Culture and Female Labor Supply in Turkey

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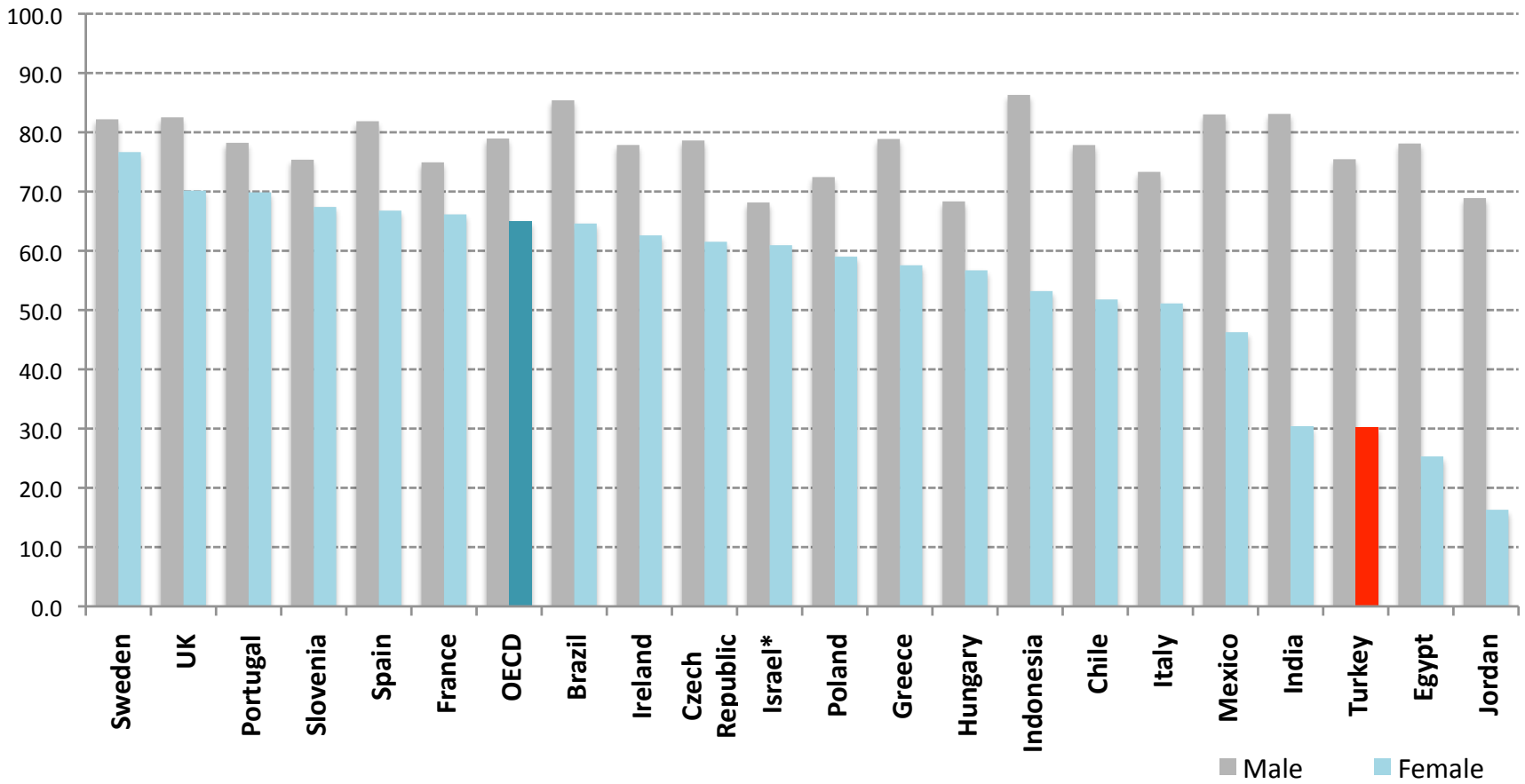
An international outlook: LFPR



Source: OECD, 2010

Setting the stage

- Female labor force participation rates are very low in Turkey.
- Determinants such as age, education, marital status, number and composition of children, etc. cannot explain female LS sufficiently.
- Intuitively, culture should also have an affect.
- Culture: gender roles? attitudes towards work? religion?
- Does culture have an effect on female labor supply?

How?

- How can we quantify the effects of culture?
- *Culture: Customary beliefs and values that ethnic, religious and social groups transmit fairly unchanged from generation to generation* (Guiso et al., 2006).
- Does the behavior of the previous generation have an effect on the behavior of this generation?
- Epidemiological approach (Fernandez, 2008).
- Let us concentrate on the first- or second- generation (im)migrants who come from different cultures, but share the same institutional set-up today.

Why Turkey?

