Women's Wages, Gender Wage Gap and the Long Run of History: France in the Modern Period

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PRIN 2022 – Industrialization in France and Britain: a new comparative economic history (1700-1913) [**CHART**]

Gender Wage Gap in France

Julien Dupré. Les Faucheurs de seigles en Picardie (1880)

Christine de Pizan *La cité des Dames* (1405).

From the *Très Riches Heures du duc de Berry*. (XIVe siècle.)

Henri Eugène Pluchart. *Travaux des champs dans l'Artois* (1891)

Beyond Anecdotal evidence

Pre-industrial Gender wage gap in Europe: Where we stand?

Country	Spatial Coverage	Period	Type	Occupation
England	National	1260-1850	Casual/Stable	Agriculture
Portugal	National	1350-1910	Casual/Stable	Various
Sweden	Southern	1550-1760	Casual	Building
Sweden	National	1564-1610	Annual	Agriculture
Denmark	National	1660-1805	Casual	Building
Spain	Local (Toledo)	1550-1650	Casual/Stable	Services: nursing
Europe	National/ Regional	1300-1800	Casual	Building mostly

Sources: England, Humphries and Weisdorf's (2015); Portugal, Palma et al. (2023); Sweden, Gary (2017) and Molinder and Pihl (2023); Denmark, Radu (2019); Spain, Drelichman and González Agudo (2020); Europe, De Pleijt and van Zanden (2021).

Con't

Two worlds (De Pleijt and van Zanden 2021):

- Northern Europe: gender wage gap responsive to market forces and generally lower than in the South.
- Southern Europe: gender wage gap fixed at 0.5 (Mediterranean norm).

Recent criticisms to the Southern Norm:

- Link between female compensation and market forces also in Southern Europe at least in really specific contexts like nursing in early modern Castile (Drelichman and González Agudo 2020).
- Women not less discriminated than in the North in Portugal (Palma et al. 2023).

In terms of determinants of the gender gap:

- Culture, southern Europe
- Market forces active especially in the North and during phases of intense activity.

Research Gap & Our Contribution

✓ Dynamics of the gender wage gap in France well known from the 19th century onwards (Diebolt and Perrin 2017), yet before 1800 just male wages are available (Ridolfi 2019) and scattered evidence for women (De Pleijt and van Zanden 2021).

✓ We aim to answer three questions:

1. What was the evolution of the gender wage gap in the very long run?
2. Did all regions experience the same evolution or did regional differences exist?
3. Which factors can account for the observed patterns?

✓ We provide the first national and regional series of the gender wage gap in France from 1300 to 1850.

Our 'matched pairs' approach: Step 1

Literature usually looks at male and female wages separately. This raises issues of comparability. To mitigate these concerns we devise a new approach.

❑ We match pairs of female and male wage data based on observables:
  ➢ Source
  ➢ Place
  ➢ Type of employment: casual/stable worker
  ➢ Time: Year
  ➢ Season: harvest, winter, summer, autumn, mean, NA.
  ➢ Work: Sector (Agriculture), Occupation (Winemaker) or even Task (Pruning) when possible.
  ➢ Food: nourished/unnourished worker

• For each female wage we find its closer match. We match perfectly in terms of source, place, type of employment and year.

• In most cases we are also able to match observations in terms of season, work, food.

Our 'matched pairs' approach: Step 2

❑ We account for between-match heterogeneity fitting (un)-weighted regression models of the following form for casual and stable workers:

$$\ln(gap_{ijt}) = \alpha + \beta_t Period + \mathbf{X} + \delta_i + \varepsilon_{ijt} \quad (1)$$

- gap_{ijt} is the wage gap (female/male) in location i, time t and sector j.

- Period is a dummy for period t (20-year windows)
- $\mathbf{X}$ includes controls for
i.   Occupation/task accomplished
ii. Unit of observation: city, arrondissment, department
iii. Mismatch dummies (no perfect match in task/season/food allowance)

- δ_i stands for region fixed effects

❑ The reference match is unnourished *journalière/journalier* for casual and unnourished *servante de ferme/valet de ferme*.

❑ To fix the level of the gap, we use the national average from the 1852 agricultural survey (0.63 for casual workers and 0.56 for stable workers).

Con't

- This approach aims to reduce within match heterogeneity e.g., mismatch related to sample imbalances, gender related differences in labor market participation and occupational gender segregation.

- Personal characteristics (age, experience) unobserved. Yet, in the preindustrial period, individual characteristics have usually few effect on wages especially in agriculture.

- This approach has also some practical advantages: no need to convert all wages in the same currency; range of variation of the wage gap lower than that of nominal wages.

Robustness

We also fit alternative regression models:

1) Weighted regression: we re-run model (1) weighting observations by population in 1800.

2) Weighted regression with entropy balancing weights. Our sample is stratified. We oversample from the East and from urban areas. Thus, we post-stratify the sample based on census weights, to account for underrepresented groups in the population.

3) We compute macro-regional series fitting model (2) and obtain the national series as a weighted average of the regional ones:

* $\ln(gap_{ijt}) = \alpha + \beta_t Period \text{ X } Area + \mathbf{X} + \delta_i + \varepsilon_{ijt}$ (2)

Sources

- **Secondary literature**
- ✓ Hanauer (1878),
- ✓ Le Roy Ladurie (1966)
- ✓ And many others
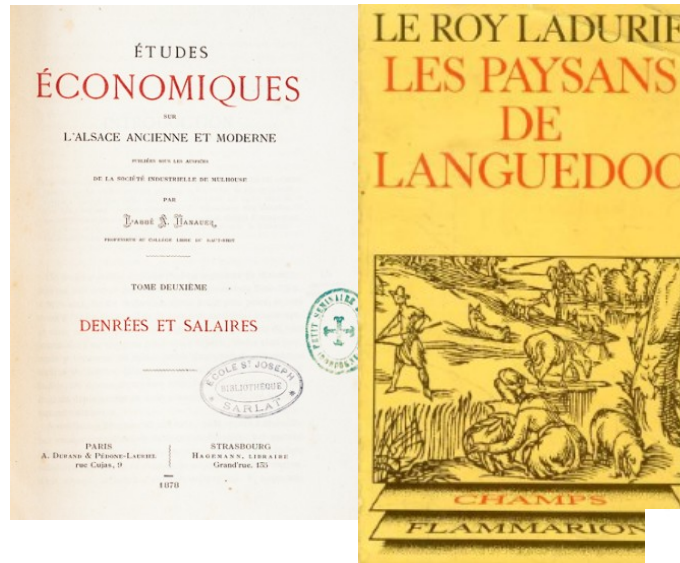
- **Printed primary sources**
- ✓ Comptes de châtellenies savoiards,
- ✓ Comptes de vendage (Bourgogne, Bordelais)

- **Archival data**
- ✓ Archive of Vaucluse (series H)
- ✓ Archive of Pyrenees-Atlantiques (series H)

Some descriptives

	Freq.	mean	sd	min	max
Matches					
Wage gap (Female/Male)	2987	0.58	0.19	0.08	2.00
Year	2987	1680.36	170.02	1306.00	1852.00

Area	Freq.	Percent	Census weights in c.1800 (based on population)
Centre	627	20.99	34.00
East	952	31.87	16.00
North	606	20.29	30.00
South	802	26.85	20.00
Total	2987	100.00	100.00

Sector	Freq.	Percent
Agriculture	2019	67.59
Building	176	5.89
Manufacturing	67	2.24
Services	725	24.27
Total	2987	100.00

