat.gov.tr

Table 10: Female Share in Private Major Manufacturing Industries

Private Manufacturing	31	32	33	34	35	36	37	38	39
1985	19.83	38.54	7.60	13.22	18.26	10.04	3.32	11.40	36.58
1986	19.58	37.06	9.10	11.01	15.50	8.53	3.72	10.44	32.33
1987	18.99	36.93	9.38	12.15	15.75	8.58	4.26	10.54	38.49
1988	20.57	38.29	10.04	11.53	16.68	8.26	4.12	11.01	35.16
1989	20.88	39.15	10.05	11.16	16.81	8.58	3.49	11.24	31.47
1990	21.55	38.05	9.44	10.85	15.84	7.54	3.83	12.00	28.63
1991	24.55	38.19	9.43	10.82	15.65	7.96	4.62	12.52	29.16
1992	24.54	38.09	10.43	10.91	15.16	7.91	4.62	12.21	24.35
1993	24.09	37.25	9.03	11.87	15.79	8.33	4.26	12.00	24.36
1994	29.29	37.38	8.59	11.26	16.17	8.11	4.18	12.67	22.33
1995	28.56	37.91	8.52	11.83	17.32	8.41	3.75	13.21	24.46
1996	26.85	37.50	7.86	11.40	16.98	8.70	4.14	13.17	26.80
1997	26.45	38.38	8.19	11.74	16.95	8.82	4.06	13.35	24.85
1998	26.13	37.88	8.49	12.96	16.73	8.18	4.17	12.50	21.57
1999	25.36	36.27	8.14	13.71	17.15	8.63	4.12	12.73	22.13
2000	25.42	37.13	10.13	14.18	17.24	8.38	5.19	12.48	23.01
2001	25.68	36.79	9.08	14.61	17.58	7.86	4.42	13.15	24.44

Source: Authors own calculations based on Annual Manufacturing Survey

Table 10: Female Share in Public Major Manufacturing Industries

public manufacturing	31	32	33	34	35	36	37	38	39
1985	34.62	19.16	2.19	19.89	2.65	1.26	2.04	4.75	
1986	16.50	22.88	3.29	8.16	3.40	5.63	2.55	7.84	
1987	17.95	22.82	3.58	8.15	3.54	7.68	2.53	6.18	
1988	18.29	21.73	4.02	7.81	3.76	5.13	2.74	6.63	13.23
1989	18.63	22.77	4.14	7.16	3.54	4.99	2.57	4.86	10.63
1990	19.04	22.51	4.46	7.17	4.04	4.93	2.74	4.29	11.64
1991	16.85	21.97	4.41	6.91	4.10	4.96	2.79	4.31	11.33
1992	16.72	21.55	4.12	7.20	4.15	5.32	2.86	4.14	8.55
1993	16.67	21.36	4.21	7.63	4.92	5.69	3.00	4.53	7.62
1994	14.03	20.84	4.07	8.15	5.18	5.39	2.97	5.31	9.11
1995	14.45	22.73	3.75	8.21	4.99	5.06	2.51	4.43	8.33
1996	10.90	23.47	3.89	7.05	4.35	5.11	2.43	4.43	10.49
1997	10.64	22.91	4.36	8.77	4.67	2.57	2.43	3.80	30.89
1998	10.08	23.07	4.64	6.85	5.29	4.60	2.82	4.28	16.88
1999	10.13	21.59	5.36	6.75	5.15	4.80	2.83	4.49	15.38
2000	9.37	22.00	2.30	5.35	5.11	3.13	2.92	4.29	17.62
2001	8.99	23.88	2.68	10.52	5.23	2.70	5.89	5.04	16.73

Source: Authors own calculations based on Annual Manufacturing Survey

Table 11: Manufacturing Segregation Indices (production)

