

### *Online Appendix S1: Wages: sources and methodology*

Figure S1.1 shows the distribution of wage observations over time and by source type. The dataset comprises 26,332 observations for the period 1250–1860. The inclusion of new data from archival sources and printed primary material allows me to considerably improve the spatial coverage of the dataset. Basing the wage sample solely on secondary literature tended to over-represent the north and the east of France compared to the center and the south. The distribution of data over time is uneven and periods of high data frequency alternate with phases of lower data coverage. However, while the low number of observations since the 1810s is directly related to the use of national averages from official enquiries, the relative dearth of information between roughly 1550 and 1750 reflects local changes in the summary accounting records, a result of the transition from direct to indirect farm management by large religious bodies (Neveux 1980, p. 307).<sup>1</sup> The summary accounts are highly detailed up to about 1550 but thereafter are consolidated for longer time periods, more often providing the amount paid for an unknown quantity of labor over a certain period. Table below also reveals significant heterogeneity in the occupational structure. Even so, about 70 percent of skilled workers' wages regard masons and carpenters while more than 80 percent of unskilled workers' wages are for building laborers. The rates paid to agricultural laborers during harvest, haymaking, and vintage are the most frequently recorded in the dataset (Table S1.1).

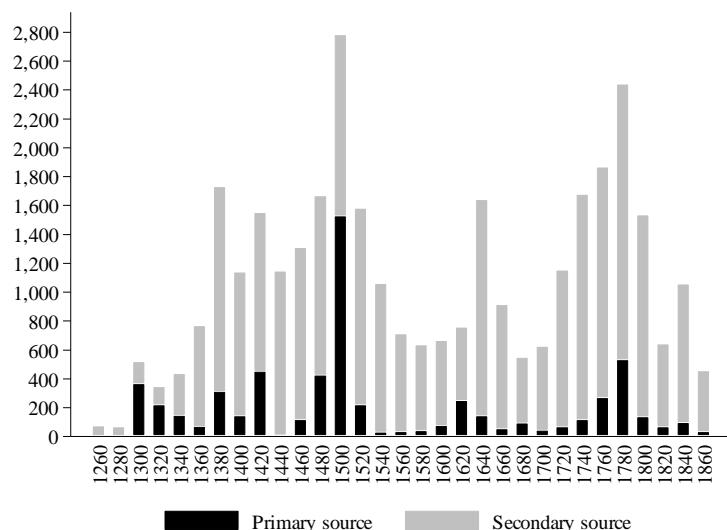


FIGURE S1.1  
WAGE OBSERVATIONS BY SOURCE TYPE

*Notes:* Observations are computed on 20-year windows. For example, 1260 includes the observations from 1250 to 1269.

<sup>1</sup> I wish to thank an anonymous referee of this journal for bringing this point to my attention.

TABLE S1.1  
NOMINAL DAILY WAGES BY OCCUPATION

SKILLED CONSTRUCTION WORKERS			AGRICULTURAL LABORERS		
Occupation	Freq.	Percent	Occupation	Freq.	Percent
Mason	5,903	45.48	Day-laborer	2,567	33.44
Carpenter	2,708	20.87	Vineyard worker	114	14.51
Stone cutter	953	7.34	Grape-picker	713	9.29
Tiler-slater	862	6.64	Carrier	502	6.54
Master mason	652	5.02	Unskilled worker	474	6.18
Plasterer	420	3.24	Thresher	424	5.52
Plumber	267	2.06	Agricultural worker	274	3.57
Construction joiner	235	1.81	Vine cutter	254	3.31
Master carpenter	192	1.48	Gardener	184	2.40
			Mower	168	2.19
<b>UNSKILLED CONSTRUCTION WORKERS</b>			Reaper	158	2.06
Occupation	Freq.	Percent	Digger	101	1.32
Unskilled mason	5,627	84.57	Worker at the wine press	89	1.16
Unskilled worker	330	4.96	Haymaker	88	1.15
Valet	186	2.80			
Unskilled carpenter	172	2.58			
Unskilled tiler	101	1.52			

*Notes and Sources:* see the text. The table reports the most prevalent occupations by skill and sector. Descriptive statistics regard the reduced sample used for regression analysis.

The pay differential between skilled and unskilled male construction workers was by no means constant. As shown in Figure S1.2, it averaged about 100 percent in the pre-plague phase, declined rapidly in the century after the 1340s, but remained remarkably stable in the following period, fluctuating between 60 and 80 percent. From an international comparative perspective, the skill premium in France was similar to the levels prevailing in Southern Europe (Van Zanden 2009) and was typically higher than in England after the 1350s (Figure S1.2).<sup>2</sup>

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<sup>2</sup> The difference is statistically significant at 5 percent level based on the 50-year interval t-test differences in the skill premium of English and French workers.

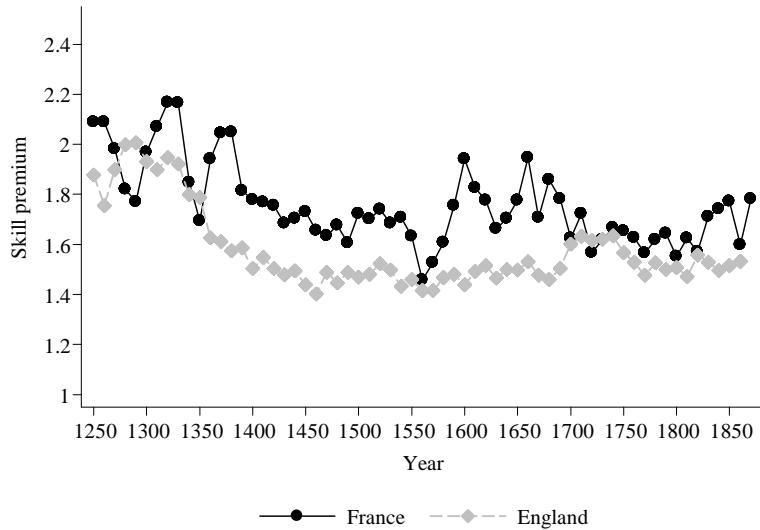


FIGURE S1.2  
SKILL PREMIUM: CONSTRUCTION WORKERS

Sources: France, this study; England, Clark (2005). The skill premium for English construction workers is the ratio between nominal wages of skilled and unskilled construction workers. Values are expressed as 10-year averages.

The skill premium displays large spatial differences within France. However, these did not follow a clear North-South divide but appeared to match quite closely the geography of urbanization. For example, the eighteenth century skill premium averaged 100 percent in rural areas of the Center and South like Marsan, the surroundings of Bayonne, and Rouergue but in the most urbanized areas of the Center and South of France like Avignon, Cavaillon, and Lyon, it had the same low values (c.60 percent) observed in Paris and the North Sea area.<sup>3</sup> It is beyond the scope of this paper to analyze the causes of these differences, but these are probably related to the degree of market integration. Where labor markets were less integrated and competition was lower, skill premia tended to be large, while in the more urbanized areas pay differential likely decreased because the greater competition between skilled workers reduced their wage premium.

### *Seasonality*

Table S1.2 shows the distribution of wage observations by season. For each of the three categories of workers, between 43 and 45 percent of the data do not indicate if the wage was paid in a particular season. However, when seasonality is observed, this mostly concerns summer wages. As explained in the text, to

<sup>3</sup> Data for Marsan, Bayonne, and Rouergue come from the AD Landes (1 C151), the AD Pyrénées-Atlantiques (see the Appendix), and Donat (1935), respectively. In Avignon, the skill premium averaged about 160 percent from 1422 to 1585 and in the second half of 1700 (AD Vaucluse H Dépôt Avignon, Saint-Bénézet E28, E29, E35, E37, E40, E42, E44, and Couvent des Ursulines d'Avignon 95 H 32). It was remarkably low in Cavaillon (about 132 percent based on Rosenthal (1992)) and Lyon (157 percent between 1503 and 1570 based on the average ratio of master masons' wages relative to unskilled laborers using Gascon's (1971, vol. 2, pp. 930–32) figures; 154 percent from 1760 to 1780 using Gutton's (1971) series of master masons and unskilled laborers). In Paris, the skill premium fluctuated in the range c.250-167 percent between 1400–1726 while averaged 163 percent in the eighteenth century (Baulant 1971 pp. 480–81; Durand 1966, Ratio of masons to laborers wages, “mean of monthly modes”).

limit the loss of information due to unobserved seasonality, I estimate the basic model of wages by including a set of seasonal indicators for each of the categories illustrated below (Table S1.2). To check the robustness of this procedure, I additionally re-estimate the baseline specification using various subsamples for which seasonality is observed directly using weighted and un-weighted regression models as illustrated in Table S1.3. Figures below suggest that the baseline specification is consistent with these alternative specifications (Models S1 and S2).<sup>4</sup>

TABLE S1.2  
DISTRIBUTION OF WAGES BY SEASON

CONSTRUCTION WORKERS				AGRICULTURAL LABORERS			
SKILLED		UNSKILLED					
	Freq.	Percent	Freq.	Percent	Freq.	Percent	
Mean	1,450	12.30	739	13.29	Mean	214	2.79
Unknown	5,255	44.57	2,403	43.20	Unknown	3,270	42.57
Autumn	1,024	8.68	331	5.95	Harvest	437	5.69
Spring	567	4.81	332	5.97	Summer	2,413	31.41
Summer	2,349	19.92	1,158	20.82	Winter	1,348	17.55
Winter	1,146	9.72	599	10.77			
Total	11,791	100	5,562	100	Total	7,682	100

*Notes:* The descriptive statistics regard the reduced sample of wages used for regression analysis.

The table does not include wages paid to nourished workers (unless corrected to account for the share of in-kind payments) as well as observations for which the form of remuneration is unknown. It also excludes wages of Parisian workers. The overall sample originally included 15,208 observations for building craftsmen, 7,907 for building laborers, and 9,863 for agricultural laborers.

TABLE S1.3  
ROBUSTNESS TESTS: ADDITIONAL COVARIATES, DIFFERENT SAMPLES AND WEIGHTING

Model	URBAN LABORERS					CRAFTSMEN					AGRICULTURAL LABORERS			
	Baseline	S1	S2	W1	W2	Baseline	S1	S2	W1	W2	Baseline	S1	S2	W1
Sample	Full	Less unknown and mean	Less unknown	Full	Full	Full	Less unknown and mean	Less unknown	Full	Full	Full	Less unknown and mean	Less unknown	Full
Weighted				YES	YES				YES	YES				YES
Location	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Occupation	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Source	YES	YES	YES	YES	YES	YES			YES		YES	YES	YES	YES
Season	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES		YES	YES
Season X Period X Region				YES					YES					
R-squared	0.991	0.99	0.99	0.996	0.992	0.995	0.995	0.995	0.997	0.996	0.995	0.994	0.994	0.997
N	5,560	3,241	2,480	5,560	5,159	11,210	4,497	6,043	11,210	11,210	5,954	3,165	3,346	5,954

<sup>4</sup> For the results of models W1 and W2, see the subsection ‘Spatial coverage.’