Our sample: 1300-1500

Population weighted

◆ Obs., 1300-1500

Our sample: 1300-1789

Population weighted

◆ Obs., 1300-1500
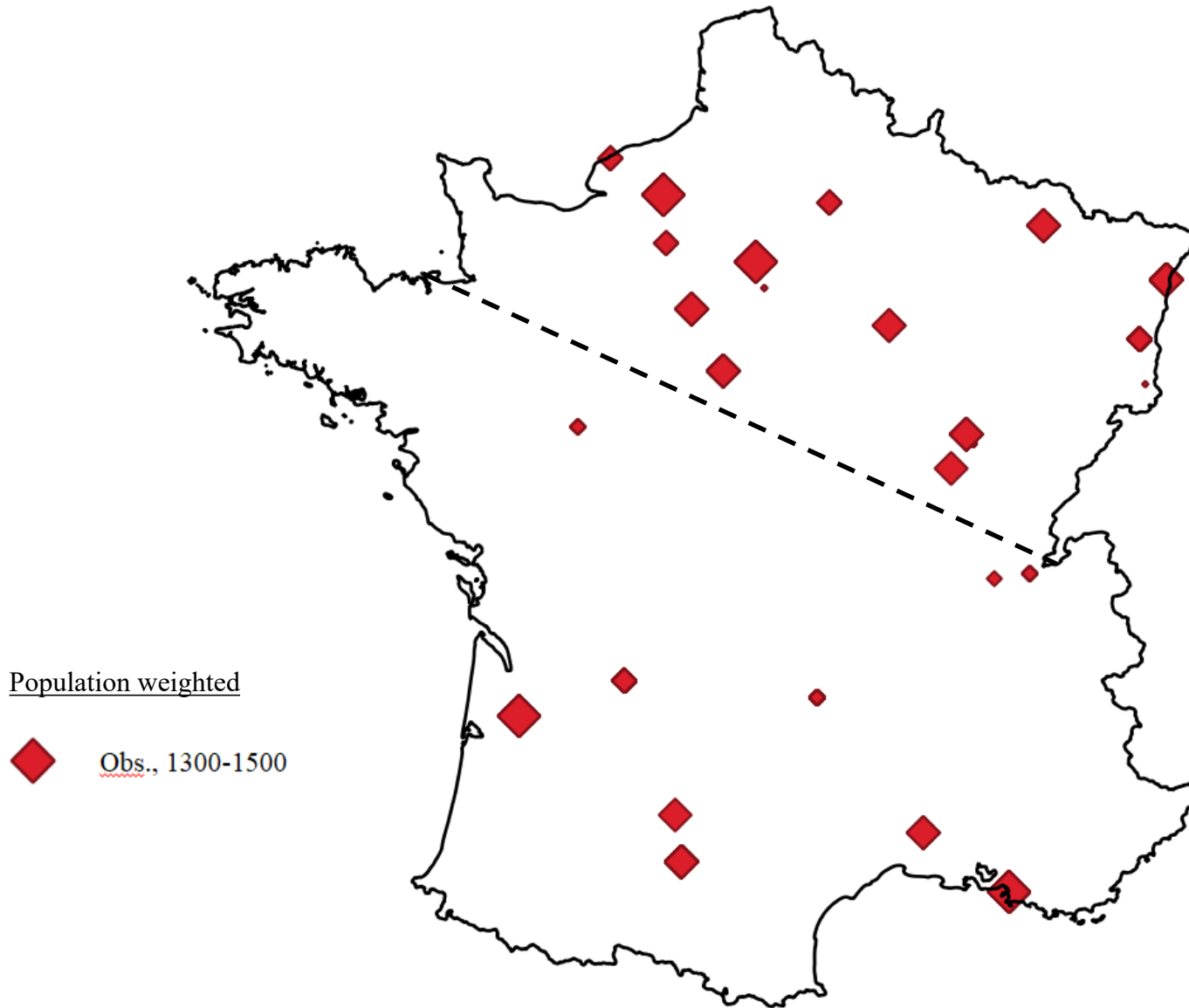
● Obs., 1500-1789

Our sample: 1300-1850

Population weighted

◆ Obs., 1300-1500
