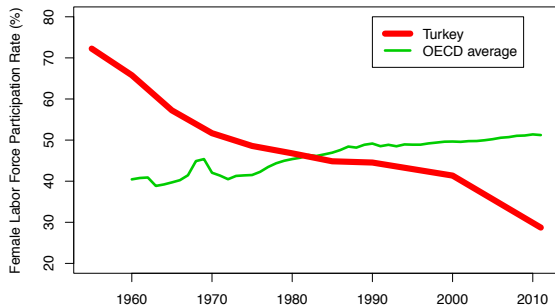# Culture and Labor Supply: Decline in Female Market Work in Turkey

So Kubota

### About me

- Ph.D. student (until August) Princeton University
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- Major: macro, labor, money

Motivation

- Female labor force participation rate in Turkey
- What caused the world biggest decline?
- It is a puzzle: as in other countries,
  - home good ↑, education ↑ etc., in Turkey

Facts
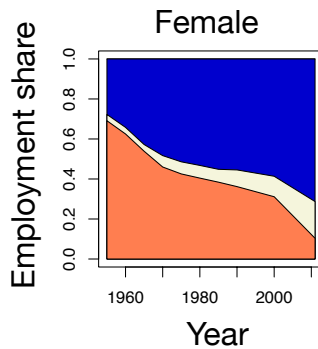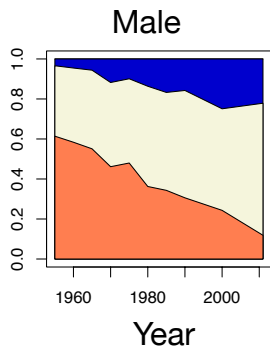
Employment Status

- Not Employed
- Manu. & Service
- Agriculture

Gender Wage Ratio	Agriculture	Service
US, total	0.77	0.68
US, Muslim	NA	0.68
Turkey	0.59	**1.11**

Summary:
- Women did not move: Agriculture —> others
- Service sector wage: Women > Men

Hypothesis

1. Main Industry: agriculture —> others
2. Women's social stigma:
   - Agriculture = family job —> OK
   - Service = sharing office with men
3. Labor force participation rate ↓
4. Shortage in female workers —> reversed wage gap in service

Strategy

1. Macro model
   - Male & female
   - 4 sectors: Agri, manu., service, home

2. Calibration
   - Match *US* data
   - capture US people's preference

3. Apply model to European countries
   - Good match!

4. Apply to Turkey
   - Bad match!?
   - Too much agri.
   - Too small service

5. Add social stigma
   - only *one* variable
   - Good match in *several* dimensions
   - Stigma, how large?

1. Model

- Following Ngai&Petrongolo, AEJmacro
- Static GE model: no saving, no capital
- Representative household consisting of husband and wife
- 4 goods: agri, manufacturing, service, home made by male & female labor inputs

- Representative household's utility function

$$\alpha_C \log C_t + (1 - \alpha_C)\left(\frac{1}{2}\log L_{mt} + \frac{1}{2}\log L_{ft}\right)$$

Household consumption: C_t
male & female leisure: L_{mt}, L_{ft}

1. Model (continued)

- Technology 1: final good <— agriculture, manufacturing, service

$$C_t = \min \left\{ \alpha_A \left(C_{At} - \bar{C}_A \right), \quad \alpha_M C_{Mt}, \quad (1 - \alpha_A - \alpha_M) C_{St} \right\}$$

- Technology 2: service good <— market service and home service

$$C_{St} = [\alpha_S C_{SMt}^\eta + (1 - \alpha_S) C_{SHt}^\eta]^{1/\eta}$$

- Technology 3: each good <— male & female labor inputs

$$C_{it} = \theta_{it} \left(\xi_i H_{mit}^\sigma + (1 - \xi_i) H_{fit}^\sigma \right)^{1/\sigma}$$
$$\text{for } i = A, M, SM, SH$$

✳ Leontief by Herrendorf et al (2013)
✳ Agricultural productivity ↑ faster and subsistence level $\bar{C}_A$ —> demand ↑ on manu. & service

✳ $\eta < 1$: market&home are substitute
✳ Market productivity ↑ faster, demand: home —> market,
✳ then housewife —> employed

✳ ξ_i : comparative advantage of male
✳ $\xi_{SH} < 0.5$: Women better in service service ↑, then female employment ↑