PRODUCTION WORKER

	PUBLIC SECTOR		PRIVATE SECTOR	
	DI	WE	DI	WE
1985	42.03	64.26	35.42	55.30
1986	39.05	68.99	38.14	60.64
1987	45.4	80.52	37.93	60.33
1988	44.95	79.78	38.98	60.82
1989	47.52	84.22	38.59	59.58
1990	48.25	85.38	38.07	59.27
1991	47.66	85.51	38.66	59.94
1992	46.23	82.88	38.17	58.78
1993	43.08	77.13	38.08	59.29
1994	41.89	75.8	37.78	57.43
1995	42.62	77	36.91	55.98
1996	39.93	73.21	36.13	55.03
1997	41.75	77.31	37.25	56.87
1998	38.08	70.46	38.35	59.08
1999	39.06	72.54	36.9	57.61
2000	36.5	68.31	37.6	58.39
2001	29.21	53.78	36.03	55.40

Source: Authors own calculations based on Annual Manufacturing Survey

Table 11: Manufacturing Segregation Indices (other)

OTHER WORKER

	PUBLIC SECTOR		PRIVATE SECTOR	
	DI	WE	DI	WE
1985	23.36	38.25	9.62	15.50
1986	13.15	23.27	10.78	17.61
1987	7.54	13.36	12.07	19.48
1988	9.96	17.76	12.57	20.14
1989	12.17	21.86	12.53	20.02
1990	11.46	20.53	13.58	21.65
1991	9.85	17.5	13.36	20.94
1992	13.2	23.41	14.68	23.12
1993	17.27	30.58	11.34	17.59
1994	7.66	13.62	14.19	21.89
1995	14.54	25.81	15.59	23.69
1996	13.19	23.78	16.46	24.80
1997	10.7	19.16	14.65	21.58
1998	6.42	11.53	15.68	23.34
1999	7.83	14	14.05	20.74
2000	11.7	20.92	13.97	20.52
2001	8.54	15.28	14.19	20.80

Source: Authors own calculations based on Annual Manufacturing Survey

Table 12 : Coefficient of Female Representation- Manufacturing Sector

CFR- Private Sector Production workers									
years	31	32	33	34	35	36	37	38	39
1985	0.96	1.85	0.25	0.44	0.79	0.46	0.04	0.44	1.75
1986	1.03	1.9	0.36	0.36	0.68	0.4	0.07	0.41	1.66
1987	1.01	1.88	0.36	0.37	0.71	0.38	0.08	0.41	2
1988	1.04	1.82	0.37	0.35	0.67	0.34	0.06	0.4	1.72
1989	1	1.79	0.36	0.32	0.67	0.33	0.04	0.4	1.43
1990	1.07	1.78	0.35	0.3	0.66	0.3	0.05	0.43	1.29
1991	1.23	1.75	0.29	0.32	0.59	0.29	0.05	0.45	1.31
1992	1.21	1.7	0.37	0.34	0.53	0.28	0.05	0.44	1.05
1993	1.16	1.73	0.31	0.35	0.56	0.32	0.04	0.43	1.06
1994	1.36	1.59	0.24	0.35	0.52	0.28	0.03	0.43	0.84
1995	1.29	1.59	0.23	0.37	0.55	0.28	0.04	0.46	0.99
1996	1.23	1.59	0.23	0.37	0.52	0.29	0.03	0.45	1.12
1997	1.19	1.63	0.25	0.3	0.5	0.28	0.05	0.46	1.04
1998	1.23	1.66	0.24	0.37	0.5	0.27	0.05	0.44	0.88
1999	1.22	1.65	0.23	0.37	0.53	0.29	0.05	0.46	0.95
2000	1.2	1.67	0.3	0.37	0.52	0.26	0.08	0.44	0.96
2001	1.18	1.59	0.23	0.37	0.51	0.24	0.05	0.44	0.96