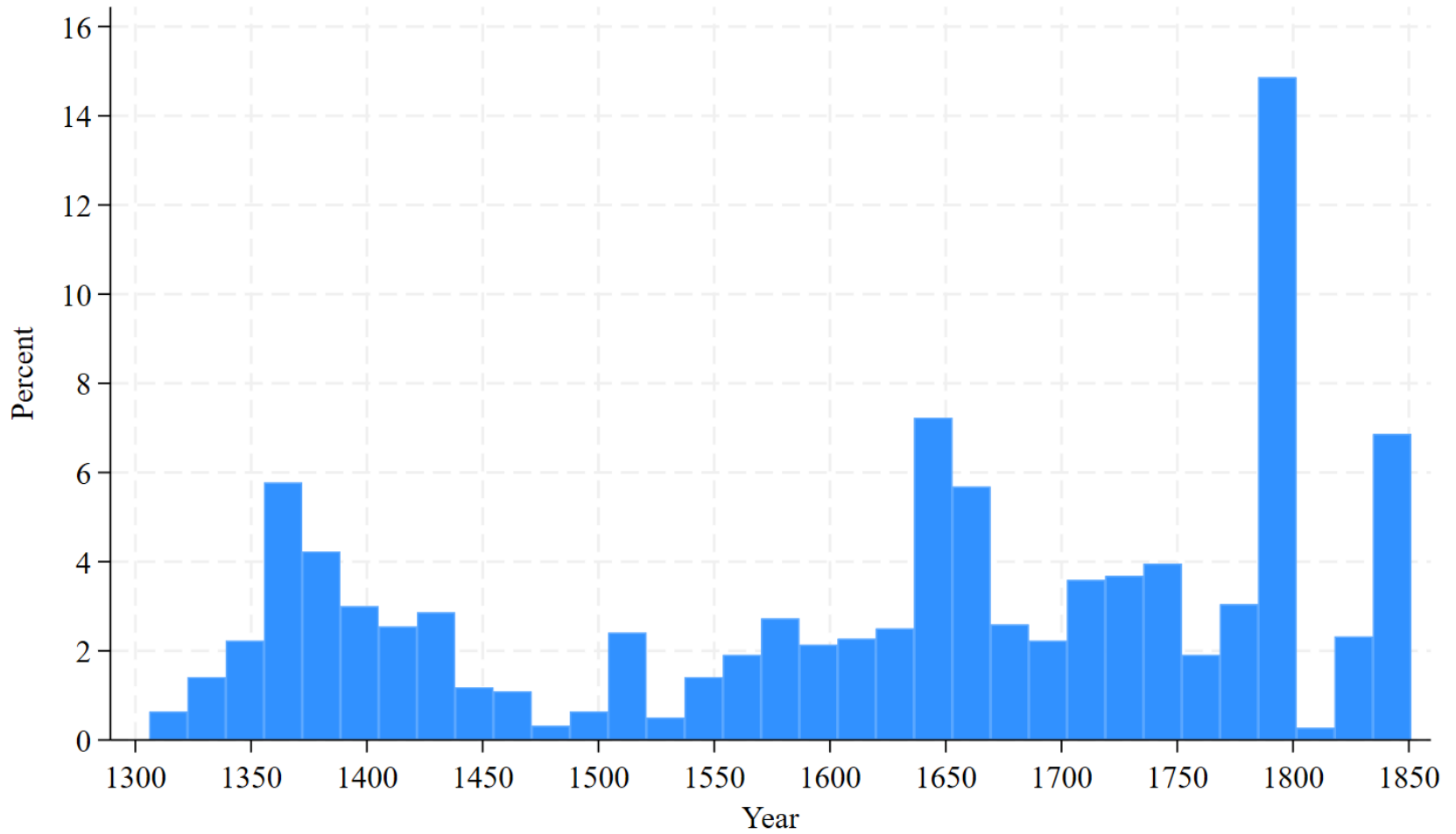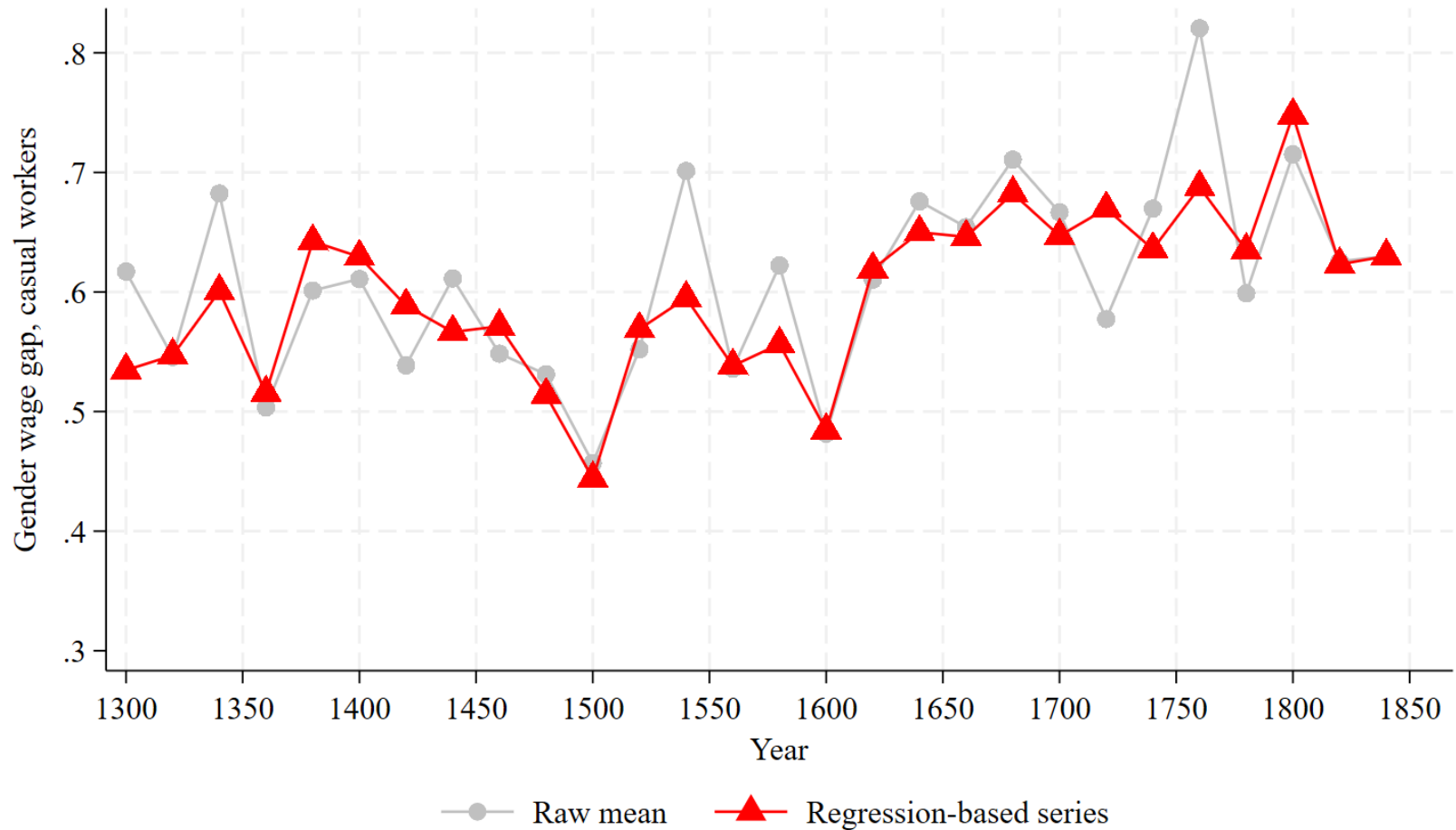
● Obs., 1500-1789
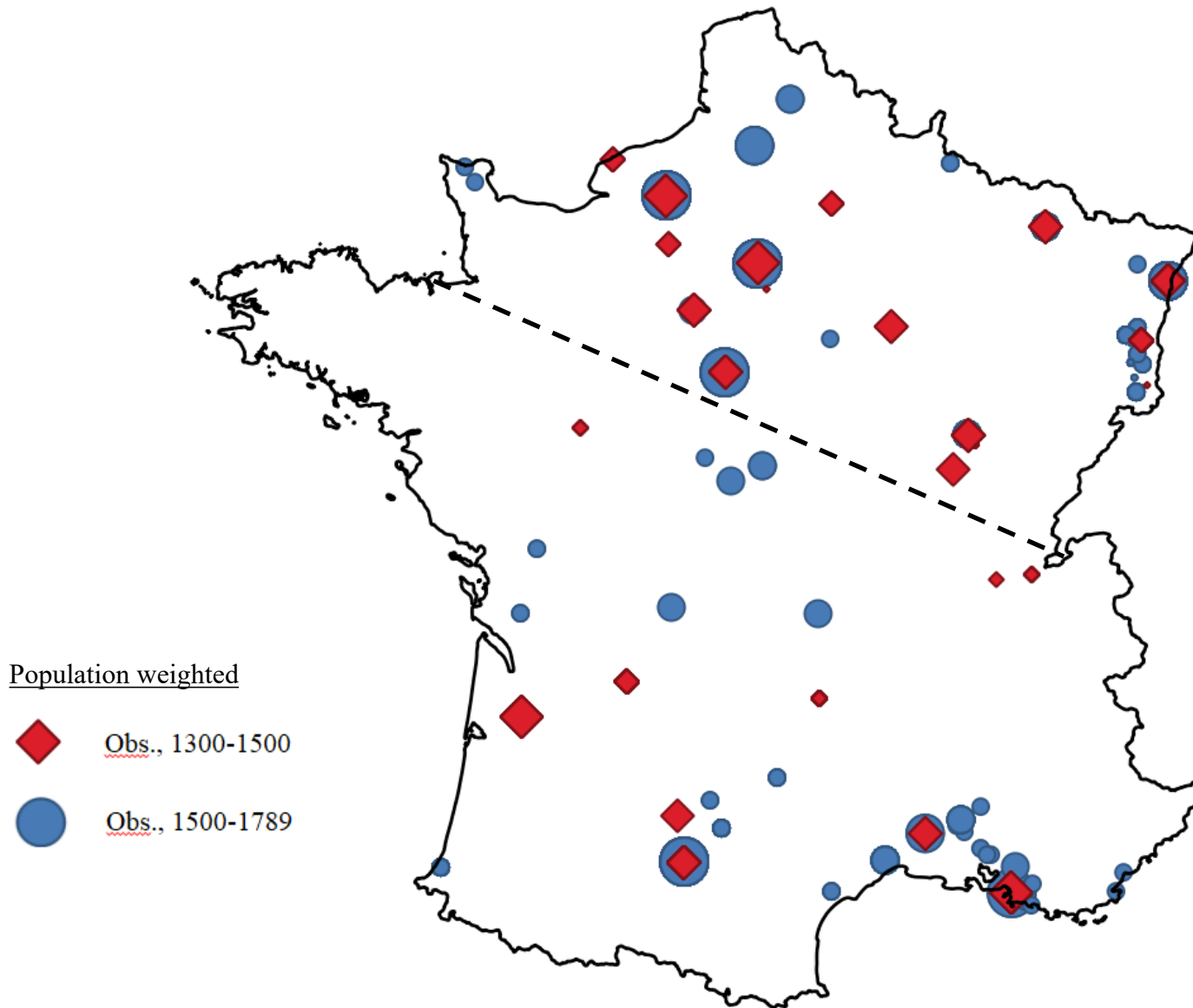
● Obs., 1800-1850
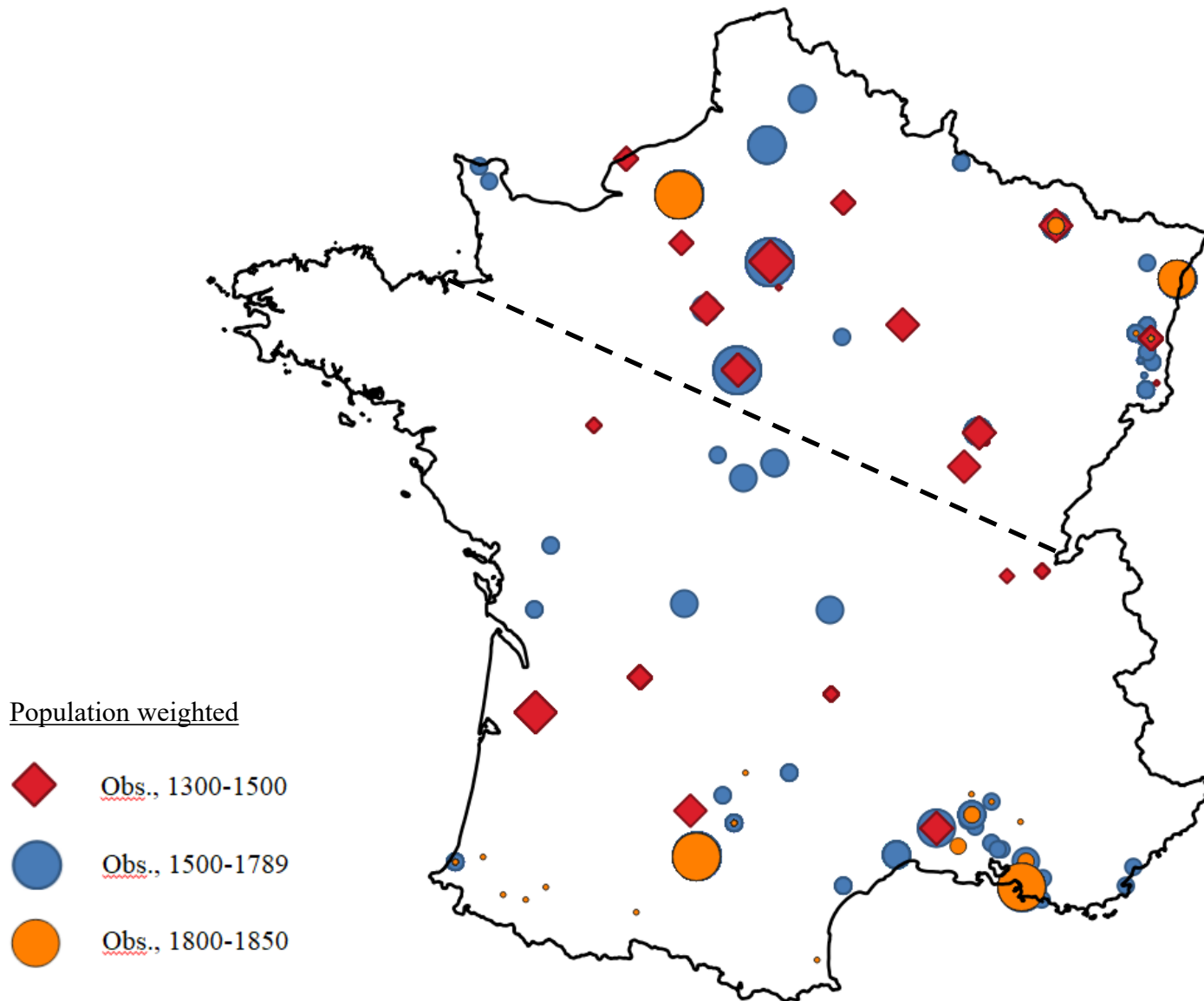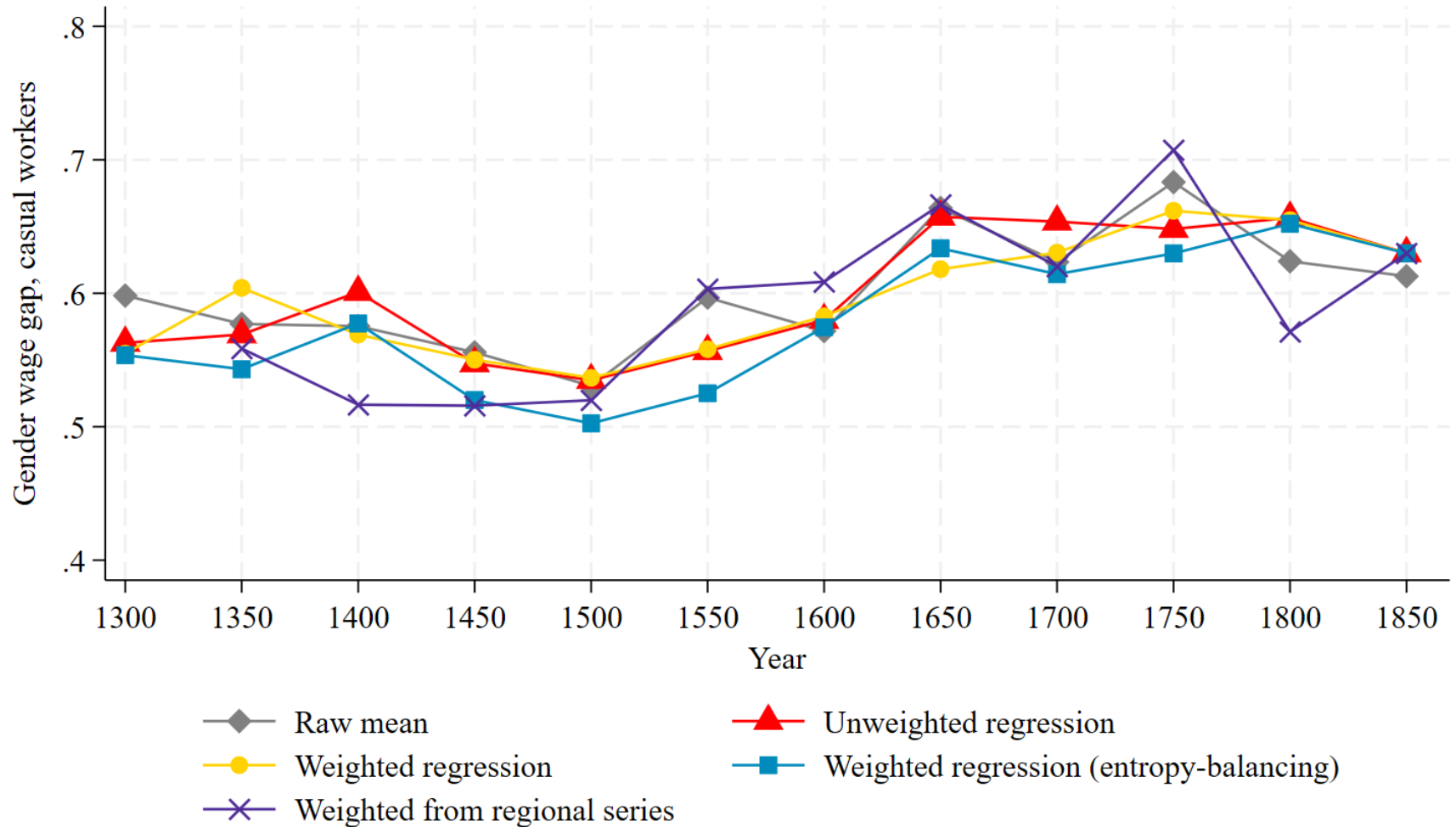
Distribution of the data by decade