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2. Calibration

- parameters: match model to US 2000 data
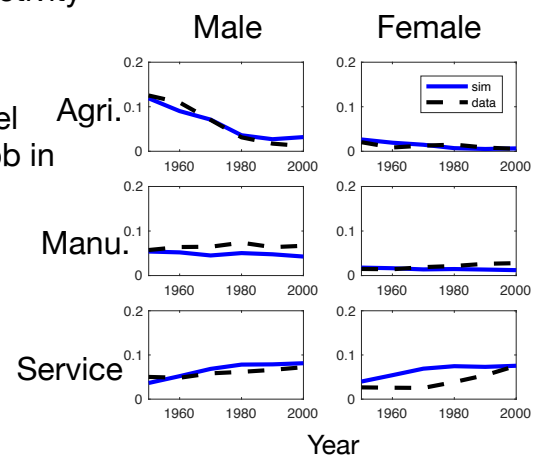- change productivities to 1990, 1980, …,
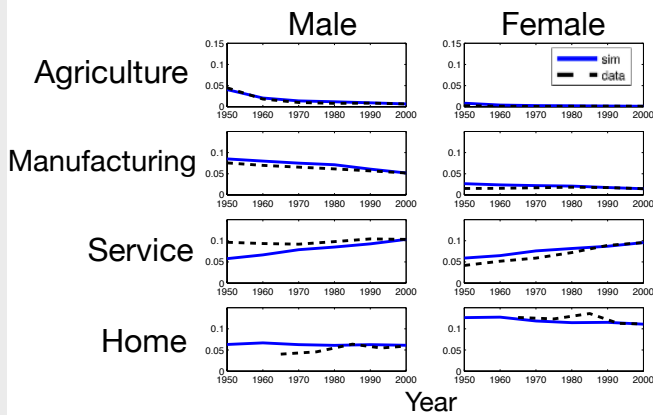
3. Apply to European countries

- Adjust productivity and apply to Europe
- The US model does good job in
  - France,
  - Greece,
  - Italy,
  - Portugal,
 - Spain,
  - UK

Example: Portugal

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4. Apply to Turkey, 5. Add social stigma

- The US model (blue line) fails to capture Turkish data (black dot line)
- Change utility function: add stigma disutility from female work in service and manufacturing

$$U(C_t, L_{mt}, L_{ft}) - d(H_{fMt} + H_{fSMt})$$

- d: determined to match female service
- It is only one more parameter, but the model with stigma (red line) capture all sectors!
- Consumption equivalence (in 2000): social stigma from one hour work in a week = 0.8% ↓ consumption = 30 min ↓ leisure

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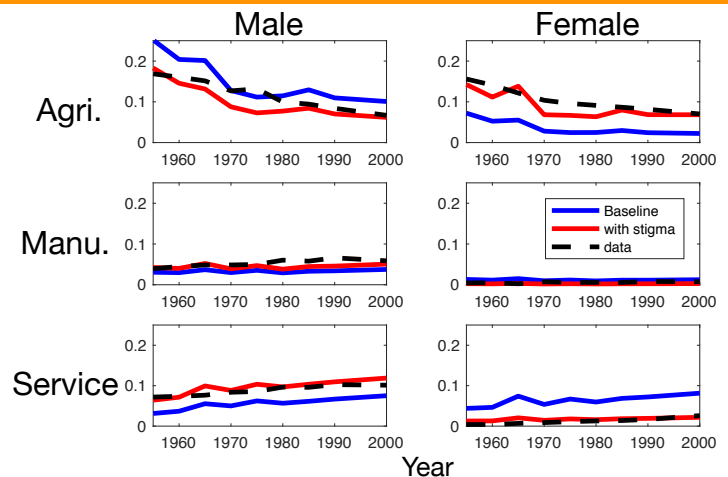
Supportive empirical evidence

- Social stigma may be Islamic value
- Model's assumption:
  - Agriculture Is OK because it's a family business
  - others are not, sharing offices with men
- Implication: Religiosity —> ↑ family job, ↓ other jobs
- Data: European Social Survey, 2004 & 2008 pooled
- Sample: Married women in Turkey
- Probit model: Work or not
- Regression (3): Religiosity discourages wife's work in general, but encourages if family business is available.

Work or not	(1)	(2)	(3)
RLG	-0.036* (0.018)		-0.057*** (0.021)
HUS_SELF		-0.126 (0.091)	-0.796** (0.330)
RLG x HUS_SELF			0.096** (0.043)

- RLG: subjective religiosity, 0-10 scale
- HUS_SELF: husband self-employed or not
- Other controls: age, education, child status