IMT School for Advanced Studies, Lucca

Lucca, Italy

The French economy in the longue durée. A study on real wages, working days and economic performance from Louis IX to the Revolution (1250-1789)

PhD Program in Economics

XXIX Cycle

By

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2016

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2016

To my grandparents

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Acknowledgements

First, I would like to express my special appreciation and thanks to my supervisor Prof. Alessandro Nuvolari. He was a tremendous mentor for me and it has been an honor to grow under his supervision. The central idea behind this study originated from an informal talk we had at Sant'Anna School of Advanced Studies some years ago when I still was studying for the Master of Economics. The dissertation project that followed from the Master's thesis on the reconstruction of GDP per capita in France, was continued and broadly enlarged under his truly dedicated supervision also during the experience at IMT School for Advanced Studies Lucca. The enthusiasm he demonstrated for my research was an incredible source of motivation for me.

Similar, profound gratitude goes to my Advisor Prof. Andrea Vindigni, for his support and insightful comments. I am particularly indebted to him for having introduced me to the fascinating study of Political Economy in the many courses held at IMT School for Advanced Studies Lucca which incented me to widen my research from various perspectives and contribute to improve definitely my thesis.

Besides my advisor, I would like to thank Prof. Guido Alfani and Prof. Jacob Weisdorf for the time they spent to referee my thesis and for their useful comments.

Special mention goes to the library staff of IMT School for Advanced Studies Lucca for having provided me with the necessary documental evidence without whom this study would have not been possible. I also gratefully acknowledge the contribution of the library of Philosophy and History of the University of Pisa and the Bibliothèque nationale de France.

This work also benefited greatly from the comments received at seminars at Groningen University, IMT School for Advanced Studies Lucca and at the VI Economic History Workshop at Siena.

I am very grateful to the many friends that became part of my life during my experience at IMT School for Advanced Studies Lucca and supported me during times of intellectual stasis and personal difficulty.

A special thanks goes to my family that supported me during all the stages of my life.

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Abstract

This study addresses a gap in the existing literature concerning pre-industrial economic growth in France.
While traditionally research focused on measuring the output of specific regions (Baehrel, 1961; Le Roy Ladurie, 1966) or the estimation of national indices of production by the end of the pre-industrial era (Toutain, 1961, 1987), this study is an attempt to provide a comprehensive reconstruction of the main contours of economic growth in France from the phase of early state formation to the Revolution.
In Chapter 1 we trace the history of real wages for male construction workers and farmers in France from 1250 to 1789. Using a new extensive body of empirical evidence it is shown that real wages were trendless between the second half of 1300 and the end of the eighteenth century. We detect a single episode of sustained growth between the 1280s and the 1350s and document the existence of a large real wage gap between France and the Continent (a French Little divergence) in the post-plague era during the Hundred Years' War.
In addition, comparing wages with population we found that the inverse relationship predicted by the Malthusian theory was an exception rather than the rule.

In Chapter 2 we provide a broad characterization of working time in pre-industrial Europe concentrating on three different dimensions of time: calendar, actual and implied working year. Looking at the experience of construction workers, we provide the first direct estimates of trends in calendar, actual and implied working year in France and England from the fourteenth to the eighteenth century. By comparing the

patterns of change of time-use, and their response to variations in the institutional and market conditions, we identify two distinct regimes of industriousness featuring France and England in the pre-industrial era. In France, expansions in the offer of labour were associated with raising inflation and economic hardship. By contrast, in England, we found evidence of the existence of two phases where workers supplied more days of work to the market than required by basic household subsistence. The first episode, never documented yet, occurred between 1400 and 1500, while the second corresponded to the industrious revolution originally described by De Vries (2008). Different hypotheses are discussed to shed light on the origin of surplus labour input and its implications on the structure of consumption and production.

Chapter 3 presents new estimates of agricultural and total output per capita in France between 1280 and 1789 using the demand side approach. Overall, we find that in the course of almost six centuries, the most significant gains in living standards were reached between the 1280s, when royal power in France reached its medieval apogee, and the 1340s when the Black Death of 1348 and to a larger extent the Hundred Years' War interrupted it. Following literary evidence, we suggest that in this phase, output gains were associated with the particular form of evolution of the French monarchical state, and its ramifications on real wages through changes in class structure and property relationship.
Subsequently, our estimates do not exhibit any sustained trend improvement in the levels of output per capita. This evolution is consistent with the characterization of French economic growth put forward by Le Roy Ladurie (1966, 1977) arguing that the pre-industrial French economy was virtually a stagnating, growthless system.