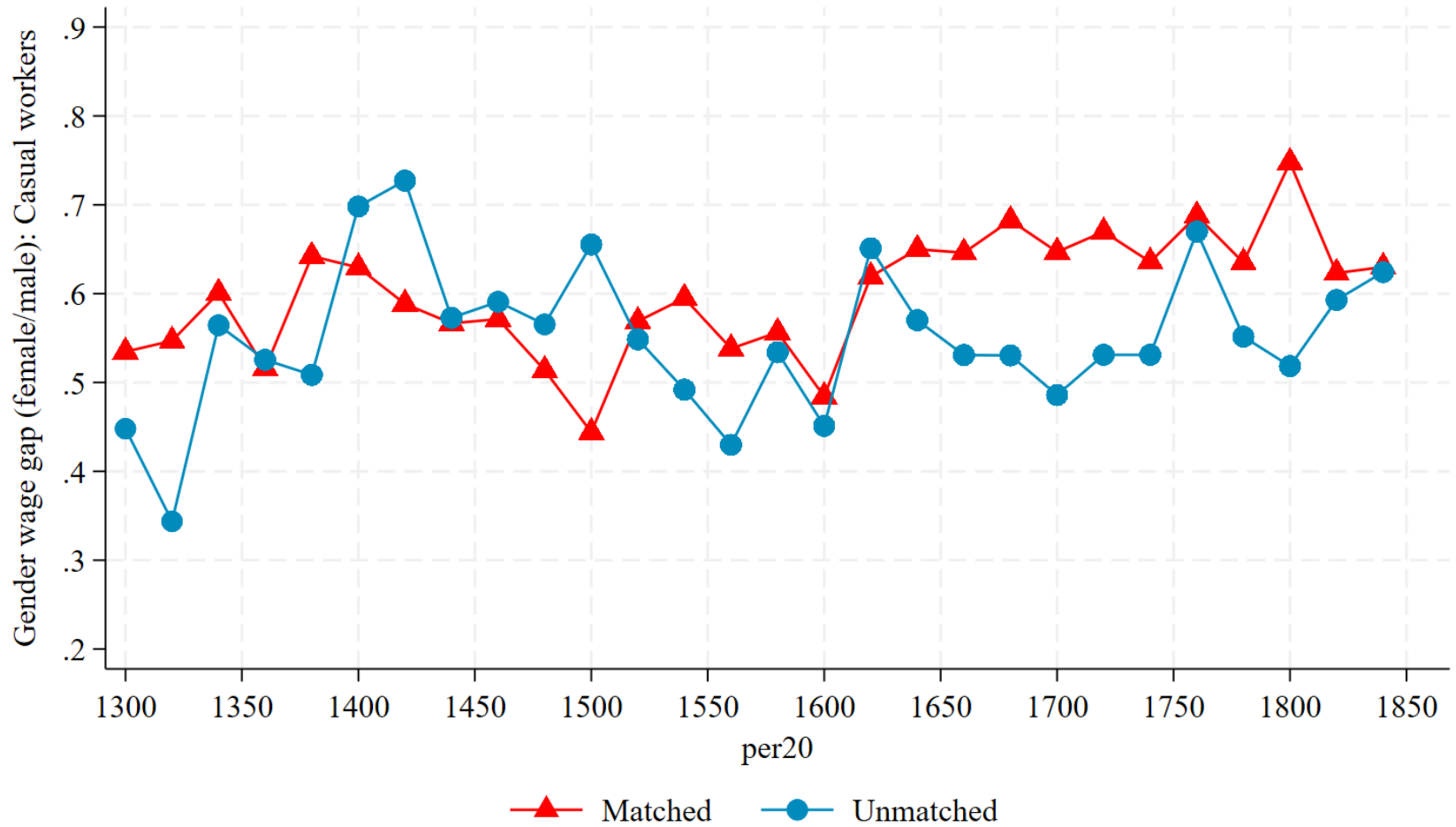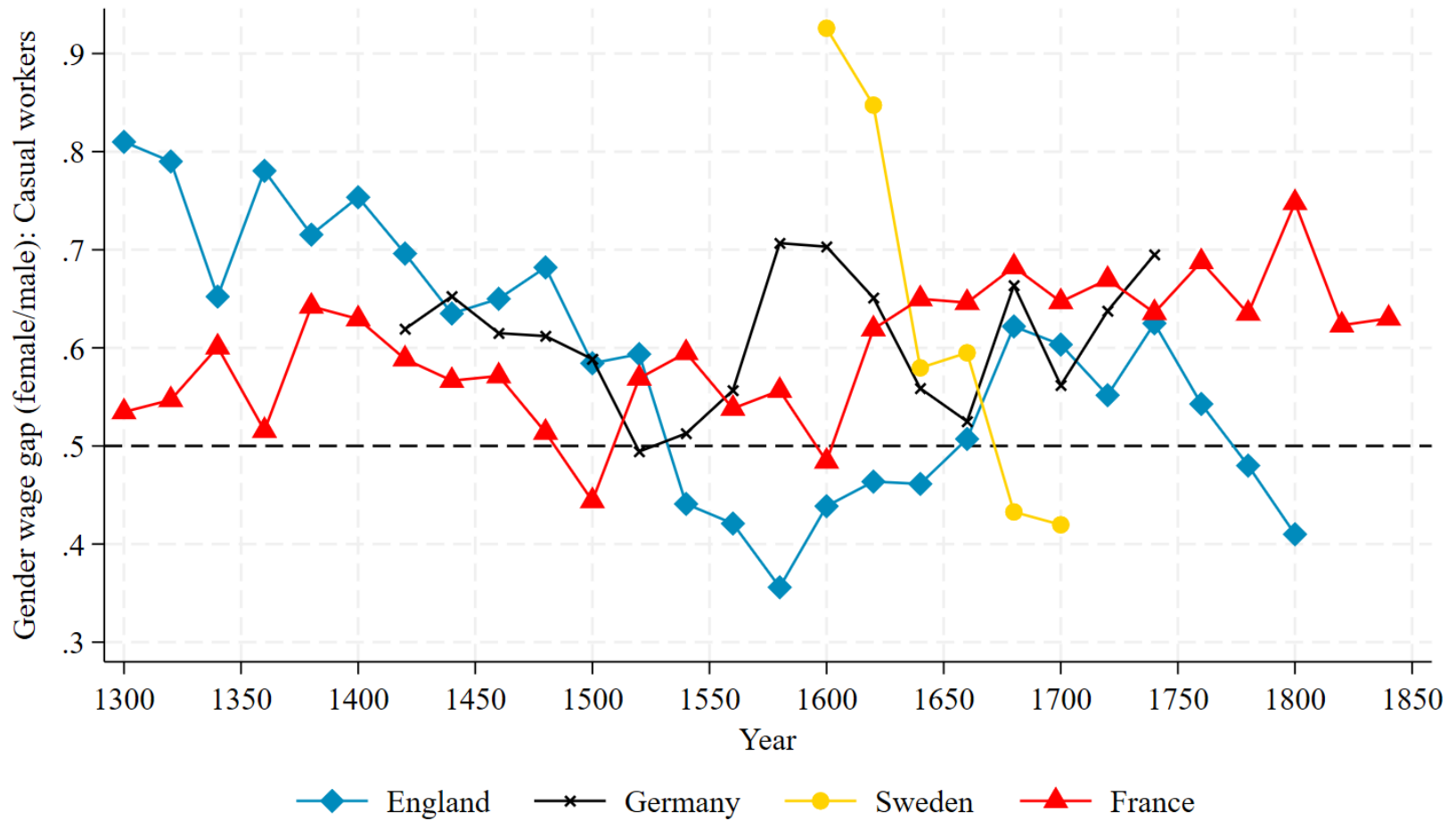# Gender wage gap in France, 1300-1850