Source: Authors own calculations based on Annual Manufacturing Survey

Table 12 : Coefficient of Female Representation- Manufacturing Sector

CFR- Private Sector - other workers									
years	31	32	33	34	35	36	37	38	39
1985	0.78	1.26	1	1.17	1.06	0.53	0.87	1	1.25
1986	0.8	1.33	1.1	1.14	1.08	0.55	0.83	0.99	1.2
1987	0.69	1.39	1.04	1.29	0.98	0.63	0.87	0.99	1.24
1988	0.7	1.37	1	1.07	1.08	0.62	0.81	0.97	1.08
1989	0.74	1.4	0.95	0.98	1.01	0.65	0.75	0.95	1.3
1990	0.73	1.43	0.87	0.98	0.91	0.55	0.76	1.03	1.42
1991	0.7	1.45	0.99	0.84	0.96	0.64	0.82	0.99	1.3
1992	0.69	1.48	0.93	0.82	0.99	0.7	0.85	0.9	1.21
1993	0.84	1.35	0.87	0.89	1.01	0.61	0.75	0.94	1.26
1994	0.84	1.41	0.94	0.73	1.03	0.61	0.74	0.88	1.45
1995	0.84	1.43	0.92	0.71	1.04	0.65	0.62	0.85	1.13
1996	0.78	1.44	0.84	0.65	1.05	0.67	0.71	0.86	1.11
1997	0.81	1.39	0.79	0.9	1.01	0.65	0.63	0.87	0.96
1998	0.78	1.41	1.01	0.88	1.04	0.64	0.66	0.85	1.07
1999	0.8	1.38	0.97	1.03	1.03	0.7	0.67	0.85	1.05
2000	0.77	1.36	1.08	1.12	1.02	0.73	0.76	0.83	1.09
2001	0.75	1.36	1	1.08	0.99	0.61	0.7	0.86	1.21

Source: Authors own calculations based on Annual Manufacturing Survey

Empirical Analysis

The regression takes the following form:

$$\log F_{it} - \log F_{it-1} = \alpha + \beta (\log T_{it} - \log T_{it-1}) + \gamma t + u \quad (5.1)$$

Where,

F_{it} =female employment in industry i in time t

T_{it} = Total employment in industry i in time t

γ and α are trend elements and β stands for the cyclical elements

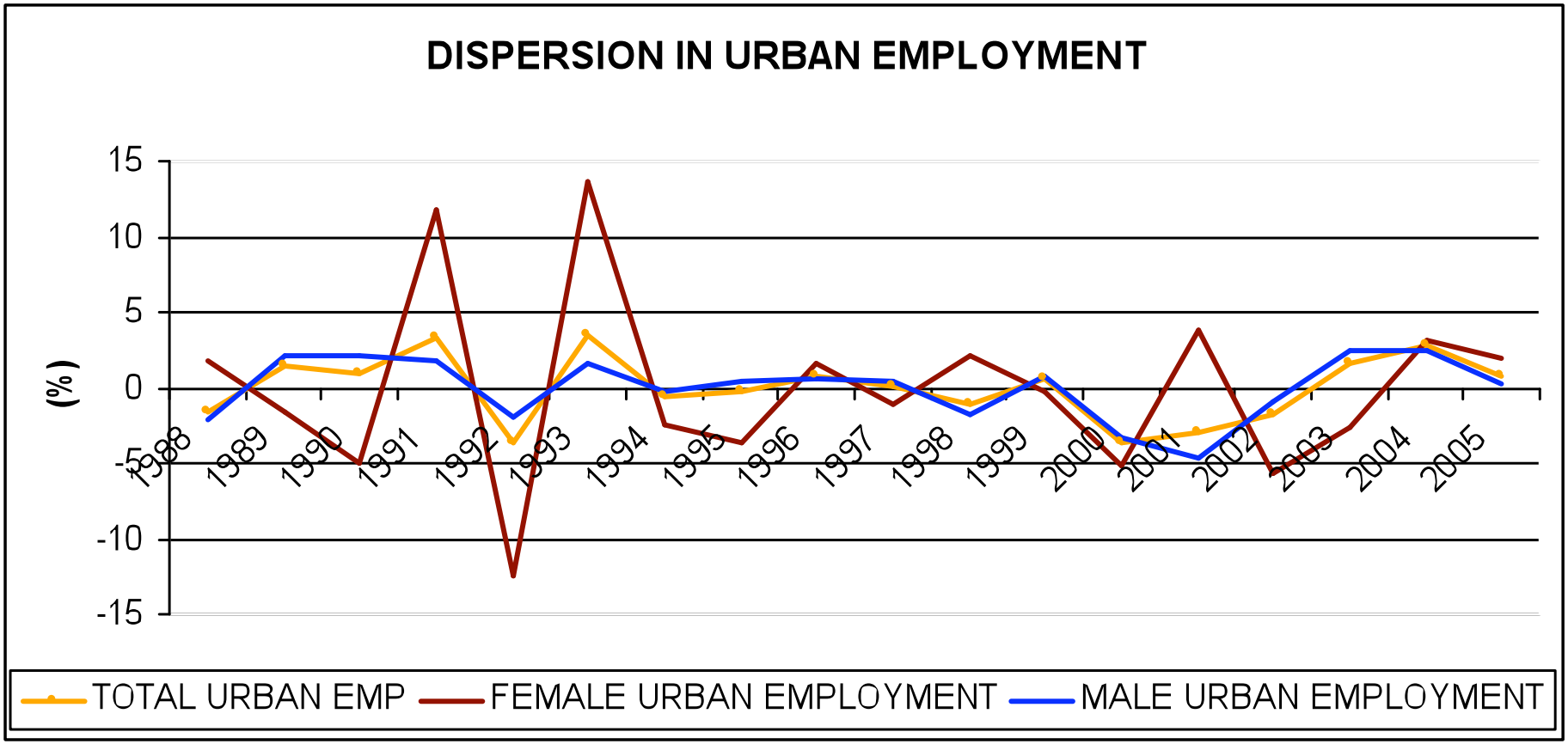
Summary Interpretations of the Parameters