Chapter 1

Introduction

In the introductory pages of his seminal contribution on the French countryside in the pre-industrial era, Philip Hoffman (2000) noted that "economic growth remains a perplexing mystery."
Mystery that lies in the complexity of the dynamics involved, stretching far beyond just the mere economic sphere and concerning the way itself a society is organized and structured.
Nonetheless, a variety of interpretations of the long-run process of economic growth has been advanced.
In 1958, H. J. Habakkuk proposed a linear, unambiguous characterization of the economic history of modern Britain:

> *Rising population: rising prices, rising agricultural profits, low real incomes for the mass of the population, unfavorable terms of trade for industry- with variations depending upon changes in social institutions, this might stand for a description of the thirteenth century, the sixteenth century and the early seventeenth, and the period 1750-1815.*
> *Falling or stationary population with depressed agricultural profits but high mass incomes might be said to be characteristic of the intervening periods* (Habakkuk, 1958, p.487).

The prevalence of the demographic factor with its almost deterministic effect on the law of supply and demand was the main ingredient of a neo-

Malthusian view that neither was the minority opinion of an eminent historian, nor was limited to English economic history. Postan, Bowden, Le Roy Ladurie, just to name a few, proposed different accounts of pre-industrial economy but still shared the view that at the very root of the process of economic growth were some "objective"[1] economic forces again identified in demographic fluctuations and commercial factors.
Postan argued that:

> *Behind most economic trends in the Middle Ages, above all behind the advancing and retreating land settlement, it is possible to discern the inexorable effects of rising and declining population* (Postan, 1972, p.72).

Le Roy Ladurie was even more explicit in the identification of the protagonist of the great agrarian cycle, characterizing Languedoc from the end of the fifteenth century to the beginning of the eighteenth century:[2]

> *The tragic demographic situation of the fifteenth century–the scarcity of people–was the overriding fact that lend land settlement, economic life, and social relationships their peculiar coloration on the eve of the great advance of the modern period*.

Nevertheless, these interpretations hardly emphasized the role of institutions as ultimate causes of economic change. In this panorama dominated by the Malthusian orthodoxy, Brenner (1976)'s contribution went precisely in the opposite direction identifying the particular set of local property and class relations as the central causal factor in the pattern of European agrarian development.[3]
Brenner ultimately argued that by the sixteenth century, the English economy embarked upon a path of sustained growth because a new set of property relations emerged in the countryside. This involved massive changes in land tenure and substitution of smallholding peasant cultivation with large capitalist farms.

[1] Brenner (1976).
[2] See Le Roy Ladurie (1966).
[3] For a useful review of Brenner's arguments, see Little (1998).

On the contrary, in those countries, like France, where peasant societies were sufficiently strong to defend traditional arrangements (favorable rent levels, communal control of land), the economy remained anchored to low productive and inefficient agricultural techniques and displayed little or no trend improvement.
Brenner'article occasioned widespread interest among academics but methodological critiques came from historians who questioned the weak factual basis underpinning Brenner's argument and the excessive use of theoretical generalization.[4] After thirty years or so, the substantive contribution of Brenner's work remains the identification of the centrality of the nexus between the local set of property relations (and class structure) and economic growth. The legacy of the Brenner debate is still evident in the current divide between supporters of demographic and institutional theories.
Since then, the literature has moved in two main directions.
From the one side, building upon a Malthusian framework, a variety of theoretical models have been constructed that explored the determinants of equilibrium income centering on all these factors that were at the origin of demographic fluctuations (Galor, 2005; Galor and Weil, 2000; Sharp et al., 2012; Voigtländer and Voth, 2012).
From the other side, scholarly discussions turned to focus on the very existence of major phases of economic growth (or decline) prior to the Industrial Revolution.
A new generation of economic historians temporarily abandoned theoretical models for direct examination of historical source material. Over the last decade, new quantitative accounts of the main countours of pre-industrial economic growth and a number of very long run time series have been proposed for major economies of Europe.[5]
Following recent developments in quantitative economic history, pioneered by Angus Maddison (2001, 2003)'s research agenda, throughout this study, we follow an empirical approach and let the data "speak for

[4]See on this Bois (1976). A series of reactions came from the leading economic historians, including Postan and Le Roy Ladurie. Many of the most significant contributions were collected in Aston et al. (1987).