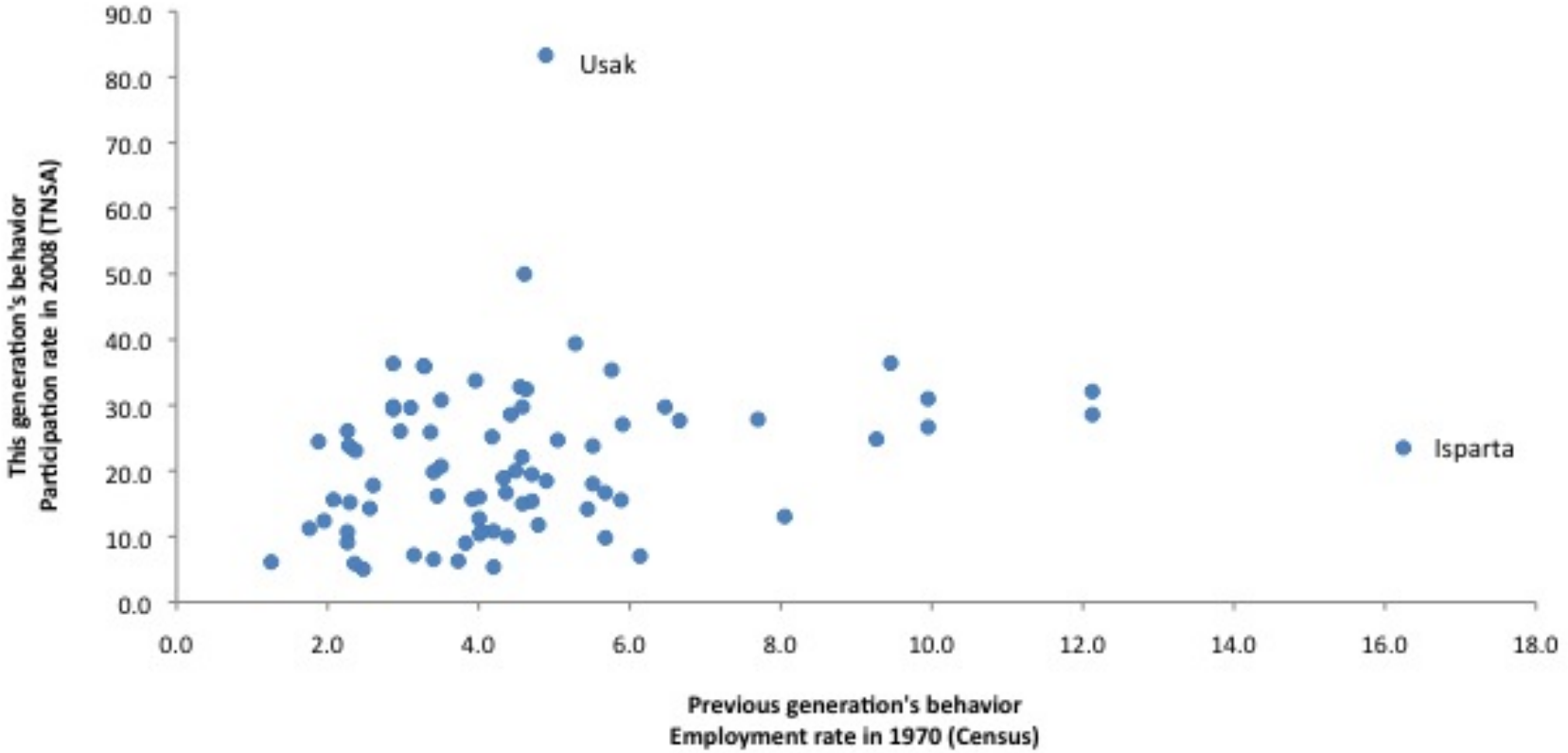
- Much remains to be explained regarding female LS in Turkey.
- Significant internal migration in the past couple of decades.
- Regional differences are acute and persistent.
- Let us concentrate on the labor supply of women who migrated and test whether the previous generation's labor supply behavior had an effect.
- We do not observe own parents' labor supply behavior, so we use instruments.
- Non-agricultural employment rates in 1970 by province
- Religion: Share of party votes in 1973 elections by province

Internal migration in Turkey

Period	1975-1980	1980-1985	1985-1990	1990-2000
Population	38,395,730	44,078,033	49,986,117	60,752,995
Internal Migration	3,584,421	3,819,910	5,402,690	6,692,263
	9.3%	8.7%	10.8%	11.0%
Inter-Provincial Migration	2,700,977	2,885,873	4,065,173	4,788,193
	7.0%	6.5%	8.1%	7.9%

Source: Kocaman (2008)

Female labor supply in 1970 and 2008



A very brief literature survey

- Effect of social capital (trust, civic cooperation) on growth, LM regulations, etc.
  Knack and Keefer (1997), Tabellini (2007), Algan and Cahuc (2009, 2010).
- Effect of attitudes (towards working women, thriftiness, trust) on labor supply, fertility, becoming an entrepreneur etc.
  Levine (1993), Antecol (2000), Fernandez and coauthors, Guiso et al. (2006), Blau et al. (2008).
- Turkey
  Tunali (1997), Dayioglu (2000), Tansel (2002), Dayioglu and Tunali (2003), Baslevent and Tunali (2006), Dayioglu and Kirdar (2011), Ilkkaracan (2012)

Empirical strategy

$$LFP_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \beta_3 W_t + \epsilon_{it} \quad (1)$$

- X_{it}: personal characteristics
- Z_{it}: cultural attitudes towards work
- W_t: institutional set-up
- Potential problems:
  - Z_{it} and ϵ_{it} are correlated
  - LFP_{it} probably affects Z_{it}
  - Can we find an instrument or a proxy?

How to model culture?

