

“Now She Is Martha, then She Is Mary”:
The Influence of Beguinages on Gender Norms

UCL

**Université
catholique
de Louvain**

A. Frigo, E. Roca

IRES/IMMAQ
Université catholique de Louvain

February 2, 2017

The Beguine Movement

- Characteristics of the movement:
 - Organized, self-supporting, semi-religious communities of
 - **unmarried or widowed** women of
 - **various** socio-economic origins.
- About the beguines:
 - Followed a religious life.
 - Did **charitable work**: nurses, caring for the needies, etc.
 - Did **remunerated work**: teachers, labourers, traders.
 - Practiced liberal arts and music.
- Geographical scope: mostly in Low Countries and neighbouring regions in France and Germany.
- Temporal scope: beginning of the **13th century** onwards.

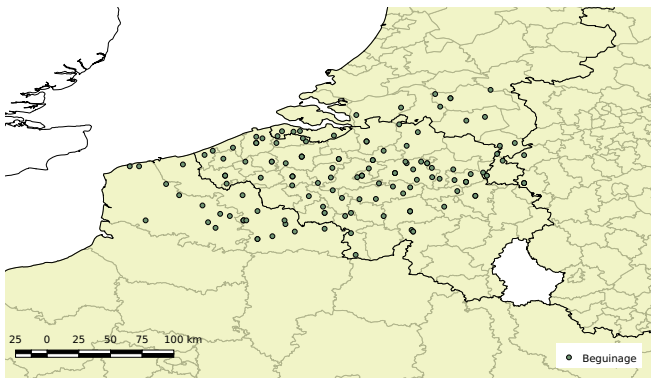
The Beguine Movement

- The beguines:
 - **were independent** of any male authority.
 - **did not** take vows, allowing them to
 - **keep and accumulate** property.
 - **leave the beguinage** and wed.

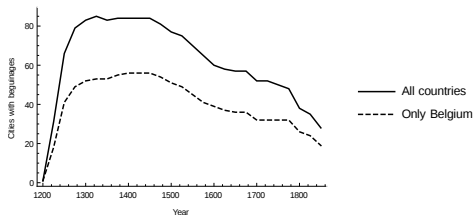
- Beguinages:
 - were **not officially recognized** by any religious institution.
 - were **tolerated** by the Church and secular institutions.
 - were integrated and **part of the urban economy**.

Geographical Distribution

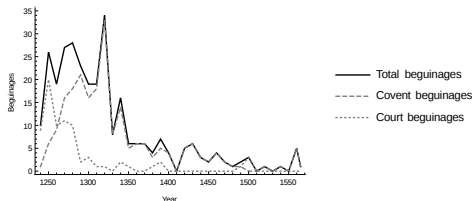
Beguinaages in Belgium, The Netherlands, France and Germany



Evolution of Beguinages



Total number of cities with at least one beguinage.



Number of new beguinages created per decade.

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

Research Question

- 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.

Research Question

Do we observe a more gender-equal culture today in regions characterized by the presence of beguinages in the Middle Age?

Preview of the Results

- We observe mixed results in nuptiality rates between municipalities that had and did not have a beguinage.
- Beguinage presence contributes to reduce the wage gap in agriculture between men and women.
- 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.

Related Literature

- Historical literature:
 - Pye (2014),
 - Simons (2001),
 - de Moor (2013).
- Economic literature on the long-run persistence of institutions:
 - Alesina et al. (2013),
 - Michalopoulos et al. (2016),
 - Andersen et al. (2015),
 - Valencia Caicedo (2015).

Data and Methods

- 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:
 - Wage gap in agriculture.
 - Female literacy **compared** to male literacy.

Data and Methods

- 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):
 - Wage gap in agriculture: $\frac{\text{Wage of women}}{\text{Wage of men}}$
 - Literacy gap: $\frac{\text{Number of literate women}}{\text{Number of literate men}}$
 - Female literacy share: $\frac{\text{Number of literate women}}{\text{Number of literate women} + \text{Number of literate men}}$
 - Female literacy index: $\frac{\text{Share of literate women}}{\text{Share of literate men}}$

