Roots of Gender Equality: the Persistent Effect of Beguinages on Attitudes Toward Women

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Motivation and Research Question

- Gender equality is conducive to economic prosperity.
  - Decreased fertility allowing human capital accumulation: de Moor and Van Zanden (2010)
    - Empirical evidence in present time: Klasen (2002) and Klasen and Lamanna (2009)
- Origins of gender equality less clear:
  - Physiological differences: Galor and Weil (1996), Alesina et al. (2013).
  - Historical accidents: Grosjean and Khattar (2015).
- Beguinages:
  - Female-only, semi-religious, medieval communities.
- Research Question:
  - Higher gender-equality during the 19th century in regions that hosted medieval beguinages?

This Paper

- Studies the causal effect of beguinages on gender equality.
- Focuses on one country: Belgium.
- Assesses gender equality during the 19th century.
  - Gender-equality tends to converge in the long-run.
  - Decreases mass migration concerns.

Contribution:

- **Cultural** origins of gender equality.
- Transmission mechanism.

The Beguine Movement

- Characteristics:
  - self-supporting, semi-religious communities of
  - **unmarried or widowed** women of
  - **different** socio-economic origins;
  - independent of any male authority.
- Where?
  - **The Low Countries** and neighbouring regions in France and Germany.
- When?
  - Beginning of the **13th century** onward.

The Beguines

- **Did not take vows** but followed a **semi-religious** life.
- **Kept and accumulated** wealth.
- Allowed to **leave the beguinage**.
- Economic activities to self-sustain:
  - market-oriented: teachers, nurses, labourers, traders;
- Urban based.
  - Tolerated by ecclesiastic and secular authorities

Geographical Distribution

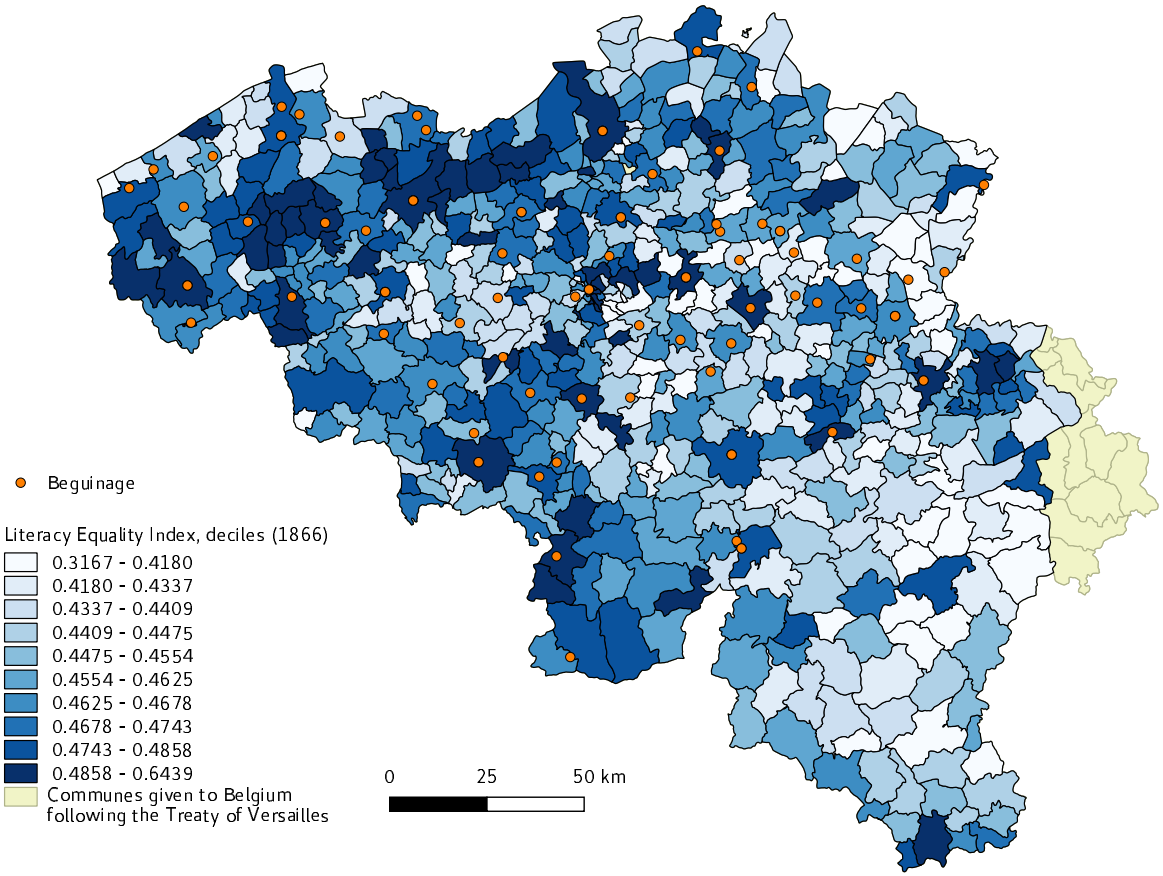
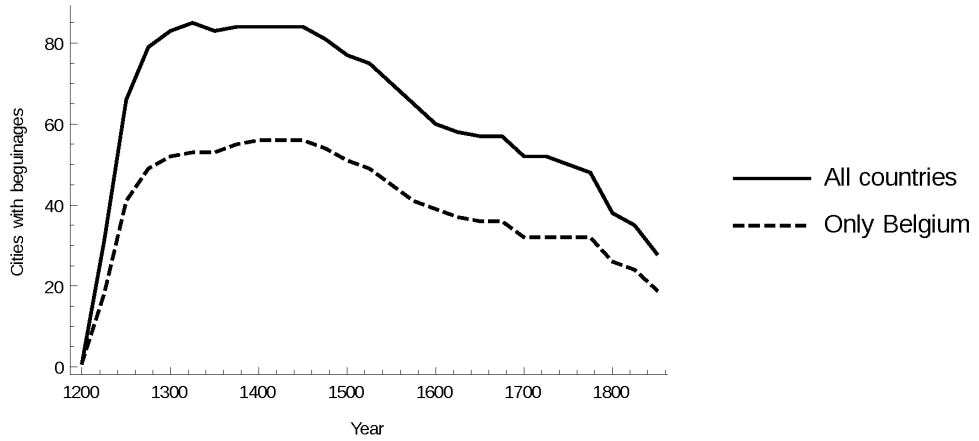
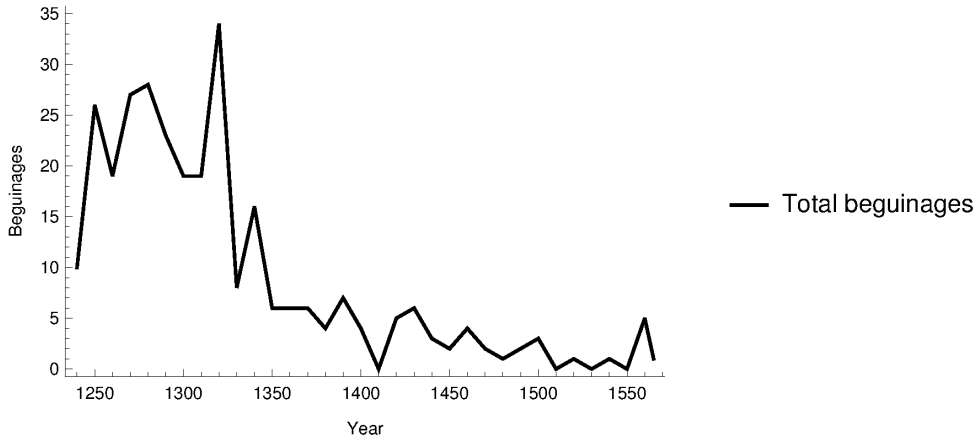