- Bisin and Verdier (2001) and Benabou and Tirole (2006) posit that cultural attitudes are shaped by contemporaneous environments as well as inherited attitudes.
- Tabellini (2007) and Algan and Cahuc (2010) form the following model of culture.

$$Z_{it} = \alpha_0 + \alpha_1 X_{it} + \alpha_2 Z_{it-1} + \beta_3 W_t + \gamma_{it} \tag{2}$$

- X_{it}: current economic characteristics
- Z_{it-1}: cultural attitudes of the previous generation
- W_t: current institutional setting

How to measure culture?

$$
\begin{aligned}
LFP_{it} &= \beta_0 + \beta_1 X_{it} + \beta_2 Z_{it} + \beta_3 W_t + \epsilon_{it} \\
Z_{it} &= \alpha_0 + \alpha_1 X_{it} + \alpha_2 Z_{it-1} + \beta_3 W_t + \gamma_{it}
\end{aligned}
$$

- We do not have a direct measure of Z_{it-1}.
- But labor supply behavior of previous generation probably summarizes this attitude.
- Our instrument ER_{it-1} is valid as long as
  - it is correlated with the cultural attitudes
  - it affects LFP_{it} only through its effects on cultural attitudes

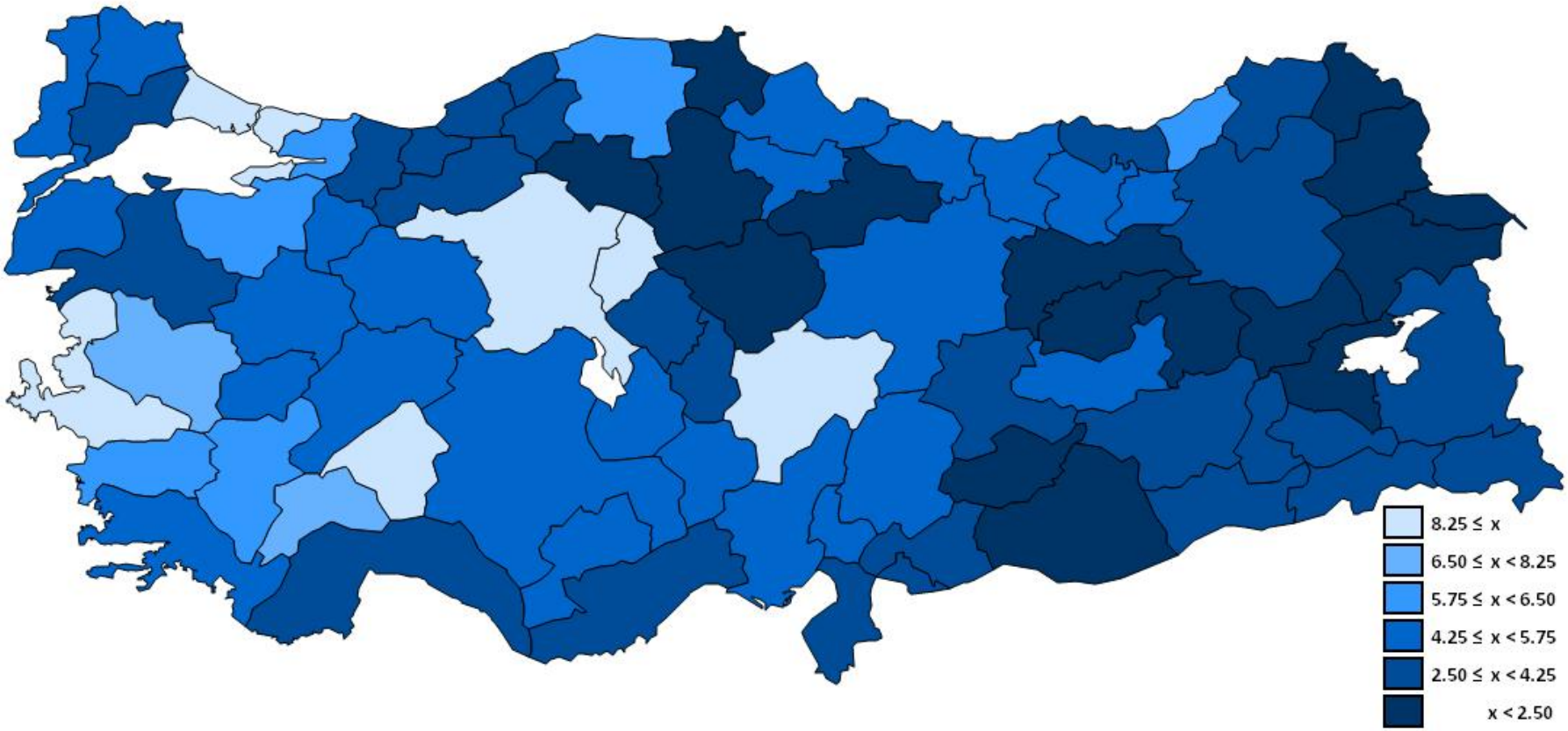
Validity of the instrument

- Our instrument: non-agr female employment rates in 1970
- Non-agr ER in province of origin in 1970 should affect individual LS behavior in 2008 only through effects on culture.
- What do mothers transmit to their daughters that affect labor supply?
  - culture: women's role, gender division of labor, attitudes towards work in general, etc.
  - what else?
  - human capital

Construction of the data set

- Main data set: TDHS 2008
  - We need information on labor supply and migration
  - Ever-married women module
  - Ages 15 to 49 (average age is approximately 34)
  - 1,759 women out of 5,408 are migrants (region of birth vs. region of residence until 12)
- Female non-agricultural employment rates in province of origin: 1970 Census.
- Current institutional setting: HLFS 2008.