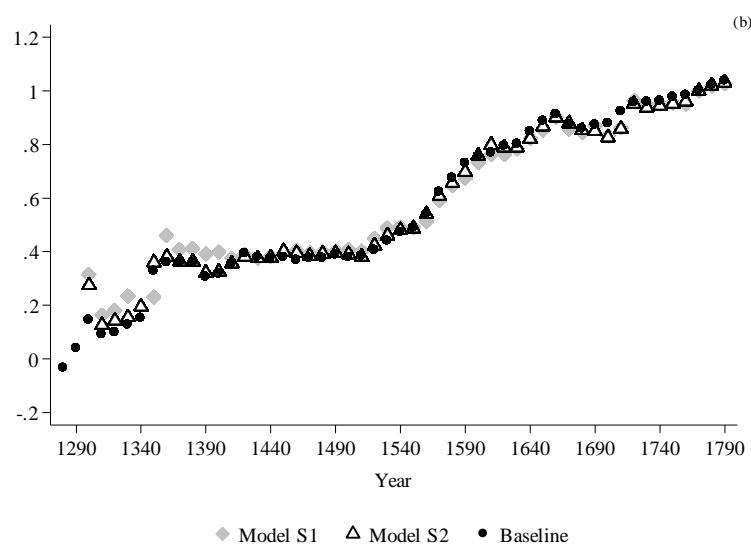
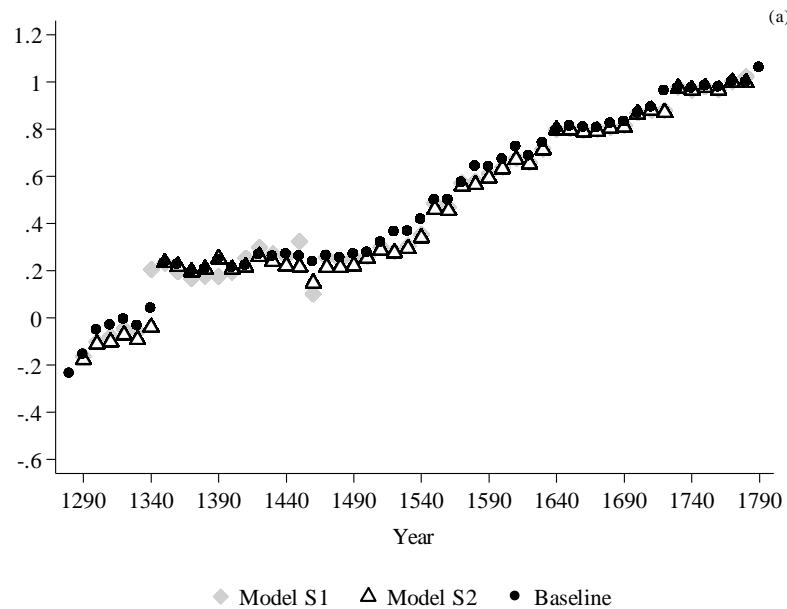


FIGURE S1.3  
SEASONALITY: NOMINAL WAGES OF AGRICULTURAL LABORERS (a) AND BUILDING CRAFTSMEN (b), INDEX (1770–9=1)  
Notes: See Table S1.3 for a description of the controls used in the various models. Nominal wages are expressed in local currency (sous tournois per day). “Baseline” refers to the predictions of the benchmark specification illustrated in the text (equation 1).

### *Payment in kind*

Table below shows the distribution of wages by form of remuneration for agricultural laborers and construction workers. In most of the cases some sort of correction procedure should be applied to the raw data to obtain cash wages. In particular, I assume that a large share of wage quotes (varying between 40 and 48 percent of the three estimating samples) regard not-nourished workers and I retain a limited share of wages of nourished workers after having imputed the value of payment in kind (Table S1.4, Nourished corrected). Complicating the issue further, changes to the structure of mixed wages were relatively frequent. These accommodations tended to compress the share of payment in cash and to lower the quality of in-kind

supplements during phases of rapid population growth while extending the money part when labor was scarcer. Figure S1.4 suggests that payment in kind was between 55 and 65 percent of total wage in the overpopulated France of the thirteenth and early fourteenth century. However, this share fell to about 40 percent in the post-plague phase. Low values were also observed in Normandy in this period. When population started to recover by the 1450s, the share of in-kind payment resumed and reached its apogee in the mid-seventeenth century (approximately 60 percent), remaining stable at around 50 percent afterwards. The connection between population growth and structure of wages can to some extent be explained in this way: *ceteris paribus*, during phases of population growth the aggregate demand increased and per capita stock of money decreased contributing to raise the price of basic foodstuffs. However, to the extent that some employers were also producers of some of these commodities or could afford to buy them at wholesale prices, these could have found more convenient to increase the component in kind instead of compensating workers with a greater amount of cash in periods of rising inflation.

TABLE S1.4  
DISTRIBUTION OF WAGES BY FORM OF REMUNERATION

	CONSTRUCTION WORKERS				AGRICULTURAL LABORERS	
	SKILLED		UNSKILLED			
Food	Freq.	Percent	Freq.	Percent	Freq.	Percent
Not-nourished	5,227	44.33	2,673	48.06	3,973	51.72
Not-nourished assumed	5,384	45.66	2,654	47.72	3,045	39.64
Nourished corrected	1,180	10.01	235	4.23	664	8.64
Total	11,791	100	5,562	100	7,682	100

*Notes:* The descriptive statistics regard the reduced sample used for regression analysis.

The table does not include wages paid to nourished workers (unless corrected to account for the share of in-kind payments) as well as observations for which the form of remuneration is unknown. It also excludes wages of Parisian workers. The overall sample originally comprised 15,208 observations for building craftsmen, 7,907 for building laborers, and 9,863 for agricultural laborers.

In what follows, I test the consistency of the procedure to distinguish between nourished and not-nourished workers by fitting the benchmark regression model on the reduced sample of not-nourished workers (Table S1.5). Figures below show that there are no significant differences in drawing the sample from not-nourished workers or from the overall sample (not-nourished, not-nourished assumed, and nourished corrected).

TABLE S1.5  
ROBUSTNESS TESTS: ADDITIONAL COVARIATES, DIFFERENT SAMPLES

Model	URBAN LABORERS		CRAFTSMEN		AGRICULTURAL LABORERS	
	Base	F1	Base	F1	Base	F1
Sample	Overall	Excluding unknown	Overall	Excluding unknown	Overall	Excluding unknown
Location	YES	YES	YES	YES	YES	YES
Occupation	YES	YES	YES	YES	YES	YES
Source	YES	YES	YES		YES	YES
Season	YES	YES	YES	YES	YES	YES
R-squared	0.991	0.993	0.995	0.996	0.995	0.997
Observations	5560	2761	11210	5214	5954	2538

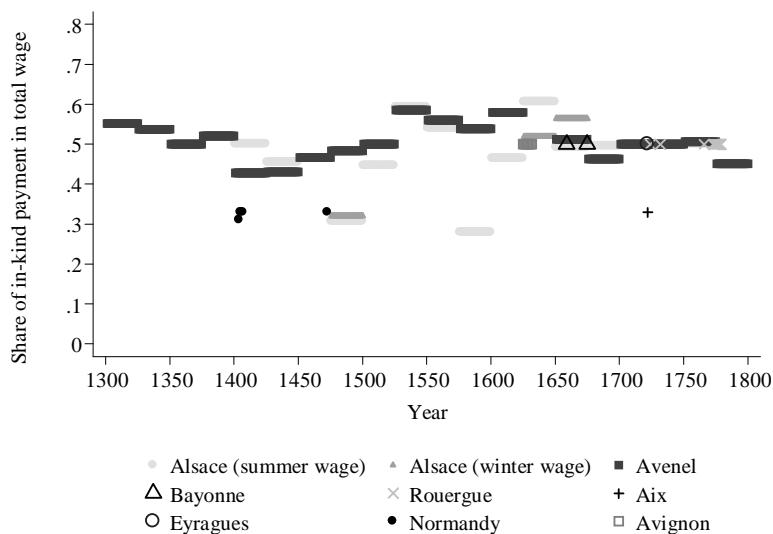
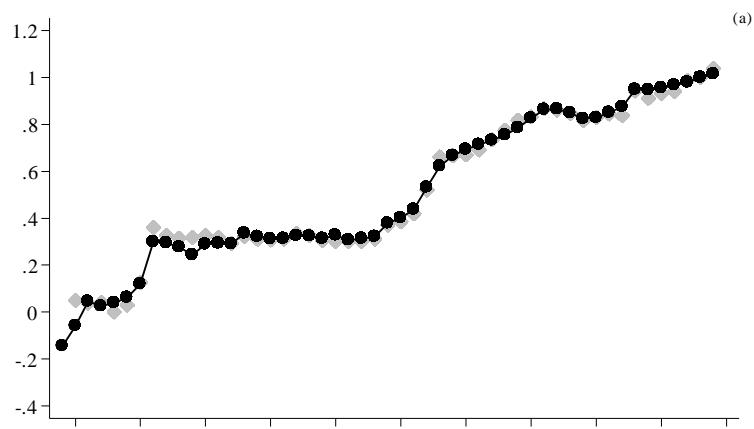
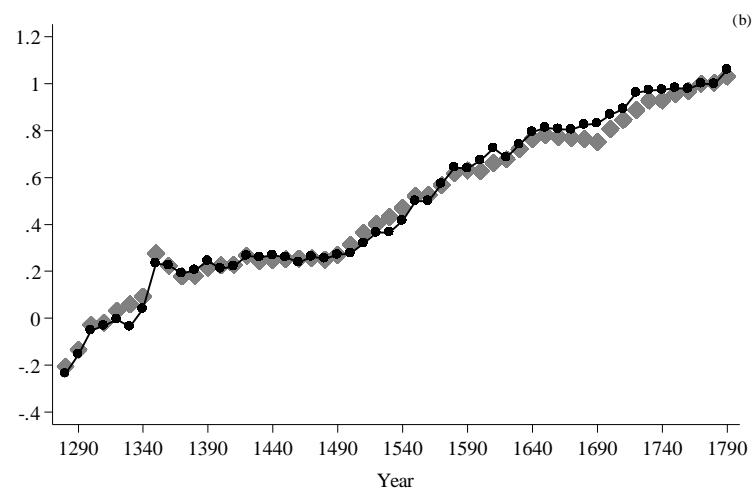


FIGURE S1.4  
SHARE OF IN-KIND PAYMENT IN TOTAL WAGE

Sources: France, d'Avenel (1898, vol. 4, p. 580); Alsace, Hanauer (1878, vol. 2, p. 555); Bayonne, AD Pyrénées-Atlantiques (Couvent des Jacobins de Bayonne H109 and Couvent Sainte-Claire de Bayonne H 101); Rouergue, Donat (1935, pp. 222–231); Aix and Eyragues (Baherel 1961, p. 613); Avignon, AD Vaucluse (Couvent des Ursulines d'Avignon 95 H 32); Normandy (Rivière 2006, pp. 27–56).



◆ Model F1 ● Baseline



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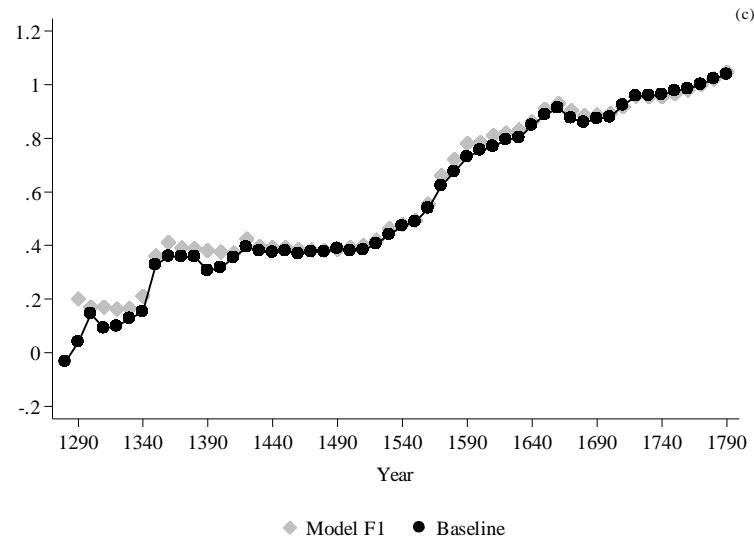


FIGURE S1.5

PAYMENT IN CASH: NOMINAL WAGES OF FRENCH BUILDING LABORERS (a) FRENCH AGRICULTURAL LABORERS (b), AND FRENCH BUILDING CRAFTSMEN (c), INDEX (1770–9=1)

*Notes:* See Table S1.5 for a description of the controls used in the various specifications. Nominal wages are expressed in local currency (sous tournois per day). “Baseline” refers to the predictions of the benchmark specification illustrated in the text (equation 1).