Trend Elements		**Cyclical Elements**	
PRO-CYCLICAL			
(α) and (γt) same sign	(α) accelerates with significant time trend	β=1	Women's employment is equally sensitive to employment fluctuations with the total.
(α) and (γt) Opposite signs	The net effect determines; overtime (α) Can be offset with the time trend (γt)	β>1	Women's employment is more sensitive to employment fluctuations than the average= BUFFER
		β<1	Women's employment is less sensitive to employment fluctuations than the average=SEGMENTATION
COUNTER-CYCLICAL			
		β<0	Women's employment move counter-cyclically SUBSTITUTION

5.2. Relative Sensitivity of Female Employment to Employment Fluctuations

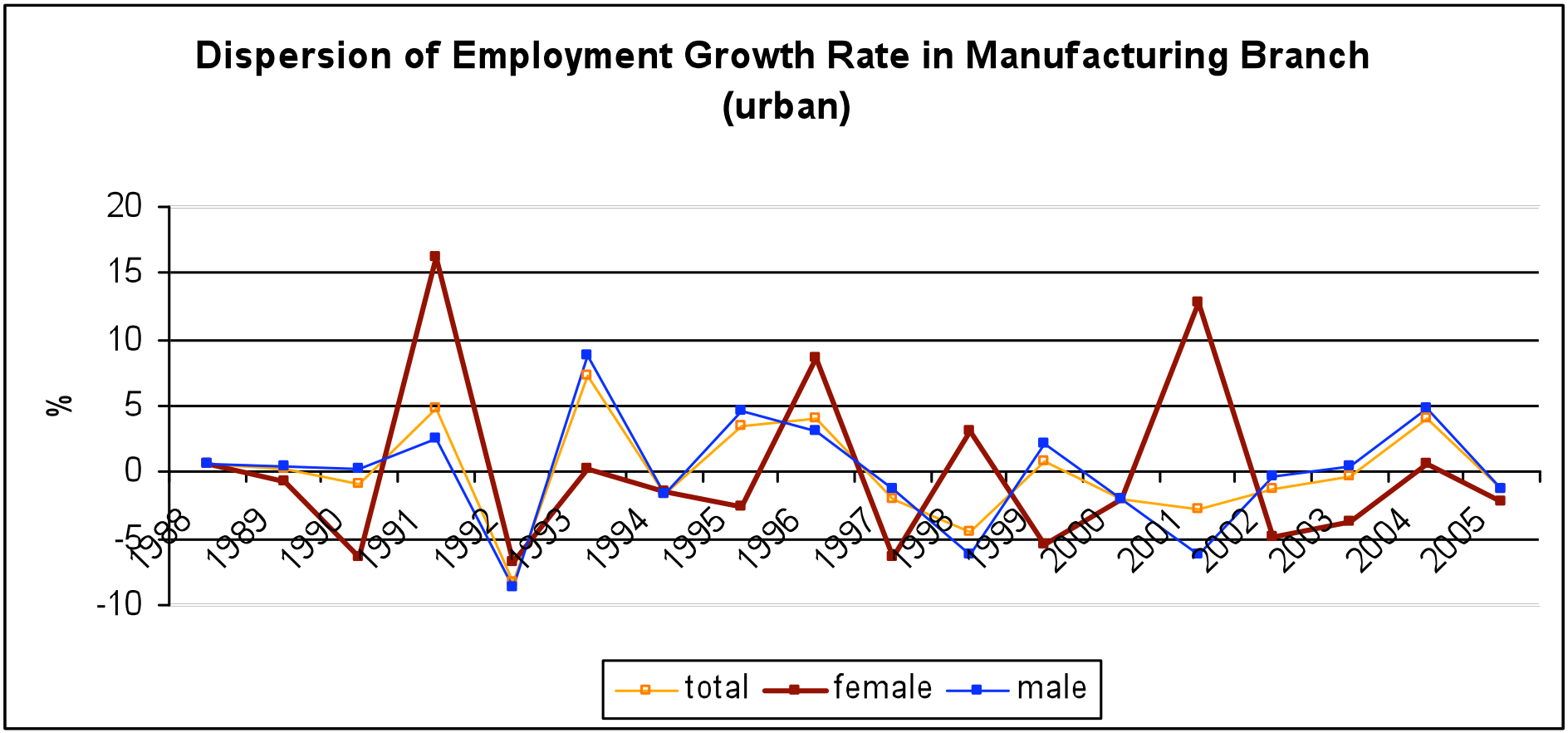
- We apply the model above (equation 5.1) first by conducting a time series analysis for 1988-2007, by using Household Labor Force Survey (HLS) to analyze the relative sensitivity of women to economic fluctuations at the economy-wide level as well as at the economic-activity level (9 major economic branches).
- Next, we focus on the manufacturing sector, and replicate the analysis with a fixed effects/ random effects model at the sub-sectoral level by using Annual Manufacturing Survey Data (AMIS) for the 1985-2001 period. We conduct the analysis for private, public and total manufacturing separately.

Graph 1



Source: Authors calculations based in HLS survey data. www.turstat.gov.tr