Female non-agricultural ER by province, 1970



Econometric analysis

- Start with a basic model where we control for age, age at migration and culture
- Extend the model to include the standard controls, such as existence and composition of children.
- Use the wealth index provided by TDHS.
- Control for parental human capital.
- Control for current institutional setting.
  - Region of current residence
  - Current provincial unemployment rates
  - Relative size of the service sector

	1	2	3	4	5	6
Female ER_{1970}	0.0891***	0.0505***	0.0473***	0.0433***	0.0429**	
Male ER_{1970}					0.000128	
Gender Gap in ER_{1970}						0.0140**
Current age	0.175***	0.164***	0.166***	0.151***	0.151***	0.149***
Age squared	-0.00246***	-0.00228***	-0.00230***	-0.00211**	-0.00211**	-0.00207**
Age at migration	-0.00877*	-0.00547	-0.00567	-0.00519	-0.00518	-0.00501
Schooling		0.166***	0.165**	0.139**	0.139**	0.142**
Schooling squared		-0.0320***	-0.0327***	-0.0285**	-0.0285**	-0.0283**
Schooling cubed		0.00199***	0.00202***	0.00186***	0.00186***	0.00185***
Number of children ≤ 5		-0.192**	-0.190**	-0.173**	-0.172**	-0.183**
Wealth index		0.145*	0.127*	0.0957	0.0957	0.0884
Wealth index squared		-0.114**	-0.113**	-0.0942*	-0.0942*	-0.0857
Mother literate			0.184**	0.184**	0.184**	0.210**
Father literate			-0.0545	-0.119	-0.119	-0.117
West Marmara				0.221	0.221	0.246
Aegean				0.258***	0.259***	0.267***
East Marmara				0.357***	0.356***	0.373***
West Anatolia				-0.686***	-0.686***	-0.676***
Mediterranean				-0.0369	-0.0367	-0.0288
Central Anatolia				0.105	0.105	0.120
West Black Sea				0.621***	0.621***	0.628***
East Black Sea				0.359*	0.359*	0.352*
Northeast Anatolia				0.0564	0.0563	0.0718
Central East Anatolia				-0.172	-0.171	-0.184
Southeast Anatolia				0.0962	0.0966	0.0956
Share of services				0.0152**	0.0152**	0.0152**
UR_{2008}				-0.00983	-0.00986	-0.00984
Constant	-3.748***	-3.832***	-3.876***	-4.275***	-4.277***	-2.875**
Observations	1,633	1,633	1,633	1,633	1,633	1,633
Pseudo R^2	0.0388	0.163	0.165	0.187	0.187	0.185

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

	1	2	3	4	5	6
Female ER_{1970}	0.0891***	0.0505***	0.0473***	0.0433***	0.0429**	
Male ER_{1970}					0.000128	
Gender Gap in ER_{1970}						0.0140**
Age	✓	✓	✓	✓	✓	✓
Age at migration	-0.00877*	-0.00547	-0.00567	-0.00519	-0.00518	-0.00501
Education and children		✓	✓	✓	✓	✓
Wealth		✓	✓	✓	✓	✓
Mother literate			0.184**	0.184**	0.184**	0.210**
Father literate			-0.0545	-0.119	-0.119	-0.117
Region dummies				✓	✓	✓
Share of services				0.0152**	0.0152**	0.0152**
UR_{2008}				-0.00983	-0.00986	-0.00984
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Econometric analysis

- Our main instrument: female employment rates in 1970.
- Maybe it is overall employment that matters:
  - Gender gap in employment rates in 1970.
  - Male employment rates in 1970.
- Province of origin:
  - Province of birth
  - Province of main residence until the age of 12.
- What about religion?
  - Share of political party votes in 1973 elections.
  - MSP, CHP and AP.

	1	2	3	4	5
Birth: Female ER_{1970}	0.0433***				
Birth: Gender Gap in ER_{1970}		0.0140**			
Until 12: Female ER_{1970}			0.0281*		
Until 12: Gender Gap in ER_{1970}				0.0136**	
Birth: MSP (%)					-0.0116**
Birth: CHP (%)					0.00226
Birth: AP (%)					0.00166
Current age	0.151***	0.149***	0.150**	0.148***	0.150***
Age squared	-0.00211**	-0.00207**	-0.00209**	-0.00207**	-0.00210**
Age at migration	-0.00519	-0.00501	-0.00533	-0.00507	-0.00447
Schooling	0.139**	0.142**	0.136**	0.138**	0.138**
Schooling squared	-0.0285**	-0.0283**	-0.0280**	-0.0279**	-0.0284***
Schooling cubed	0.00186***	0.00185***	0.00185***	0.00184***	0.00187***
Number of children under 5	-0.173**	-0.183**	-0.169**	-0.176**	-0.170**
Wealth index	0.0957	0.0884	0.116	0.111	0.126
Wealth index squared	-0.0942*	-0.0857	-0.103*	-0.0973*	-0.108**
Mother literate	0.184**	0.210**	0.201**	0.216**	0.192**
Father literate	-0.119	-0.117	-0.120	-0.119	-0.120
West Marmara	0.221	0.246	0.246	0.278*	0.254
Aegean	0.258***	0.267***	0.263***	0.266***	0.280***
East Marmara	0.357***	0.373***	0.359***	0.381***	0.392***
West Anatolia	-0.686***	-0.676***	-0.698***	-0.687***	-0.680***
Mediterranean	-0.0369	-0.0288	-0.0328	-0.0214	-0.00835
Central Anatolia	0.105	0.120	0.0786	0.0890	0.161
West Black Sea	0.621***	0.628***	0.664***	0.684***	0.659***
East Black Sea	0.359*	0.352*	0.371*	0.382*	0.389*
Northeast Anatolia	0.0564	0.0718	0.0331	0.0510	0.0220
Central East Anatolia	-0.172	-0.184	-0.184	-0.177	-0.166
Southeast Anatolia	0.0962	0.0956	0.109	0.121	0.127
Share of services	0.0152**	0.0152**	0.0164**	0.0165**	0.0167**
UR_{2008}	-0.00983	-0.00984	-0.00944	-0.00916	-0.0122
Constant	-4.275***	-2.875**	-4.260***	-2.978**	-4.116***
Observations	1,633	1,633	1,624	1,624	1,624
r2_p	0.187	0.185	0.187	0.188	0.189