Figure: Beguinages in Belgium and measure of literacy equality

Evolution of Beguinages



Total number of cities with at least one beguinage.



Number of new beguinages created per decade.

Source: *Simons (2010), p. 256*

What We Do

- Empirics:
  - we investigate the **long-run persistence of gender norms**,
  - we examine the legacy of the beguine movement on culture taking into consideration other confounding factors,
  - we also consider the potential endogeneity of beguinage location.
- Theory:
  - simple model relating opportunities for women with gender-equality,
  - highlights the importance of the marriage market,
  - intergernational transmission of culture.

Preview of the Results

- In municipalities with a beguinage, literacy rate between men and women were more similar.
- Our results are strengthened when we use an instrumental variable approach correcting for the potential endogeneity of beguinage location.
- Results are in general robust to a host of additional covariates and sub-samples.

Data

- Exploit **cross-section** variation in beguinage location to identify their effects on gender-related outcomes.
- One country: Belgium.
- Census data:
  - Earliest possible data: censuses of 1846 and 1866.
  - **Not** individual data. Information is **aggregated** at the municipal level.
- We focus on two measures of gender equality:
  - Female literacy **compared** to male literacy.

Econometric Specification

- $y_{i,r} = \alpha + \beta beguinage_{i,r} + X_{i,r}\gamma + \kappa_r + \epsilon_{i,r}c$
- RHS - We use three indicators to account for beguinages:
  - Dummy variable - whether a city ever had a beguinage,
  - Exposure time to beguinage presence,
  - Five-level indicator combining presence and time.
- LHS - Outcomes of interest (measured in 1846 or 1866):
  - Literacy gap: $\frac{Number\ of\ literate\ women}{Number\ of\ literate\ men}$
  - Female literacy share: $\frac{Number\ of\ literate\ women}{Number\ of\ literate\ women + Number\ of\ literate\ men}$
  - Female literacy index: $\frac{Share\ of\ literate\ women}{Share\ of\ literate\ men}$