## *Working days*

In this section, I check the sensitivity of results to the assumption of a fixed working year. In particular, I present two sensitivity checks.

First, I estimate trends in the actual working year for French construction workers using a large sample of building projects that record the weekly number of days worked per person for the period 1320–1644. Conversely, for later years I use some scattered observations derived from a limited set of secondary sources. This exercise introduces several practical obstacles because building projects could differ in terms of size, duration, location, and nature of the labor contractor. These are all sources of heterogeneity that one should take into account in the estimating process. To make results comparable across sites of different duration, days of work are first normalized by the length of the building project expressed in calendar days (individual participation rates) and then multiplied by 365 days.<sup>5</sup> In addition, as most of the workers employed on site experience high rates of turnover, I set a threshold to distinguish between regular and casual workers. In particular, I assume that a male worker is “regular” if he works on site at least half of the workable time.<sup>6</sup> However, as the length of the calendar working year passed from about 260 to 300 days between 1300 and 1800, I define two alternative specifications.

First, based on a workable year of 300 days (365 days less 52 Sundays and a minimum of about two weeks of holiday), and an employment rate of at least 50 percent of workable time, I assume that a worker is “regular” if he works at least 150 days per year (participation rate of about 40 percent i.e. 150/365).

Second, assuming a workable year of 260 days, which is a more appropriate standard for the Middle Ages, and again an employment rate of at least 50 percent, I lower the threshold of “regularity” to 130 days or a participation rate of about 36 percent (130/365). I then regress the natural logarithm of the actual working year ( $d_{it}$ ) for a regular worker in location  $i$  at time  $t$ , on a set of period dummies ( $D_t$ ) and indicator variables ( $DTYPE$ ) that control for season, nature of the labor contractor, size, duration, geographic location of the working site, along with the occupation or degree of specialization of the worker.<sup>7</sup> I repeat this exercise for two classes of labor attendance, namely all regular workers and the top 50 percent more assiduous ones.

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<sup>5</sup> For example, in 1527 mason Pierre Bardet worked 8 days on the construction site of Chambord (Jarry, 1888). As this work schedule applied to the month, his participation rate was 27 percent (8/30), and his expected working year was 97 days. As a large share of observations come from building sites of short duration (less than or equal to a month) I also fit the model excluding them. Results are reassuringly consistent with the prediction of the larger sample.

<sup>6</sup> Overall, these assumptions have little bear on final results even assuming an implausibly low cutoff of 120 days.

<sup>7</sup> I considered the following covariates: “Size” namely the total number of workers employed on site for the length of the building project; “duration” that is the length of the building site in calendar days; “location”, “contractor,” and “profession” that are

$$\ln(d_{it}) = \sum_t \beta_t D_t + \sum_k \gamma_k DTYPEn_k + \varepsilon_{it}$$

I finally convert the predicted values in levels to get actual working days.<sup>8</sup> Table S1.6 shows the resulting estimates for all regular workers and for the top 50 percent more assiduous ones using the two definitions of “regular worker.”

TABLE S1.6  
ACTUAL WORKING YEAR IN THE FRENCH CONSTRUCTION INDUSTRY

Period	(1)	(2)	(3)	(4)
1310–1329	229	237	231	237
1330–1349	251	275	252	275
1350–1369	252	250	254	250
1370–1389	219	254	209	244
1390–1409	228	255	226	254
1410–1429	236	237	237	237
1450–1469	229	240	221	237
1470–1489	232	268	234	268
1490–1509	250	251	237	251
1510–1529	262	276	254	274
1530–1549	252	273	240	270
1550–1569	274	272	275	272
1590–1609		256	260	256
1630–1649	236	252	239	253
1750–1769	287	285	289	285
1770–1789	292	288	292	288
1790–1809		288	292	288
1830–1849	305	303	307	303
1850–1869	303	301	305	301

Sources: Amboise, Grandmaison (1912); Avignon, Bernardi (2014) and Piola Caselli (1981); Bordeaux, Brutails (1901); Bourges, Hamon (2003) and Rapin (2010); Bretagne, Hamon (2008); Chambord, Jarry (1888); Chartres, Merlet (1889); France, Marchand and Thélot (1991, p. 190); Gaillon and Lydieu, Deville (1850); Gisors, Hamon (2008); Granville, Villand (1986); Lyon, Gutton (1971); Orléans, Mesqui and Claude Ribéra-Pervillé (1980); Paris, Baulant (1971), Beutler (1971), Geremek (1968) and Potofsky (2014); Pierrefonds, Mesqui and Ribéra-Pervillé (1980); Poitiers, Rapin (2010); Riom, Rapin (2010); Rouen, Lardin (2014); Saint-Flour, Rigaudière (1982); Saint-Germain-le-Vieux, Bos (2003); Saint-Sauveur, Bernardi (1995); Toulon, Saint-Roman (2014); Toulouse, Meusnier (1951); Troyes, Galletti (2010).

Notes: For the definition of “regular worker,” see the text. The first column (Model 1) shows the estimates for all regular workers (cutoff of 150 days); the second column (Model 2) is for the top 50 percent more assiduous ones among those that were regular (cutoff at 150 days); the third (Model 3) regards all regular workers (cutoff at 130 days), and the fourth (Model 4) is for the top 50 percent more assiduous regular workers (cutoff at 130 days).

Regular construction workers are potentially unrepresentative of an average worker of the time. To address this concern I rely on the changing structure of wages and prices for estimating trends in the working year. In particular, I devise a second test based on the evolution of the implied working year defined as the annual number of days required by a male breadwinner to buy the barebones basket specified in the text.<sup>9</sup> I find the implied working year of French building laborers increased by about 40 percent passing from 250 to about

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categorical variables denoting respectively the location, nature of the contractor (church, household, king, lord, state), and the occupation of the worker; “skill” that is a dummy taking value 1 if the worker is skilled and 0 otherwise. Predictions are robust to the presence of outliers.

<sup>8</sup> I used the procedure illustrated in Cameron and Trivedi (2009, p. 103) to pass from values in log to values in level.

<sup>9</sup> This was obtained multiplying by 3.15 times the consumer price index and dividing by the nominal wage (Allen and Weisdorf 2011).

350 days between 1400 and 1800.<sup>10</sup> To heighten any contrast, starting from an actual working year of about 300 days in the nineteenth century, I simulate the effect on real wages of a work-year increase of almost the same order of magnitude (from about 220 to more than 300 days) between 1400–1860. I then use these results to compare the evolution of real wages obtained by assuming a fixed working year with alternative scenarios that hypothesize industrious revolutions of various degree (Figure S1.6). Figure S1.7 shows that the level and trend predictions are broadly similar across different specifications even if real wage growth is higher because the numbers of days worked per year increase substantially by the eighteenth century.

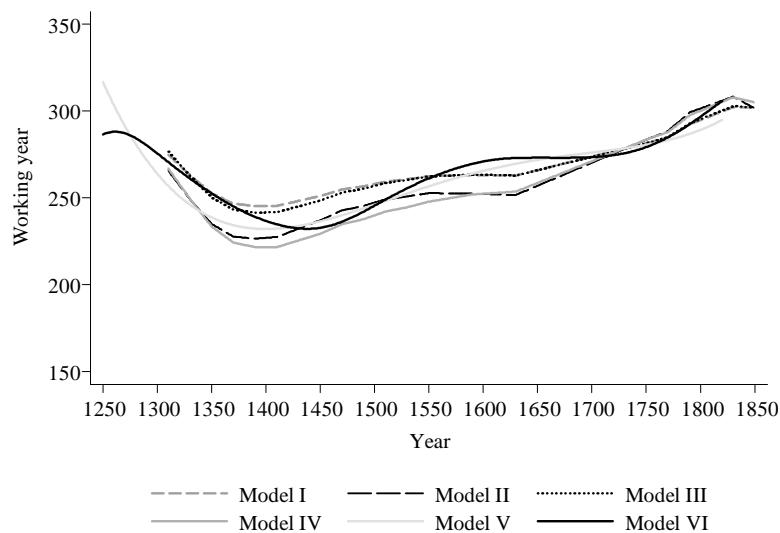


FIGURE S1.6  
SENSITIVITY ANALYSIS: TRENDS IN WORKING YEAR

*Notes:* The trends of Models I to IV are obtained by applying an eight-degree polynomial fitting to the values illustrated in Table S1.5. The trend of Model 5 is obtained by fourth-degree polynomial fitting of the implied working year of urban laborers, while the trend of Model VI is obtained by regressing the series of the implied working year on time using a LOWESS regression model with bandwidth at 0.6. To fix the trends of Models V and VI at an appropriate level, values are normalized multiplying them by the ratio between calendar year in 1750 (280 days based on García-Zuñiga (2014, p. 76)) and the mean value of the implied working year in 1740–49.

<sup>10</sup> Similar results are obtained by considering the series of building craftsmen and agricultural laborers.

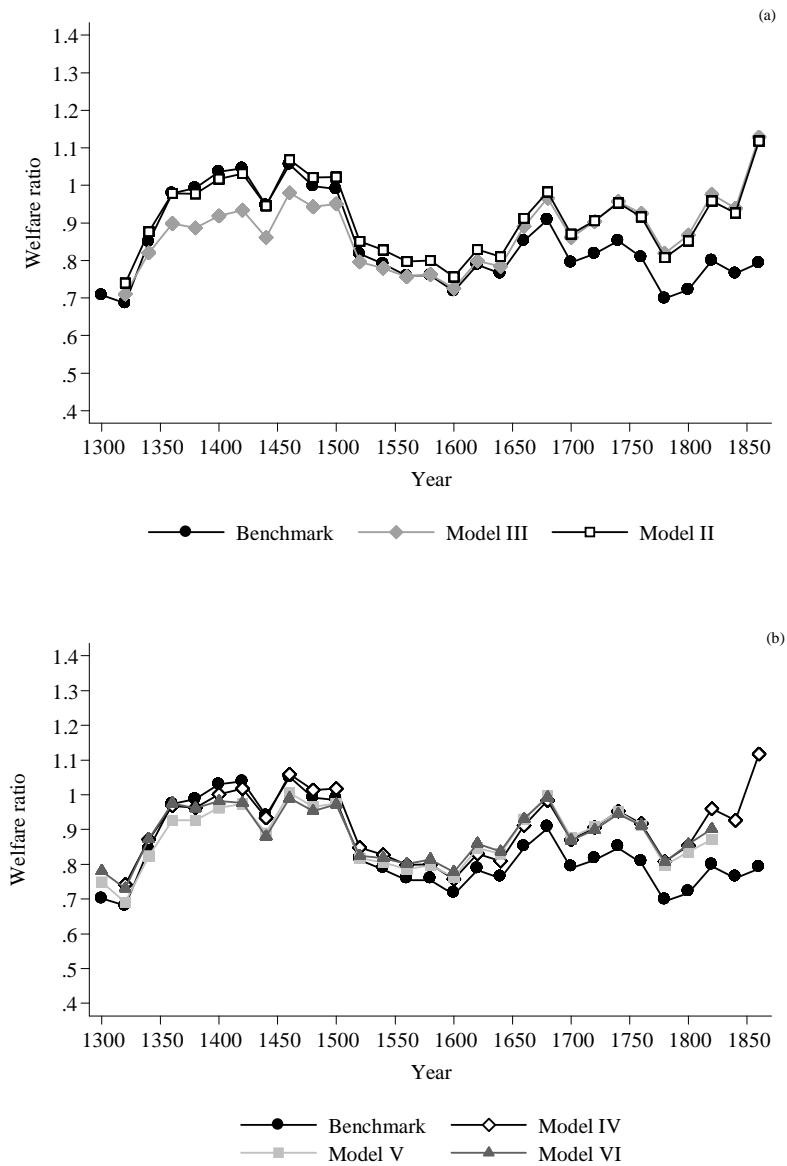


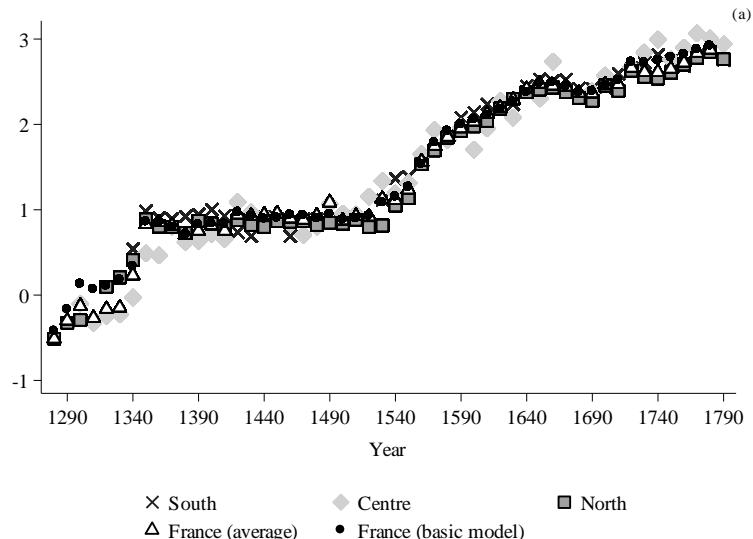
FIGURE S1.7  
INDUSTRIAL REVOLUTION AND REAL WAGES: SENSITIVITY TESTS  
*Sources and Notes:* The series refer to building laborers' real wages.