[5]See Fouquet and Broadberry (2015) for a review of the literature.

themselves." We adopt a bottom-up perspective.
First, we start from the micro-scale and gather new quantitative evidence on the market and non-market variables that characterized the experience of ordinary people.
Delving into the vast set of secondary and printed primary sources, we obtained information from various regions of France about workers compensations and their actual workloads, the values of land rent, the prices of several ordinary products, the factor shares and the sectoral shares in output and employment.
Second, using several statistical tools, we derive aggregate indices of the variables of interest and estimate changes in economic activity and in the individual living standards.
While the main aim of the present study is to provide a solid empirical characterization of the principal macro-aggregates of pre-industrial France, we also discuss possible explanations of the patterns of change from the Middle Ages to the Revolution.

Chapter 2

Real Wages

2.1 Introduction

The price and wage history of France has received considerable attention by historians since the first half of the eighteenth century.
This precocious interest, pioneered by the seminal contribution of Dupré de Saint-Maur (1746), was favored by the existence of an unusually large body of evidence documenting the evolution of prices and wages in different places of the country.
Indeed, by the seventeenth century, the rise of centralized institutions and the advent of "dirigisme" in the economy multiplied the production of official statistics.[1]
Significantly, the first overall survey of the French economy was promoted in 1664 by the then intendant of Finances Jean-Baptiste Colbert.[2]
This initiative opened the era of the official enquires of Ancient Regime. Between 1664 and 1788 almost sixteen different surveys were promoted by central and local authorities.
Made with the final aim of guaranteeing a better organization of the state, these enquiries provided information on several important aspects

[1] Gille (1964) is a fundamental contribution for the history of the statistical sources of France from the seventeenth century to 1870. See also Perrot and Woolf (1984) for the role of the state in the production of official statistics.

[2] See on this Gille (1964); Lebrun (1965).

of the administrative area they related to, including descriptions of population, natural resources and climate. Data on prices and estimations of the volume of production were sometimes reported. More often these surveys were promoted to shed light on the status of individual sectors of the economy such as the steel and iron industry and tanneries.
Yet, these sources have their own set of limitations and they can not be employed withouth interpretation (Gille, 1964; Labrousse, 1932; Perrot and Woolf, 1984).
One difficulty relates to the way data were collected. State officials and their delegates derived information from questionnaires administered directly to the populations of the reign that were traditionally reluctant to provide information about their revenues.
Furthermore, final reports were often influenced by subjective evaluations of state officials and rarely provided data on wages.
Even more importantly, official enquiries were contemporaneous statistics and did not offer retrospective views on the economic status of France in the past.

Broadly speaking, the reconstruction of price and wage histories can be regarded as characterized by three successive waves: the first in the 1890s, the second in the 1930s and the third in the 1960s-1970s.
In the course of the nineteenth century, research progressed mostly due to the efforts of eminent personalities that belonged in different ways to the École Nationale des Chartes like Léopold Delisle and Charles de Beaurepaire. The background in archival studies characterized their rigorous investigations that concentrated on Normandy and the Paris Basin in the course of the Middle Ages.
In 1894 Georges d'Avenel published the *Histoire économique de la propriété, des salaire, des denrées et de tous les prix en général depuis l'an 1800*. This work represented the first attempt to write an extensive economic history of France relying on a consistent body of quantitative evidence.
By the 1930s the quantitative reconstruction of price and wage movements prospered around the Annales School and received definite consecration with the *Esquisse du mouvement des prix et des revenus en France au XVIIIe siècle* of Labrousse (1932).

In the same years a group of French scholars[3] belonging to the International Scientific Committee on Price History- the association that grouped together the first quantitative economic historians- published the *Recherches et documents sur l'histoire des prix en France de 1500 à 1800* under the direction of Henri Hauser. This was the first systematic attempt to measure price levels across France.

The decisive impulse was finally given in the 1960s and the 1970s by the second generation of scholars linked to the Annales School that extended considerably the coverage by area and period of existing datasets. Typically, their research focused on the study of specific regions considered over long periods of time. Chief among them were the works of Baehrel (1961) on Basse-Provence, Goubert (1960) on Beauvais and Le Roy Ladurie (1966) on Languedoc.

Despite these efforts, to date, there are no aggregate series of prices and wages available for pre-industrial France.