Summary Statistics

	Mean	*Std.Dev.*	*Min.*	*Max.*
Beguinage presence				
Beguinage (0/1)	0.026	0.159	0	1
Intensity: No Beg.	0.974	0.159	0	1
Intensity: 1 Beg., $<$ 200 years	0.007	0.086	0	1
Intensity: 1 Beg., $>$ 200 years	0.012	0.108	0	1
Intensity: $>$ 1 Beg., $>$ 200 years	0.003	0.054	0	1
Intensity: $>$ 3 Beg., $>$ 200 y.	0.004	0.061	0	1
Exposure (centuries)	0.134	1.065	0.000	22.440
Outcomes				
Lit. equality index, 1866	0.822	0.137	0.236	1.808
Female lit. share, 1866	0.448	0.042	0.191	0.644
Female lit. index, 1866	0.856	0.122	0.256	1.601
Controls				
Total men, 1866 (thousands)	0.949	2.622	0	74
Total women, 1866 (thousands)	0.944	2.909	0	84
Nuptiality men, 1866	0.360	0.036	0.181	0.669
Nuptiality women, 1866	0.398	0.037	0.202	0.626
Fem. monas.	0.030	0.184	0	2
Masc. monas.	0.024	0.170	0	3
Other monas.	0.072	0.259	0	1
Distance river (km)	9.082	8.757	0.002	52.396
Distance Leuven (km)	69.560	33.467	0.377	167.249
Min. distance beguinage (km)	16.265	18.164	0.000	122.010
Distance big city (km)	18.577	19.988	0.000	114.328
Observations	2711			

OLS Results: Female literacy

	Dep. variable: Lit. equality index, 1866											
	Baseline			Fixed-effects			Geography			All		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Beguinage (0/1)	0.144***			0.153***			0.125***			0.043***		
	(0.019)			(0.019)			(0.019)			(0.013)		
Intensity												
1 Beg., $<$ 200 years		0.062***			0.085***			0.073***			0.038**	
		(0.024)			(0.025)			(0.024)			(0.015)	
1 Beg., $>$ 200 years		0.153***			0.160***			0.150***			0.047**	
		(0.033)			(0.034)			(0.032)			(0.019)	
$>$ 1 Beg, $>$ 200 years		0.233***			0.269***			0.213***			0.088**	
		(0.034)			(0.044)			(0.054)			(0.036)	
$>$ 3 Beg., $>$ 200 years		0.208***			0.183***			0.092***			−0.041	
		(0.015)			(0.009)			(0.025)			(0.036)	
Exposure (centuries)			0.021***			0.022***			0.017***			0.006**
			(0.003)			(0.003)			(0.003)			(0.003)
Fixed-effects	No	No	No	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Demography	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Observations	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549
R^2	0.030	0.035	0.029	0.203	0.207	0.200	0.218	0.220	0.213	0.432	0.433	0.431

OLS Results: Female literacy

	Dep. variable: Female lit. share, 1866											
	Baseline			Fixed-effects			Geography			All		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Beguinage (0/1)	0.041***			0.043***			0.035***			0.011***		
	(0.004)			(0.005)			(0.005)			(0.004)		
Intensity												
1 Beg., $<$ 200 years		0.020***			0.026***			0.023***			0.012***	
		(0.007)			(0.007)			(0.007)			(0.004)	
1 Beg., $>$ 200 years		0.042***			0.044***			0.041***			0.010**	
		(0.007)			(0.008)			(0.007)			(0.005)	
$>$ 1 Beg, $>$ 200 years		0.064***			0.075***			0.060***			0.023**	
		(0.008)			(0.011)			(0.014)			(0.010)	
$>$ 3 Beg., $>$ 200 years		0.059***			0.051***			0.026***			−0.010	
		(0.004)			(0.002)			(0.007)			(0.010)	
Exposure (centuries)			0.006***			0.006***			0.005***			0.002**
			(0.001)			(0.001)			(0.001)			(0.001)
Fixed-effects	No	No	No	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Demography	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Observations	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549
R^2	0.025	0.028	0.024	0.204	0.206	0.201	0.216	0.218	0.212	0.409	0.410	0.409

OLS Results: Female literacy

	Dep. variable: Female lit. index, 1866											
	Baseline			Fixed-effects			Geography			All		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Beguinage (0/1)	0.055***			0.061***			0.052***			0.040***		
	(0.011)			(0.012)			(0.012)			(0.013)		
Intensity												
1 Beg., $<$ 200 years		0.028*			0.050***			0.044***			0.038**	
		(0.016)			(0.016)			(0.015)			(0.016)	
1 Beg., $>$ 200 years		0.063***			0.062***			0.061***			0.041**	
		(0.018)			(0.019)			(0.018)			(0.018)	
$>$ 1 Beg, $>$ 200 years		0.101***			0.131***			0.106***			0.082**	
		(0.020)			(0.031)			(0.037)			(0.035)	
$>$ 3 Beg., $>$ 200 years		0.048***			0.027			−0.013			−0.039	
		(0.015)			(0.018)			(0.025)			(0.035)	
Exposure (centuries)			0.008***			0.007***			0.006**			0.006**
			(0.002)			(0.002)			(0.002)			(0.003)
Fixed-effects	No	No	No	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Demography	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Observations	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549	2549
R^2	0.005	0.006	0.005	0.205	0.206	0.203	0.217	0.219	0.215	0.233	0.234	0.232