Robustness checks, Casual workers
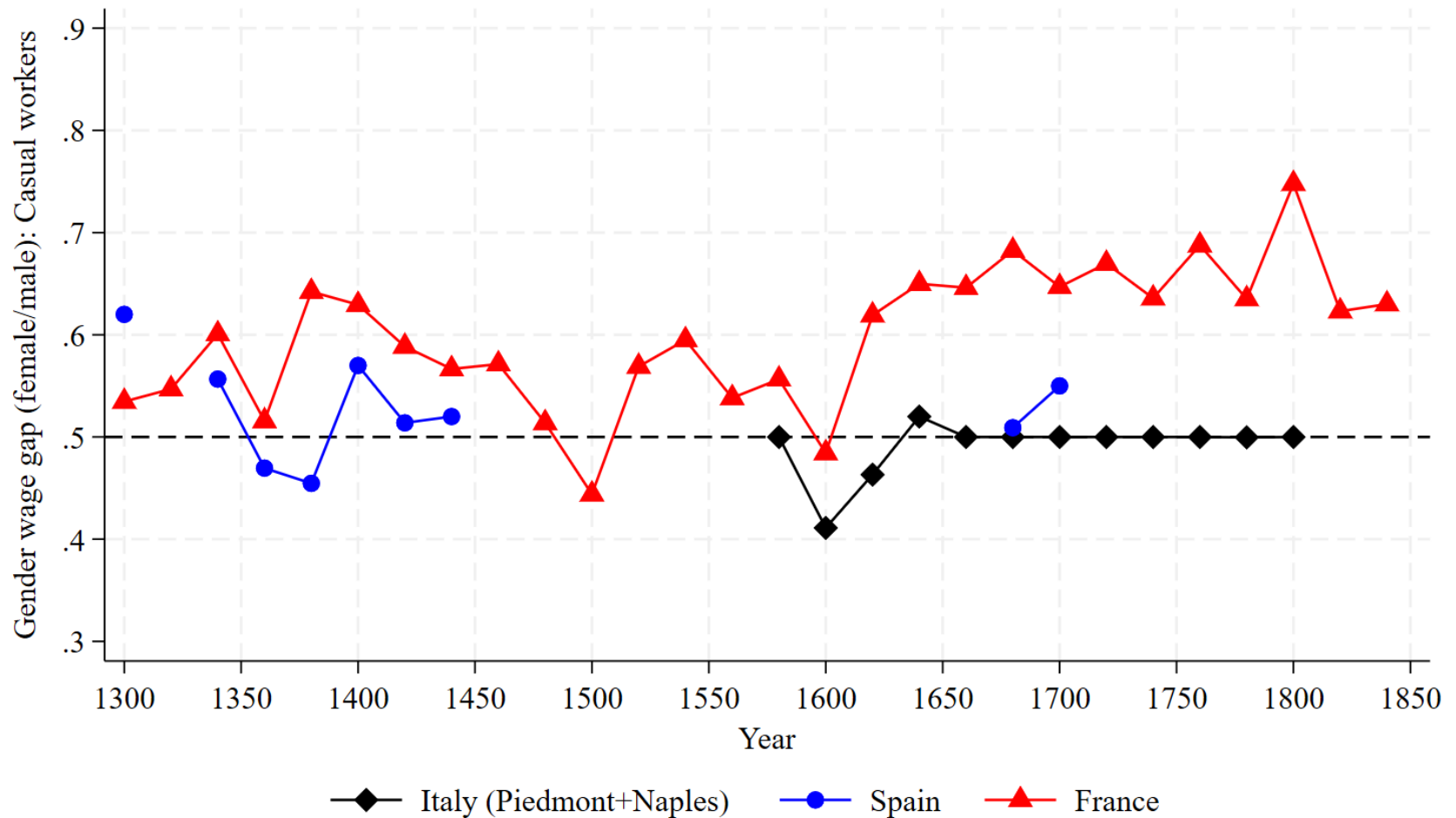
Matched vs Unmatched Approach

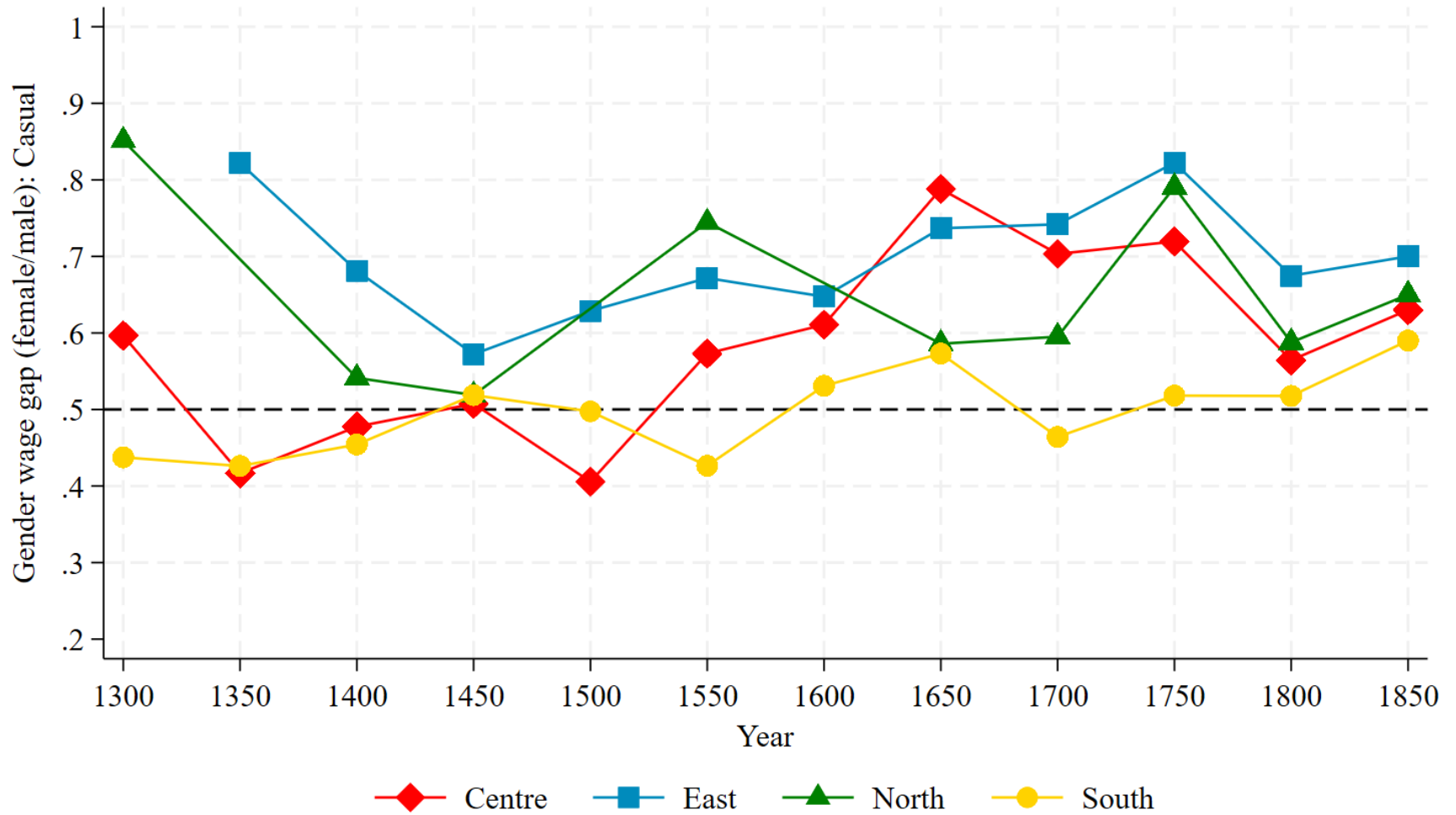# International perspective: France vs Northern Europe

Sources: France, this study; England, Humphreis and Weisdorf (2015); others, De Pleijt and van Zanden (2021).

International perspective:
France vs Southern Europe

Sources: France, this study; others, De Pleijt and van Zanden (2021).

Macro-areal differences

Determinants of the Gender Wage gap

We analyze some potential (measurable) explanations of the gender wage gap. We georeference our observations and link them to a wide set of explanatory variables.

1. **Geographical features:** altitude, latitude, longitude, wheat suitability, distance to Paris and to major ports.

2. **Demographic factors:** population density in 1793 and 1800, family structure (stem, nuclear egalitarian etc), inheritance system (primogeniture vs equal partition).

3. **Culture and human capital:** presence of university at any time in year t and place i; religion (share of protestants in 1861).

Determinants of the Gender wage gap

	(1)	(2)	(3)	(4)
Building	-0.004	-0.055	-0.070	-0.070
	(0.099)	(0.099)	(0.095)	(0.095)
Hard work	-0.172***	-0.169***	-0.142**	-0.142**
	(0.065)	(0.060)	(0.064)	(0.063)
Harvest	0.127***	0.126***	0.126***	0.125***
	(0.030)	(0.030)	(0.031)	(0.031)
Manufacturing	-0.050	-0.011	-0.024	-0.022
	(0.195)	(0.186)	(0.185)	(0.185)
Services	-0.229**	-0.238**	-0.241**	-0.241**
	(0.111)	(0.115)	(0.114)	(0.116)
Sowing	-0.387***	-0.361***	-0.352***	-0.354***
	(0.065)	(0.056)	(0.056)	(0.057)
Wine growing	0.068	0.054	0.051	0.051
	(0.062)	(0.058)	(0.058)	(0.057)
Wheat suitability (hect wheat/pop)		-0.000	-0.001†	-0.001*
		(0.000)	(0.000)	(0.000)
Population density (inhab./km)		-0.002*	-0.001	-0.001
		(0.001)	(0.001)	(0.001)
Family type: nuclear		-0.011	0.002	0.008
		(0.035)	(0.034)	(0.045)
Family type: nuclear patrilocal		-0.165***	-0.151***	-0.152***
		(0.050)	(0.044)	(0.052)
Family type: other		-0.105**	-0.093*	-0.084
		(0.049)	(0.050)	(0.060)
Catholic University			-0.071**	-0.070**
			(0.032)	(0.031)
Protestant University			-0.039	-0.040
			(0.040)	(0.045)
Period FE	Y	Y	Y	Y
Location FE	Y	Y	Y	Y
R2	0.35	0.35	0.36	0.36
N	2987	2987	2987	2987

Notes: Clustered standard errors in parentheses † p<0.15, * p<0.10, ** p<0.05, *** p<0.010.