Graph 2



Source: Authors calculations based in HLS survey data. www.turstat.gov.tr

Appendix A.1.: Data Summary by Economic Branch (based on HLFS 1988-2006)

Economic Activity	Std Dev. Female (th.)	Std. Dev. Male (th.)	Std. Dev. Total (th.)	Mean Female (th.)	Mean Male (th.)	Mean Total (th.)	Prop. Of Women	Std Dev. / Mean (%) Female	Std.Dev./ Mean (%) Male	Std.Dev./ Mean (%) Total
Agriculture,forestry,hunting and fishing	75.1	65.28	130.52	208.57	302.59	511.25	40%	36%	21.05%	25.50%
Community,social and personal services	171.88	148.08	308.34	687.41	1671.4	2358.83	29%	25%	8.85%	13.07%
Construction	7.38	134.51	139.12	22.37	784.55	806.9	2%	32.99%	17.14%	17.24%
Electricity,gas and water	2.68	19.07	19.44	4.78	56.38	62.33	7.50%	56.18%	33.82%	31.18%
Finance,insurance, real estate and business services	49.95	121.14	169.44	169.4	409.96	579.46	29%	29.55%	29.55%	29.24%
Manufacturing	102.73	318.55	412.56	528.04	2292.79	2820.72	18.60%	19.45%	13.89%	14.62%
Mining and quarrying	1.35	20.42	20.43	2.22	60.96	63.2	3.80%	60.81%	33.49%	32.32%
Transportation,communication and storage	14.84	89.11	101.73	51.06	661.74	712.66	7%	29.66%	13.46%	14.22%
Wholesale and retail trade, Restaurants and hotels	137.26	549.03	681.39	324.85	2414.61	2739.5	11%	42.25%	22.73%	24.87%
Total Economy	518.08	1270.42	1777.84	1998.89	8655.07	10653.9	18.40%	25.91%	14.67%	16.68%