The seven volumes of the *Histoire économique de la propriété, des salaire, des denrées et de tous les prix en général depuis l'an 1800* by d'Avenel contain considerable wage and price evidence and several individual price series but no aggregate price index. In addition, the problems related to the treatment of different information and the insufficient spatial coverage of the dataset that contains thin evidence for the South and the Centre, suggest caution in evaluating these series and extending results to France. The work of Labrousse (1932), based on the conclusions of official enquiries, reports individual price series for a large number of commodities and presents an aggregate price index. These data are used to construct a series of real wages but estimations are limited to the period 1726-1789.

More recently, other scholars have proposed alternative price and wage series but none of them has the spatial and temporal extension of the ones proposed here.

For example, Toutain (1961) constructed an agricultural price index for the period 1701-1790 drawing upon indirect output measures developed

[3] This research group included among the others Henri Hauser, François Simiand, Yvonne Bézard, Henri Sée, Léon Vignols and Victor Dauphin.

by contemporary authors.
Allen (2001) is an influential attempt to measure real wage differential across Europe. Using disposable evidence from the price and wage histories of close to 20 European cities, Allen proposed the first long-term series of real wages for Paris and Strasbourg.
These series differed substantially from existing contributions in the treatment of nominal wage's deflator.
While grain prices were typically used to compare the purchasing power of wages (Phelps Brown and Hopkins, 1981; Rouzet, 2004), Allen popularized the use of a relatively standardized basket of goods as the more appropriate way to deflate nominal wages.
Though fundamental in many respects, Allen's paper concentrates on cross-national comparisons between large urban agglomerates.
It is thus interesting to explore spatial differences inside single countries even outside the urban contest.
This study takes a step in this direction by estimating real day wages for French male workers of different occupations from 1250 to 1789.

2.2 Methods and Materials

2.2.1 Sources of Wages

The empirical analysis conducted in this study is based on the constitution of an entirely new dataset of nominal day wages covering several types of occupations in the agricultural and building construction sectors. Since most French urban wages are recorded for workers in the building industry, this study concentrates on skilled and unskilled male construction workers whose salaries are assumed to be representative of urban wages. Wage data were retrieved from classic histories of wages and prices and a wide array of secondary and printed primary sources comprising manorial accounts and the published records of several building projects between the thirteenth and the seventeenth century. As Figure 1 demonstrates, these printed primary sources contribute substantially to the increase of the sample dimension especially for ear-

lier decades and for the period 1360-1550. On the whole I collected as far as 22,000 wage observations for the period 1250-1789 derived from 103 different sources many of them relying on consistent bodies of primary data.
Figure 2 shows the number of wage observations by 20-year windows. For the period 1250-1380 observations average 260 per 20-year windows while between 1400 and 1789 they never fall below 400 (slightly less in the period 1620 and 1680). Even though the distribution of data across time partly reflects the way observations have been collected, its shape is fairly bimodal excluding the isolated peak around 1640.
The first peak in the period 1380-1540 reflects the high concentration of building projects over these years and run in parallel with the extensive contributions offered by the French Medievalists. The second (1720-89) coincides in time with the rise and diffusion of official statistics by the seventeenth century.
Over these years the average number of wage observations per period is well above 800.