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

	1	2	3	4	5
Birth: Female ER_{1970}	0.0433***				
Birth: Gender Gap in ER_{1970}		0.0140**			
Until 12: Female ER_{1970}			0.0281*		
Until 12: Gender Gap in ER_{1970}				0.0136**	
Birth: MSP (%)					-0.0116**
Birth: CHP (%)					0.00226
Birth: AP (%)					0.00166
Age	✓	✓	✓	✓	✓
Age at migration	-0.00519	-0.00501	-0.00533	-0.00507	-0.00447
Education and children	✓	✓	✓	✓	✓
Wealth	✓	✓	✓	✓	✓
Mother literate	0.184**	0.210**	0.201**	0.216**	0.192**
Father literate	-0.119	-0.117	-0.120	-0.119	-0.120
Regions	✓	✓	✓	✓	✓
Share of services	0.0152**	0.0152**	0.0164**	0.0165**	0.0167**
UR_{2008}	-0.00983	-0.00984	-0.00944	-0.00916	-0.0122
Constant	-4.275***	-2.875**	-4.260***	-2.978**	-4.116***
Observations	1,633	1,633	1,624	1,624	1,624
r2_p	0.187	0.185	0.187	0.188	0.189

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

New findings

- Usual results are confirmed.
- Female ER in 1970 affect female LFP in 2008.
- Size and significance of the coefficients are robust.
- Mother's education does matter, and culture still matters!
- We also try different instruments for culture.
- All results point in the same direction:
- Culture is an important factor!
- Religion should also be analyzed further.

Conclusion

- This is a first step towards quantifying the effects of culture on economic variables in Turkey.
- We could try new instruments, look at other outcomes.
- Regional differences are important and persistent.
- Policies to increase female LFPR should be multidimensional:
  - Education
  - Child care: work life balance, parental leave, etc.
  - Cultural factors

THANK YOU!

Descriptive Statistics

	Migrants		Non-migrants		Total		HLFS
	level	share	level	share	level	share	share
Non-agricultural LFPR	499	28.4%	774	21.2%	1,273	23.5%	18.2%
Age							
Aged 15-19	46	2.6%	110	3.0%	156	2.9%	2.1%
Aged 20-24	186	10.6%	491	13.5%	677	12.5%	10.2%
Aged 25-29	378	21.5%	668	18.3%	1,046	19.3%	19.4%
Aged 30-34	334	19.0%	719	19.7%	1,053	19.5%	19.5%
Aged 35-39	320	18.2%	656	18.0%	976	18.0%	18.1%
Aged 40-44	255	14.5%	553	15.2%	808	14.9%	16.4%
Aged 45-49	240	13.6%	452	12.4%	692	12.8%	14.2%
Total	1,759	100%	3,649	100%	5,408	100%	100%
Education							
Non-graduates	259	14.7%	565	15.5%	824	15.2%	14.6%
Primary school	836	47.5%	1,952	53.5%	2,788	51.6%	50.3%
Secondary school	170	9.7%	344	9.4%	514	9.5%	10.0%
High school	287	16.3%	584	16.0%	871	16.1%	16.9%
University or more	207	11.8%	204	5.6%	411	7.6%	8.2%
Total	1,759	100%	3,649	100%	5,408	100%	100%
Children under 5							
None	952	54.1%	1,893	51.9%	2,845	52.6%	64.7%
One	587	33.4%	1,225	33.6%	1,812	33.5%	28.9%
Two	182	10.3%	438	12.0%	620	11.5%	5.9%
Three	32	1.8%	89	2.4%	121	2.2%	0.5%
Four	6	0.3%	1	0.0%	7	0.1%	0.0%
Five or more	0	0.0%	3	0.1%	3	0.1%	0.0%
Total	1,759	100%	3,649	100%	5,408	100%	100%

