Religious Devotion and Gender Equality: Parental Religiosity, Collective Conservatism, and Missing School-Girls in Turkey

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Global Gender Equality

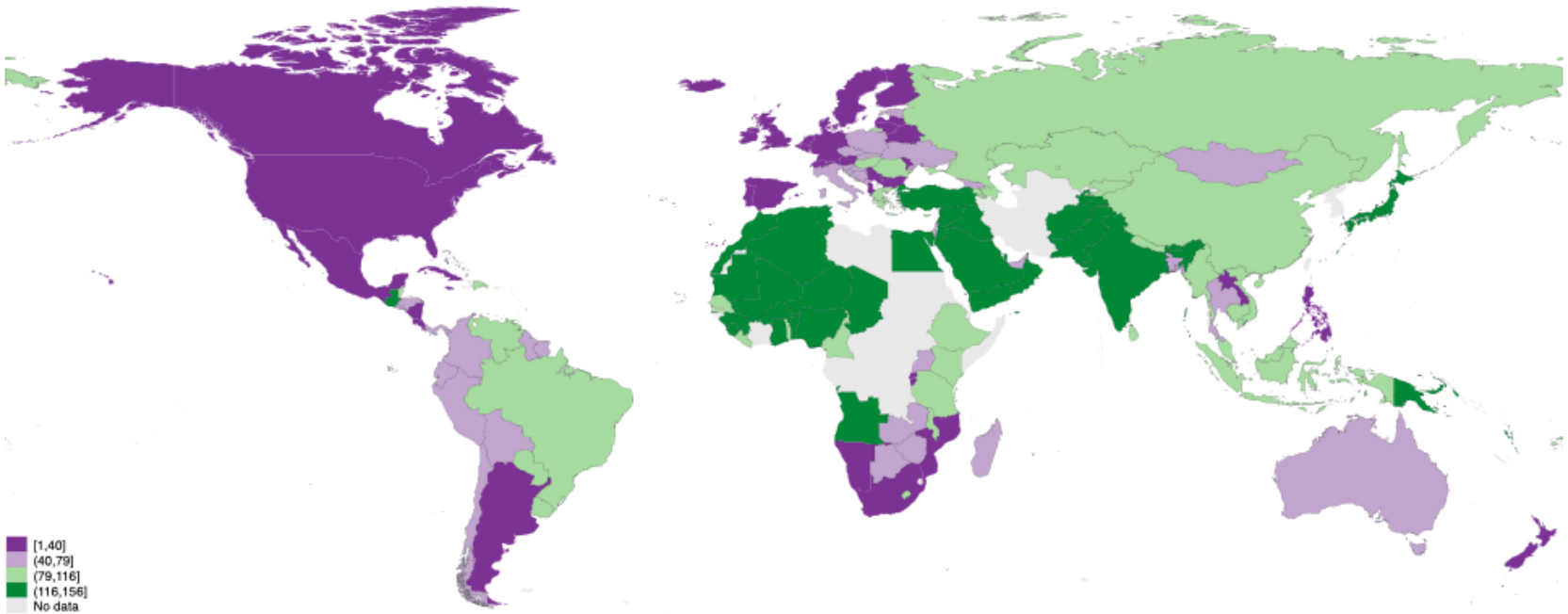

Figure: Global Gender Gap Rankings, 2020

Research Question: Muslim Religiosity $\xrightarrow[!]{??}$ Gender Equality

- **I focus on Turkey and the first years of Turkish Republic:**
  - **Laïcité & Largely homogeneous society** due to the historical events (e.g., Muslim-dominant, agricultural society with poor literacy rates)
  - **Compulsory schooling laws** were not compelling enough until 1961
  - **First generations**: 1923-1955 cohorts for which $\nexists$ discontinuity in enrollment process
  - **Erdogan desires to make Islamic values dominant again**

What I Do

1. **Religiosity $\overset{?}{\underset{!}{\rightarrow}}$ Gender disparity in primary (quasi-compulsory) school attendance**
   - ◇ **Data:** Pooled dataset of Turkish Censuses in 1985, 1990, and 2000
     - ◇ Religious denom. or parental characteristics unknown at ind.level
     - ◇ But birth-place and birth-year according to census year, and the highest level of completed education of individuals
   - ◇ **Identification:** 2 variations using Ramadan as quasi-natural exper.
     1. Distance of enrolment dates in primary school to Ramadan
     2. Fasting duration at school registration year in primary school
2. **What are the implications for gender equality in the long run?**

Labor market outcomes	Demographic outcomes
• Labor force participation	• Marital status
• Being an income-earner	• Number of children
• Having a professional jobs	• Housewife status

Holy month of Islam: Ramadan

- Ramadan $\Rightarrow \uparrow$ Religiosity among *adults*
- Ramadan fasting: a pillar of Islam ($\approx$ 75% of adults in TR fast)
- Per religious teachings: Compulsory religious practicing (e.g., fasting and wearing a headscarf) begins *after their puberty*
- Islamic calendar (hence Ramadan month) follow *lunar-phase cycle*
- Ramadan moves around ten days earlier every year whereas the schooling age and enrollment dates are presumably fixed over time
- Fasting Duration$_{p,t} = f$(Coordinates$_{p,t}$; Ramadan dates$_t$).