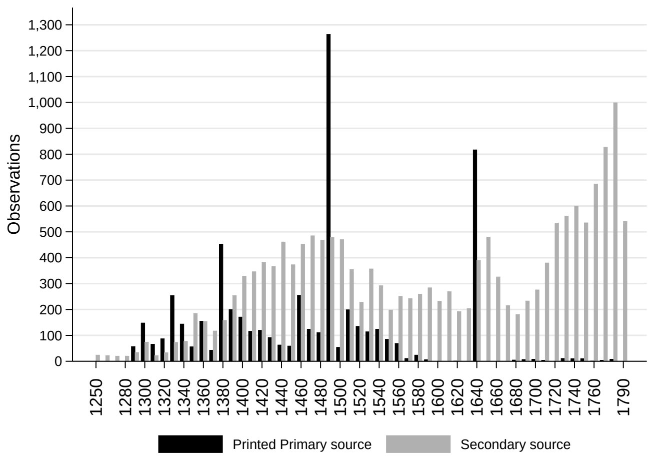

Figure 1: Wage Observations by decade and source type

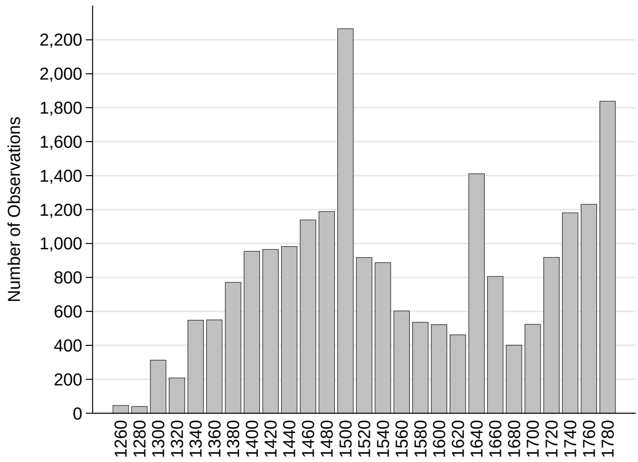

Figure 2: Wage Observations by 20-year windows

Notes: The number of observations is computed on 20-year windows. For example, 1260 includes the observations from 1250 to 1269.

2.2.2 Geographical Coverage of Wages

The resulting sample of wages contains daily, monthly and yearly observations that come from several places, represent many professions and are expressed in different local units of account. The dataset has a wide spatial coverage drawing information upon 427 locations belonging to 20 regions. As shown in Figure 3, the distribution of wage quotes across space is instead quite uneven. Normandy, Alsace and Île-de-France supply most of the data, while other regions (Limousin and Franche-Comté) play only a marginal role.

To explore spatial differences, I divided the French territory into five macro regions starting from the first level of the Nomenclature of Territorial Units for Statistics (NUTS 1), and taking into account historical and economic factors.

The NUTS 1 code classifies France into 9 territorial units, namely Île-de-France, Paris Basin, Nord-Pas-de-Calais, East, West, South-West,

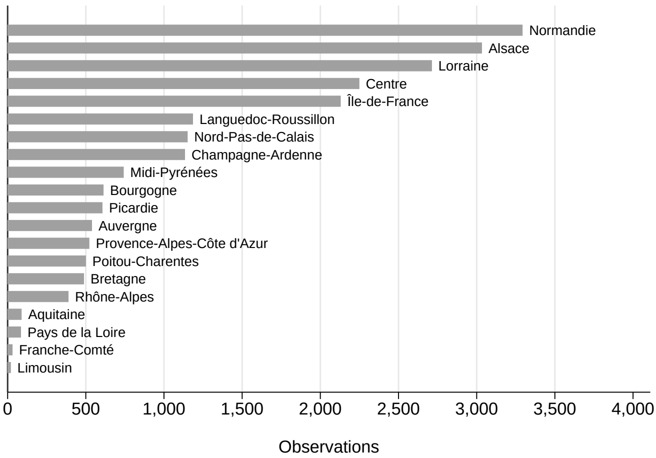

Figure 3: Wage Observations by Region

Centre-East, Mediterranean, Overseas Departments.
I excluded from the analysis Corse and Overseas Departments that included colonial possessions. Southern France was considered as a relatively homogeneous entity that grouped together the South-West (excluding Limousin) and Mediterranean and thus corresponded to the NUTS 2 regions of Aquitaine, Midi-Pyrénées, Languedoc-Roussillon, Provence-Alpes-Côte d'Azur. Second, I defined a central macro-region that included the Centre-East and West (excluding Brittany) as defined by NUTS 1 classification, plus Burgundy.[4] To take into account the historical and economic contiguity between the northern territories of France, I defined a Northern macro-region. This corresponded to Nord-Pas-de-Calais, Brittany and the Paris Basin as defined by NUTS 1 codes excluding Burgundy.[5] Île-de-France and East coincide with NUTS 1 clas-

[4]According to NUTS2 code the Central macroregion included the regions of Rhône-Alpes, Auvergne, Pays de la Loire, Poitou-Charentes plus Burgundy.

[5] NUTS 1 classification includes Brittany into the West. Despite that I prefer including this area into the Northern macro-region to heighten its historical and geographical contiguity with northern territories such as Normandy. For the same reason Burgundy was included into the Centre even though it was long politically connected to Flanders.

sification. Even though this codification may sound a little arbitrary it has no bearing on final results[6] but it has the advantage of providing a better interpretation of the mass of heterogeneous observations.
All along five centuries, more than 40 percent of wage observations come from Northern France (Paris Basin and Île-de-France), about 45 percent from the Centre and the East while the South is somewhat underrepresented supplying about 15 percent of the total (Figure 4). Nevertheless, the dataset is characterized by a consistent spatial coverage as observations are systematically drawn on the five macro regions in each time period.