Source: Authors Calculations based on Household Labor Force Survey (HLS)

Table C.5: Results Table on Female Employment Change at the Total Economy and Economic Branch Level

	Agriculture Forestry, Hunting and Fishing	**Community Social and Pesonal Services**	**Construct.**	**Electricity Gas and Water**	**Finance, Insurance, Real Estate and Business Services**	**Manufact.**	**Mining and Quarrying**	**Transport. Comm. and Storage**	**W. Trade, Rest. and Hotels**	**Total**
	female emp. change	female emp. change	female emp. change	female emp. change	female emp. change	female emp. change	female emp. change	female emp. change	female emp. change	female emp. change
	OLS 1	OLS 2	OLS 3	OLS 4	OLS 5	OLS 6	OLS 7	OLS 9	OLS 10	OLS 8
Ln_Tit_Ln_Tit_1	**1.446*** **	**1.120*** **	0.166	0.899*	**1.270*** **	**1.585*** **	-0.044	0.412	**0.882** **	**1.799*** **
	(0.109)	(0.231)	(0.386)	(0.44)	(0.172)	(0.231)	(0.562)	(0.661)	(0.409)	(0.32)
monthc	0	0	0	-0.001	0	0	-0.002	0	0	0
	0	0	(0.001)	(0.002)	0	0	(0.002)	(0.001)	0	0
Constant	-0.022	0.092	0.137	0.482	0.065	-0.008	0.785	0.124	0.159	0.003
	(0.137)	(0.078)	(0.349)	(0.77)	(0.108)	(0.094)	(1.016)	(0.256)	(0.115)	(0.065_
Observations	38	38	38	32	38	38	31	38	38	38
R-squared	0.83	0.48	0.01	0.14	0.61	0.58	0.03	0.02	0.18	0.51
t-value	13.21	4.84	0.43	2.04	7.40	6.86	-0.08	0.62	2.16	5.62
P- value	0.000	0.000	0.670	0.050	0.000	0.000	0.938	0.537	0.038	0.000
$H_0:\beta_1=1$, $H_1:\beta_{1>}1$	***				*	***				***
$H_0:\beta_1=1$, $H_1:\beta_{1<}1$			**				***			

Standard errors in parentheses

- * significant at 10%; ** significant at 5%; *** significant at 1%($H_0:\beta_1=0$, $H_1:\beta_1\neq0$)
- * significant at 10%; ** significant at 5%; *** significant at 1% ($H_0:\beta_1=1$, $H_1:\beta_1>1$), ($H_0:\beta_1=1$, $H_1:\beta_1<1$)

Table C.6: Results Table-Ranking of Economic Branches According to the Share of Women

Economic Activity	Proportion of Women	β>1	β<1
Agriculture,forestry,hunting and fishing	40%	***	
Community,social and personal services	29%		
Finance,insurance, real estate and business services	29%	*	
Manufacturing	18.60%	***	
Wholesale and retail trade, Restaurants and hotels	11%		
Electricity,gas and water	7.50%		
Transportation,communication and storage	7%		
Mining and quarrying	3.80%		***
Construction	2%		**
Total Economy	18.40%	***	

Findings 1
(on total economy and major economic activities)

- female employment is more cyclically sensitive than total employment in the economy.

- At the level of industrial divisions we see that there is greater cyclical volatility in female employment in *agriculture, forestry, hunting and fishing* and *manufacturing* industries, at the %1 significance level. The results also show that cyclical sensitivity of female employment is also higher than the average in *finance,insurance, real estate and business service* at the %10 level. On the other hand, β is significantly less one, in *mining and quarrying* and c*onstruction* economic activities, in which the shares of female employment are extremely low. The time trend variable is insignificant.