### *Spatial coverage*

Looking at the map of nominal wage dispersion in the nineteenth century rural France, Yvonne Crébouw (1986, pp. 733–39) concluded that there existed two France: “one of low wages and payments in kind in the Northwest, North, and Southwest and another of middling or high wages in the North (dominated by Paris and the Normandy region), and even the Center....”

In the first half of the nineteenth century, the nominal wages of skilled construction workers followed a similar spatial pattern (Désert 1971, pp. 91–93). This evidence suggests that geographically diverse evidence must be treated with care to avoid the introduction of misleading trends associated with compositional shifts.

The basic specification illustrated in the text (equation 1) includes location-fixed effects.<sup>11</sup> Nevertheless, I perform several other tests to address concerns about possible differences in regional wage trends and check the sensitivity of results to the unequal spatial distribution of the data. Simple visual inspection of the raw averages by occupation reassuringly confirms that the aggregate and regional series of nominal day wages had remarkably similar trends and tracked closely the evolution of the basic model. The few differences in the level of wages can be ascribed to oversampling from rural areas (eighteenth century wage series for the North) and large urban centers (seventeenth century rural wages for the South due to oversampling from Provence) or to specific local contingencies (fourteenth century urban wages for the South due to the high rates paid in Haut-Dauphiné during the war period (Nicolas 2005)).



<sup>11</sup> Notice, that due to the distinctively high rates paid in Paris, I fitted a separate regression model for the Paris district (see text). The nominal wage series for Paris are based on the following sources: Baulant (1971, 1976), Beutler (1971), Bordier and Brièle (1877), Bos (2003), Chabert (1949), Coyecque (1889), Dupré de Saint-Maur (1746), Durand (1966), Faignez (1877), Fourquin (1964), Geremek (1962), Husson (1875), Meuvret (1977), Potofsky (2014), and Rougerie (1968).

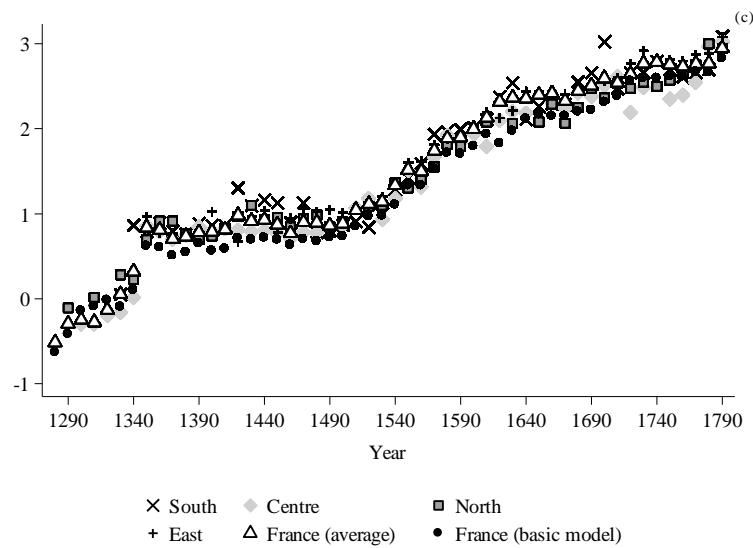
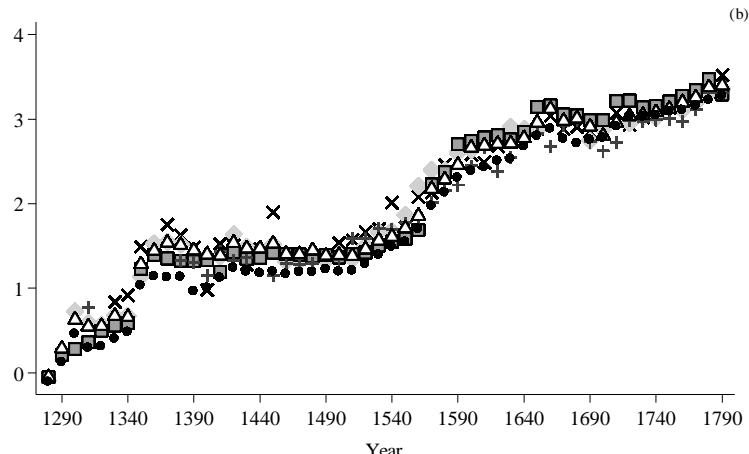


FIGURE S1.8  
NOMINAL WAGES OF BUILDING LABORERS (a), BUILDING CRAFTSMEN (b), AND AGRICULTURAL LABORERS (c):  
REGIONAL PATTERNS

*Sources and Notes:* see the text. Nominal wages are expressed in sous tournois per day. France (basic model) refers to the predictions of the benchmark specification (equation 1) illustrated in the text.

Second, as the distribution of wages by region indicates that the South accounts for only about 16 percent of total observations, I construct new Southern wage series for urban and agricultural laborers to check their consistency with respect to the national averages. This exercise suggests that the Southern series (the raw averages and the estimates from the regression model) fit well the trend predictions of the national sample (Figure S1.9) but there are differences in the level of nominal wages. In particular, wages seem to be higher in Provence than in Languedoc and in the South-West, primarily due to the high rates paid in Cavaillon (Rosenthal 1992) and Aix-en-Provence (Baherel 1961) by the end of the sixteenth century. These spatial differences explain why the Southern wage series (raw average), oversampling from Provence, tend to predict higher wages than in France. Nevertheless, after controlling for the various sources of heterogeneity

(location, season, source, and occupation), the level of wages in the South becomes very close to the predictions of the aggregate series (Figure S1.9).

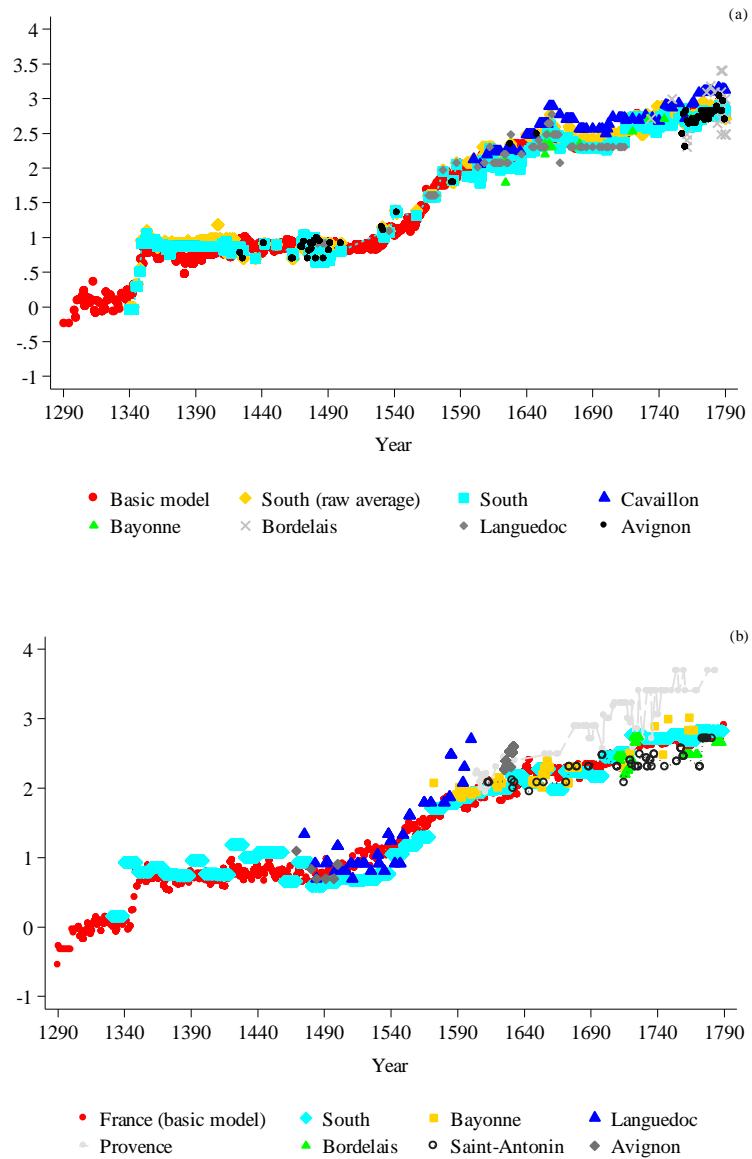


FIGURE S1.9

#### NOMINAL WAGES OF BUILDING (a) AND AGRICULTURAL (b) LABORERS IN FRANCE AND THE SOUTH

Sources: Avignon, France, and South, see the section ‘Sources of wages and prices’ of the Online Appendix S1; Cavaillon, Rosenthal (1992); Bayonne, AD Pyrénées-Atlantiques (see the section ‘Sources of wages and prices’ of the Online Appendix S1); Bordelais (Poussou 1983); Languedoc (Le Roy Ladurie 1976); Provence (Baehrel 1961); Saint-Antoin (Hauser 1936).

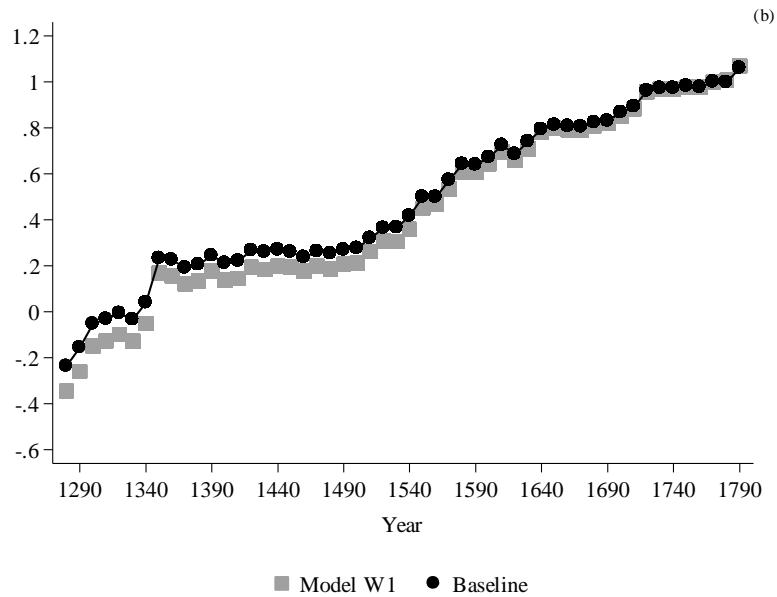
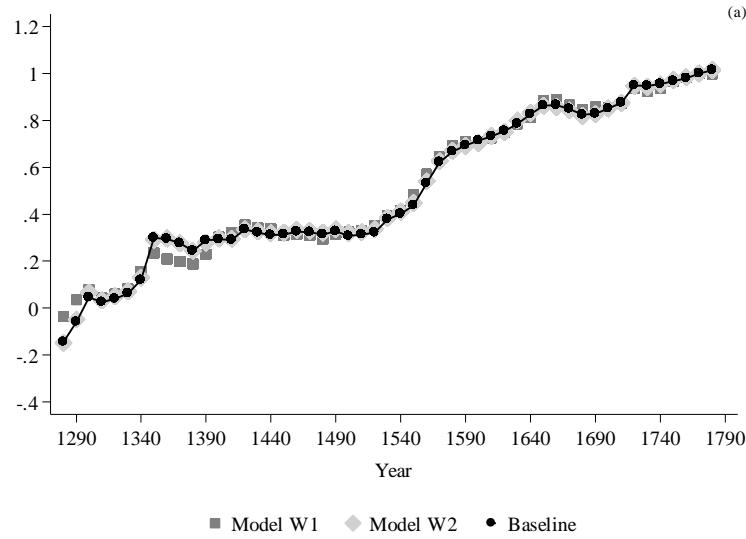
Notes: See Tables S1.3-S1.5 for a description of the controls used in the various specifications. Nominal wages are expressed in local currency (sous tournois per day).