Gender wage gap and GDP per capita
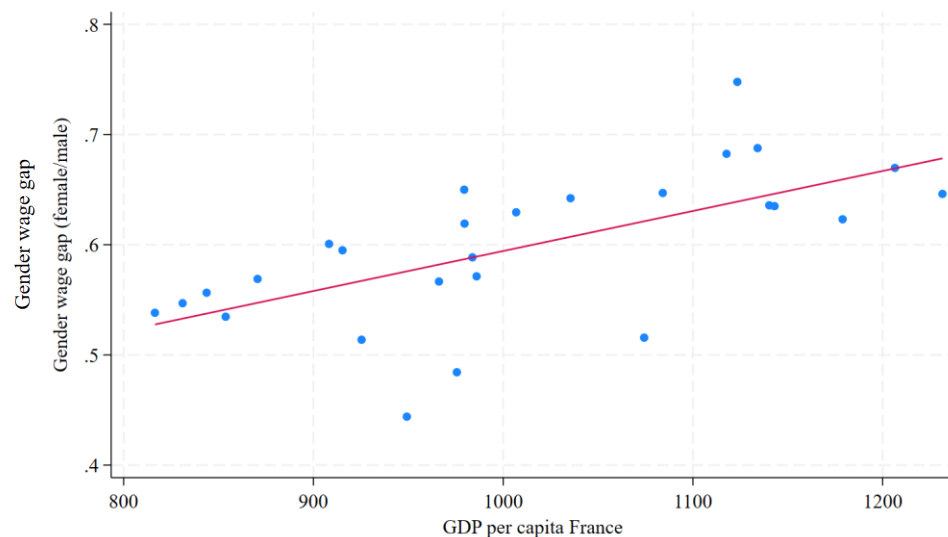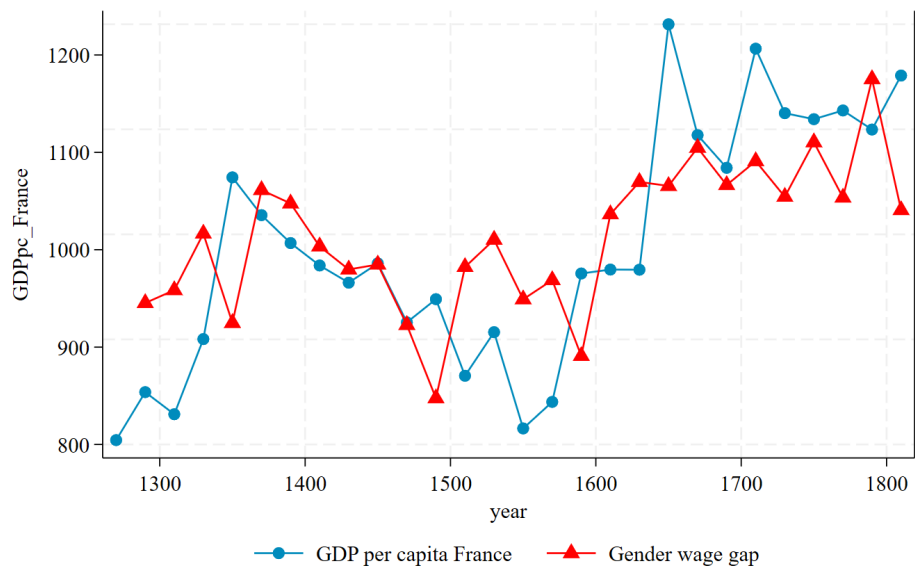
Tab. Gender wage gap and GDPpc

	(1)	(2)	(3)	(4)
Ln(GDPpc)	0.604***	0.428*	0.612***	0.428*
	(5.99)	(2.75)	(4.72)	(2.57)
Year		0.000201		0.000201
		(1.34)		(1.35)
N	27	27	27	27

Notes: t statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Models 1 and 2 are OLS regressions of the gap (log) on GDPpc (log). Models 3 and 4 are nonparametric kernel regressions.

Conclusions

New estimates of the gender wage gap in France based on a 'matched pairs' approach

a)   Ratio between female and male wage globally increased over time

• Result robust to a battery of regression specifications

b)   Substantial regional variation with 'three worlds':

• Southern norm in Meditarranean regions

• North and North-east: improvement in the relative wages of females

• Intermediate cases: South-west and the Centre

c)   Determinants:

• Role of geography important: north-south gradient

• Less inequality when demand for work great (harvest season)

• More inequality in strenght-biased activities

• Correlation between gender wage gap and the GDPpc

Appendix

Example: 1 to 1 match

JOURNÉE DU VIGNERON EN ♪.

Année.	HOMME.		FEMME.	
	été.	hiver	été.	hiver.
	mm. n.	mm. n.	mm. n.	nr. n.
1422 Bâle	28	20	12	
1430 »	24	16		
1438 Colmar	(23)	14	(12)	8
1439 »	30	18		
1440 »	20	14	16	8
1445 »	24			
1482 Bâle		24		
1486 S.-Arb.				8
1487 Bâle		24		
1499 »				9

Source: Hanauer (1878)

- Male and female day wages in summer and winter for nourished and not nourished workers.

- In 1438, in Colmar, the summer wage of non-nourished male winemaker was 23 deniers and that of a female winemaker in summer was 12. This results in a gender wage gap of 0.52.

- Thus, here we match for place, occupation, season, type of employment, and remuneration.

Example: N to 1 match

Item, pour xxxviii journées d'omme tant a avoir planté vᶜ xxv barbeaulx comme a avoir fait iiiiᶜ iiiiˣˣ provinaiges les xii journées au pris de ⟦II s. par jour⟧ et les xxvi au pris de ⟦II s. vi d. par jour⟧, pour ce payé . . . . iiii l. ix s.

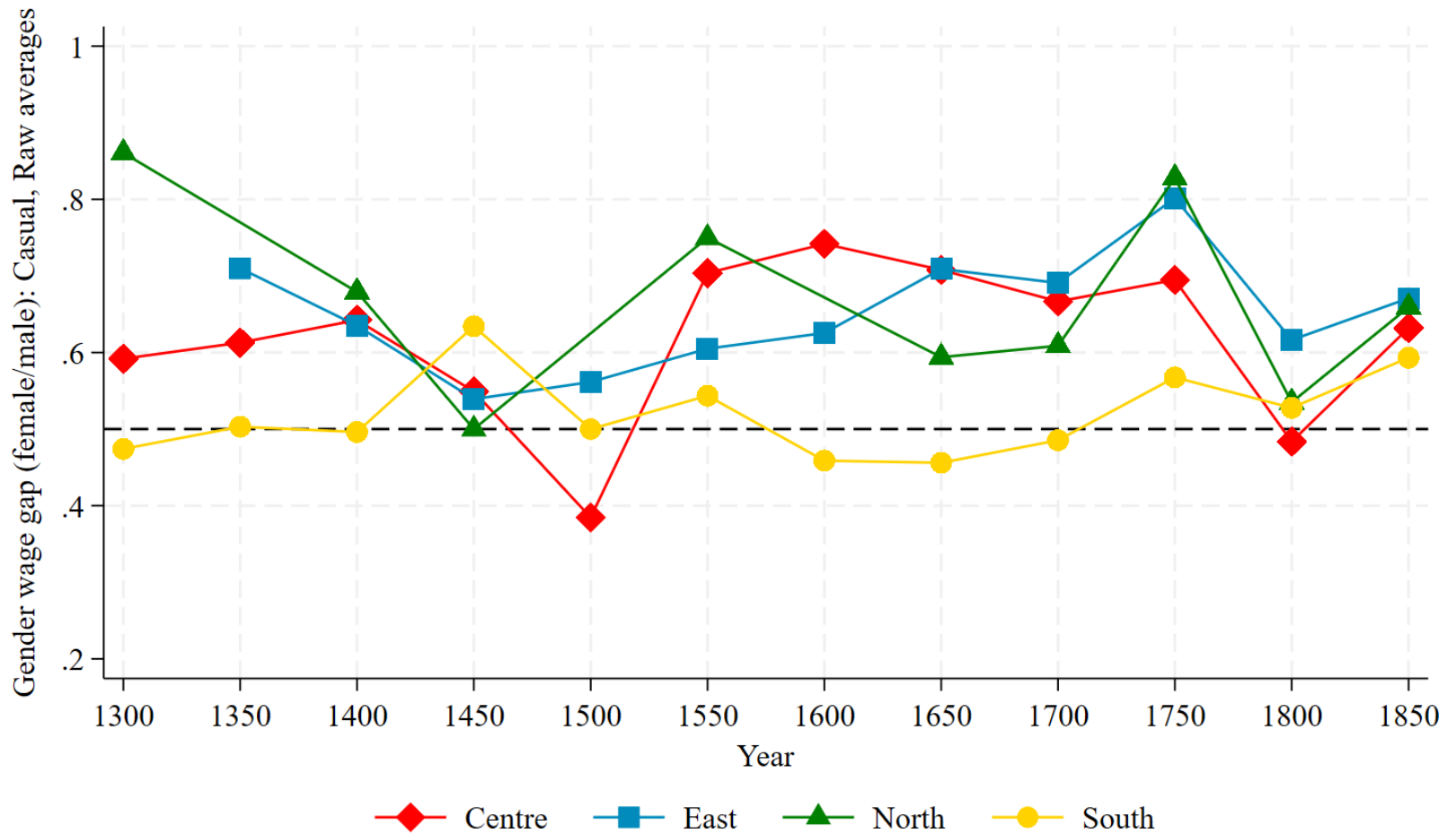Item, pour vi femmes qui servirent a mectre du flens au pié des dits barbeaulx et provinaige au pris de ⟦xviii d. par jour⟧ vallent . . . . ix s. t.