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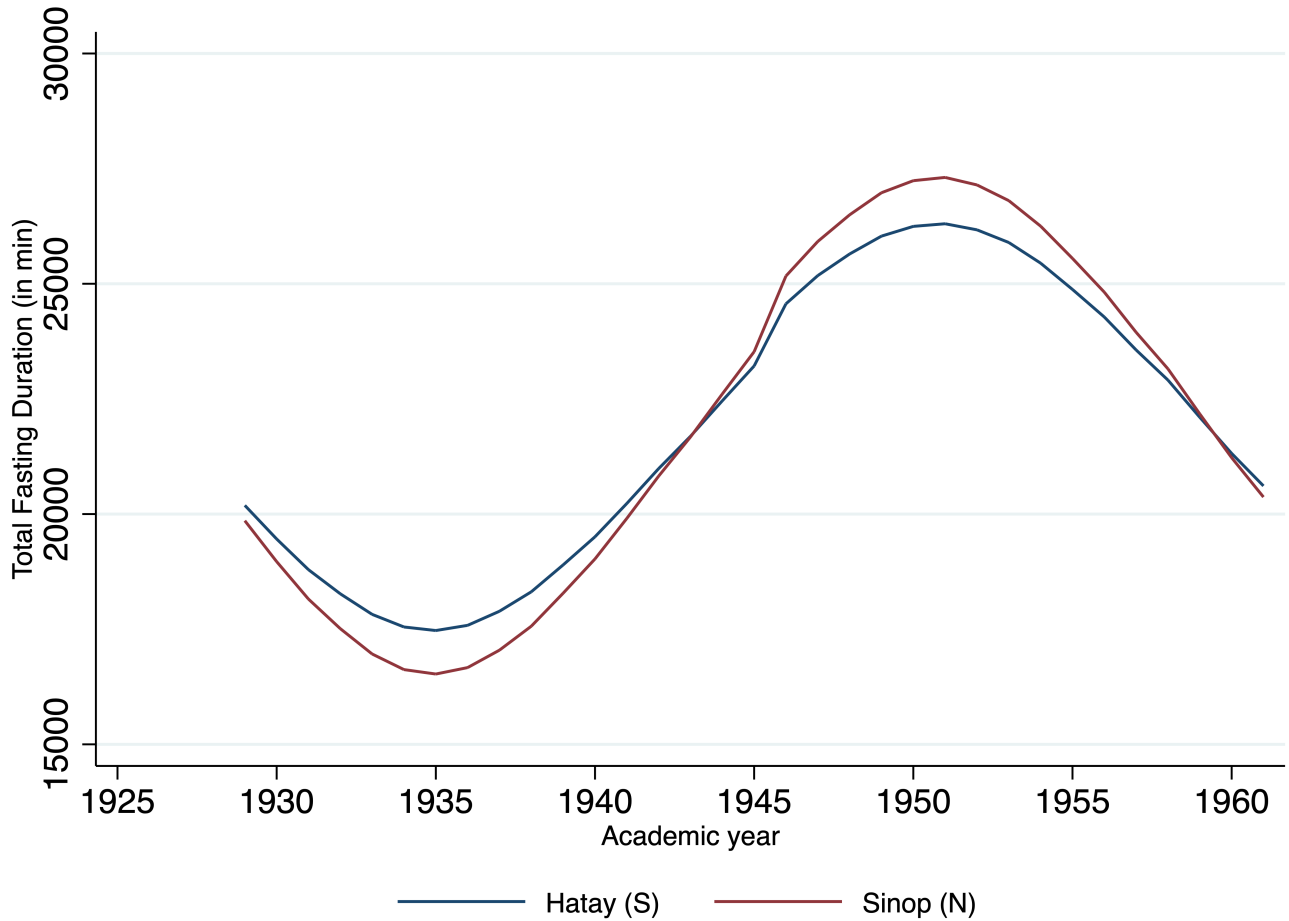
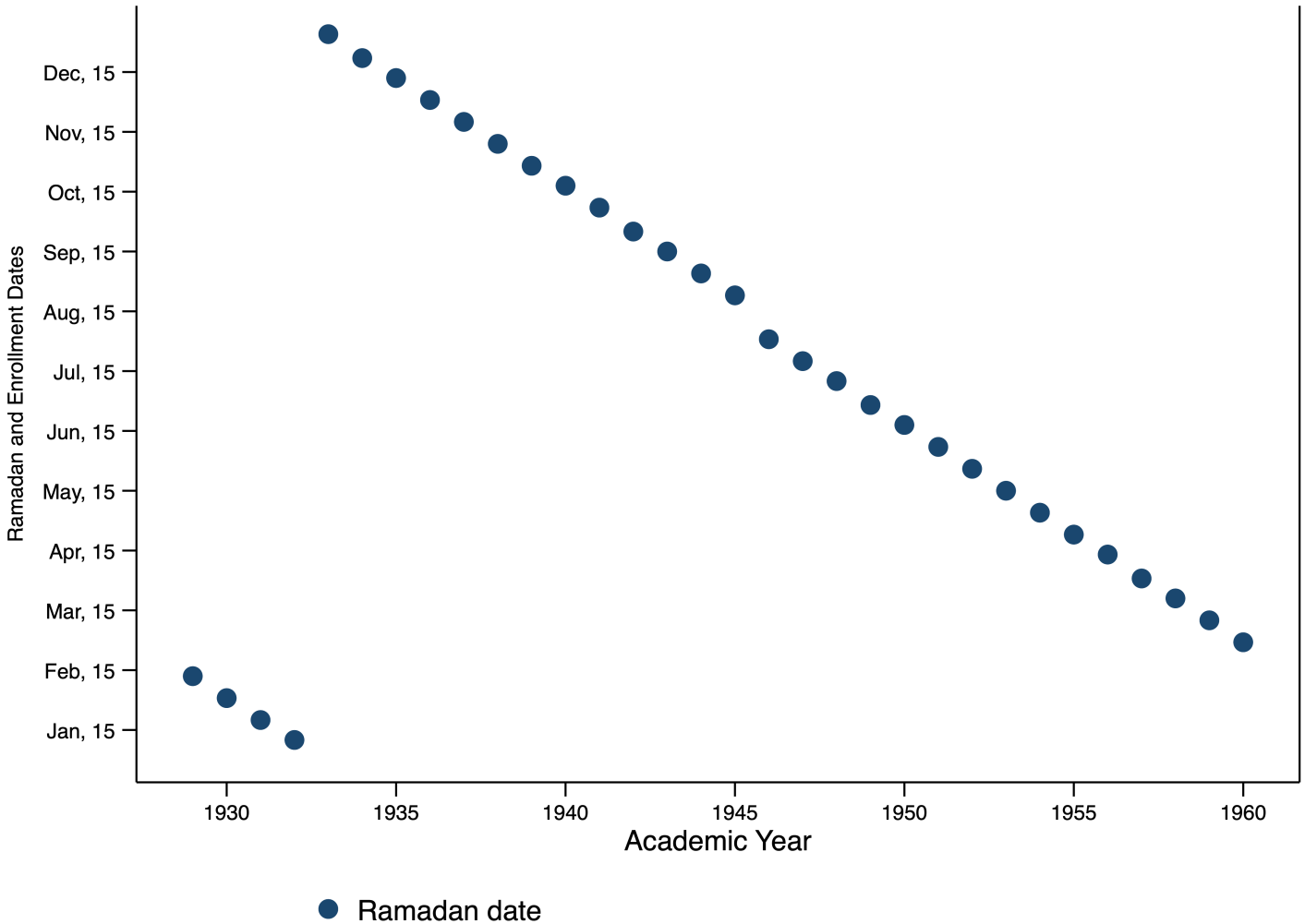
Fasting Duration of South(North)ernmost Provinces