Robustness

- Sub-sample regressions, OLS and IV:
  - Only towns 5km, 10km and 20km away from a beguinage. Buffers
  - Removing municipalities with an ongoing beguinage at census time. Ongoing
- Regressors, OLS and/or IV:
  - Randomly allocated beguinages: significant only in 15% of the cases.
  - Male literacy rate as regressor. Male lit.
  - Municipal charter (instrument) as regressor. Charters
  - Other: alternative definition of exposure, distance to beguinage as regressor. Other

Threats to Identification

- Potential endogeneity of beguinage location:
  - selection of towns that were more favourable to women.
- Instrumental variable approach:
  - Binary variable indicating whether a town obtained a "municipal charter" before the 13th century.

Treats to Idenfication: Instrument

- Municipal charters typically:
  - increased municipal autonomy,
  - conveyed benefits for citizens: partial exemption from war and a municipal judicial system,
  - allowed towns to organize a market and establish gilds, and
  - charters granted after the lord secured a hefty payment.
- Considering the secular occupations of beguines (education, spinning, trade), towns with a municipal charter are likely to attract them as they can be more economically dynamic (e.g. presence of a market).

Threats to Identification: Instrument

- Exclusion restriction:
  - Historical evidence suggests that the acquisition of a charter was not introducing any institution promoting gender equality.
  - Towns granted a municipal charter could have grown larger and, thus, education would have been a more productive investment.
    - We compute the growth rate of towns between 1437 and 1866 (only for a sub-sample).
    - We cannot reject equal growth rate for those with and without a municipal charter.
  - Our outcome of interest is **not literacy per se** but the comparison between male and female outcomes.

Threats to Idenfication: Instrument

- Compare literacy among municipalities with and without a municipal charter.

	Lit. eq. index, 1866	Fem. lit. share, 1866	Fem. lit. index, 1866
	(1)	(2)	(3)
	Panel A: Municipalities with beguinage		
Municipal charter	−0.027	−0.002	−0.012
	(0.044)	(0.014)	(0.046)
Fixed-effects	Arrond.	Arrond.	Arrond.
Geography	Yes	Yes	Yes
Demography	Yes	Yes	Yes
Observations	70	70	70
R^2	0.974	0.959	0.916
	Panel B: Municipalities without beguinage		
Municipal charter	0.037	0.010	0.038
	(0.034)	(0.011)	(0.037)
Fixed-effects	Canton	Canton	Canton
Geography	Yes	Yes	Yes
Demography	Yes	Yes	Yes
Observations	2479	2479	2479
R^2	0.406	0.391	0.231

IV Results: Female Literacy

	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.065**			0.018**			0.065**		
	(0.026)			(0.008)			(0.027)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		0.064			0.025			0.073	
		(0.057)			(0.017)			(0.057)	
1 Beg., $>$ 200 years		0.072***			0.015***			0.062***	
		(0.024)			(0.006)			(0.020)	
$>$ 1 Beg, $>$ 200 years		0.131***			0.035***			0.124***	
		(0.049)			(0.013)			(0.046)	
$>$ 3 Beg., $>$ 200 years		−0.068			−0.015			−0.058	
		(0.056)			(0.015)			(0.053)	
Exposure (centuries)			0.012**			0.004**			0.012**
			(0.005)			(0.002)			(0.005)
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
1st-st. F-val.	54.9	3.8	28.4	54.9	3.8	28.4	54.9	3.8	28.4
Observations	2549	2549	2549	2549	2549	2549	2549	2549	2549
R^2	0.431	0.432	0.430	0.409	0.409	0.408	0.232	0.233	0.230

Beguinages and Gender Equality

- Possible mechanisms linking beguinages with gender equality:
  - Role modelling:
    Exposition to independent women being successful without male intervention $\rightarrow$ Change in perceptions of women.
  - Increased opportunities beyond marriage and monastic life
    Better bargaining position for women leading to better outcomes.