Third, as indicated in the text, to control for differences in regional wage movements I add to the basic specification an interaction term labeled *DPERDREGDSEAS*, where *DPER* is an indicator for each of the 50-year intervals starting from 1250–1299, 1300–1349, ..., 1800–1849, and 1850–1860, *DREG* is an indicator

variable for each of the five regions (Paris Basin, Centre, East, North, South), and *DSEAS* is a seasonal indicator (Model W2).

$$\begin{aligned}\ln(w_{it}) = & \sum_i \alpha_i LOC_i + \sum_t \beta_t D_t + \sum_k \gamma_k DOCC_k + \sum_l \delta_l SOURCE_l \\ & + \sum_m \sum_n \sum_j \varphi_{mnj} DPER_m DREG_n DSEAS_j + \varepsilon_{it}\end{aligned}$$

Finally, as explained in the text, I fit a weighted regression model that assigns greater weight to observations that have lower spatial coverage (Model W1). Figures below show that the predictions of the basic model are broadly consistent with the values estimated using these weighted approaches.



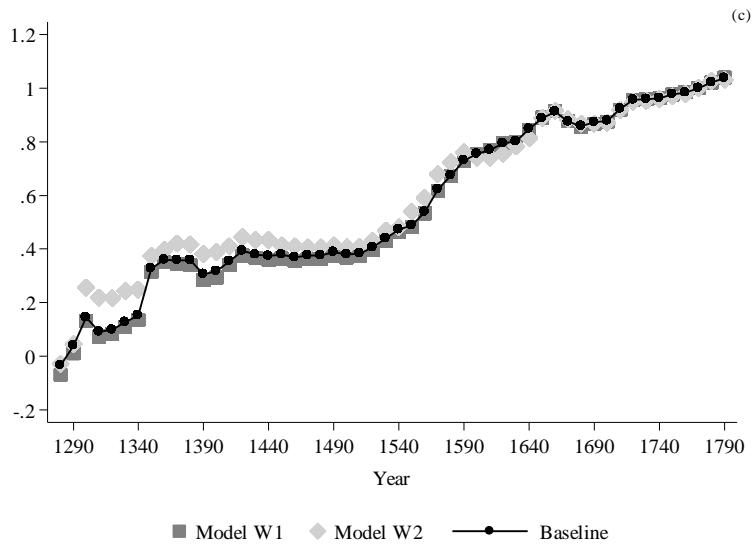


FIGURE S1.10

SPATIAL DISTRIBUTION OF THE DATA: NOMINAL WAGES OF FRENCH BUILDING LABORERS (a), FRENCH AGRICULTURAL LABORERS (b), AND FRENCH BUILDING CRAFTSMEN (c)

*Notes:* See Tables S1.3- S1.5 for a description of the controls used in the various specifications. “Baseline” refers to the predictions of the benchmark specification illustrated in the text (equation 1).

#### *Comparison between raw and corrected averages*

Prior to 1790, the wage observations come from a variety of places across France while, after 1790, I mostly rely on national enquiries and a set of secondary sources detailing the evolution of nominal wages in the form of annual or quinquennial indices. In particular, I use the indices of construction wages devised by Kuczynski (1946) and Chabert (1949) as well as industrial workers’ wage series estimated by Levy Leboyer (1971, p. 490, Tab.2 first column “Indices des salaries”).<sup>12</sup> To fix these indices at an appropriate national level, I assume that the wage of a mason averaged 30 sous in 1790 and about 47 in 1855 while the building laborer’s wage averaged 18 sous in 1790 and about 30 in 1860.<sup>13</sup>

Figure S1.11 checks the consistency of this procedure by comparing the raw average to the estimated national wage derived from the regression. Prior to 1700, on average, the raw means are between 2 and 8 percent higher than the values predicted by the model.<sup>14</sup> The source of this deviation is that in earlier decades, wages are drawn more heavily from high-wage areas near urbanized locations. In contrast, after 1700, the estimated nominal wages of construction workers average slightly above the raw averages, as the

<sup>12</sup> Levy Leboyer’s (1971) index mostly relies on Simiand’s (1932) data and is obtained by aggregating the wages of construction workers and those employed in other industrial sectors.

<sup>13</sup> The wage of a mason in 1855 comes from the *Statistique Générale de la France, tome XII* and this value is used to convert Kuczynski (1946) and Levy Leboyer’s (1971, p. 490) indices. The 1790’s benchmark corresponds to the wage of a mason in France in 1790 according to Young (1882, vol. 2, p. 363). I used the 1790’s benchmark to convert Chabert’s (1949) index. The wage of a building laborer in 1790 is the average (rounded by default) between Avenel (1898) and Young’s (1882, vol. 2, p. 363) estimations. I used this benchmark to extrapolate Kuczynski (1946) and Chabert’s (1949) indices. The 1860’s value (obtained by extrapolating forward Kuczynski’s (1946) series) is used to convert Levy Leboyer’s (1971) index.

<sup>14</sup> Between 1250 and 1700, the raw average daily wages of agricultural laborers, building laborers, and building craftsmen are about 8 percent, 8 percent, and 2 percent above the estimates, respectively.

regression equation corrects for the relative under-representation of more urbanized regions. In addition, Table below suggests the estimated level of agricultural laborers and building craftsmen's wages is very close to the national averages derived from a set of broad cross sections available in the period 1789–1862. In particular, the estimates (building craftsmen) are 2 percent above the benchmarks reported in Table S1.7. The reason for this difference may be that the benchmarks concern masons' wages while the predictions come from a varied number of occupations that are usually paid more than masons. In addition, the wages of agricultural laborers average c.2 percent below the benchmarks between 1789 and 1862.

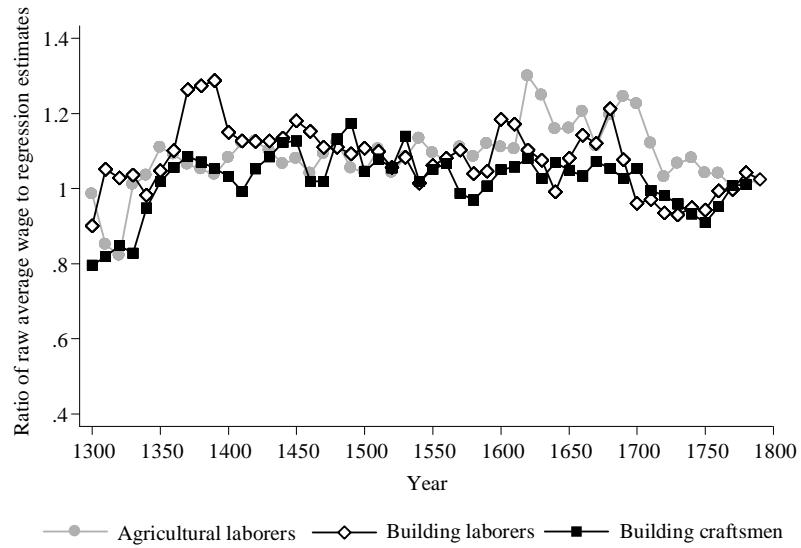


FIGURE S1.11  
ESTIMATED NOMINAL DAILY WAGES OF FRENCH WORKERS COMPARED TO THE RAW AVERAGES  
*Sources:* See text.

TABLE S1.7  
COMPARISON OF NOMINAL WAGES WITH BENCHMARK ESTIMATES

Period	Source	Coverage	Occupation	Benchmark	Regression	Difference (%)
1824–1833	SGF (1863)	all departments	Building craftsmen	40.0	41.5	3.8
1834–1843	SGF (1863)	all departments	Building craftsmen	41.4	41.3	-0.2
1844–1853	SGF (1863)	all departments	Building craftsmen	43.0	43.0	0.0
1854	SGF (1863)	all departments	Building craftsmen	45.2	46.2	2.1
1855	SGF (1863)	all departments	Building craftsmen	46.8	47.0	0.3
Overall period						<b>1.2</b>
1789	Postel-Vinay (1989)	17 departments	Day-laborer	17.9	17.6	-1.8
1790	Postel-Vinay (1989)	17 departments	Day-laborer	19.0	18.6	-2.2
1801	Simiand (1932)	16 depertments	Day-laborer	26.6	25.9	-2.5
1801	Postel-Vinay (1989)	17 departments	Day-laborer	26.4	25.9	-1.6
1802	Simiand (1932)	16 departments	Day-laborer	26.6	26.1	-2.0
1839–1845	Chanut et al. (1995)	21 regions	Agricultural worker	28.2	27.8	-1.4
1860–1865	Chanut et al. (1995)	21 regions	Agricultural worker	37.0	36.0	-2.8
1852	Chanut et al. (1995)	21 regions	Agricultural worker	28.2	27.6	-2.1
1852	Simiand (1932)	all departments	Day-laborer	28.2	27.6	-2.1
1862	Chanut et al. (1995)	21 regions	Agricultural worker	37.0	35.9	-3.1
Overall period						<b>-2.1</b>

### *Sources of wages and prices*

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Arch. dép. Hérault 14 PRI 1 Montady. Comptabilité: comptes annuels en recettes et dépenses du trésorier, pièces justificatives. 1814–1885

Arch. dép. Hérault 115 J 60 Comptabilité des constructions. 1787–1941

Arch. dép. Hérault 53 PUB 1 Réparations des murailles de la ville de Montpellier: comptes des recettes et dépenses. 1587–1590

Arch. dép. Landes, Paiement des inspecteurs et ingénieurs des Ponts et Chaussées, 1 C 151. 1770–1778

Arch. dép. Landes, Paiement des inspecteurs et ingénieurs des Ponts et Chaussées, 1 C 152. 1769–1789

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 100

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 101

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 102

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 105

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 108

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 109

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 112

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 113

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 118

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 120

Arch. dép. Pyrénées-Atlantiques Couvent des Jacobins de Bayonne Comptes des recettes et dépenses, H 121

Period: 1572–1737

Arch. dép. Pyrénées-Atlantiques Couvent Sainte-Claire de Bayonne, Registres des recettes et des dépenses, H 175