Summary Statistics

Variable	Mean	Sd	Max	Min
Beg (0/1)	0.027	0.163	1	0
Total time with a beg.	14.182	109.678	2244	0
No beg.	0.972	0.163	1	0
1 beg., < 200 years	0.007	0.088	1	0
1 beg., > 200 years	0.012	0.111	1	0
> 1 beg., > 200 years	0.003	0.055	1	0
> 3 beg., > 200 years	0.003	0.062	1	0
Lit. equality index in 1866	0.822	0.136	1.807	0.235
Lit. women / total lit. population	0.448	0.042	0.643	0.190
Share of lit. women / share lit. men	0.855	0.122	0.256	1.600
Wage equality index in agri., 1846	0.641	0.141	1.222	0.177
Share of women ever married, 1846	0.382	0.033	0.536	0.236
Share of women ever married, 1866	0.398	0.037	0.626	0.201
Fem. monasteries	0.031	0.189	2	0
Masc. monasteries	0.025	0.175	3	0
Other monasteries	0.014	0.121	1	0
Total men, 1846	858.200	2198.245	59502	19
Total women, 1846	862.226	2360.611	64372	17
Total men, 1866	948.506	2621.882	74169	9
Total women, 1866	944.019	2908.93	83736	9
Distance to closest river	9081.614	8757.296	52396.37	2.301
Potential caloric yield, before 1550	2142.122	72.760	2305.816	1908.81
Potential caloric yield, after 1550	8894.732	310.662	9780.832	8292.416
Observations	2553			

OLS Results: Female Nuptiality, 1846

	Nuptiality women, 1846					
	(1)		(2)		(3)	
Beg (0/1)	0.00166	(0.49)				
No beg.			Ref.			
1 beg., < 200 years			0.00245	(0.50)		
1 beg., > 200 years			0.00261	(0.54)		
> 1 beg., > 200 years			-0.00577	(-1.04)		
> 3 beg., > 200 years			-0.00545	(-0.81)		
Total time with a beg. (centuries)					-0.0000488	(-0.08)
F/M ratio	-0.0561***	(-4.80)	-0.0563***	(-4.88)	-0.0558***	(-4.85)
Wage equality index in agri., 1846	-0.0212**	(-2.22)	-0.0212**	(-2.22)	-0.0212**	(-2.23)
Total men, 1846 (thousands)	-0.0130**	(-2.50)	-0.0141***	(-2.80)	-0.0131**	(-2.51)
Total women, 1846 (thousands)	0.0112**	(2.43)	0.0122***	(2.77)	0.0113**	(2.47)
Big town	-0.00139	(-0.83)	-0.00132	(-0.80)	-0.00136	(-0.82)
Masc. monas.	0.000433	(0.14)	0.000301	(0.10)	0.000457	(0.15)
Fem. monas.	-0.00307	(-1.09)	-0.00248	(-0.85)	-0.00276	(-0.99)
Other monas.	0.00770*	(2.00)	0.00763*	(1.92)	0.00788**	(2.04)
Arrondissement FF	Yes		Yes		Yes	
Migration	Yes		Yes		Yes	
Observations	2509		2509		2509	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

OLS Results: Female Nuptiality, 1866

	Nuptiality women, 1866					
	(1)		(2)		(3)	
Beg (0/1)	0.00852**	(2.26)				
No beg.			Ref.			
1 beg., < 200 years			0.0188***	(3.77)		
1 beg., > 200 years			0.00334	(0.57)		
> 1 beg., > 200 years			0.000340	(0.05)		
> 3 beg., > 200 years			-0.000499	(-0.05)		
Total time with a beg. (centuries)					0.000195	(0.25)
F/M ratio	-0.119***	(-7.68)	-0.119***	(-7.61)	-0.117***	(-7.50)
Wage equality index in agri., 1846	-0.0386***	(-2.84)	-0.0384***	(-2.82)	0	(.)
Total men, 1846 (thousands)	-0.00501	(-1.10)	-0.00599	(-1.25)	-0.00521	(-1.12)
Total women, 1846 (thousands)	0.00444	(1.10)	0.00559	(1.30)	0.00480	(1.15)
Big town	-0.000530	(-0.28)	-0.000640	(-0.34)	-0.000435	(-0.24)
Masc. monas.	0.00728**	(2.16)	0.00728**	(2.18)	0.00749**	(2.18)
Fem. monas.	-0.00917**	(-2.33)	-0.00839**	(-2.04)	-0.00787*	(-1.90)
Other monas.	0.00423	(1.03)	0.00447	(1.05)	0.00490	(1.20)
Arrondissement FF	Yes		Yes		Yes	
Migration	Yes		Yes		Yes	
Observations	2507		2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