Enrollment Season and Ramadan



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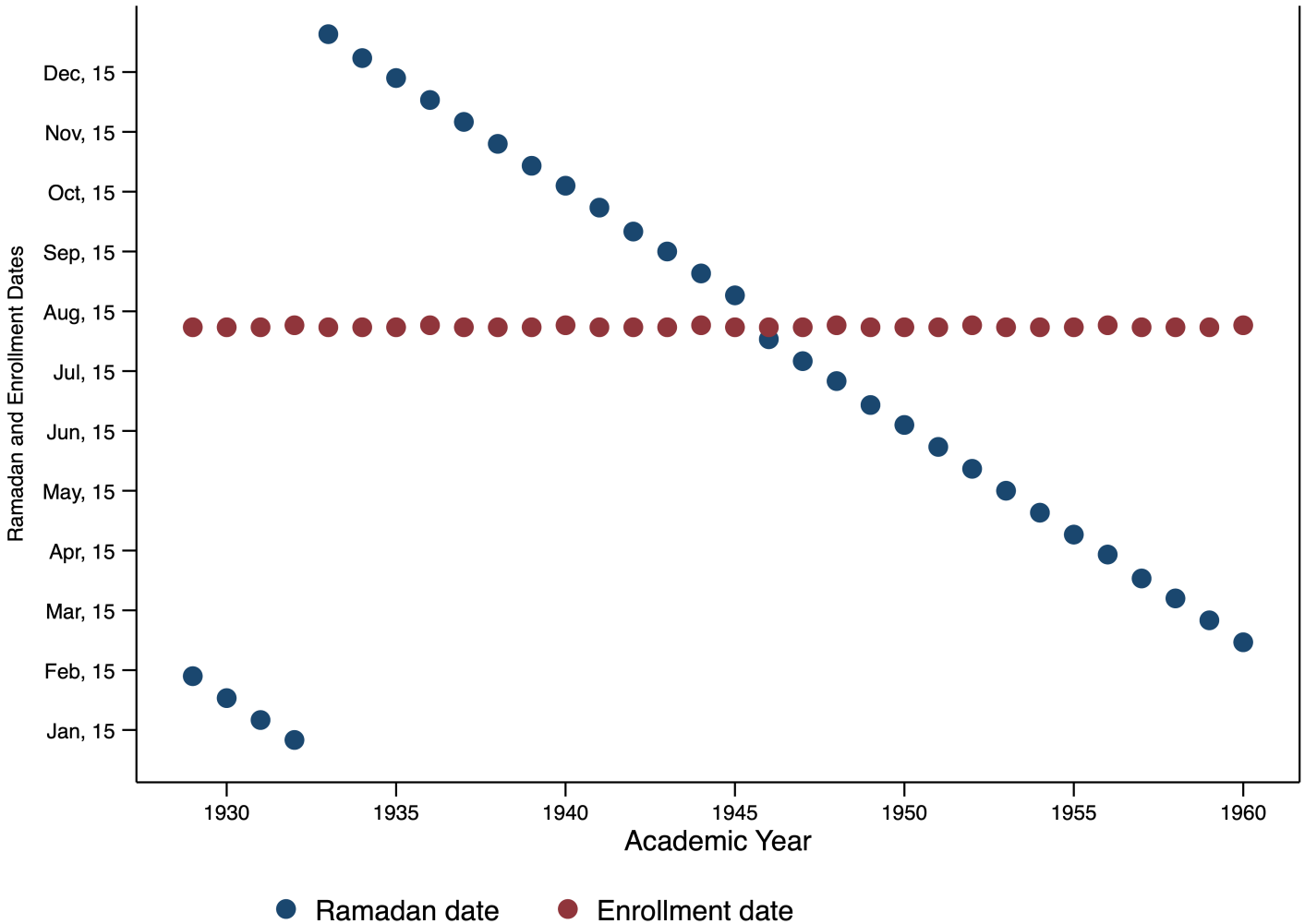

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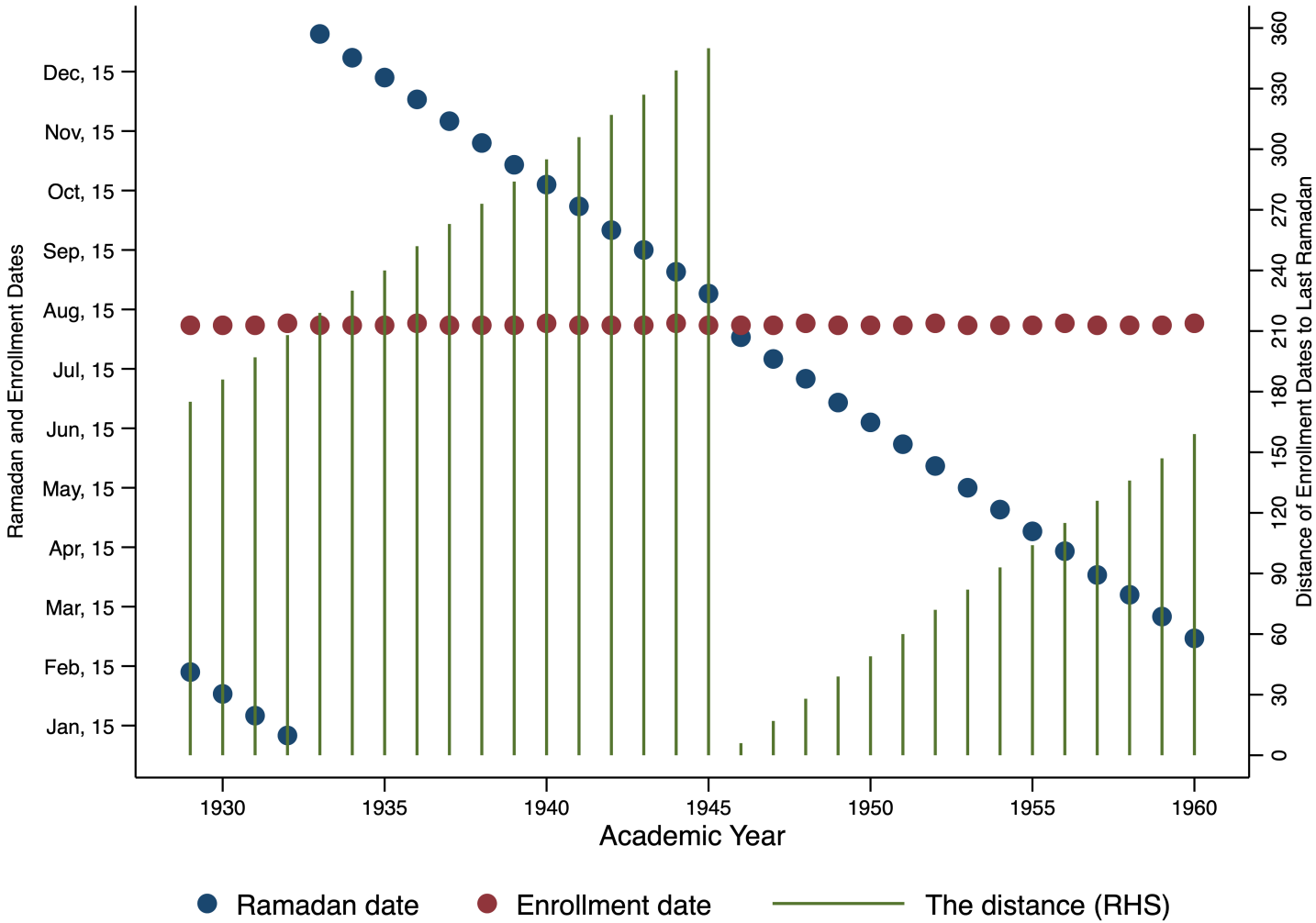