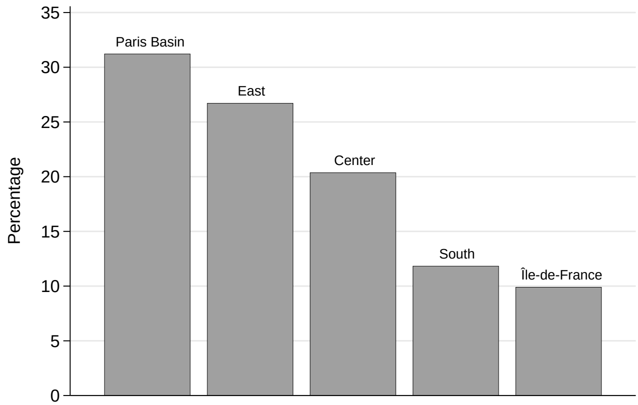

Figure 4: Wage Observations by Macroregion

[6] Trends in price and wages are obtained controlling for spatial effects at lower levels of aggregation (city or department). In addition, results are robust to alternative definitions of macro-region. For example, results do not change if one classifies Brittany and Burgundy following NUTS 1 codification.

2.2.3 Occupations

Occupational heterogeneity is a second major issue. I classified observations as "urban" if the wage regarded building craftsmen or laborers and "rural" if the worker was employed in the agricultural sector. On the whole 65 percent of observations regard craftsmen and laborers. In addition, skilled and unskilled workers were identified using the Historical International Standard of Classification of Occupations (HISCO system). The percentage of skilled workers represents 37 percent of the total. Occupational heterogeneity was significant even controlling for the degree of specialization. Among the building craftsmen we identified seventeen different professions even though masons and carpenters are the workers whose wages are the most frequently recorded in our dataset (Figure 5). Similar considerations could be extended to the building laborers (Figure 6). Most of the rural day wages regard vinedressers, day-laborers and workers paid for threshing, reaping and mowing (Figure 7).