Excerpt from the *Comptes de vendange of Lormont*, (Bordelais) in 1459:
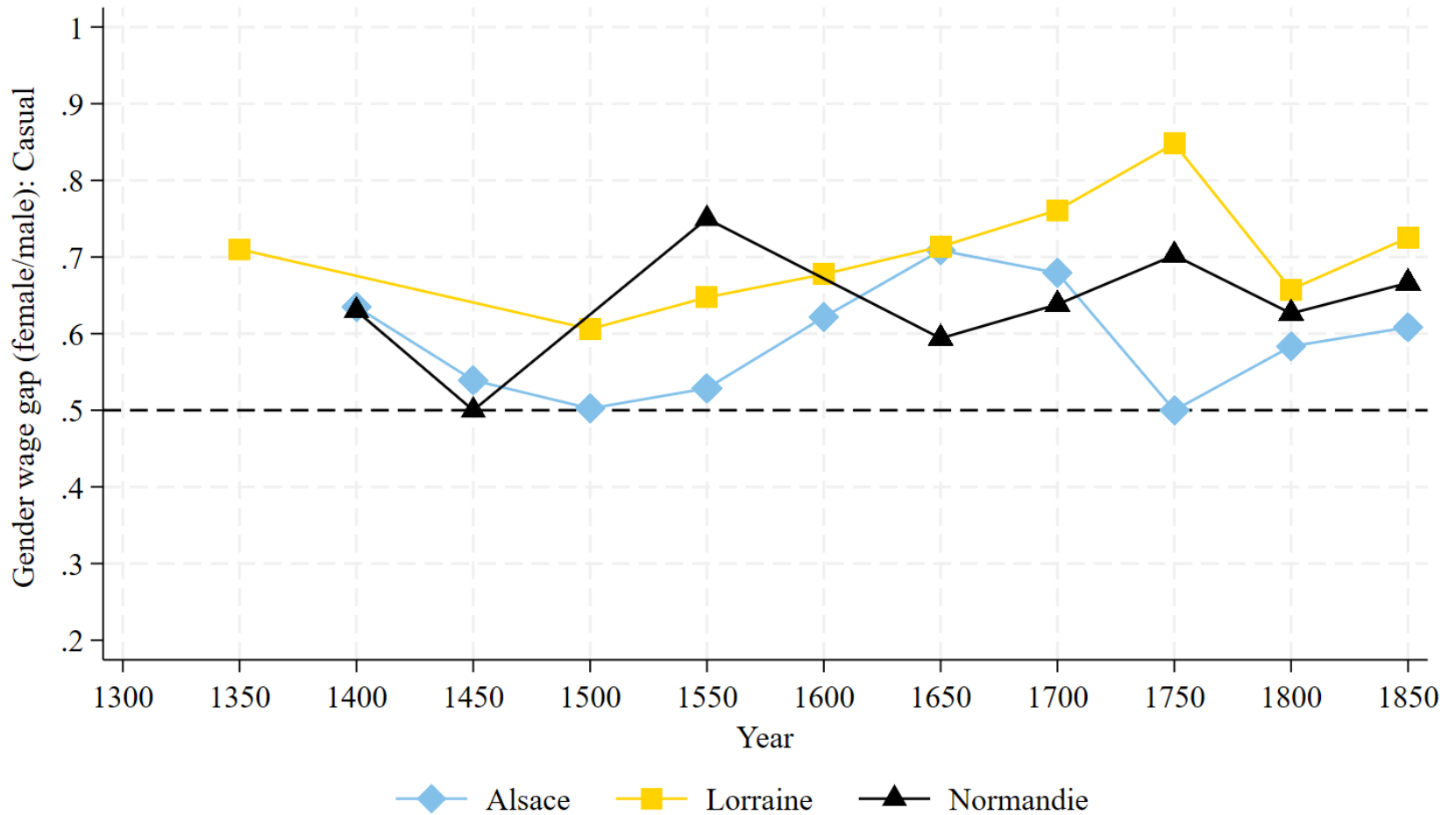
Gender gap 1: $\frac{1,5}{2} = 0.75$

Gender gap 2: $\frac{1,5}{2,5} = 0.6$

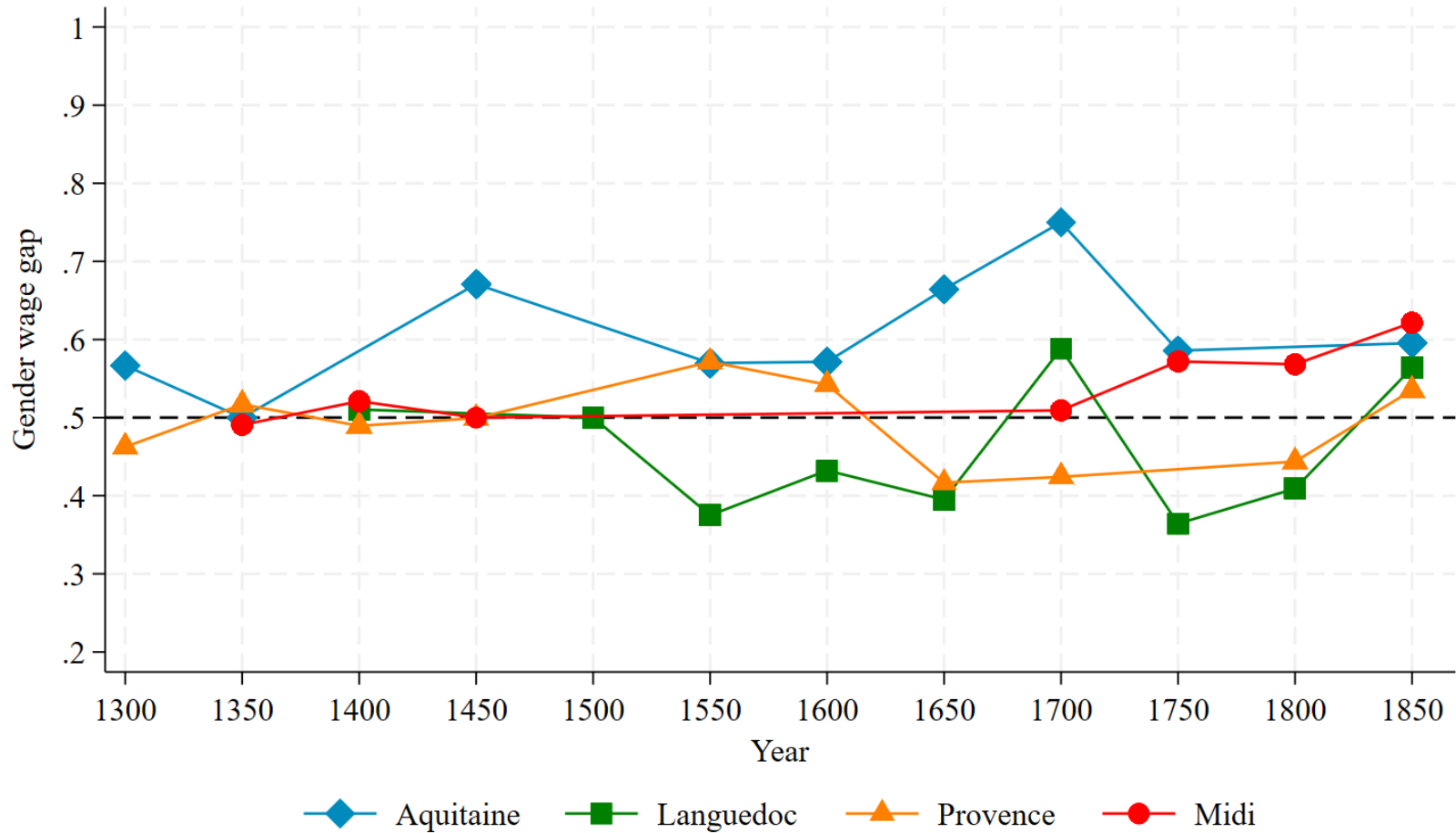Indeed, 2 sous and 6 denier is the modal wage, thus 0.6 much more representative.
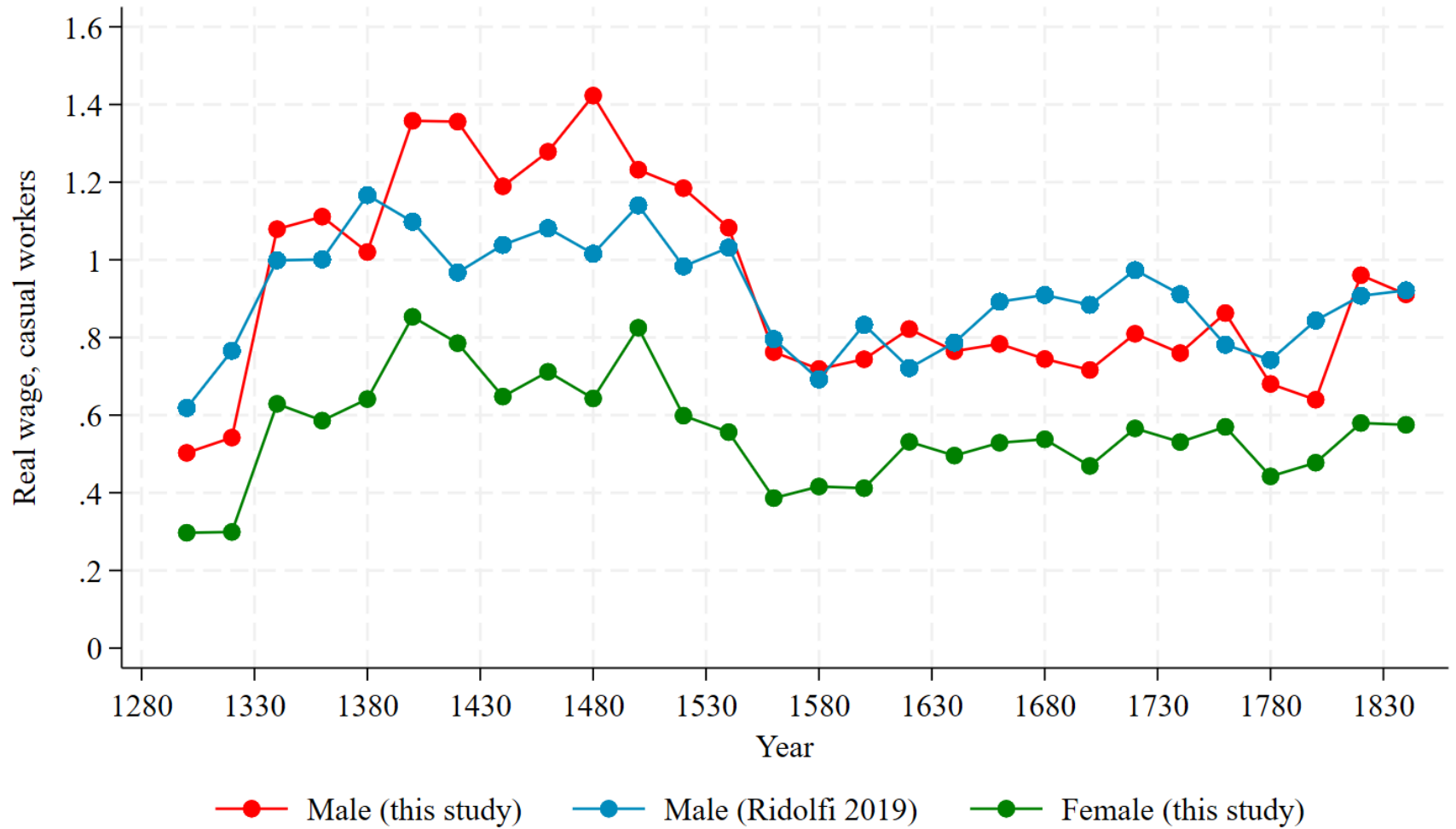
Macro-areal differences