OLS Results: Log-wage gap in agriculture, 1846

	Log wage gap in agriculture, 1846					
	(1)		(2)		(3)	
Beg (0/1)	0.0469**	(2.59)				
No beg.			Ref.			
1 beg., < 200 years			0.0333	(1.15)		
1 beg., > 200 years			0.0482*	(1.69)		
> 1 beg., > 200 years			0.0543	(1.16)		
> 3 beg., > 200 years			0.137**	(2.52)		
Total time with a beg. (centuries)					0.00979**	(2.61)
Total population, 1846 (thousands)	-0.0371	(-1.27)	-0.0385	(-1.33)	-0.0442	(-1.51)
Total men, 1846 (thousands)	0.0666	(1.11)	0.0660	(1.11)	0.0778	(1.30)
Illiterate women, 1866 (thousands)	0.0262	(0.77)	0.0176	(0.47)	0.0270	(0.76)
Illiterate men, 1866 (thousands)	-0.0106	(-0.30)	0.00267	(0.07)	-0.00967	(-0.27)
Big town	0.00203	(0.19)	0.00261	(0.24)	0.00417	(0.39)
Potential caloric yield after 1550	-0.0000249	(-0.32)	-0.0000256	(-0.33)	-0.0000265	(-0.34)
Maximum potential caloric yield	0.000591	(1.50)	0.000599	(1.51)	0.000599	(1.52)
Distance to the closest large city (Km)	0.00235**	(2.34)	0.00238**	(2.39)	0.00235**	(2.35)
Distance to closest river (Km)	0.00413***	(3.35)	0.00415***	(3.36)	0.00415***	(3.37)
Arrondissement FF	Yes		Yes		Yes	
Observations	2507		2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

OLS Results: Female literacy

	Literacy equality index in 1866					
	(1)		(2)		(3)	
Beg (0/1)	0.0742***	(3.99)				
No beg.			Ref.			
1 beg., < 200 years			0.0321*	(1.76)		
1 beg., > 200 years			0.114***	(4.34)		
> 1 beg., > 200 years			0.0964***	(2.79)		
> 3 beg., > 200 years			-0.123	(-1.63)		
Total time with a beguinage (centuries)					0.00759*	(1.91)
Big town	0.0549***	(7.68)	0.0544***	(7.71)	0.0569***	(7.65)
Total men, 1866 (thousands)	-0.115***	(-3.20)	-0.137***	(-4.22)	-0.113***	(-3.02)
Total women, 1866 (thousands)	0.108***	(3.26)	0.130***	(4.36)	0.105***	(3.04)
Wage equality index in agri., 1846	-0.0382	(-1.53)	-0.0391	(-1.57)	-0.0390	(-1.55)
Fem. monas.	0.0385**	(2.35)	0.0497**	(2.66)	0.0439**	(2.53)
Masc. monas.	-0.0193	(-1.43)	-0.0162	(-1.32)	-0.0188	(-1.38)
Other monas.	-0.0162	(-0.76)	-0.0220	(-1.11)	-0.0131	(-0.59)
Schools per 10000 people, 1851	0.0126***	(2.91)	0.0127***	(2.92)	0.0125***	(2.92)
Distance from Leuven (Km)	0.000113	(0.59)	0.000120	(0.63)	0.000118	(0.63)
Regional FF	Yes		Yes		Yes	
Migration	Yes		Yes		Yes	
Observations	2507		2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

OLS Results: Female literacy

	Literate women over total literate population					
	(1)		(2)		(3)	
Beg (0/1)	0.0206***	(4.15)				
No beg.			Ref.			
1 beg., < 200 years			0.0108**	(2.03)		
1 beg., > 200 years			0.0305***	(5.17)		
> 1 beg., > 200 years			0.0254***	(2.80)		
> 3 beg., > 200 years			-0.0339*	(-1.70)		
Total time with a beg. (centuries)					0.00203*	(1.86)
Big town	0.0171***	(8.03)	0.0170***	(8.03)	0.0177***	(7.99)
Total men, 1866 (thousands)	-0.0300***	(-3.17)	-0.0360***	(-4.26)	-0.0295***	(-3.01)
Total women, 1866 (thousands)	0.0283***	(3.25)	0.0344***	(4.43)	0.0276***	(3.05)
Wage equality index in agri., 1846	-0.0116	(-1.51)	-0.0118	(-1.54)	-0.0118	(-1.53)
Fem. monas.	0.00942**	(2.33)	0.0125***	(2.86)	0.0110**	(2.66)
Masc. monas.	-0.00463	(-1.28)	-0.00382	(-1.18)	-0.00448	(-1.22)
Other monas.	-0.00402	(-0.63)	-0.00557	(-0.90)	-0.00313	(-0.47)
Schools per 10000 people, 1851	0.00428***	(2.98)	0.00429***	(2.99)	0.00425***	(3.00)
Distance from Leuven (Km)	2.39e-05	(0.39)	2.57e-05	(0.42)	2.54e-05	(0.42)
Regional FF	Yes		Yes		Yes	
Migration	Yes		Yes		Yes	
Observations	2507		2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