Source:TDHS 2008, HLFS 2008

Descriptive Statistics

	Migrants		Non-migrants		Total		HLFS
	level	share	level	share	level	share	share
Wealth index							
Poorest	123	7.0%	403	11.0%	526	9.7%	**
Poorer	287	16.3%	851	23.3%	1,138	21.0%	**
Middle	419	23.8%	878	24.1%	1,297	24.0%	**
Richer	485	27.6%	817	22.4%	1,302	24.1%	**
Richest	445	25.3%	700	19.2%	1,145	21.2%	**
Total	1,759	100%	3,649	100%	5,408	100%	**
Mother literate	771	43.8%	1,480	40.6%	2,251	41.6%	**
Father literate	1,425	81.0%	2,908	79.7%	4,333	80.1%	**
Region							
Istanbul	307	17.5%	148	4.1%	455	8.4%	25.6%
West Marmara	86	4.9%	194	5.3%	280	5.2%	3.5%
Aegean	163	9.3%	188	5.2%	351	6.5%	12.8%
East Marmara	224	12.7%	206	5.6%	430	8.0%	11.0%
West Anatolia	127	7.2%	283	7.8%	410	7.6%	11.7%
Mediterranean	212	12.1%	466	12.8%	678	12.5%	12.0%
Central Anatolia	98	5.6%	279	7.6%	377	7.0%	4.4%
West Black Sea	115	6.5%	320	8.8%	435	8.0%	4.8%
East Black Sea	73	4.2%	228	6.2%	301	5.6%	1.7%
Northeast Anatolia	67	3.8%	369	10.1%	436	8.1%	1.7%
Central East Anatolia	93	5.3%	325	8.9%	418	7.7%	3.0%
Southeast Anatolia	194	11.0%	643	17.6%	837	15.5%	7.8%
Total	1,759	100%	3,649	100%	5,408	100%	100%