Regional differences, North-Eastern France
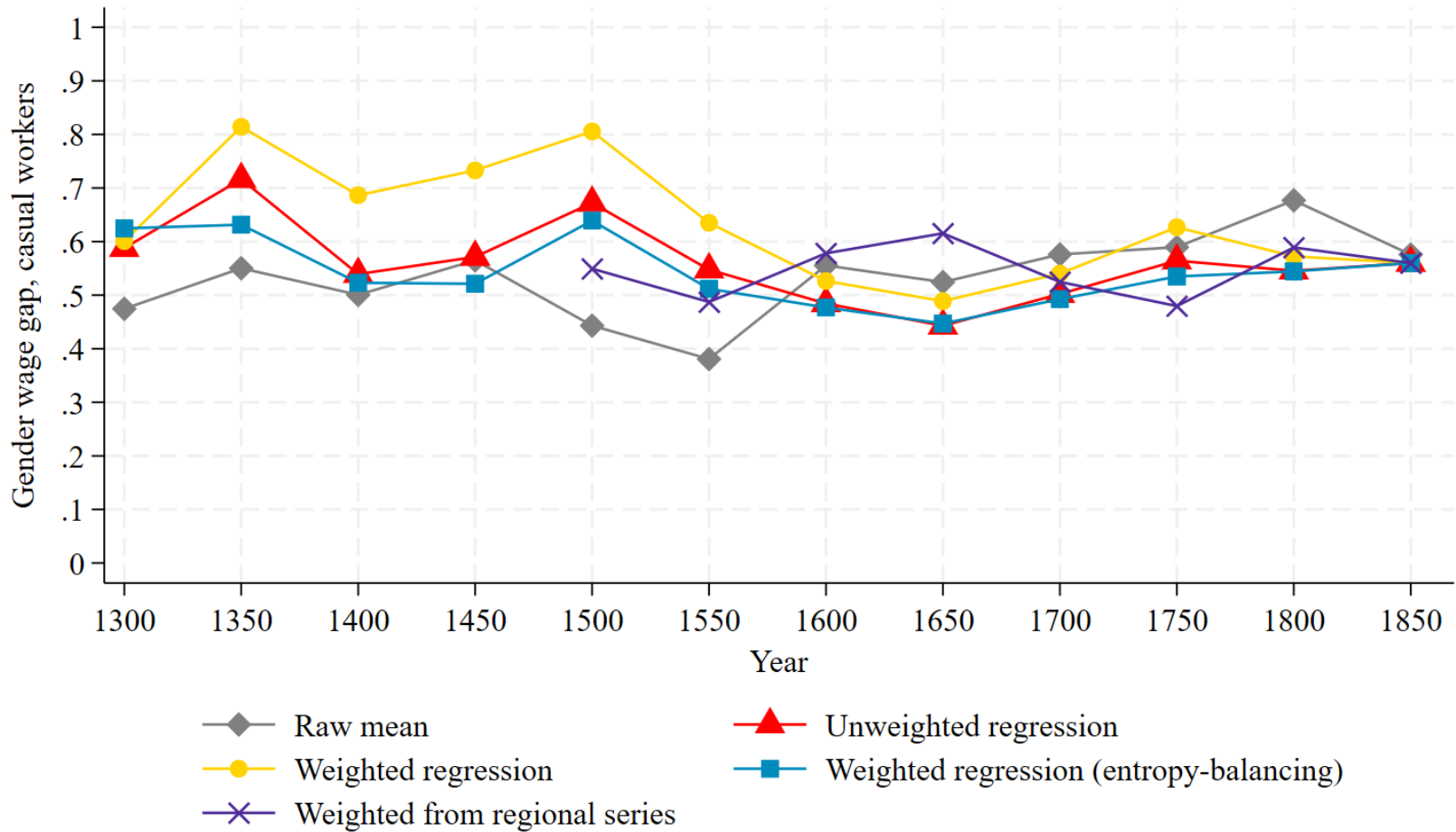
Regional differences, Southern France

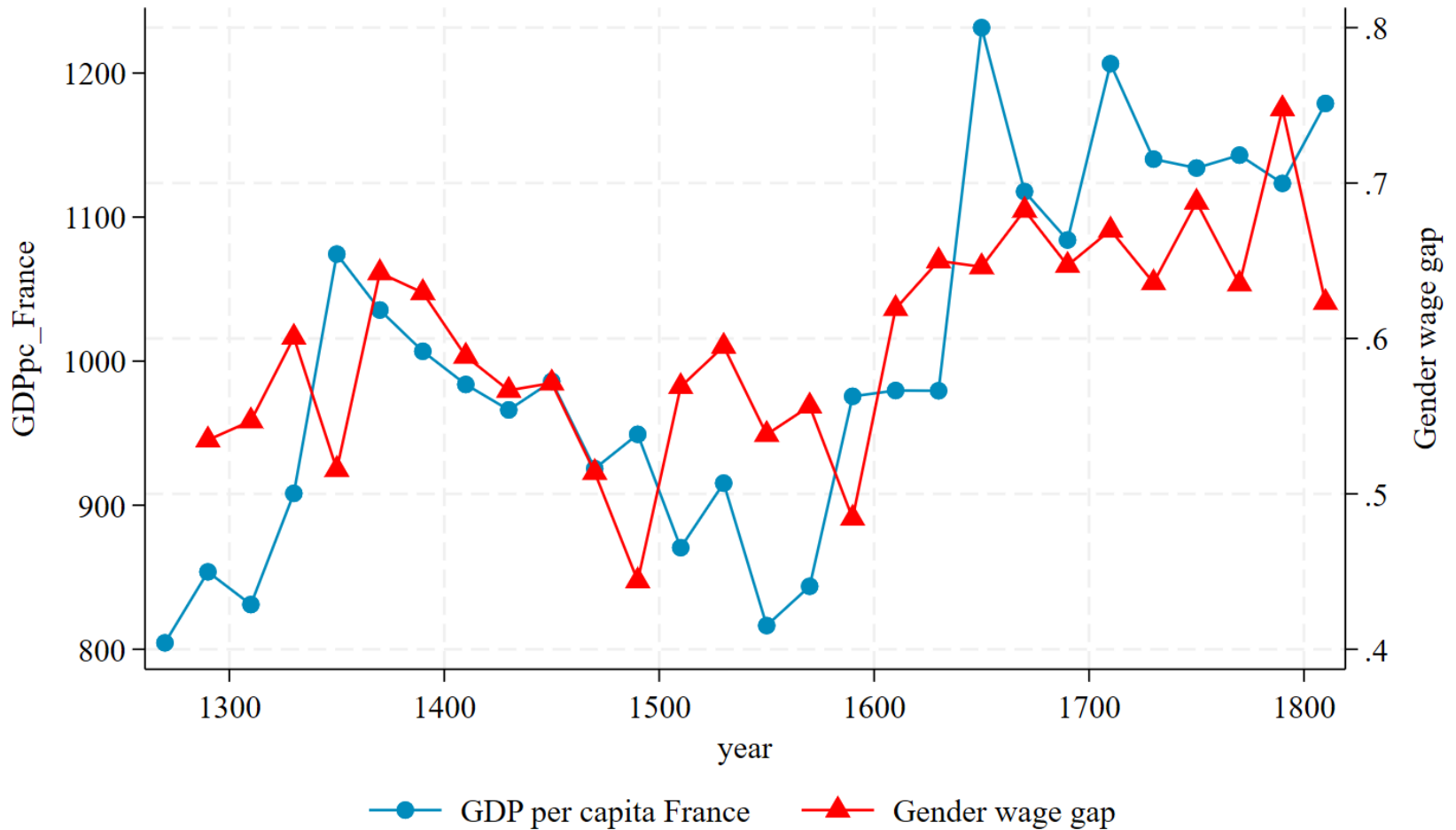# Real wages of casual workers

Robustness checks, Stable workers

Gender wage gap and GDP per capita

Sources: Gender wage gap this study. GDP per capita, Ridolfi and Nuvolari (2021)

Additional explanatory variables

	count	mean	sd	min	max
Geographic variables					
Altitude (m)	2987	236.47	221.31	5.50	1897.50
Altitude (classes)	2987	0.72	1.02	0.00	4.00
Latitude (dd)	2987	46.98	2.23	41.62	51.04
Longitude (dd)	2987	3.78	2.69	-4.49	9.45
Wheat suitability (hect wheat/pop)	2987	13.69	43.47	0.00	313.57
Distance to major ports (km)	2987	253.77	149.86	0.00	513.22
Distance to Paris (km)	2987	350.05	183.54	0.00	957.50
Demographic variables					
Population in 1793 (inhab.)	2835	67119.12	158108.90	158.00	640504.00
Population in 1800 (inhab.)	2987	56017.32	132114.47	157.00	547756.00
Population density (inhab./km)	2987	8.25	13.14	0.03	51.97
Urban dummy	2987	0.81	0.40	0.00	1.00
Family type	2987	2.32	1.04	1.00	4.00
Inheritance					
Inheritance system (classes)	2987	2.53	0.81	1.00	3.00
Primogeniture dummy	2987	0.21	0.40	0.00	1.00
Universities and Religion					
University dummy (*it*)	2987	0.20	0.40	0.00	1.00
Share protestant in 1861 (%)	2987	0.23	0.30	0.00	2.61

References

- Art: https://www.rivagedeboheme.fr/pages/arts/oeuvres/millet-des-glaneuses-1857.html