OLS Results: Female literacy

	Share lit. women / share lit. men					
	(1)		(2)		(3)	
Beg (0/1)	0.0257*	(1.87)				
No beg.			Ref.			
1 beg., < 200 years			0.00871	(0.66)		
1 beg., > 200 years			0.0400**	(2.19)		
> 1 beg., > 200 years			0.0409	(1.35)		
> 3 beg., > 200 years			-0.0460	(-1.30)		
Total time with a beg. (centuries)					0.00363	(1.22)
Big town	0.0262***	(4.41)	0.0261***	(4.40)	0.0270***	(4.53)
Total men, 1866 (thousands)	0.0317*	(1.87)	0.0239	(1.45)	0.0338*	(1.91)
Total women, 1866 (thousands)	-0.0273*	(-1.81)	-0.0193	(-1.31)	-0.0298*	(-1.86)
Wage equality index in agri., 1846	-0.0141	(-0.56)	-0.0145	(-0.57)	-0.0145	(-0.57)
Fem. monas.	0.0310**	(2.46)	0.0348**	(2.54)	0.0318**	(2.48)
Masc. monas.	-0.0205**	(-2.36)	-0.0192**	(-2.36)	-0.0204**	(-2.34)
Other monas.	-0.00348	(-0.20)	-0.00569	(-0.34)	-0.00293	(-0.17)
Schools per 10000 people, 1851	0.00990**	(2.22)	0.00993**	(2.22)	0.00988**	(2.22)
Distance from Leuven (Km)	-3.43e-05	(-0.19)	-3.15e-05	(-0.17)	-3.16e-05	(-0.17)
Regional FF	Yes		Yes		Yes	
Migration	Yes		Yes		Yes	
Observations	2507		2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Endogeneity

- 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.

Municipal Charters

- Municipal charters typically:
 - decentralized decision-making, granting municipal authorities power,
 - conveyed benefits for citizens: partial exemption from war and a municipal judicial system,
 - allowed towns to organize a market and establish guilds, and
 - signal prosperous towns: lords required a town to pay a large sum of money before obtaining the charter.
- 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).

Endogeneity

- 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 subsample).
 - 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.

Endogeneity

- We also compare literacy outcomes among municipalities with and without a municipal charter for the subsample of municipalities with a beguinage

	Lit. equality index, 1866		Lit. share, 1866		Lit. index, 1866	
Charter granted before 13th century	-0.0113	(-0.33)	-0.00142	(-0.17)	-0.00617	(-0.27)
Big town	0.0218	(0.34)	0.00910	(0.57)	-0.0116	(-0.24)
Total men, 1866 (thousands)	-0.0203	(-0.66)	-0.00749	(-0.99)	0.0283	(1.45)
Total women, 1866 (thousands)	0.0199	(0.72)	0.00714	(1.05)	-0.0251	(-1.43)
Wage equality index in agri., 1846	-0.00408	(-0.03)	0.00634	(0.19)	0.0426	(0.42)
Fem. monas.	0.0384*	(1.95)	0.00871*	(1.87)	0.0216	(1.56)
Masc. monas.	-0.0542**	(-2.29)	-0.0119**	(-2.09)	-0.0427***	(-3.07)
Other monas.	-0.0174	(-0.32)	-0.00258	(-0.19)	-0.00387	(-0.10)
Schools per 10000 people, 1851	-0.0121	(-1.00)	-0.00193	(-0.63)	-0.000530	(-0.06)
Distance to Leuven (Km)	0.000555	(0.91)	0.0000812	(0.62)	-0.0000867	(-0.20)
Regional FE	Yes		Yes		Yes	
Observations	68		68		68	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Regression results for all three indexes of relative female literacy rates.

Regressions only consider municipalities that ever had a beguinage. Our main variable of interest is whether the same municipality also enjoyed a municipal charter before the 13th century.

Standard errors are **not** clustered.