- Arch. dép. Pyrénées-Atlantiques Couvent Sainte-Claire de Bayonne, Registres des recettes et des dépenses, H 176
- Arch. dép. Pyrénées-Atlantiques Couvent Sainte-Claire de Bayonne, Registres des recettes et des dépenses, H 177
- Arch. dép. Pyrénées-Atlantiques Couvent Sainte-Claire de Bayonne, Registres des recettes et des dépenses, H 178
- Arch. dép. Pyrénées-Atlantiques Couvent Sainte-Claire de Bayonne, Registres des recettes et des dépenses, H 179
- Period: 1646–1770
- Arch. dép. Pyrénées-Atlantiques Couvent des Carmes de Bayonne, Comptes des recettes et dépenses, H 124. 1763–1775
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, Dépenses hebdomadaires, H Dépôt Bayonne E 63–71. 1722–1791
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, Comptes de recettes et dépenses établis par le trésorier, H Dépôt Bayonne E 81. 1668–1670
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, États de dépenses faites par l'hôpital, H Dépôt Bayonne E 85. 1672–1678
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, États de dépenses faites par l'hôpital, H Dépôt Bayonne E 86. 1691
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, États de dépenses faites par l'hôpital, H Dépôt Bayonne E 87. 1692–1696
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, États de dépenses faites par l'hôpital, H Dépôt Bayonne E 88. 1697
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, Comptes et quittances, H Dépôt Bayonne E 89. 1660–1666
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, Comptes et quittances, H Dépôt Bayonne E 90. 1721–1722
- Arch. dép. Pyrénées-Atlantiques Fonds de l'hôpital de Bayonne, Quittances et mandats de paiement, H Dépôt Bayonne E 91. 1766
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- Arch. dép. Vaucluse H Dépôt Avignon, Saint-Bénézet E 28. 1424–1463
- Arch. dép. Vaucluse H Dépôt Avignon, Saint-Bénézet E 29. 1433–1481
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- Arch. dép. Vaucluse H Dépôt Avignon, Saint-Bénézet E 40. 1534–1535
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- Arch. dép. Vaucluse H Dépôt Avignon, Saint-Bénézet E 44. 1542–1599
- Arch. dép. Vaucluse H Dépôt Avignon, Saint-Bénézet E 46. 1724–1745
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## *Online Appendix S2: Prices: sources and methodology*

### *Price series*

The price data used in this study come from two main source types: the account books of hospitals and religious institutions and the market-price lists (*Mercuriales des prix*). The former primarily report wholesale prices while the information found in the latter more closely reflects the rates paid by ordinary consumers. The market price lists are official tables registering current prices of commodities (mainly cereals) sold on the markets. While the combination of diverse source material can potentially underestimate the consumption basket cost, there are several elements that provide confidence in the figures offered here.

First, by far and large, the prices of wheat, legumes, and wine come from the official market price lists and together these items account for a large share of total expenditure.<sup>15</sup> For instance, about 72 percent of wheat prices derive from the market price lists while only 16 percent come from the account books of religious or public institutions. In addition, almost 60 percent of the prices of legumes are taken from the market price lists while only 30 percent are drawn from the account books of large institutions. The percentages are similar for wine: about 50 percent originate from the market price lists while about 30 percent are institutional.<sup>16</sup>

Second, the comparison between market and institutional prices suggests that the gap was relatively small. For example, between 1801 and 1860, beef prices from the market price list of Strasburg average about 15 percent above those recorded in the account books of Strasburg's hospital. The gap is similar for olive oil (15 percent between 1820 and 1860) but lower for eggs (2 perce between 1838 and 1860), and butter (9 percent in the period 1821–1860).<sup>17</sup> Furthermore, Baulant (1968, pp. 529–30) found almost no difference between the fifteenth century prices of wheat registered in the account books of the college of Beauvais and those reported in the market price list of Paris. I also test the significance of this gap for wheat and wine prices by adding to the basic model a dummy variable equaling one if the price comes from a market price list and zero otherwise.<sup>18</sup> I find that in both cases the gap is close to the numbers illustrated above and not statistically significant.<sup>19</sup>

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<sup>15</sup> Almost 70 percent in the geometric index of type I and 56 percent in the geometric index, type II (Table S2.3).

<sup>16</sup> The remaining share comes from a set of secondary sources that combine institutional and market prices.

<sup>17</sup> Computations are based on Hanauer's (1878) data.

<sup>18</sup> Lack of sufficient information prevents me from extending this check to the overall set of items included in the basket. For instance, some secondary sources used a mixed of institutional and market prices while others did not specify the type of price (wholesale or retail). See Grenier (1985). In addition, institutional and market prices are unevenly distributed over time. The first

Third, since other authors rely on analogous source types, the use of such material should not affect the comparison of real wages (Allen 2001; Pfister 2017).

Figure S2.1 shows the distribution of price quotes over time. The number of observations increases over time, especially after the early sixteenth century with the beginning of the first market price-lists and the rise of the first official state statistics (1690–1789).<sup>20</sup>

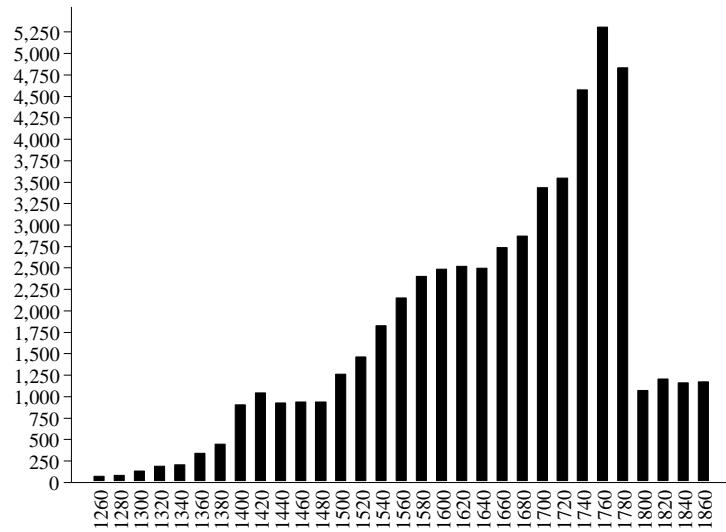


FIGURE S2.1  
NUMBER OF PRICE OBSERVATIONS OVER TIME

*Notes:* Observations are computed on 20-year windows. For example, 1260 includes the observations from 1250 to 1269.

Due to the dearth of direct information, I estimate the price of bread following the procedure originally proposed by Allen (2001). In this section, I check whether the coefficients of Allen's (2001) bread equation can be suitably applied to the French context. First, I assemble a dataset including 1,968 observations (matched triples) on the prices of bread, wheat, and craftsmen's wages (assumed as representative of baker's income) for the period 1250–1820. I estimate the coefficients of the bread equation regressing bread prices in kilogram on wheat prices in liters, craftsmen's day wages expressed in local currency, and a set of regional-dummies to capture differences in tax and regulatory regimes across space (Table S2.1).

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*mercuriales* start in the late fifteenth century, while most of the fourteenth to sixteenth centuries prices come from religious or public institutions.

<sup>19</sup> The coefficient of the price of wheat coming from the market price lists is 0.11 and the p-value is 0.904. The coefficient of the price of wine is negative (-0.02) with a p-value of 0.901.

<sup>20</sup> For a more extended analysis of the market price-lists, see for example Frêche (1979).

TABLE S2.1  
BREAD EQUATION

	Bread price
Wheat price	1.257 *** (49.90)
Wage	0.017 *** (7.98)
Paris Basin's dummy	0.384 *** (7.74)
Center's dummy	0.529 *** (9.47)
Île-de-France's dummy	0.266 *** (5.22)
South's dummy	0.195 *** (3.87)
Constant	0.043 (1.09)
Observations	1968

\* = Significant at the 5 percent level.

\*\* = Significant at the 1 percent level.

\*\*\* = Significant at the .05 percent level.

Notes: *t* statistics in parentheses. Sources: See the text.

The coefficients of the wage rate and the price of wheat are broadly consistent with Allen's (2001) predictions and the regional dummies are positive and strongly significant, with the coefficients measuring deviations from the East. I use the coefficients of the bread equation to compute bread prices for France. Figure S2.2 shows my estimates match almost exactly the bread series obtained using Allen's (2001) coefficients. Similarly, my bread price series for Paris is broadly consistent with Allen's figures (Figure S2.2).<sup>21</sup>

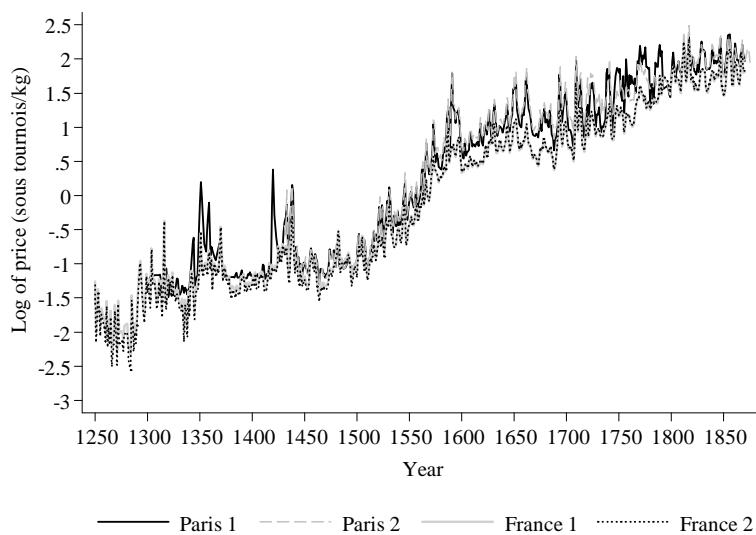


FIGURE S2.2  
BREAD SERIES

Notes and Sources: France 1, France 2, and Paris 1, this study. Paris 2, Allen (2001). The series France 1 and Paris 1 use the coefficients (constant, coefficient on wheat price and craftsmen wage) of Allen's (2001) bread equation while France 2 the coefficients illustrated in Table S2.1.

<sup>21</sup> Both of them are obtained using Allen (2001)' coefficients and the differences are related to variations in the series of wheat prices and craftsmen wages.

To derive the price of meat, I follow an analogous procedure because few of the price quotes before 1500 regard meat by the kilogram. However, instead of assuming a constant or variable weight for cattle over time, I use animal prices to fit a meat equation and obtain meat prices by the kilogram.<sup>22</sup> As animal quotes regard both cow and calf whose weights vary by about 2:1 over the years 1250–1789, I first reduce variability by extrapolating calf prices using cow prices. I then regress the meat price by the kilogram on the animal price and the craftsmen's wage that captures the income of the butcher (Table S2.2). I also include a Paris dummy as well as time dummies to control for time, city effects, and variations in tax regimes across space. The resulting estimates are broadly consistent with the price of beef by the kilogram. I finally compute the price of beef as an arithmetic average of the two series.

TABLE S2.2  
MEAT EQUATION

	Beef price (kg)
Beast price	0.007*** (8.38)
Wage	0.156*** (7.39)
Paris dummy	7.161*** (8.28)
Modern era' dummy	0.581 (1.15)
Post-Revolution's dummy	0.140 (0.20)
Constant	-0.016 (-0.04)
Observations	170

\* = Significant at the 5 percent level.

\*\* = Significant at the 1 percent level.

\*\*\* = Significant at the .05 percent level.

Notes: *t* statistics in parentheses.

Sources: See the text. The time dummies correspond to the following spells of time: 1250s–1540s; 1550s–1780s; 1790s–onwards.

Furthermore, several gaps in the series of cheese are extrapolated using butter. The lighting component of the basket includes firewood, candles, and oil light whose prices are drawn from lower quality oils as olive oil was used for consumption. Firewood was sold in various forms including price in sous tournois per stere and per hundred bundles of faggots. Whereas all data are expressed as price by the cubic foot (stere), to increase the sample dimension, I extrapolate some prices per stere from the price by the unit (hundreds, thousands etc) and finally convert firewood prices in local unit of account per millions of BTUs (Allen 2001). Furthermore, I fill the several gaps in soap prices using candles and linearly interpolate the intervening gaps in the various prices series.

As one goes back in time, the evidence becomes scarcer and prior to 1300 there are no prices of dairy and textiles products. To address this concern, I construct a partial cost of living index using the prices of

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<sup>22</sup> The beef price series in Paris starts in 1649 and regards meat by the kilogram.

available goods. The spending shares of missing items during the Middle Ages are rather stable, so I assume that the resulting partial cost represents, in percentage terms, the total minus the average expenditure share of missing items computed in the first overlapping decade. I finally divide the partial expenditure by the estimated share it represents in total cost.<sup>23</sup> Even though this procedure is prone to errors, it has little impact on final results because I am able to estimate at least 90 percent of total expenditure by the 1290s. For earlier decades this percentage never falls below 63 percent.