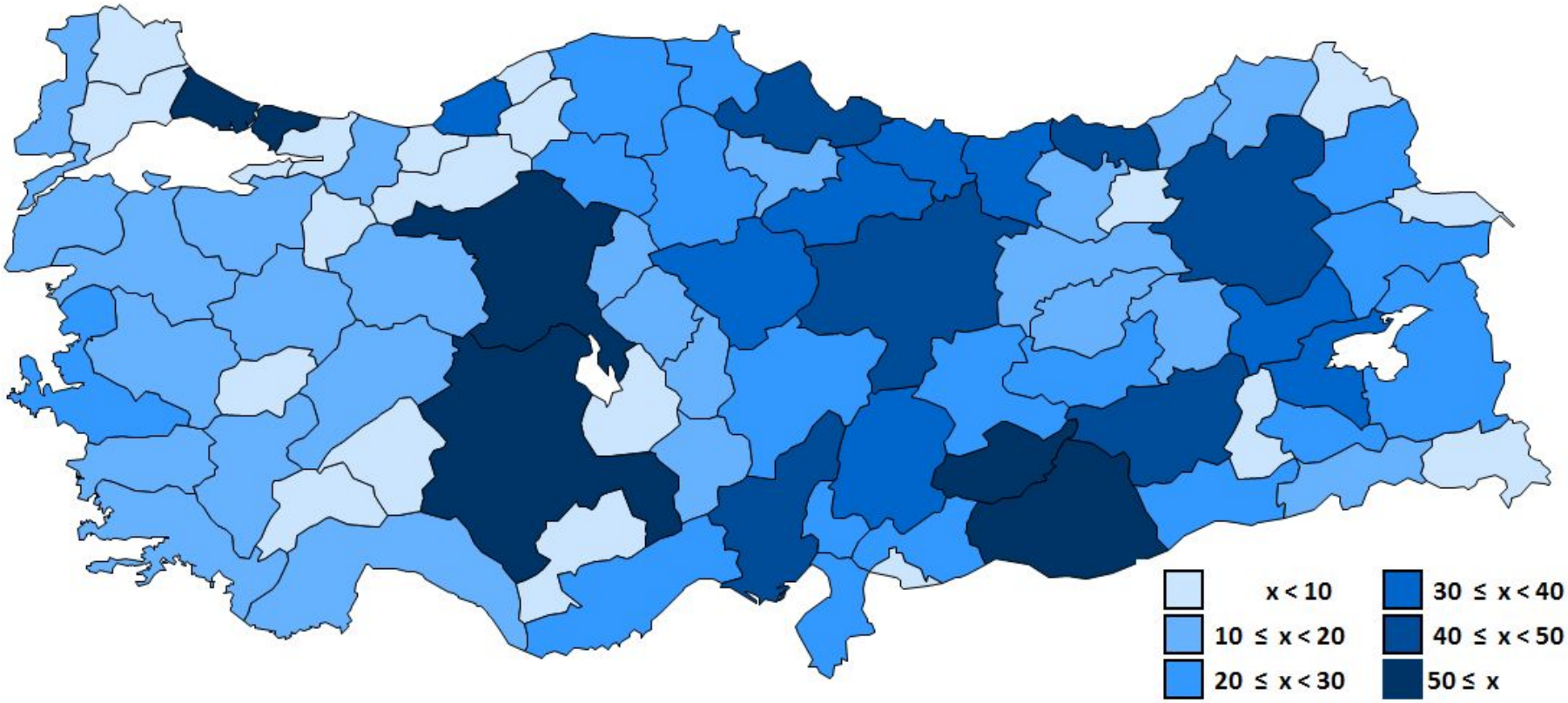
Source:TDHS 2008, HLFS 2008

Female non-agricultural employment rates by province, 1970

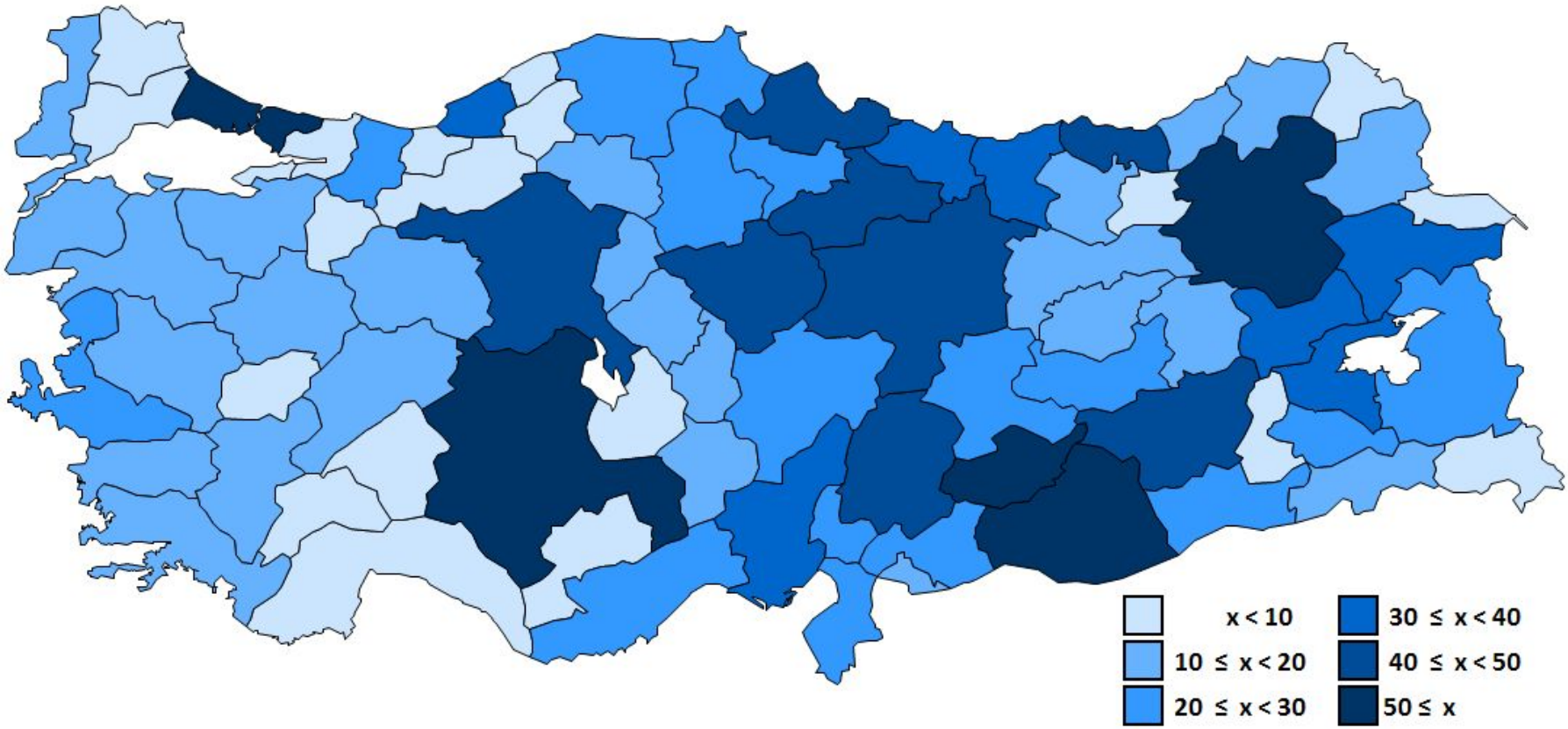
Code	City	ER_{1970}	Code	City	ER_{1970}
1	Adana	4.70	42	Konya	5.51
2	Adiyaman	1.25	43	Kutahya	4.63
3	Afyonkarahisar	4.90	44	Malatya	3.40
4	Agri	1.95	45	Manisa	7.70
5	Amasya	4.33	46	Maras	4.58
6	Ankara	9.95	47	Mardin	4.20
7	Antalya	3.36	48	Mugla	4.42
8	Artvin	3.10	49	Mus	2.36
9	Aydin	6.66	50	Nevsehir	2.96
10	Balikesir	4.18	51	Nigde	5.68
11	Bilecik	4.36	52	Ordu	5.44
12	Bingol	2.08	53	Rize	6.14
13	Bitlis	1.79	54	Sakarya	3.28
14	Bolu	3.50	55	Samsun	4.58
15	Burdur	8.05	56	Siirt	3.73
16	Bursa	5.76	57	Sinop	2.28
17	Canakkale	4.55	58	Sivas	4.58
18	Cankiri	1.88	59	Tekirdag	3.27
19	Corum	2.30	60	Tokat	2.60
20	Denizli	6.47	61	Trabzon	3.96
21	Diyarbakir	3.14	62	Tunceli	2.56
22	Edirne	5.28	63	Sanliurfa	2.47
23	Elazig	4.79	64	Usak	4.89
24	Erzincan	2.37	65	Van	3.83
25	Erzurum	4.02	66	Yozgat	1.76
26	Eskisehir	4.61	67	Zonguldak	2.87
27	Gaziantep	4.01	68	Aksaray	5.68
28	Giresun	5.05	69	Bayburt	4.38
29	Gumushane	4.38	70	Karaman	5.51
30	Hakkari	4.04	71	Kirikkale	9.95
31	Hatay	3.45	72	Batman	4.20
32	Isparta	16.24	73	Sirnak	3.73
33	Icel	3.91	74	Bartin	2.87
34	Istanbul	12.13	75	Ardahan	2.26
35	Izmir	9.46	76	Igdir	2.26
36	Kars	2.26	77	Yalova	12.13
37	Kastamonu	5.89	78	Karabuk	2.87
38	Kayseri	9.27	79	Kilis	4.01
39	Kirklareli	4.49	80	Osmaniye	4.70
40	Kirsehir	3.40	81	Duzce	3.50
41	Kocaeli	5.91			