IV Strategy

First stage for the Probit:

	Town had a beguinage (0/1)	
Municipal charter	2.490***	(14.88)
Masc. monas.	0.602***	(3.83)
Fem. monas.	0.978***	(4.08)
Other monas.	0.799***	(3.73)
Flanders	Ref.	
Wallonia	-0.263***	(-8.89)
Brabant	0.245***	(5.76)
Observations	2552	

t statistics in parentheses. Robust standard errors clustered at the regional level.

Pseudo-R2: 0.4056

Correctly classified, threshold at 50%: 98.24%

IV Results: Log-wage gap in agriculture, 1846

	(1)		(2)	
Beg (0/1)	0.0941***	(2.73)		
Total time with a beg. (centuries)			0.0173**	(2.42)
Total population, 1846 (thousands)	-0.0416	(-1.34)	-0.0531	(-1.64)
Total men, 1846 (thousands)	0.0734	(1.16)	0.0894	(1.39)
Big town	0.00218	(0.20)	0.00471	(0.46)
Illiterate women, 1866 (thousands)	0.0282	(0.80)	0.0331	(0.89)
Illiterate men, 1866 (thousands)	-0.0105	(-0.29)	-0.0105	(-0.28)
Potential caloric yield after 1550	-0.0000241	(-0.31)	-0.0000275	(-0.36)
Maximum potential caloric yield	0.000599	(1.53)	0.000610	(1.58)
Distance to the closest large city (Km)	0.00237**	(2.40)	0.00237**	(2.43)
Distance to closest river (Km)	0.00416***	(3.41)	0.00422***	(3.50)
Arrondissement FF	Yes		Yes	
Observations	2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

1: Regressions using `etregress`. 2: Regressions using `ivregress`

In 1, the first stage follows a Probit model which only includes contemporaneous controls: information on monasteries and regional fixed effects. In 2, all the second stage covariates are also included in the first (OLS) stage. This implies regressing variables measured during the 13th and subsequent centuries on variables measured during the 19th century.

The second stage always includes arrondissement fixed effects.

IV Results: Female Literacy

	Literacy equality index in 1866			
	(1)		(2)	
Beg (0/1)	0.0862***	(3.88)		
Total time with a beg. (centuries)			0.0199***	(2.77)
Big town	0.0547***	(7.61)	0.0569***	(7.53)
Total men, 1866 (thousands)	-0.000119***	(-3.36)	-0.000102***	(-2.79)
Total women, 1866 (thousands)	0.000112***	(3.41)	0.0000916***	(2.69)
% men born in town, 1866	0.680**	(2.57)	0.686***	(2.59)
% men born in Belgium, 1866	0.550**	(2.06)	0.556**	(2.08)
% men born abroad, 1866	Ref.		Ref.	
% women born in town, 1866	-0.756***	(-3.15)	-0.773***	(-3.17)
% women born in Belgium, 1866	-0.500**	(-2.11)	-0.516**	(-2.16)
% women born abroad, 1866	Ref.		Ref.	
Wage equality index in agri., 1846	-0.0366	(-1.46)	-0.0377	(-1.54)
Fem. monas.	0.0359*	(1.93)	0.0309	(1.49)
Masc. monas.	-0.0210	(-1.53)	-0.0221	(-1.58)
Other monas.	-0.0177	(-0.82)	-0.0197	(-0.92)
Schools per 10000 people, 1851	0.0128***	(2.97)	0.0129***	(3.05)
Distance from Leuven (Km)	0.000114	(0.63)	0.000127	(0.72)
Regional FF	Yes		Yes	
Observations	2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

IV Results: Female Literacy

	Literate women over total literate population			
	(1)		(2)	
Beg (0/1)	0.0254***	(3.84)		
Total time with a beg. (centuries)			0.00582***	(2.87)
Big town	0.0170***	(7.95)	0.0176***	(7.90)
Total men, 1866 (thousands)	-0.0312***	(-3.31)	-0.0260***	(-2.73)
Total women, 1866 (thousands)	0.0293***	(3.37)	0.0234***	(2.63)
% men born in town, 1866	0.206***	(2.60)	0.208***	(2.61)
% men born in Belgium, 1866	0.179**	(2.15)	0.181**	(2.18)
% men born abroad, 1866	Ref.		Ref.	
% women born in town, 1866	-0.230***	(-3.45)	-0.235***	(-3.48)
% women born in Belgium, 1866	-0.164**	(-2.36)	-0.169**	(-2.43)
% women born abroad, 1866	Ref.		Ref.	
Wage equality index in agri., 1846	-0.0113	(-1.48)	-0.0117	(-1.55)
Fem. monas.	0.00850*	(1.82)	0.00710	(1.36)
Masc. monas.	-0.00490	(-1.32)	-0.00517	(-1.36)
Other monas.	-0.00450	(-0.69)	-0.00504	(-0.79)
Schools per 10000 people, 1851	0.00429***	(2.97)	0.00433***	(3.04)
Distance from Leuven (Km)	2.79e-05	(0.49)	3.19e-05	(0.56)
Regional FF	Yes		Yes	
Observations	2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