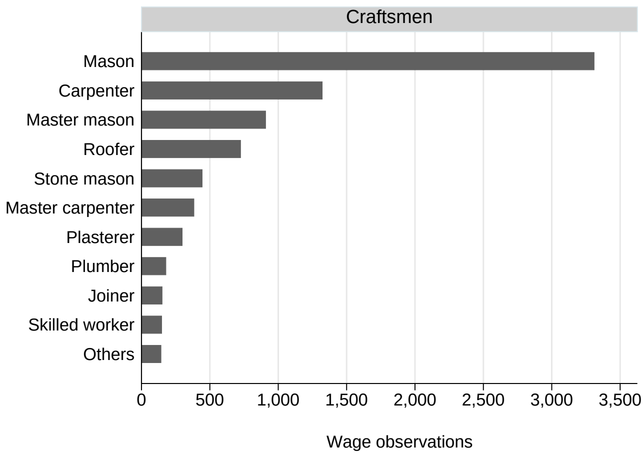

Figure 5: Wage Observations for Craftsmen

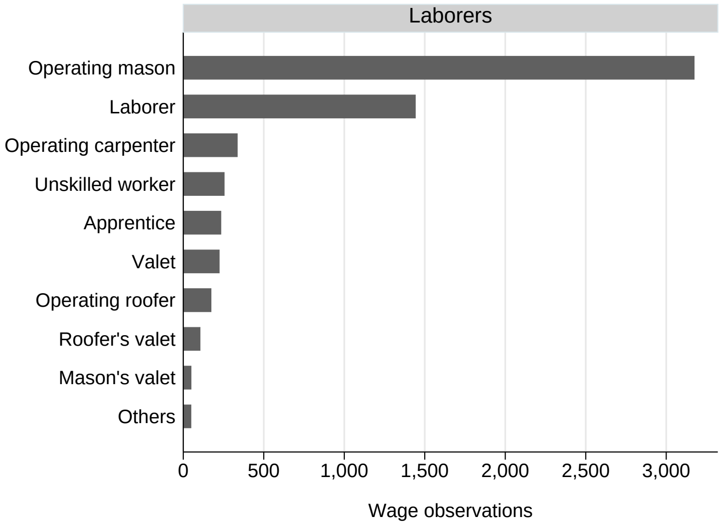

Figure 6: Wage Observations for Laborers

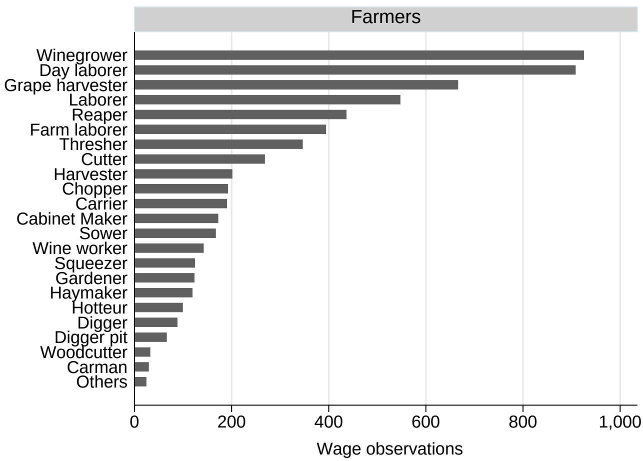

Figure 7: Wage Observations for Farmers

The evidence collected here points to the existence of two sources of occupational heterogeneity. One is intimately related to the specific nature of different professions i.e. masons, rather than carpenters. The other relates to the existence of a hierarchy of specializations even for the same typology of work. In this context one encounters the well known distinction between master mason, mason, laborer but also different typologies of laborer or apprentice based, among the others, on the degree of experience and talent.

2.2.4 Working Days

To get from the mass of heterogeneous observations a set of comparable data, wages were all expressed in local currency (sous tournois per day) and converted to daily rates assuming 5 days per week and 250 days per year which is the number of working days assumed by Allen (2001).
One may wonder whether this assumption fits well French economy. First attempts to assess the number of days worked per year date back to Vauban (1933), which indicated 180 days per year as a plausible figure for French workers in the seventeenth century. This estimation is broadly consistent with 176 days implied by d'Avenel's table of the average number of days worked per year by laborers between 1276 and 1800 (d'Avenel, 1894, vol. IV, p.581). In recent years, using the evaluation of Lavoisier, Labrousse (1932) estimated that the average number of days worked per year was about 200 in France in the seventeenth century. Although these sources contain valuable information, they are fraught with difficulties (Morineau, 1985). First, because they are indirect estimations whose accuracy depends on the various assumptions that are made to quantify the number of holidays or assess the average duration of activities such as threshing and mowing that are typical of rural occupations.
To overcome such difficulties it is necessary to compare these results with direct observations. Disposable evidence- drawing upon building projects- suggests that the average number of days worked per year was about 250 among construction workers. This quantity was relatively stable over time and across space.
For example, Geremek (1968) and Baulant (1971)'s studies revealed that

the days of work varied between 251 and 274 among construction workers in Paris between the fourteenth and the eighteenth centuries.

The analysis of the published records of several fifteenth and sixteenth century buildings projects point to similar conclusions. Between 1505 and 1550 the craftsmen and laborers employed in the building project of the castle of Gisors worked about 250 days per year (Hamon, 2008); the masons employed in the castle of Amboise averaged 256 days per year in 1496 (de Grandmaison, 1912),[7] while the number of working days of construction workers at the Hopital-de-Dieu in Bourg was about 193 in 1511 (Hamon, 2003, p.19).[8]

It is interesting to note that, especially for earlier decades, one observes a relatively large body of documental evidence indicating that the number of days worked per year was much lower than 250.

For example, between 26 September 1384 and 2 February 1385, there were 22 carpenters working at the bateau of Jean Duke de Berry in Poitiers of which we know the actual workloads (Rapin, 2010, p.530).

Among them, the average number of days worked per 20 weeks was about 31, ranging from 93 days of carpenter Villette Adam to 3 days of Jean and Etienne de la Ratonniere. If this average supply of labor would have been applied to the year, these workers would have toiled about 81 days, an implausibly low amount.

Modest quantities are also observed for some workers in the building projects of Riom in 1388 (Rapin, 2010, pp.542–543) and Troyes in 1529 (Galletti, 2010, p.712).

It is thus possible that in such cases, working days are not revealing of the revenues of these individuals.

Indeed craftsmen were sometimes employed in several building projects in the course of the year (Hamon, 2006). In addition, especially among less specialized professions, it was common to spend part of the year

[7] Masons worked between 54 and 73 days per trimester. On average they worked 64 days per trimester (de Grandmaison, 1912).