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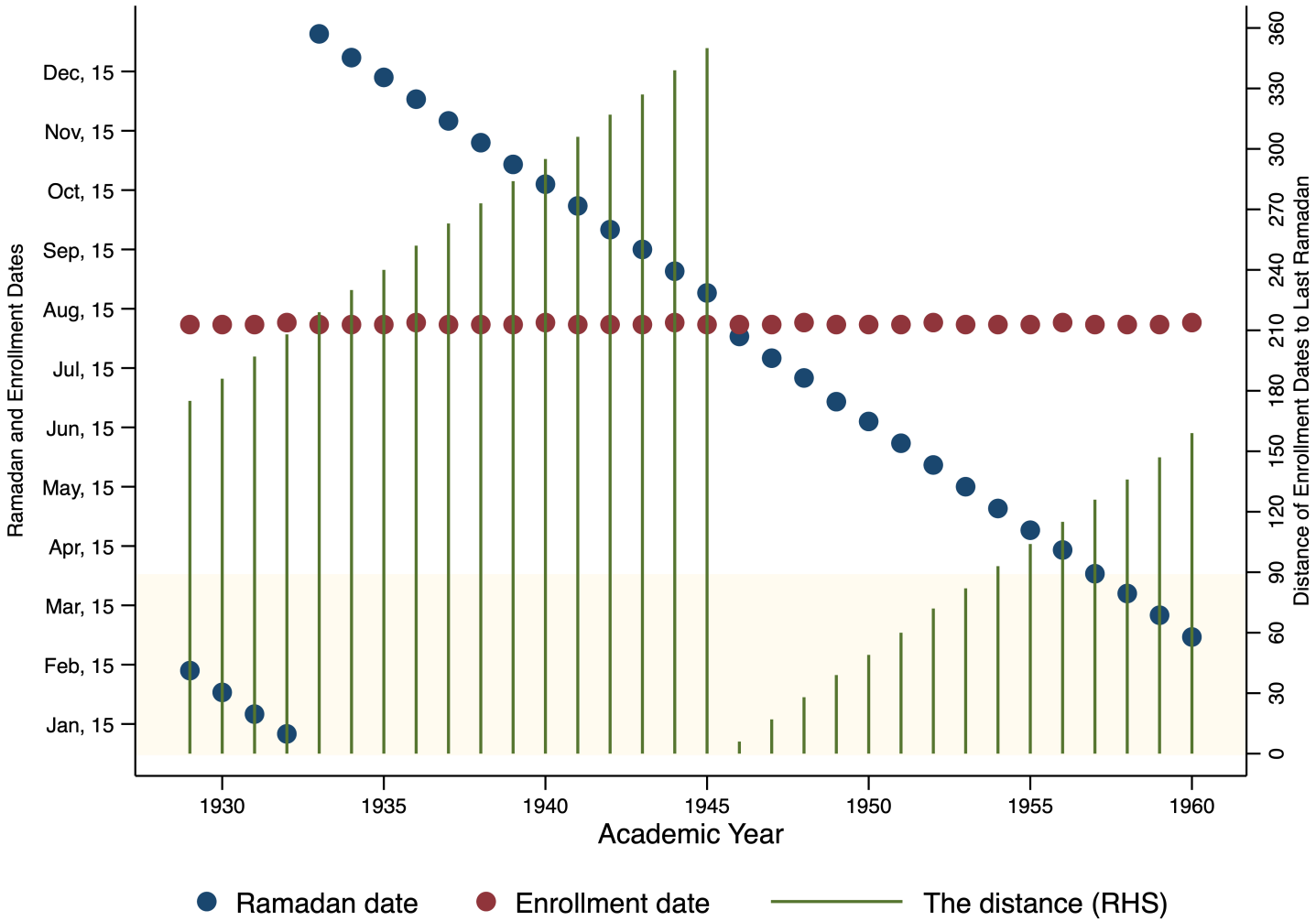

$$Y_{i,p,c,t} = \beta_1 \textbf{Fem}_i\textbf{*Ramadan}_{t+6} + \theta_{p,t} + \lambda_{c,\text{Fem}} + t * \text{Fem}_{i,p} + \varepsilon_{i,p,t,c} \quad (1)$$

- $\mathbf{Y}_{i,p,c,t}$ = individual from province p born in year t has completed at least primary school
- $\textbf{Ramadan}_{t+6}$ = birth-cohort t's enrollment in a primary school in Ramadan or the following two months
- **Some controllers**:
  - province-specific time FEs; gender-specific trend of province; gender-specific differences in census year
  - Standard errors clustered at the province level (N=81)

$$Y_{i,r,p,c,t} = \beta_1 \textbf{FH}_{p,t+6} + \beta_2 \textbf{Fem}_i\textbf{*FH}_{p,t+6} + \theta_{r,t} + t * \text{Fem}_{i,p} + \lambda_{c,\text{Fem}} + \varepsilon_{i,r,p,c,t}$$

- $\textbf{FH}_{p,t+6}$: log of total fasting duration in the birth-province p in enrollment year $t+6$
- Spatial fixed effects at NUTS-2 regional (r) level