	Lit. eq. index, 1866	Fem. lit. share, 1866	Fem. lit. index, 1866
	(1)	(2)	(3)
Fem. monastery	0.046**	0.014***	0.049**
	(0.019)	(0.005)	(0.019)
Masc. monastery	−0.011	−0.003	−0.012
	(0.012)	(0.004)	(0.013)
Other monastery	0.010	0.004	0.012
	(0.018)	(0.006)	(0.019)
Fixed-effects	Canton	Canton	Canton
Geography	Yes	Yes	Yes
Demography	Yes	Yes	Yes
Observations	2479	2479	2479
R^2	0.405	0.391	0.231

A Theoretical Model

- Economy populated by adult men and women.
- Genders differ in outside options with respect to marriage:
  - Women: $f_{i,t} = f$.
  - Men: distributed according to a Pareto distribution. $m_{i,t} \sim P(\mu_t/2, 2)$, μ_t average men.
- Individuals randomly match and bargain over marital surplus y.
- Marriage possible if and only if: $f + m_{i,t} \leq y$.

$$\max_s (sy - m_{i,t})^{\beta}((1-s)y - f)^{1-\beta}$$

- Optimal sharing rule:

$$s^{\star} = \frac{m_{i,t}(1-\beta) + \beta(y-f)}{y}$$

A Theoretical Model

- Married couples have children: a son and a daughter.
- Daughters inherit their mothers' trait: f.
- Sons observe the **average** amount shared $s^{\star}y$ (only married households share) at the social level:
- Their type is a draw from a Pareto distribution with average μ_{t+1}.

$$\mu_{t+1} = E(s^{\star}y | m_{i,t} \leq y - f) = y \frac{\int_{-\infty}^{y-f} s^{\star}(m_{i,t}) f(m_{i,t}) \mathrm{d}m_{i,t}}{\int_{-\infty}^{y-f} f(m_{i,t}) \mathrm{d}m_{i,t}}$$

- It is possible to write $\mu_{t+1} = f(\mu_t)$

A Theoretical Model

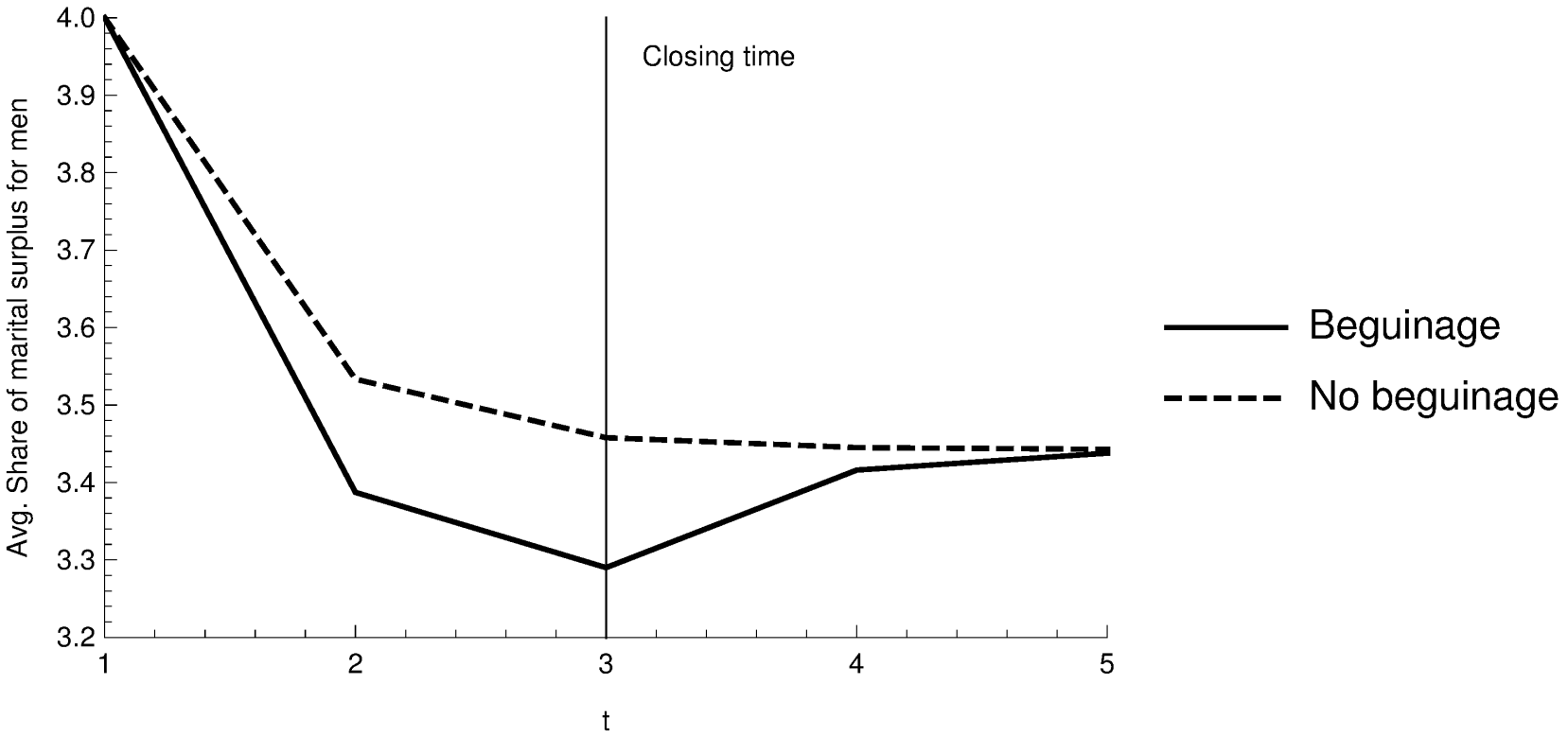
Proposition

If men enjoy initially a good outside option (μ_0 is large), μ_t decreases over time and converges to a unique, asymptotically stable steady-state:

$$\mu = \lim_{t \to \infty} \mu_t = \frac{1}{2}(y - f)\sqrt{\beta}(\sqrt{8 + \beta} - \sqrt{\beta})t$$

- A beguinage increases the outside option for women: $f^b > f$.
- The value of μ at the steady-state decreases: $\frac{\partial \mu}{\partial f} < 0$.
  - Women enjoy a larger share of marital output $\rightarrow$ more gender equality.

- **Illustration:**
  - Create a beguinage and close it some periods after.
  - Women are better-off during the entire path.



Concluding Remarks

- We provide new evidence on the long-lasting effects institutions have on gender-related outcomes.
- We find that towns that held a beguine community, were more favourable towards women:
  - literacy rates were more similar,
- We can derive a causal effect between the presence of beguine communities and improved female outcomes.
- Results are compatible with a model of cultural transmission highlighting the role of the marriage market.

APPENDIX

Robustness: Buffers around beguinages, 5km: OLS

	Beguinage < 5km								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.040**			0.012**			0.041**		
	(0.020)			(0.006)			(0.020)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., < 200 years		0.039*			0.014**			0.041*	
		(0.021)			(0.006)			(0.021)	
1 Beg., > 200 years		0.037			0.009			0.035	
		(0.027)			(0.008)			(0.027)	
> 1 Beg, > 200 years		0.093*			0.028**			0.096**	
		(0.050)			(0.013)			(0.047)	
> 3 Beg., > 200 years		−0.006			0.002			0.005	
		(0.041)			(0.011)			(0.039)	
Exposure (centuries)			0.007*			0.002**			0.007*
			(0.004)			(0.001)			(0.003)
Controls									
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	371	371	371	371	371	371	371	371	371
R^2	0.661	0.664	0.660	0.620	0.623	0.619	0.478	0.482	0.477

Robustness: Buffers around beguinages, 10km: OLS

	Beguinage $<$ 10km								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.042***			0.012***			0.040***		
	(0.015)			(0.004)			(0.015)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		0.033**			0.012**			0.034**	
		(0.016)			(0.005)			(0.017)	
1 Beg., $>$ 200 years		0.047**			0.012**			0.043**	
		(0.021)			(0.006)			(0.020)	
$>$ 1 Beg, $>$ 200 years		0.099**			0.029**			0.097**	
		(0.041)			(0.011)			(0.040)	
$>$ 3 Beg., $>$ 200 years		−0.036			−0.008			−0.034	
		(0.040)			(0.011)			(0.039)	
Exposure (centuries)			0.007**			0.002**			0.007**
			(0.003)			(0.001)			(0.003)
Controls									
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1114	1114	1114	1114	1114	1114	1114	1114	1114
R^2	0.516	0.518	0.515	0.488	0.490	0.488	0.317	0.319	0.316

Robustness: Buffers around beguinages, 20km: OLS

	Beguinage $<$ 20km								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.045***			0.012***			0.043***		
	(0.014)			(0.004)			(0.013)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		0.042***			0.014***			0.042**	
		(0.016)			(0.005)			(0.016)	
1 Beg., $>$ 200 years		0.048**			0.011**			0.043**	
		(0.020)			(0.005)			(0.018)	
$>$ 1 Beg, $>$ 200 years		0.090**			0.025**			0.086**	
		(0.039)			(0.010)			(0.037)	
$>$ 3 Beg., $>$ 200 years		−0.033			−0.007			−0.030	
		(0.039)			(0.010)			(0.037)	
Exposure (centuries)			0.006**			0.002**			0.006**
			(0.003)			(0.001)			(0.003)
Controls									
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2060	2060	2060	2060	2060	2060	2060	2060	2060
R^2	0.435	0.436	0.433	0.419	0.420	0.418	0.243	0.245	0.242

Robustness: Buffers around beguinages, 5km: IV

	Beguinage < 5km								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.053***			0.016***			0.055***		
	(0.018)			(0.005)			(0.018)		
Exposure (centuries)			0.009*			0.003**			0.011**
			(0.005)			(0.001)			(0.005)
Controls									
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	301		371	301		371	301		371
R^2	0.633		0.659	0.593		0.618	0.415		0.475
1st-stage F-val.	213.1		24.4	213.1		24.4	213.1		24.4