Findings 1 Continued

- When economic activities are ranked according to female share of employment (see Table C.6) we see that women continue to function as the reserve army of labor in three out of four industries they are concentrated in.
- The high volatility of female employment reveals that women have penetrated beyond clerical and ancillary tasks and they are employed in more cyclically sensitive operative jobs. The sex differential in the cyclical instability of employment reveals the fact that the absorption of workers is incomplete, and they are the latent reserve who could not become a part of the homogenous proletariat.
- In industry groups where female employment share is less than 10% of total employment, we see that female employment is not cyclically volatile, and even protected. A possible interpretation is that women have not yet attained a wide range of production jobs in those industries, but are more likely to be concentrated in clerical work, cleaning, packing etc.

Table C.7: Results Table on the Change in Female Employment on Manufacturing Payrolls, By major Industry Groups, 1985-2001.

Manufacturing (Private+ Public) Fixed Effects					
	Coeffiecient	St.err.	P-value	$H_1 = \beta > 1$	$H_1 = \beta < 1$
Food, Food Products and Beverages	0.791***	0.056	0.000		***
Textiles, Textile Products, Leather and Footwear	1.091***	0.034	0.000	***	
Wood and Products of Wood	1.445***	0.073	0.000	***	
Pulp, Paper and Paper Products and Publishing	0.753***	0.072	0.000		***
Chemicals, Chem. Products, Rubber and Plastics	0.716***	0.057	0.000		***
Manufacture of Glass and Pottery	0.805***	0.088	0.000		**
Basic Metals, Iron and Steel	1.121***	0.152	0.000		
Machinery and Equipment	0.996***	0.039	0.000		
Other Manufacturing	1.232***	0.120	0.000	**	
Constant	0.102	3.711	0.978		
Number of obs		1299			
R-Squared		0.6991			

* significant at 10%; ** significant at 5%; *** significant at 1%(H_0:β_1=0, H_1:$\beta_1 \neq 0$)

* significant at 10%; ** significant at 5%; *** significant at 1% (H_0:β_1=1, H_1:β_1>1), (H_0:β_1=1, H_1:β_1<1)

Hausmann Test: Prob>chi2 = 0.0399

Table C.8: Results Table on the Change in Female Employment on Manufacturing Payrolls, By major Industry Groups, 1985-2001. (Public Sector)

Manufacturing (Public) Random Effects					
	Coeffiecient	St.err.	P-value	$H_1 = \beta>1$	$H_1 = \beta<1$
Food, Food Products and Beverages	1.049***	0.048	0.000		
Textiles, Textile Products, Leather and Footwear	1.226***	0.063	0.000	***	
Wood and Products of Wood	1.041***	0.130	0.000		
Pulp, Paper and Paper Products and Publishing	0.986***	0.094	0.000		
Chemicals, Chem. Products, Rubber and Plastics	0.915***	0.054	0.000		*
Manufacture of Glass and Pottery	1.119***	0.086	0.000	*	
Basic Metals, Iron and Steel	1.296***	0.104	0.000	***	
Machinery and Equipment	0.881***	0.052	0.000		**
Other Manufacturing	1.119***	0.295	0.000		
Constant	0.0017318	10.194	0.735		
Number of obs	-3.445	874.000	0.735		
years	0.0017318	0.005115	0.735		
R-Squared		0.681			

* significant at 10%; ** significant at 5%; *** significant at 1%(H_0:β_1=0, H_1:$\beta_1\neq0$)

* significant at 10%; ** significant at 5%; *** significant at 1% (H_0:β_1=1, H_1:β_1>1), (H_0:β_1=1, H_1:β_1<1)

Hausmann Test: Prob>chi2 = 0.9184

Table C. 9: Results Table on the Change in Female Employment on Manufacturing Payrolls, By major Industry Groups, 1985-2001. (Public Sector)