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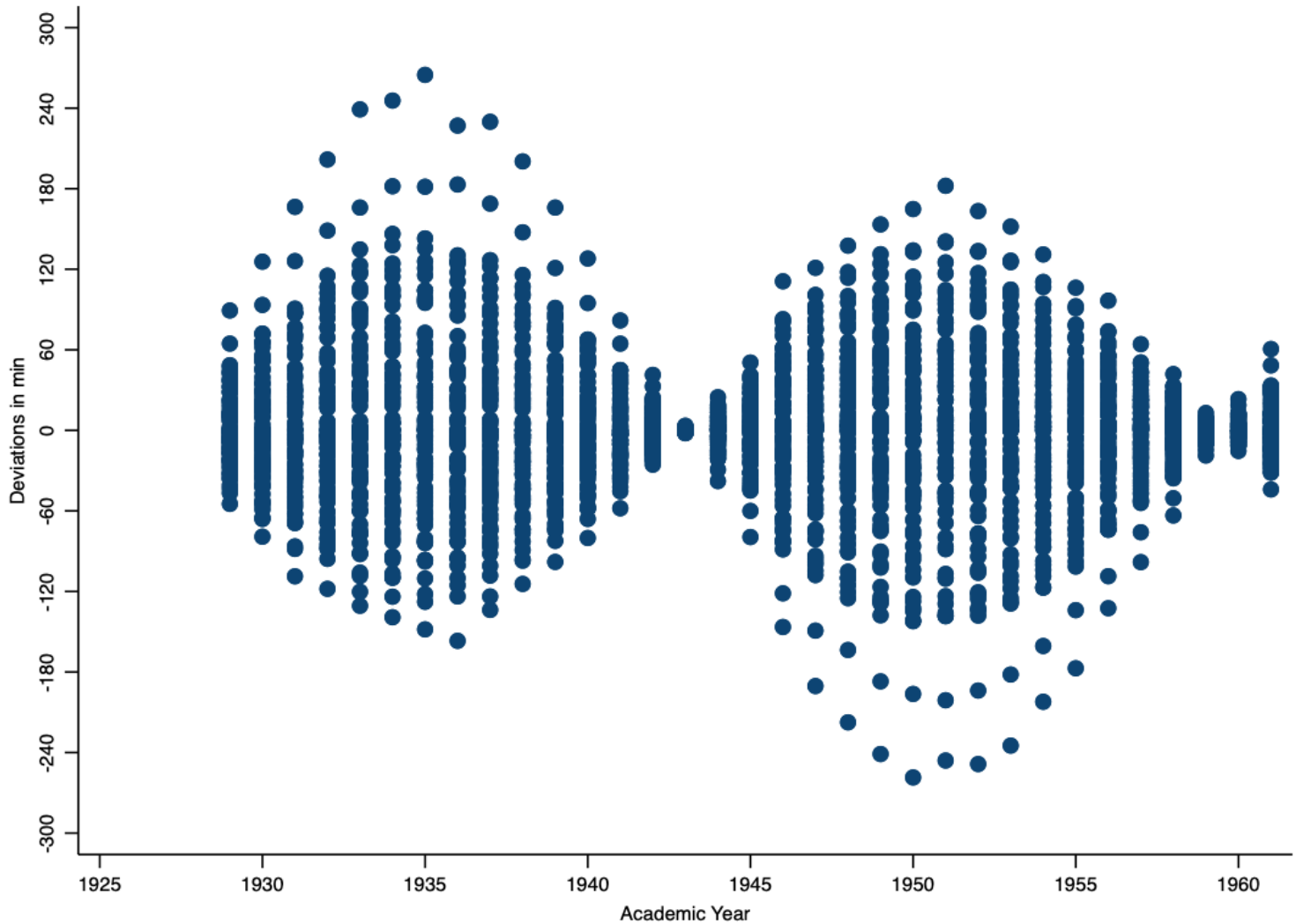
Fasting duration differences within a region



	Outcome: primary school graduate +		
	(1) Baseline	(2) T:Distance	(3) T:Duration
Female	-0.323***		
	(0.0137)		
Religiosity			-0.0335
			(0.0396)
Female*Religiosity		-0.0432***	-0.0200***
		(0.00385)	(0.00185)
Observations	2,152,031	2,152,031	2,152,031
R-squared	0.282	0.292	0.291

Notes: Share of formal degree holders is **0.61** with the standard deviation of **0.49**. Column 2 and 3 are the results of the previous estimating equations. Estimated coefficients for fasting hours are for its 10% of SD deviation, which corresponds to the range of the regional variation. Standard errors are in parenthesis, clustered at province level (N=81). *** p<0.01, ** p<0.05, * p<0.1

Robustness Checks

- Pre-treatment characteristics are balanced
- Distance measure in 20 days intervals: Null effects for the estimates until two months before Ramadan ▸ Figure
- Economic strains due to the WW-II or fasting ▸ Table 1 ▸ Table 2
- Localities within Same Province ▸ Table
- Changing enrollment dates ▸ Figure
- ↑ Non-fasting ethno-religious groups ⇒ ↓ negative effect ▸ Table

Table: Consequences of Parental Religiosity for Women

	Labor force	Income earner	Professional jobs	Married
Ramadan	0.00637**	-0.0210***	-0.00646***	0.0144***
	(0.00260)	(0.00197)	(0.00122)	(0.00139)
Observations	2,152,031	2,152,031	2,152,031	2,152,031
R-squared	0.228	0.469	0.041	0.113

Source: 1985-1990-2000 Census of Turkey; Sample of birth-cohorts 1923-1955. Notes: The historical national income data is retrieved from 2010 Maddison Project and provincial real income levels at age 6 of birth-cohorts are retrieved from Asik et al., 2020. **Interaction of female dummy and per capita income levels at the enrollment year are included as a covariate for educational quality.** Standard errors are in parenthesis, clustered at province level (N=81). *** p<0.01, ** p<0.05, * p<0.1

Table: Consequences of Parental Religiosity for Men and Women

	Labor force	Income earner	Professional jobs	Married	Nb of children/Age	Housewife
Fasting hour	-0.0426	0.00699	0.00645	-0.0283	0.00904**	0.0620**
	(0.0270)	(0.0263)	(0.0151)	(0.0197)	(0.00448)	(0.0277)
Female*Fasting hour	-0.00624***	-0.0134***	-0.00216***	0.00602***		
	(0.00120)	(0.00102)	(0.000547)	(0.000504)		
Observations	2,152,031	2,152,031	2,152,031	2,152,031	1,028,057	1,043,387
R-squared	0.227	0.468	0.040	0.112	0.220	0.028

Source: 1985-1990-2000 Census of Turkey; Sample of birth-cohorts 1923-1955. Notes: The historical national income data is retrieved from 2010 Maddison Project and provincial real income levels at age 6 of birth-cohorts are retrieved from Asik et al., 2020. **Interaction of female dummy and per capita income levels at the enrollment year are included as a covariate for educational quality.** Standard errors are in parenthesis, clustered at province level (N=81). *** p<0.01, ** p<0.05, * p<0.1