Robustness: Buffers around beguinages, 10km: IV

	Beguinage < 10km								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.090***			0.023***			0.085***		
	(0.025)			(0.007)			(0.025)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., < 200 years		0.079			0.031**			0.091*	
		(0.052)			(0.016)			(0.053)	
1 Beg., > 200 years		0.073***			0.018***			0.065***	
		(0.026)			(0.007)			(0.023)	
> 1 Beg, > 200 years		0.117**			0.033***			0.113**	
		(0.048)			(0.013)			(0.045)	
> 3 Beg., > 200 years		−0.041			−0.006			−0.031	
		(0.048)			(0.012)			(0.046)	
Exposure (centuries)			0.008*			0.003**			0.008*
			(0.004)			(0.001)			(0.004)
Controls									
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	723	1114	1114	723	1114	1114	723	1114	1114
R^2	0.516	0.516	0.515	0.486	0.487	0.488	0.305	0.316	0.316
1st-stage F-val.	147.4	3.7	32.7	147.4	3.7	32.7	147.4	3.7	32.7

Robustness: Buffers around beguinages, 20km: IV

	Beguinage < 20km								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.097***			0.024***			0.090***		
	(0.024)			(0.007)			(0.023)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., < 200 years		0.078			0.030*			0.089	
		(0.058)			(0.017)			(0.058)	
1 Beg., > 200 years		0.076***			0.017***			0.066***	
		(0.025)			(0.006)			(0.021)	
> 1 Beg, > 200 years		0.139***			0.038***			0.133***	
		(0.052)			(0.014)			(0.049)	
> 3 Beg., > 200 years		−0.061			−0.012			−0.049	
		(0.060)			(0.015)			(0.056)	
Exposure (centuries)			0.013**			0.004**			0.013**
			(0.006)			(0.002)			(0.006)
Controls									
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	955	2060	2060	955	2060	2060	955	2060	2060
R^2	0.464	0.434	0.432	0.442	0.418	0.416	0.255	0.243	0.240
1st-stage F-val.	153.7	3.8	26.9	153.7	3.8	26.9	153.7	3.8	26.9

Back

Robustness: No open beguinage, OLS

	No open beguinage								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.046***			0.012***			0.042***		
	(0.014)			(0.004)			(0.014)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		0.039**			0.012***			0.038**	
		(0.015)			(0.005)			(0.016)	
1 Beg., $>$ 200 years		0.056**			0.013**			0.049**	
		(0.025)			(0.006)			(0.022)	
$>$ 1 Beg, $>$ 200 years		0.088**			0.023**			0.082**	
		(0.036)			(0.010)			(0.035)	
$>$ 3 Beg., $>$ 200 years		−0.041			−0.011			−0.040	
		(0.037)			(0.010)			(0.036)	
Exposure (centuries)			0.007**			0.002**			0.006**
			(0.003)			(0.001)			(0.003)
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2539	2539	2539	2539	2539	2539	2539	2539	2539
R^2	0.428	0.429	0.427	0.407	0.407	0.406	0.231	0.232	0.230

Robustness: No open beguinage, IV

	No open beguinage								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.096***			0.025***			0.089***		
	(0.021)			(0.006)			(0.021)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		1.362***			1.362***			1.362***	
		(0.397)			(0.397)			(0.397)	
1 Beg., $>$ 200 years		0.191			0.191			0.191	
		(0.141)			(0.141)			(0.141)	
$>$ 1 Beg, $>$ 200 years		0.637			0.637			0.637	
		(0.393)			(0.393)			(0.393)	
$>$ 3 Beg., $>$ 200 years		−0.039			−0.039			−0.039	
		(0.489)			(0.489)			(0.489)	
Exposure (centuries)			0.019**			0.006**			0.019**
			(0.008)			(0.002)			(0.008)
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	831	2539	2539	831	2539	2539	831	2539	2539
R^2	0.463	0.411	0.424	0.440	0.411	0.403	0.245	0.411	0.226
1st-stage F-val.	163.0	5.0	14.3	163.0	5.0	14.3	163.0	5.0	14.3

Back

Robustness: Male literacy, OLS

	Male literacy								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.031**			0.007**			0.027**		
	(0.012)			(0.003)			(0.011)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		0.034**			0.011***			0.033**	
		(0.014)			(0.004)			(0.014)	
1 Beg., $>$ 200 years		0.032*			0.005			0.025	
		(0.019)			(0.005)			(0.017)	
$>$ 1 Beg, $>$ 200 years		0.060			0.014			0.054	
		(0.037)			(0.010)			(0.035)	
$>$ 3 Beg., $>$ 200 years		−0.060*			−0.017*			−0.059*	
		(0.033)			(0.009)			(0.032)	
Exposure (centuries)			0.004			0.001			0.003
			(0.003)			(0.001)			(0.002)
Male lit. rate, 1866	0.268***	0.268***	0.269***	0.093***	0.093***	0.093***	0.281***	0.281***	0.282***
	(0.027)	(0.027)	(0.027)	(0.009)	(0.009)	(0.009)	(0.028)	(0.028)	(0.028)
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2549	2549	2549	2549	2549	2549	2549	2549	2549
R^2	0.469	0.470	0.468	0.456	0.456	0.455	0.284	0.285	0.283