IV Results: Female Literacy

	Share lit. women / share lit. men			
	(1)	(2)	(1)	(2)
Beg (0/1)	0.0303	(1.60)		
Total time with a beg.(centuries)			0.00818*	(1.92)
Big town	0.0256***	(4.38)	0.0263***	(4.52)
Total men, 1866 (thousands)	0.0302*	(1.76)	0.0380**	(2.06)
Total women, 1866 (thousands)	-0.0264*	(-1.75)	-0.0352**	(-2.10)
% men born in town, 1866	0.488***	(2.59)	0.488***	(2.60)
% men born in Belgium, 1866	0.287	(1.50)	0.289	(1.52)
% men born abroad, 1866	Ref.		Ref.	
% women born in town, 1866	-0.591***	(-2.93)	-0.596***	(-2.96)
% women born in Belgium, 1866	-0.247	(-1.17)	-0.252	(-1.21)
% women born abroad, 1866	Ref.		Ref.	
Wage equality index in agri., 1846	-0.0146	(-0.57)	-0.0150	(-0.59)
Fem. monas.	0.0296**	(2.06)	0.0267*	(1.80)
Masc. monas.	-0.0196**	(-2.27)	-0.0201**	(-2.32)
Other monas.	-0.00358	(-0.20)	-0.00484	(-0.28)
Schools per 10000 people, 1851	0.00977**	(2.12)	0.00984**	(2.16)
Distance from Leuven (Km)	1.03e-05	(0.06)	1.62e-05	(0.09)
Regional FF	Yes		Yes	
Observations	2507		2507	

t statistics in parentheses. Robust standard errors clustered at the arrondissement level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Buffers around beguinages

- We consider only municipalities that are located at a certain distance from a beguinage.
- They should have a similar set of values regarding women and thus should be directly comparable.
- We consider municipalities at 5Km, 10Km and 20Km around each beguinage.
- We introduce beguinages fixed effects to control for potential differences across them.

Buffers around beguinages

	Log. wage gap in agri.					
	5Km		10Km		20Km	
Beg (0/1)	0.0598**	(2.22)	0.0412*	(1.87)	0.0400**	(2.00)
Total men, 1846 (thousands)	0.0588	(1.20)	0.00999	(0.24)	0.0265	(0.97)
Total women, 1846 (thousands)	-0.0660	(-1.33)	-0.0210	(-0.52)	-0.0355	(-1.32)
Big town	-0.0233	(-0.97)	-0.00656	(-0.40)	0.00235	(0.20)
Illiterate women, 1866 (thousands)	0.0458	(0.90)	0.0337	(0.69)	0.0304	(0.83)
Illiterate men, 1866 (thousands)	-0.0299	(-0.58)	-0.0167	(-0.31)	-0.0147	(-0.41)
Potential caloric yield after 1550	0.0000724	(0.34)	-0.0000511	(-0.54)	0.0000653	(0.86)
Potential caloric yield before 1550	-0.00177	(-0.86)	0.00000769	(0.01)	-0.000202	(-0.45)
Distance to closest big municipality (Km)	0.0102*	(1.87)	-0.00174	(-0.54)	-0.00186	(-1.03)
Distance to closest river (Km)	-0.00488	(-0.61)	0.00381	(1.56)	0.00185	(0.83)
Observations	365		1097		2033	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Buffers around beguinages