Persistence of the results

Table: Having children at an earlier age leads persistent results

	Nb of children/age	Nb of children/age	Nb of children/age
Fasting hour	0.0904**		0.0640
	(0.0452)		(0.0455)
Primary school graduate+		-0.0229***	-0.0229***
		(0.000896)	(0.000896)
Literate		-0.0112***	-0.0112***
		(0.000624)	(0.000624)
Observations	1,028,057	1,028,006	1,028,006
R-squared	0.220	0.272	0.272

Source: 1985-1990-2000 Census of Turkey; Sample of birth-cohorts 1923-1955. Notes: Region-specific time FEs and province-specific gender gap trend are controlled for. Standard errors are in parenthesis, clustered at province level (N=81). *** p<0.01, ** p<0.05, * p<0.1

Mechanism

1. The effects may be partially due to
   - the prevalent division of labor at home
   - income and other constraints due to fasting

   Yet, these are merely explaining fasting duration results ▸ Table
2. Public servants' preferences or dress codes are not main drivers as the effect is the largest at the highest grade ▸ Figure
3. Rather, it is likely that parents signal their religiosity through girls' education...
4. From contemporary survey data: Ramadan (religiosity and collective conservatism) causes females to report more traditional attitudes towards gender roles ▸ Balance ▸ Religiosity ▸ Gender Norms

THANK YOU!

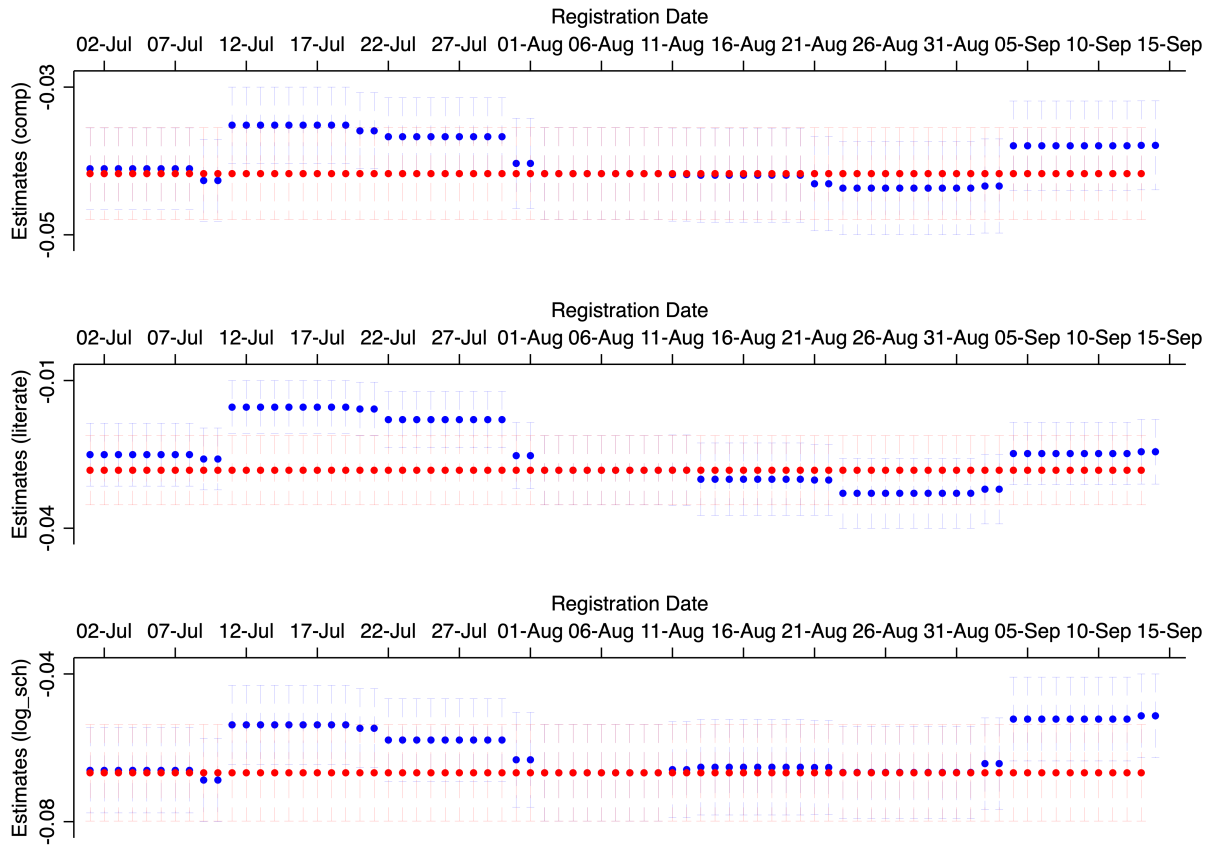
For any questions or comments:

email to *melikekokkizil@gmail.com*

or

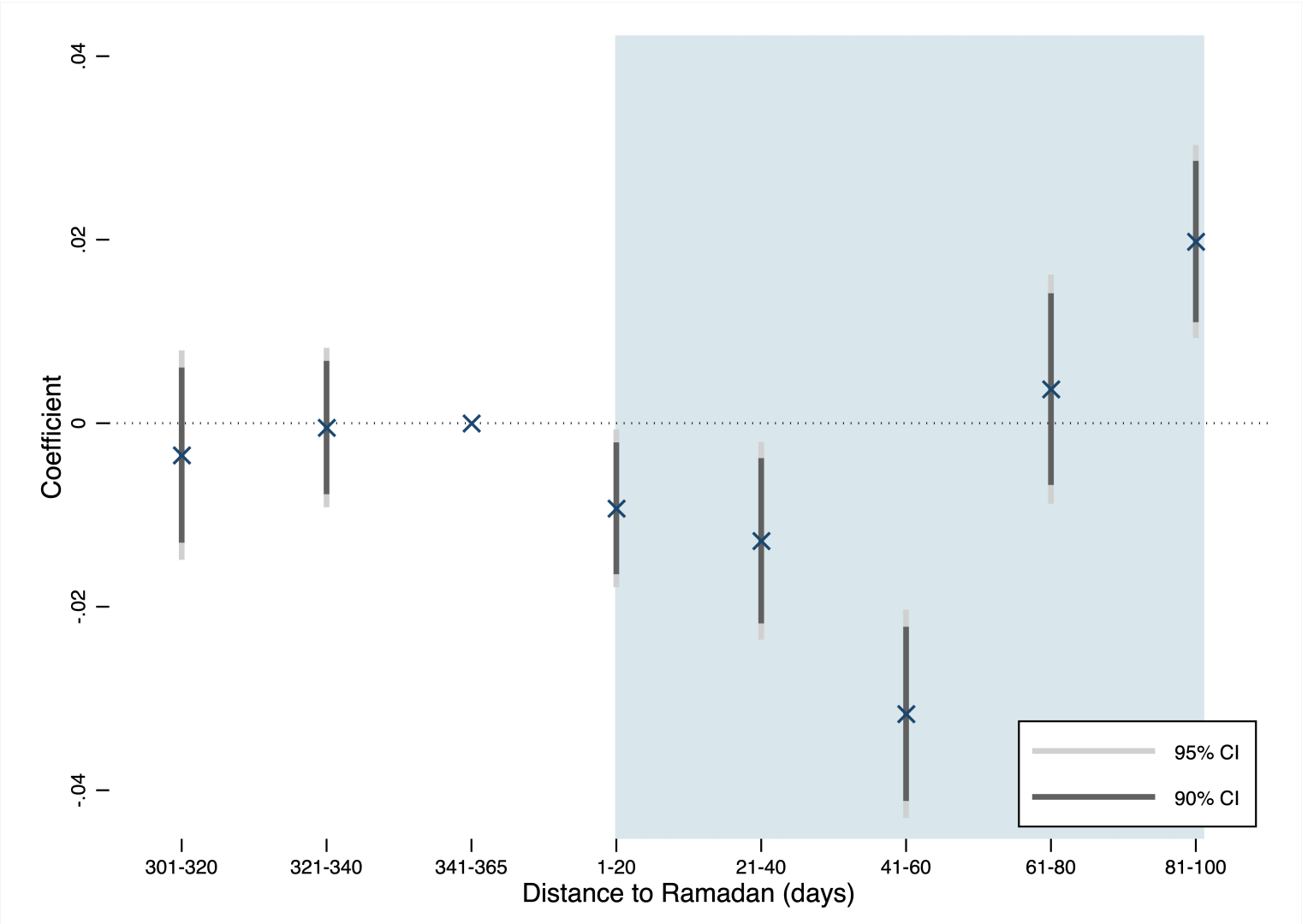
DM to *melikekokkizil* on Twitter

Differing Period for Enrolment and The Effect on Female Education



Go back

Placebo for Distance measure



	Formal degree holder			Literate			Year of schooling in log		
	(1) Baseline	(2) Treatment (Distance)	(3) Treatment (Duration)	(4) Baseline	(5) Treatment (Distance)	(6) Treatment (Duration)	(7) Baseline	(8) Treatment (Distance)	(9) Treatment (Duration)
Female	-0.353***			-0.359***			-0.709***		
	(0.0139)			(0.0152)			(0.0265)		
Religiosity		-0.0124***	-0.618		-0.0284***	-0.729		-0.0278***	-1.469
		(0.00457)	(0.685)		(0.00462)	(0.611)		(0.00875)	(1.294)
Female*Religiosity			-0.135*			-0.276***			-0.111
			(0.0801)			(0.0721)			(0.141)
Observations	639,608	639,608	639,608	639,590	639,590	639,590	639,578	639,578	639,578
R-squared	0.221	0.231	0.230	0.239	0.252	0.251	0.256	0.266	0.265
Provincial Birth-cohort FE	✓	✓	X	✓	✓	X	✓	✓	X
Region-specific Birth-cohort FE	X	X	✓	X	X	✓	X	X	✓
Gender-specific census-year FEs	X	✓	✓	X	✓	✓	X	✓	✓
Trend*Gender*Province	X	✓	✓	X	✓	✓	X	✓	✓

Source: Source: 1985, 1990, and 2000 Census of Turkey; **Sample of birth-cohorts 1934-1944.**