Robustness: Male literacy, IV

	Male literacy								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.057***			0.012**			0.050***		
	(0.017)			(0.005)			(0.017)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		0.038			0.015			0.044	
		(0.052)			(0.015)			(0.052)	
1 Beg., $>$ 200 years		0.054**			0.009			0.042**	
		(0.023)			(0.006)			(0.020)	
$>$ 1 Beg, $>$ 200 years		0.080*			0.021*			0.077*	
		(0.046)			(0.012)			(0.044)	
$>$ 3 Beg., $>$ 200 years		−0.071			−0.021			−0.069	
		(0.052)			(0.014)			(0.049)	
Exposure (centuries)			0.008*			0.002			0.008
			(0.005)			(0.001)			(0.005)
Male lit. rate, 1866	0.205***	0.266***	0.268***	0.069***	0.093***	0.093***	0.213***	0.280***	0.280***
	(0.035)	(0.026)	(0.026)	(0.011)	(0.009)	(0.009)	(0.037)	(0.027)	(0.027)
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	973	2549	2549	973	2549	2549	973	2549	2549
R^2	0.494	0.469	0.468	0.475	0.456	0.455	0.296	0.284	0.283
1st-stage F-val.	197.4	3.7	30.5	197.4	3.7	30.5	197.4	3.7	30.5

Back

Robustness: Municipal chater, OLS

	Municipal charter								
	Lit. eq. index, 1866			Fem. lit. share, 1866			Fem. lit. index, 1866		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Beguinage (0/1)	0.037**			0.009**			0.033**		
	(0.016)			(0.005)			(0.016)		
Intensity									
No Beg.		Ref.			Ref.			Ref.	
1 Beg., $<$ 200 years		0.037**			0.012**			0.036**	
		(0.017)			(0.005)			(0.017)	
1 Beg., $>$ 200 years		0.044*			0.009			0.036*	
		(0.024)			(0.006)			(0.022)	
$>$ 1 Beg, $>$200 years		0.084**			0.021**			0.076**	
		(0.037)			(0.010)			(0.036)	
$>$ 3 Beg., $>$ 200 years		−0.042			−0.010			−0.040	
		(0.036)			(0.009)			(0.034)	
Exposure (centuries)			0.004			0.001			0.004
			(0.003)			(0.001)			(0.003)
Municipal charter	0.016	0.007	0.025	0.005	0.004	0.008	0.019	0.011	0.027
	(0.020)	(0.021)	(0.017)	(0.006)	(0.006)	(0.005)	(0.020)	(0.021)	(0.018)
Fixed-effects	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton	Canton
Geography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Demography	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2549	2549	2549	2549	2549	2549	2549	2549	2549
R^2	0.432	0.433	0.431	0.409	0.410	0.409	0.233	0.234	0.232

Back

Robustness: Distance, alternative exposure, OLS

	Lit. eq. index, 1866	Fem. lit. share, 1866	Fem. lit. index, 1866
	(1)	(2)	(3)
	Panel A: Distance to beguinage as regressor		
Dist. closest beg. (log-km)	-0.014^{***}	-0.004^{***}	-0.013^{***}
	(0.005)	(0.001)	(0.005)
Observations	2549	2549	2549
R^2	0.431	0.409	0.233
	Panel B: Alternative definition of exposure		
Alt. exposure (centuries)	0.008^{***}	0.002^{**}	0.008^{***}
	(0.003)	(0.001)	(0.003)
Observations	2549	2549	2549
R^2	0.431	0.409	0.232
Controls (common to all Panels)			
Fixed-effects	Canton	Canton	Canton
Geography	Yes	Yes	Yes
Demography	Yes	Yes	Yes

Robustness: Distance, alternative exposure, IV

	Lit. eq. index, 1866	Fem. lit. share, 1866	Fem. lit. index, 1866
	(1)	(2)	(3)
	Panel A: Distance to beguinage as regressor		
Dist. closest beg. (log-km)	−0.038**	−0.011**	−0.038**
	(0.016)	(0.005)	(0.016)
Observations	2549	2549	2549
R^2	0.426	0.405	0.226
1st-stage F-val.	34.7	34.7	34.7
	Panel B: Alternative definition of exposure		
Alt. exposure (centuries)	0.013**	0.004**	0.013**
	(0.005)	(0.002)	(0.005)
Observations	2549	2549	2549
R^2	0.431	0.409	0.232
1st-stage F-val.	36	36	36
Controls (common to all Panels)			
Fixed-effects	Canton	Canton	Canton
Geography	Yes	Yes	Yes
Demography	Yes	Yes	Yes

Back