Manufacturing (Public) Fixed Effects					
	Coeffiecient	St.err.	P-value	$H_1 = \beta>1$	$H_1 = \beta<1$
Food, Food Products and Beverages	1.042***	0.052	0.000		
Textiles, Textile Products, Leather and Footwear	1.224***	0.065	0.000	***	
Wood and Products of Wood	1.033***	0.141	0.000		
Pulp, Paper and Paper Products and Publishing	1.010***	0.097	0.000		
Chemicals, Chem. Products, Rubber and Plastics	0.910***	0.060	0.000		*
Manufacture of Glass and Pottery	1.102***	0.088	0.000		
Basic Metals, Iron and Steel	1.267***	0.108	0.000	***	
Machinery and Equipment	0.879***	0.055	0.000		**
Other Manufacturing	1.121***	0.305	0.000		
Constant	0.001732	10.194	0.735		
Number of obs	-3.445	874.000	0.735		
years	0.001732	0.005115	0.735		
years	0.002	0.005	0.684		
R-Squared		0.681			

* significant at 10%; ** significant at 5%; *** significant at 1%(H_0:β_1=0, H_1:β_1≠0)

* significant at 10%; ** significant at 5%; *** significant at 1% (H_0:β_1=1, H_1:β_1>1), (H_0:β_1=1, H_1:β_1<1)

Hausmann Test: Prob>chi2 = 0.9184

Table C.10: Results Table on the Change in Female Employment on Manufacturing Payrolls, By major Industry Groups, 1985-2001. (Private Sector)

Manufacturing (Private) Fixed Effects					
	Coeffiecient	St.err.	P-value	$H_1 = \beta>1$	$H_1 = \beta<1$
Food, Food Products and Beverages	0.985***	0.064	0.000		
Textiles, Textile Products, Leather and Footwear	1.109***	0.038	0.000	***	
Wood and Products of Wood	1.597***	0.092	0.000	***	
Pulp, Paper and Paper Products and Publishing	0.844***	0.126	0.000		
Chemicals, Chem. Products, Rubber and Plastics	0.987***	0.045	0.000		
Manufacture of Glass and Pottery	0.775***	0.113	0.000		**
Basic Metals, Iron and Steel	1.266***	0.266	0.000		
Machinery and Equipment	0.985***	0.043	0.000		
Other Manufacturing	1.223***	0.127	0.000	**	
Constant	-2.513	4.179	0.548		
Number of obs		1299			
years	0.0012493	1250.000	0.551		
R-Squared		0.694			

* significant at 10%; ** significant at 5%; *** significant at 1%(H_0:β_1=0, H_1:$\beta_1\neq0$)

* significant at 10%; ** significant at 5%; *** significant at 1% (H_0:β_1=1, H_1:β_1>1), (H_0:β_1=1, H_1:β_1<1)

Hausmann Test: Prob>chi2 = 0.0065

Findings 2 (On manufacturing Sector)

- In accordance with the previous analysis female employment in manufacturing industry as a whole behaves pro-cyclically. The relationship between percentage change in total employment and percentage change in female employment is statistically significant at 1% .
- The results on the total manufacturing show that:

a) female employment is more sensitive to employment fluctuations than total employment suggesting buffer hypothesis in *Textiles, Textile Products, Leather and Footwear*, *Wood and Products of Wood* and *Other Manufacturing* . In these sectors $\beta 1>1$.

b) female employment is less sensitive to cycles in *Pulp, Paper and Paper Products and Publishing*, Chemicals. *Chemicals Products, Rubber and Plastics* and *Manufacture of Glass and Pottery.* In these sectors $\beta 1<1$ which Suggests segmentation hypothesis.

Findings 2 (On Manufacturing Sector)

- Textiles and Other Manufacturing which are two of the three sectors with the highest female share suggest that buffer hypothesis is in operation. (total manufacturing)

- Women show buffer characteristics in *textiles*, both in private and public sectors and total manufacturing. Secondly, women also function as buffer in "Wood and Products of Wood" industries according to private and total manufacturing analysis.

- women are relatively protected across cycles, in industries that they have low shares in. (i.e. "Chemicals, Chemical Products, Rubber and Plastics", "Machinery and Equipment" in the public manufacturing; "Manufacture of Glass and Pottery" in private manufacturing.)