▸ Go back

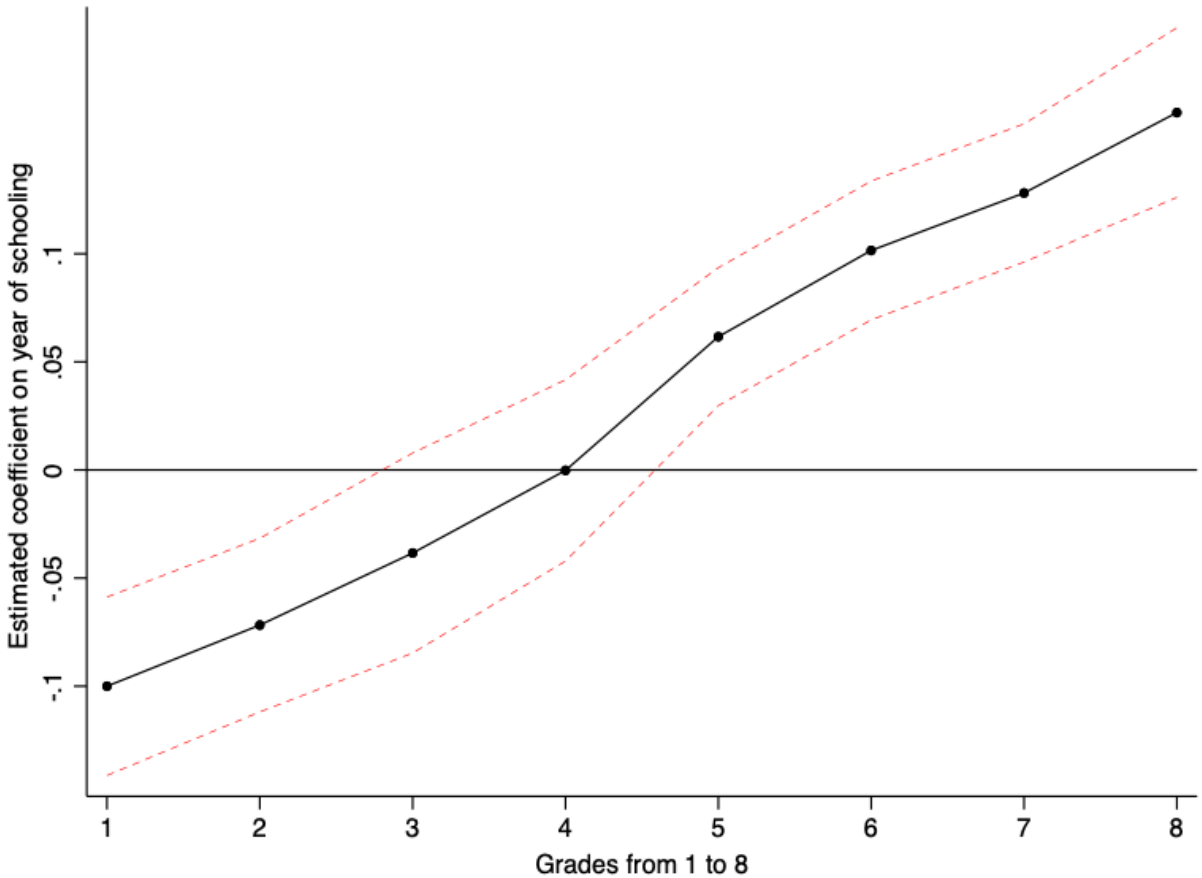
Mechanism: Income effect

	Province level		Individual Level	
	(1)	(2)	(3)	(4)
	Income per capita	Income per capita	Income per capita	Income per capita
Fasting Hour	3.920	0.833	1.876	1.877
	(3.983)	(3.749)	(3.645)	(3.645)
Female*Fasting Hour				-0.00186
				(0.00393)
Observations	2,574	2,574	2,152,031	2,152,031
R-squared	0.644	0.945	0.965	0.965
Region-specific Year FE	✓	✓	✓	✓
Trend*Province	X	✓	✓	✓
Trend*Gender*Province	X	X	✓	✓

Fasting hours and province-level income per capita are in log. Standard errors are clustered at province level (N=81)

Notes: *** p<0.01, ** p<0.05, * p<0.1 Go back

Mechanism



▶ Go back

Table: Balance Test

Go back

	(1) Distance	(2) Distance	(3) Distance	(4) Distance	(5) Distance	(6) Distance	(7) Distance	(8) Distance
Age between 30-39	-0.274							-0.170
	(0.363)							(0.386)
40 or more	-0.421							-0.255
	(0.452)							(0.475)
Non-Turkish		1.092						1.052
		(0.976)						(0.934)
Single			0.895					0.821
			(0.639)					(0.631)
Primary education				-1.108				-0.759
				(0.710)				(0.589)
Secondary or higher				-0.830				-1.297
				(0.865)				(0.790)
No children					0.992*			0.651
					(0.501)			(0.503)
One child					0.732**			0.519*
					(0.307)			(0.307)
Three or more children					0.536			0.384
					(0.372)			(0.419)
Literate mother without any diploma						-1.857***		-1.494***
						(0.654)		(0.533)
Mother with a formal education						3.291***		3.431***
						(1.034)		(1.089)
Illiterate father							-0.645	-0.313
							(0.599)	(0.619)
Literate father with a formal education							-1.776*	-0.818
							(0.912)	(0.850)
Observations	14,382	14,382	14,382	14,382	14,382	14,382	14,382	14,382
R-squared	0.686	0.686	0.686	0.686	0.686	0.688	0.686	0.688
F-test	0.465	8.582	1.962	1.408	2.619	4.168	1.313	3.477

Ramadan and Religiosity

Religiosity indicators:	Praying	Wearing headscarf	Fasting
2nd month after Ramadan	-0.0273*	0.00506	0.0170
	(0.0142)	(0.0134)	(0.0119)
3rd month after Ramadan	-0.0573**	0.00210	0.0214
	(0.0274)	(0.0332)	(0.0241)
4th month after Ramadan	-0.0432*	0.00438	0.0315
	(0.0227)	(0.0221)	(0.0205)
5th month after Ramadan	-0.0885***	-0.0472*	-0.000818
	(0.0263)	(0.0256)	(0.0221)
Observations	14,349	14,361	14,280
R-squared	0.108	0.315	0.082

Go back Source: Demographic and Health Survey of Turkey; 2008 & 2013. Notes: The sample consists of ever-married women aged between 15 and 49 years. Pray, wearing headscarf , and fasting take value of 1 if the respondent carries out the certain religious behavior either regularly or irregularly. The individuals are monthly grouped by the distance of interview dates to the ending Ramadan. Reference category is

Ramadan and Gender Norms

Gender norm indicators:	Family decisions	Educ. preferences	Women in politics
2nd month after Ramadan	-0.0396**	-0.0443***	0.00901
	(0.0153)	(0.0132)	(0.0154)
3rd month after Ramadan	-0.0632***	-0.0734***	0.0221
	(0.0226)	(0.0207)	(0.0267)
4th month after Ramadan	-0.0575**	-0.0737***	0.0705**
	(0.0232)	(0.0221)	(0.0271)
5th month after Ramadan	-0.0763***	-0.0677***	0.0728**
	(0.0285)	(0.0238)	(0.0293)
Observations	14,290	14,326	12,891
R-squared	0.130	0.058	0.031

Go back Source: **Demographic and Health Survey of Turkey; 2008, 2013**. Notes: The sample: Ever-married women aged between 15 and 49 years. Gender norm indicators are in dummy variable formation, taking the value of 1 if agrees to the following statements "**Important family decisions should be made by husbands.**", "**University education is more important for males than females**", "**Women should be more involved in politics**". The interviews are monthly-grouped by the distance of interview dates to the ending Ramadan. Reference category is the interviews that are held in the subsequent month of Ramadan. Predetermined personal characteristics, such as age intervals, mother tongue, education level of the women, parental education levels, marital status, number of children in categories, and some spatial fixed effects are controlled for. Standard errors are clustered at province level. Number of cluster is 81 for all regressions. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table: Heterogeneity w.r.t. % of non-fasting ethno-religious groups in province

	(1) *Full sample*	(2) *Non-fasters<30*	(3) *Non-fasters<25*	(4) *Non-fasters<20*	(5) *Non-fasters<15*	(6) *Non-fasters<10*	(7) *Non-fasters<5*
Fasting hour	-0.0335	-0.0334	-0.0334	-0.0334	-0.0324	-0.0369	-0.0408
	(0.0396)	(0.0398)	(0.0398)	(0.0398)	(0.0404)	(0.0401)	(0.0402)
Female*Fasting hour	-0.0200***	-0.0199***	-0.0201***	-0.0201***	-0.0202***	-0.0213***	-0.0215***
	(0.00185)	(0.00186)	(0.00186)	(0.00185)	(0.00182)	(0.00179)	(0.00181)
Observations	2,152,031	2,148,287	2,146,423	2,140,290	2,108,938	2,065,492	2,029,500
R-squared	0.291	0.291	0.291	0.291	0.289	0.287	0.284

Notes: Data from ethno-religious data is at province level and is from the census booklets from years 1927-1965. I retrieved them from Avital Livny's website. To predict the ethno-religious composition at province x academic-year level, I applied linear interpolation procedure. Standard errors are in parenthesis, clustered at province level (N=81). *** p<0.01, ** p<0.05, * p<0.1

▶ Go back