### *The consumer price index*

As pointed out in the text, I follow Allen's (2001) barebones basket methodology to construct the consumer price index. To check the consistency of this benchmark, in what follows I present two alternative specifications that differ in terms of weights and methods used for construction. First, as different formulae may suggest opposite conclusions I estimate a geometric price index by setting the spending share on bread at 0.5 and proportionately reducing expenditure share on other items according to their daily caloric intake (first column of Table S2.3). Second, I construct a geometric price index looking at the patterns of change of consumption in the French economy. Weights are suggested by examining the expenditure shares of 116 family budgets for the period 1343–1787 and a set of nineteenth century consumption bundles (Chabert 1949, vol. 2, p. 226; Lévy-Leboyer and Bourguignon 1985, pp. 23–42).<sup>24</sup> Most of the budgets detail food expenditure but do not provide information about lighting and clothing, especially for earlier periods. However, nineteenth century records indicate that energy and clothing accounted for about 20 percent of total expenditure excluding rents and this share was relatively higher for city dwellers than rural workers. The remaining 80 percent was spent on food, although this proportion decreased in the course of the nineteenth century (Lévy-Leboyer and Bourguignon 1985, p. 32 and p. 40). Overall, the preferred weighting scheme is very close to Allen's (2001) spending shares and reflects a low standard of living (second column of Table S2.3). Figure S2.3 suggests differences in the price series are negligible while inspection of Figure S2.4 indicates that my French consumer price index is broadly consistent with Lévy-Leboyer and Bourguignon (1985) and Bayet's (1997) series.<sup>25</sup>

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<sup>23</sup> I tried different computational schemes varying the number of decades on which computing the averages and taking into account the economic trend. These changes have little bear on final results.

<sup>24</sup> See also Ridolfi (2016, pp. 81–84).

<sup>25</sup> My index is relatively more erratic because it tracks closely the evolution of the price of bread.

TABLE S2.3  
CONSUMER PRICE INDEX: DIFFERENT WEIGHTING SCHEMES

Good	Scheme I	Scheme II
Bread	50.0	30.0
Beans/peas	3.6	6.0
Beef	8.4	14.0
Butter	3.0	5.0
Cheese	2.4	4.0
Eggs	0.6	1.0
Wine	12.0	20.0
Soap	2.0	2.0
Linen	6.0	6.0
Candles	3.0	3.0
Oil light	4.0	4.0
Firewood	5.0	5.0
Total	100.0	100.0

*Sources:* Scheme I: Allen (2001).

Scheme II: Between 1343–1787: Bernard (1969), Boehler (1995), Charbonnier (1975), Chevalier (1968), Couperie (1963), Endres (1968), Frijhoff and Julia (1975), Le Roy Ladurie (1966), Morineau (1985), Piponnier (1974), Stouff (1970), Vedel (1975), and Villemont (1971). Thereafter, Chabert (1949, vol. 2, p. 226) and Lévy-Leboyer and Bourguignon (1985, pp. 23–42).

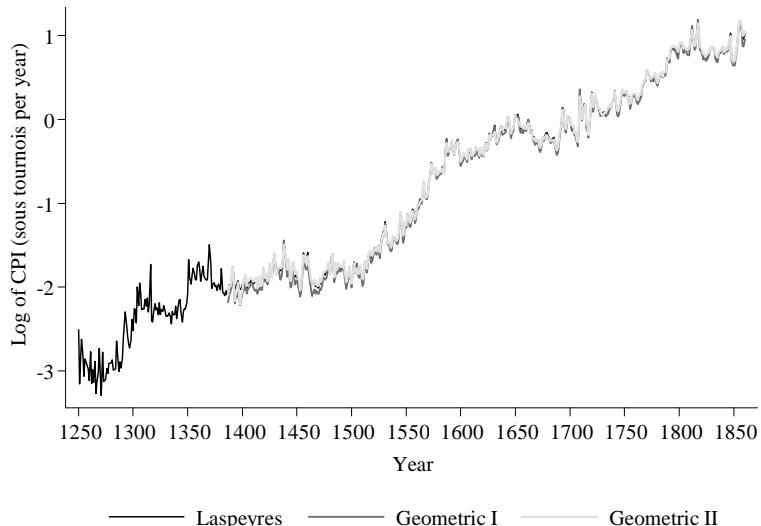


FIGURE S2.3  
COMPARISON BETWEEN DIFFERENT CONSUMER PRICE INDICES FOR FRANCE  
*Sources:* See text.

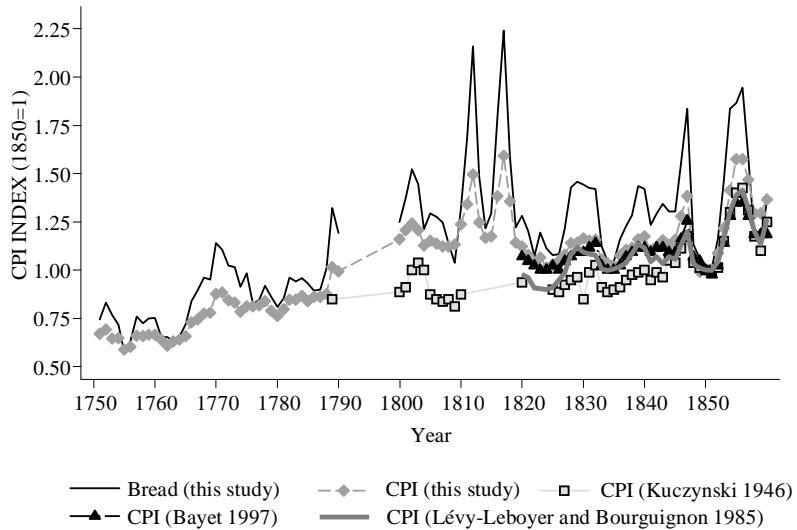


FIGURE S2.4  
DIFFERENT NATIONAL PRICE INDICES FOR THE 18<sup>th</sup> – 19<sup>th</sup> CENTURIES

Sources: Bayet (1997); Kuczynski (1946); Lévy-Leboyer and Bourguignon (1985); This study: benchmark index constructed with the weights presented in the main body of the article (Tab 1).

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### Online Appendix S3: Real wages

#### Paris welfare ratios

To check the consistency of Paris welfare ratios for building laborers I construct an alternative series using Philip Hoffman's database of prices and wages in Paris.<sup>26</sup> Figure below suggests that my welfare ratios track closely the evolution of this new series and both are consistent with Allen's (2001) estimates.

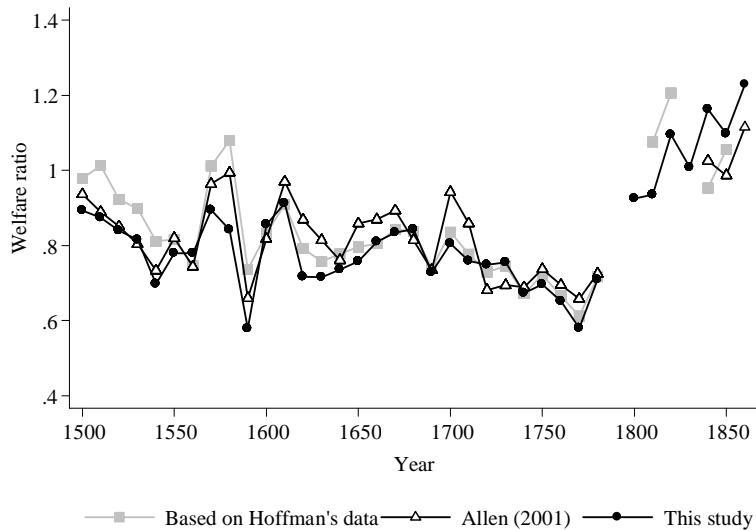


FIGURE S3.1  
PARIS WELFARE RATIOS

*Notes and Sources:* series labeled "Allen" and "This study," see text. The series "Based on Hoffman's data" refers to the welfare ratios of Parisian building laborers obtained by using Hoffman's database of prices and wages (available at: <http://gpih.ucdavis.edu/Datafilelist.htm#Europe>) and applying Allen's (2001) barebones basket methodology. The prices of cheese and oil lamp are the same as my index, while the price of bread before 1738 is estimated with Allen's (2001) bread equation using Hoffman's (1996) wheat prices and the wages of building craftsmen presented in this study. Missing prices are linearly interpolated. The comparison covers the period 1500–1860 but the information for some items is fragmented before c.1650.

#### The timing of the Little Divergence in real wages

Was the timing of the Little Divergence in real wages between England and France a distinctive feature of the English-French comparison or reflected a more general pattern of change? Figure below provides answer to this question, comparing the ratio of English to French and English to German welfare ratios of building laborers in the form of decadal averages. This comparison suggests that England began to emerge as a high wage economy relative to Germany and France after the second half of the eighteenth century.

<sup>26</sup> These data are available at: <http://gpih.ucdavis.edu/Datafilelist.htm#Europe>

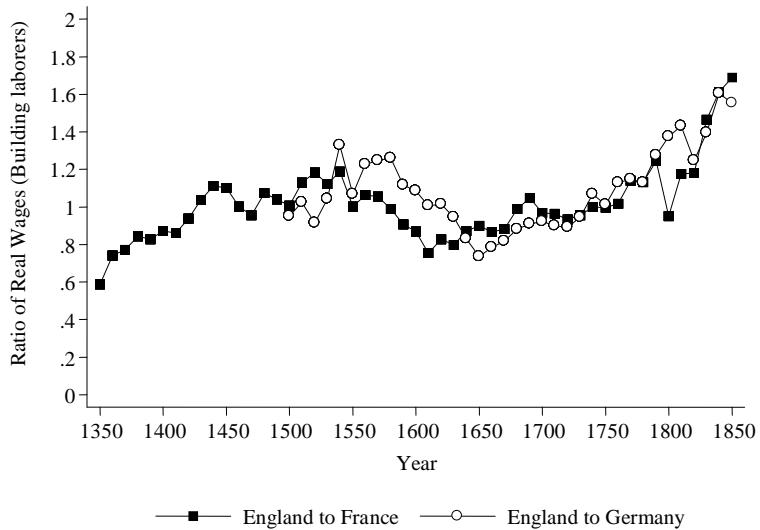


FIGURE S3.2  
RATIO OF ENGLISH TO FRENCH AND ENGLISH TO GERMAN WELFARE RATIOS

Sources: France and England: see the main body of the article. Germany: Pfister (2017, Appendix S3. Series shown in figures 2-5, sheet “Annual values”, columns b and c’s data available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/ehr.12419>

Notes: Welfare ratios for England and Germany are obtained following the same procedure as illustrated for France (Allen 2001).

In what follows, I also test the sensitivity of results to changes in the days worked per year. To make this, I test two hypotheses. First, I posit that the actual working year in France and England experienced “industrious revolutions” of varying intensity based on the trend outlined in the notes of Figure S3.3.<sup>27</sup> These trends mostly reflect changes in the days worked per year by regular workers employed in the construction industry and are consistent with the evolution of the implied working year (Appendix S1). Second, to heighten any contrast, I assume the actual working year remained fixed in France but experienced a significant increase in England based on trends outlined in notes to Figure S3.3. The results suggest that in both cases, the real wages of English building laborers started to diverge from their French counterparts by the second half of the eighteenth century (Figure S3.3).

<sup>27</sup> See Hayami (1967) and De Vries (1994) on the notion of “industrious revolution.”