Source: Population Census 1970

Number of observations by region of birth



Number of observations by region of residence until 12



Regional differences in female LFPR, 2008

NUTS2	%
1- Istanbul (Istanbul)	22.1
2- Tekirdag (Edirne-Tekirdag-Kirklareli)	31.7
3- Balkesir (Balkesir-Canakkale)	20.0
4- Izmir (Izmir)	24.1
5- Aydn (Denizli-Aydn-Mugla)	29.9
6- Manisa (Manisa-Afyonkarahisar-Kutahya-Usak)	15.7
7- Bursa (Bursa-Eskisehir-Bilecik)	24.1
8- Kocaeli (Kocaeli-Sakarya-Duzce-Bolu-Yalova)	21.1
9- Ankara (Ankara)	23.2
10- Konya (Konya-Karaman)	24.5
11- Antalya (Antalya-Isparta-Burdur)	30.4
12- Adana (Adana-Mersin)	21.5
13- Hatay (Hatay-Kahramanmaras-Osmaniye)	17.5
14- Kirikkale (Nevsehir-Aksaray-Nigde-Kirikkale-Kirsehir)	13.2
15- Kayseri (Kayseri-Sivas-Yozgat)	8.7
16- Zonguldak (Zonguldak-Karabuk-Bartn)	19.9
17- Kastamonu (Kastamonu-Cankr-Sinop)	19.7
18- Samsun (Samsun-Tokat-Corum-Amasya)	22.4
19- Trabzon (Trabzon-Ordu-Giresun-Rize-Artvin-Gumushane)	36.2
20- Erzurum (Erzurum-Erzincan-Bayburt)	17.3
21- Agri (Kars-Agri-Igdir-Ardahan)	11.3
22- Malatya (Malatya-Elazig-Bingol-Tunceli)	13.0
23- Van (Van-Mus-Bitlis-Hakkari)	8.0
24- Gaziantep (Gaziantep-Adiyaman-Kilis)	9.0
25- Sanliurfa (Diyarbakr-Sanliurfa)	5.4
26- Mardin (Siirt-Mardin-Batman-Sirnak)	4.4

Source: HLFS 2008, authors' calculations

	1	2	3	4	5	6	7
Female ER_{1970}	0.0747***	0.0364**	0.0369**	0.0334**	0.0281*	0.0353**	
Male ER_{1970}						-0.00225	
Gender Gap in ER_{1970}							0.0136**
Current age	0.175***	0.162***	0.163***	0.166***	0.150**	0.150***	0.148***
Age squared	-0.00247***	-0.00228***	-0.00228***	-0.00230***	-0.00209**	-0.00209**	-0.00207**
Age at migration	-0.00923*	-0.00600	-0.00568	-0.00590	-0.00533	-0.00533	-0.00507
Schooling		0.173***	0.165***	0.163**	0.136**	0.137**	0.138**
Schooling squared		-0.0313***	-0.0316***	-0.0324***	-0.0280**	-0.0281**	-0.0279**
Schooling cubed		0.00192***	0.00197***	0.00201***	0.00185***	0.00185***	0.00184***
Number of children ≤ 5		-0.196***	-0.190**	-0.188**	-0.169**	-0.169**	-0.176**
Wealth index			0.164**	0.143*	0.116	0.116	0.111
Wealth index squared			-0.122**	-0.120**	-0.103*	-0.103*	-0.0973*
Mother literate				0.198**	0.201**	0.201**	0.216**
Father literate				-0.0511	-0.120	-0.120	-0.119
West Marmara					0.246	0.253	0.278*
Aegean					0.263***	0.259***	0.266***
East Marmara					0.359***	0.366***	0.381***
West Anatolia					-0.698***	-0.699***	-0.687***
Mediterranean					-0.0328	-0.0342	-0.0214
Central Anatolia					0.0786	0.0758	0.0890
West Black Sea					0.664***	0.669***	0.684***
East Black Sea					0.371*	0.373*	0.382*
Northeast Anatolia					0.0331	0.0328	0.0510
Central East Anatolia					-0.184	-0.188	-0.177
Southeast Anatolia					0.109	0.108	0.121
Share of services					0.0164**	0.0164**	0.0165**
UR_{2008}					-0.00944	-0.00905	-0.00916
Constant	-3.660***	-3.780***	-3.762***	-3.813***	-4.260***	-4.230***	-2.978**
Observations	1,624	1,624	1,624	1,624	1,624	1,624	1,624
Pseudo R^2	0.0327	0.159	0.161	0.164	0.187	0.187	0.188

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1