	Lit. equality index, 1866			Lit share, 1866			Lit. index, 1866		
	5Km	10Km	20Km	5Km	10Km	20Km	5Km	10Km	20Km
Beg (0/1)	0.0850*** (3.52)	0.0848*** (4.52)	0.0820*** (4.45)	0.0238*** (3.58)	0.0242*** (5.04)	0.0820*** (4.45)	0.0199 (1.02)	0.0259** (2.03)	0.0266** (2.22)
Big town	0.0312 (1.60)	0.0540*** (5.55)	0.0439*** (5.73)	0.0105* (1.79)	0.0163*** (5.77)	0.0439*** (5.73)	0.0194 (0.99)	0.0243*** (2.84)	0.0141* (1.98)
Total men, 1866 (thousands)	-0.0572 (-1.45)	-0.105*** (-3.00)	-0.106*** (-3.16)	-0.0125 (-1.33)	-0.0271*** (-3.06)	-0.106*** (-3.16)	0.0281 (1.18)	0.00837 (0.54)	0.0240 (1.63)
Total women, 1866 (thousands)	0.0520 (1.46)	0.0966*** (3.01)	0.0991*** (3.19)	0.0114 (1.33)	0.0248*** (3.08)	0.0991*** (3.19)	-0.0260 (-1.21)	-0.00803 (-0.58)	-0.0213 (-1.60)
Wage equality index in agri., 1846	0.136 (1.49)	0.00399 (0.11)	-0.00559 (-0.24)	0.0467* (1.68)	0.00277 (0.25)	-0.00559 (-0.24)	0.157* (1.69)	0.0218 (0.63)	0.00443 (0.18)
Fem. monas.	0.0501 (1.60)	0.0568** (2.49)	0.0429** (2.36)	0.0109 (1.41)	0.0143** (2.52)	0.0429** (2.36)	0.0361 (1.32)	0.0478** (2.41)	0.0369** (2.48)
Masc. monas.	-0.00827 (-0.32)	-0.0251 (-1.30)	-0.0202 (-1.24)	0.000491 (0.07)	-0.00598 (-1.11)	-0.0202 (-1.24)	-0.00538 (-0.29)	-0.0270* (-1.89)	-0.0156 (-1.31)
Other monas.	0.0398 (0.96)	-0.00772 (-0.27)	0.00742 (0.32)	0.0146 (1.25)	0.000540 (0.06)	0.00742 (0.32)	0.0442 (1.29)	0.00948 (0.37)	0.0216 (1.10)
Schools per 10000 people, 1851	0.0560** (2.20)	0.0124 (0.85)	0.00733 (0.95)	0.0183** (2.26)	0.00443 (0.91)	0.00733 (0.95)	0.0444** (2.04)	0.00351 (0.27)	0.000276 (0.04)
Distance to Leuven (Km)	-0.00148 (-0.35)	-0.00111 (-0.82)	0.000720 (0.84)	-0.000504 (-0.39)	-0.000339 (-0.85)	0.000720 (0.84)	-0.000304 (-0.07)	-0.00140 (-1.11)	0.000305 (0.40)
Regional FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Beguinaige FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Migration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	365	1097	2033	365	1097	2033	365	1097	2033

t statistics in parentheses. Standard errors clustered at the closest beguinaige level.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

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:
 - wage differentials across genders were smaller, and
 - literacy rates were more similar.
- We can derive a causal effect between the presence of beguine communities and improved female outcomes.
- Next steps:
 - Expand our data-set to cover the Netherlands and France, which also witnessed beguine communities.
 - Relate beguine presence with attitudes towards women in present time.

APPENDIX

Size of the Effects

Variable	Mean	Sd
<i>Wage gap in agriculture, 1846</i>	0.6411	0.1417
Beguinage (0/1), OLS	0.0469	
Beguinage (0/1), IV	0.0941	
Total time with beguinage (centuries), OLS	0.00979	
Total time with beguinage (centuries), IV	0.0173	
<i>Literacy eq. index, 1866</i>	0.8220	0.1365
Beguinage (0/1), OLS	0.099	
Beguinage (0/1), IV	0.0862	
Total time with beguinage (centuries), OLS	0.0122	
Total time with beguinage (centuries), IV	0.0199	
<i>Lit. women / total lit. pop</i>	0.4489	0.042
Beguinage (0/1), OLS	0.0264	
Beguinage (0/1), IV	0.0254	
Total time with beguinage (centuries), OLS	0.00326	
Total time with beguinage (centuries), IV	0.00582	
<i>Share lit. women / share lit. men</i>	0.8559	0.1222
Beguinage (0/1), OLS	0.039	
Beguinage (0/1), IV	0.0303	
Total time with beguinage (centuries), OLS	0.00510	
Total time with beguinage (centuries), IV	0.0000818	

Comparison etregress and ivregress

- `etregress`: linear regression with endogenous treatment effects.
- In our sample only 2.7% of municipalities ever had a beguinage.
- IV regressions include all exogenous variables in the first stage. In our case, it would mean predicting the presence of a beguinage in the 13th century with data from the 19th century.