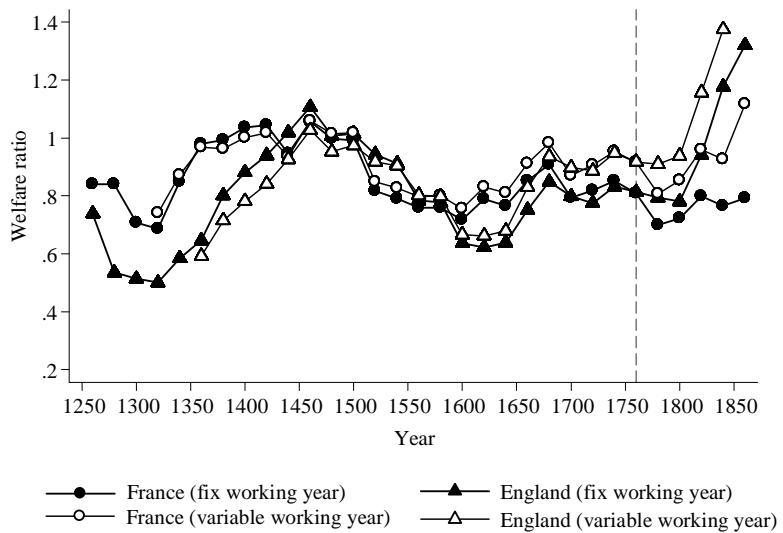


FIGURE S3.3  
INDUSTRIAL REVOLUTION AND REAL WAGES: FRANCE AND ENGLAND

*Sources:* The series with a fixed working year assume 250 days of work per year. The other series assume the following working years: for France, see the Appendix (Model IV, notes to Figure S1.6), while for England, I use the same values as France until 1559; between 1560 and 1771, Clark and van der Werf (1998); in 1750, 1800, and 1830 Voth's (2001) data as presented in Allen and Weisdorf (2011, p. 721, lower bound of non-farmers).

Finally, I test the sensitivity of results to the so-called “oatmeal effect”, namely the increase in the level of welfare ratios deriving from the estimation of an oats-based basket instead of a bread-based one.<sup>28</sup> To test this argument, I estimate a new consumer price index using the weighting scheme proposed by Allen et al. (2011, Tab.4, p. 21). Basically, this basket provides the same amount of calories as the benchmark specification but these now come mainly from the cheapest carbohydrates (oats instead of wheat or white bread). Furthermore, the consumption bundle contains a lower amount of meat and legumes and implies a reduction in the quantity of most non-food produces by about half (candles, soap, and linen). As expected, this change in the structure of consumption raises substantially the welfare ratios of building laborers. However, the main trends are not substantively altered and again the real wages of English building laborers overtake those of their French counterparts by the second half of the eighteenth century.

<sup>28</sup> See Losa and Zarauz (2016).

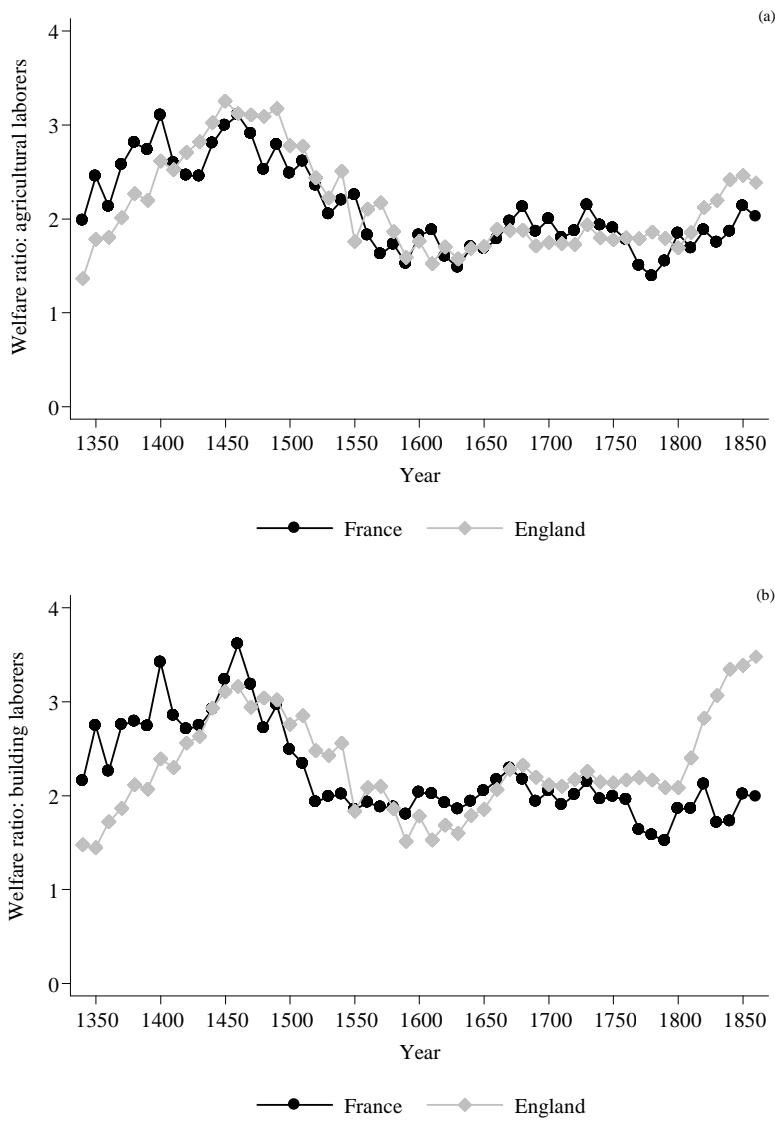


FIGURE S3.4  
OATMEAL EFFECT: REAL WAGES OF AGRICULTURAL AND BUILDING LABORERS IN FRANCE AND ENGLAND  
Sources: France: this study. England: see text. Oats prices come from Clark's dataset (Clark DB) available at <http://www.iisg.nl/hpw/data.php> (English prices and wages, 1209–1914).

#### *Real wages in the capital city and the rest of the country*

In this section, I analyze the difference in living standards between the capital city and the rest of the country by plotting the ratio of real wages between Paris-France and London-England. Furthermore, I explore the sensitivity of results to various changes in the structure of consumption and employment behavior.

First, I assume that the expenditure share on rent was twice as high in Paris than in France. However, nineteenth century evidence suggests that the extent of the gap could have been even lower than this (Lévy-Leboyer and Bourguignon (1985, p. 32); Hoffman et al. (2005, p. 141)).<sup>29</sup>

<sup>29</sup> French rural workers could have experienced lower prices, compared to city dwellers, because of auto-consumption, and the low per capita meat consumption (Weir 1997, pp. 170–74). For instance, in eighteenth century France, according to Expilly (quoted in Toutain 1961, p. 162), per capita meat consumption in the countryside was five times lower than in the cities.

Second, to the extent that the more diversified economic structure of the capital city could offer greater job opportunities and less discontinuous employment, I posit that the working year lasted 25 percent more in Paris than in the rest of the country.<sup>30</sup> Taken separately, these assumptions pull the results in opposite directions, increasing or reducing the scope of the gap illustrated in the text. Thus, to obtain a plausible range of variation I test either separately and jointly the effects of these assumptions. In the absence of more precise information, I compute the ratio of London to England's building laborers real wages, using the same set of assumptions. Figure S3.4a shows the inclusion of a greater expenditure share on rent reduces very slightly the gap between Paris and France compared to the "Basic" model. In contrast, differences in the days worked per year determine an upward shift of the curve. However, in both cases, Paris welfare ratios are almost on par or only slightly higher than in the rest of the country, ranging between about 0.95 and 1.1 before 1790. The evidence of heights paints a similar picture, suggesting that soldiers in Paris were shorter than average between the 1690s and 1730s while those in Île-de-France (Champagne and Normandy) were very close to the French average between the 1670s and 1750s (Komlos 2003). In addition, the widening of the gap by the 1790s suggests that the economic effects of the French Revolution and the Napoleonic interlude tended to raise real wages in Paris relative to the rest of the country. In the absence of precise information on differences in working time between Parisian and French workers, I retain the same standard duration of 250 days per year to ease international comparisons. A different picture emerges when looking at the London-England comparison. Irrespective of the assumptions about rents and days worked per year, the real wage gap between London and England was indeed large, and clearly widened between the fifteenth and first half of the eighteenth century (Figure S3.4b).

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<sup>30</sup> Eighteenth century agricultural laborers worked about 200 days per year (excluding employment outside agriculture) while industrial workers averaged about 250 days (Postel-Vinay 1994). These figures are appropriate for the purpose of defining the upper and lower bounds of the gap in rural-urban labor industriousness, but do not consider temporary and seasonal migrations of rural workers to the cities. However, mixed forms of sectoral employment can be interpreted as combinations of the upper and lower bounds defined above.

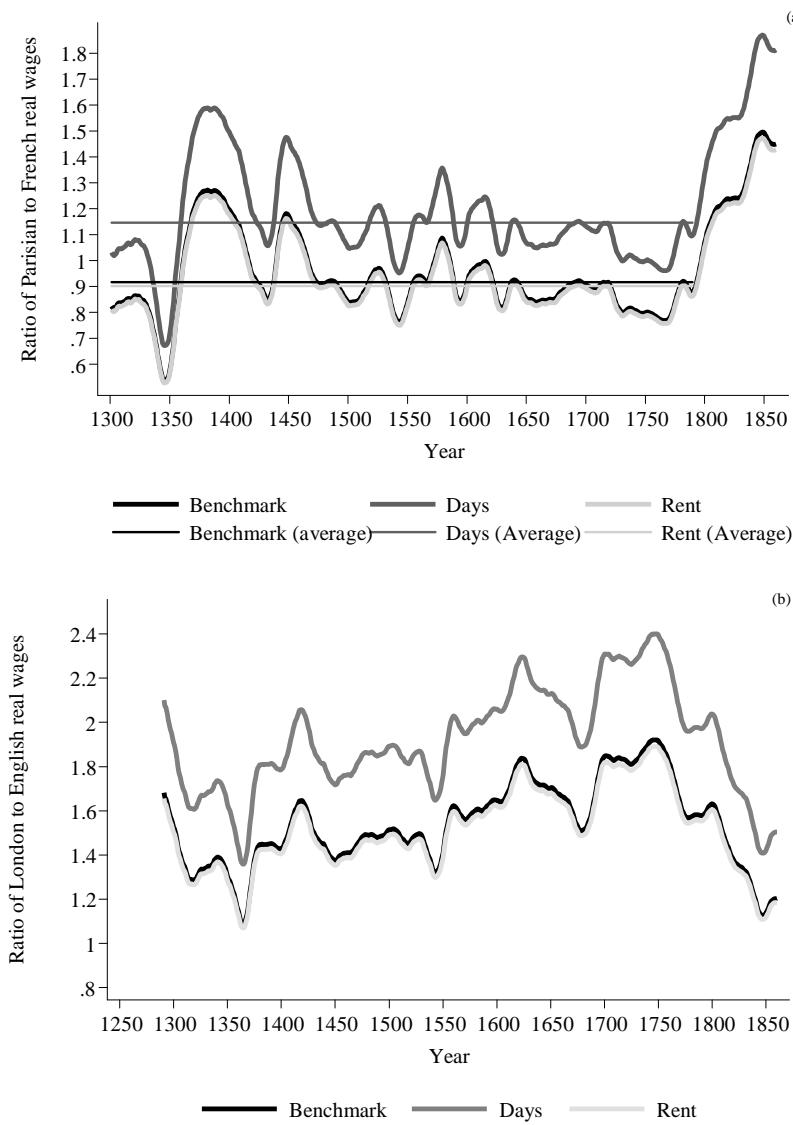


FIGURE S3.5  
REAL WAGES IN THE CAPITAL CITY AND THE REST OF THE COUNTRY

Sources: Paris and France, this study. London and England, see the text.

Notes: "Basic" refers to the ratio of Paris to French welfare ratios (same procedure as Allen (2001)). "Days" refers to the ratio of Paris to French welfare ratios obtained by assuming that the working year lasted 25 percent more in Paris than in the rest of the country. "Rent" assumes the expenditure share on rent was twice as high in Paris than in France. Similar considerations hold for the ratio of real wages between London and England.

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