Regression	Town had at least one beguinage		
	Estimation	Coefficient	St. Error
Wage gap in agri., 1866	<code>etregress</code>	0.0941***	(0.0344)
	<code>ivregress</code>	0.0824*	(0.0325)
Lit. equality index in 1866	<code>etregress</code>	0.0862***	(0.0259)
	<code>ivregress</code>	0.102***	(0.0294)
Lit. women / total lit. population	<code>etregress</code>	0.0254**	(0.00811)
	<code>ivregress</code>	0.0299***	(0.00812)
Share lit. women / share lit. men	<code>etregress</code>	0.0303**	(0.0107)
	<code>ivregress</code>	0.0420*	(0.0201)

Robustness: including male literacy rate

		Benchmark			Including male literacy rate		
		(1)	(2)	(3)	(4)	(5)	(6)
OLS	Beg (0/1)	0.0742***	0.0206***	0.0257*	0.0653***	0.0176***	0.0169
	No beg.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	1 beg., < 200 years	0.0321*	0.0108**	0.00871	0.0298*	0.00998**	0.00647
	1 beg., > 200 years	0.114***	0.0305***	0.0400*	0.102***	0.0266***	0.0288
	> 1 beg., > 200 years	0.0964***	0.0254***	0.0409	0.0767**	0.0187**	0.0288
	> 3 beg., > 200 years	-0.123	-0.0339*	-0.0460	-0.136*	-0.0386**	-0.0595*
	Total time with a beg. (centuries)	0.00759*	0.00203*	0.00363	0.00541	0.00129	0.00150
IV	Beg (0/1)	0.0862***	0.0254***	0.0303	0.0740***	0.0211***	0.0177
	Total time with a beg. (centuries)	0.0199***	0.00582***	0.00818*	0.0181**	0.00521**	0.00640
Observations		2507	2507	2507	2507	2507	2507

1 and 4: Literacy equality index in 1866; 2 and 5: Literate women over total literate population; 3 and 6: Share lit. women / share lit. men

All regressions include regional fixed effects and control for relative size of the municipality, total population, distinguishing between men and women, the composition at the town level in terms of migrants, agricultural wage index, presence of monasteries, the number of schools per 10000 people and distance to Leuven.

IV: `etregress` for the endogenous binary variable "Beg (0/1)"; `ivregress` for the endogenous continuous variable "Total time with a beg".

Robustness: only big municipalities

		Benchmark			Only big municipalities		
		(1)	(2)	(3)	(4)	(5)	(6)
OLS	Beg (0/1)	0.0742***	0.0206***	0.0257*	0.0371*	0.0110**	-0.0140
	No beg.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
	1 beg., < 200 years	0.0321*	0.0108**	0.00871	0.00774	0.00320	-0.0238
	1 beg., > 200 years	0.114***	0.0305***	0.0400*	0.0434**	0.0125**	-0.0136
	> 1 beg., > 200 years	0.0964***	0.0254***	0.0409	0.0776**	0.0216***	0.0088
	> 3 beg., > 200 years	-0.123	-0.0339*	-0.0460	-0.0109	0.00126	-0.0331
	Total time with a beg. (centuries)	0.00759*	0.00203*	0.00363	0.00527*	0.00155**	-0.000988
IV	Beg (0/1)	0.0862***	0.0254***	0.0303***	0.0469	0.01436	-0.0204
	Total time with a beg. (centuries)	0.0199***	0.00582***	0.00818**	0.0105	0.00304*	-0.00208
Observations		2507	2507	2507	311	311	311

1 and 4: Literacy equality index in 1866; 2 and 5: Literate women over total literate population; 3 and 6: Share lit. women / share lit. men

The criteria to consider a municipality a big town is based on total population in 1866. Those with more than 3000 inhabitants are considered large. We use 3000 inhabitants as threshold as it is close to the 90th percentile, which equals 3408.2

All regressions include regional fixed effects and control for relative size of the municipality, total population, distinguishing between men and women, the composition at the town level in terms of migrants, agricultural wage index, presence of monasteries, the number of schools per 10000 people and distance to Leuven.

IV: `etregress` for the endogenous binary variable "Beg (0/1)"; `ivregress` for the endogenous continuous variable "Total time with a beg". Columns 1, 2 and 3: clustered standard errors at the arrondissement level; Columns 4, 5 and 6: not clustered standard errors.