[8] The average number of working days per 26 weeks was about 74 for the twenty-eight masons documented in Hamon (Hamon, 2003). Applying this rate one obtains 193 days per year. The number of days of work was similar in Aix-en-Provence all along the fifteenth and first half of the sixteenth century (Bernardi, 1995).

working in the countryside. For example, studying a building project in Saint-Germain-des-Près between 1644 and 1646, Beutler (1971) observed that the labor supply curve of building laborers presented a decreasing trend between May and October when labor demand from the countryside was typically higher.[9]

Geographic mobility and seasonality were distinctive features of the labor market of construction workers in pre-industrial France.

Another fact is worth mentioning. One may observe a certain degree of regularity in the rhythms of work on different building sites once allowance is made for religious observances, Saturdays and special contingencies including economic fluctuations and weather conditions.

Indeed, from the fourteenth century building projects of Duke Jean de Berry (1340-1416) to late medieval projects in Provence and the Renaissance' ones in Bourg and Strasbourg, one observes that the number of days worked per week was about 5 and the working day lasted between 8 and 12 hours (Bernardi, 1995; Beutler, 1971; Galletti, 2010; Hamon, 2006; Rapin, 2010; Recht and Le Goff, 1989).[10]

All this evidence suggests that the assumptions of a working year of 250 days and a five days week are approximately correct.

2.2.5 Methodology

The dataset has been used to construct series of nominal male wages for building craftsmen, laborers and farmers for the period 1250-1789. Building a wage series from such different sources requires great care and consistency. As we saw, geographical, seasonal, and occupational heterogeneity must be treated with care to ensure consistency in composition. We then sought a wide but consistent spatial coverage, drawing as a rule on several sources per time period to avoid oversampling from

[9] See also Perrot (1975) for a discussion about seasonality of employment in Caen at the end of the eighteenth century.

[10] In the fifteenth century the working day lasted about 10 hours during summer and 11.3 hours at winter in Strasbourg. Etienne Hamon estimated that in the first half of the fifteenth century the working day averaged 8 hours and 24 minutes in Bourg (Hamon, 2006).

areas that presented distinctive high or low wage labour market.[11]
To predict a trend for wages and controlling for spatial, occupational and temporal differences I run a non linear piecewise OLS model of the following form for each of the three categories of workers:[12]

$$w_{it} = \alpha + \beta G(T_t)_{P_j} + \delta' \mathbf{X_{it}} + \varepsilon_{it} \qquad \text{if} \quad t \in P_j \quad \text{where} \quad j \in (1,2,3,4) \quad (2.1)$$

and:

- $P_1 = 1250s - 1348$
- $P_2 = 1348 - 1550s$
- $P_3 = 1550s - 1690s$
- $P_4 = 1690s - 1780s$

In this specification, the nominal wage of a worker at a given time and place (w_{it}) and for a certain period, is regressed on a set of indicator variables ($\mathbf{X_{it}}$) including source, currency, location (city or area), macro region, occupation, observation type (whether it was a direct observation or a mean for example), type of wage (whether it includes food or not) and a function of time $G(T_t)$ whose specification (linear, quadratic etc.) depends on period P_j.[13]
Provided that the series were very long in time but we were interested in deriving a quite detailed picture of wage movements, regressions were estimated for four sub-periods (P_j) following the structural breaks of the series:

- the pre-plague period (1250s-1348)

[11] As a robustness check we constructed aggregate series of real wages for each category of workers as a weighted average of five macro-regional series (Centre, East, Île-de-France, the Paris Basin and South) using as weights population by macro-region derived from Bairoch (1976); Bairoch et al. (1988). Results are not displayed but they are broadly consistent with the series presented in this study (Table 6).

[12] For a detailed description of the use of regression analysis for the treatment of price and wage data see the seminal contributions of Clark (Clark, 2004, 2005). Similar techniques have been recently adopted by several authors, including among the others Allen et al. (2011); De Zwart and Van Zanden (2015).

[13] Estimations are conducted assuming robust standard errors.

- the first great Malthusian cycle after the Black Death (1348-1550s)
- the period of the rise of great inflation and its stabilization (1550s-1690s)
- the pre-revolutionary period (1690s-1780s)

Predictions over sub-periods were then connected in a unique series that covered the whole period.
The predicted values of wages were then used to compute five-year moving averages.
Typically for some places, especially Île-de-France, day wages were relatively rare, but there existed some records of piece wages. I thus assembled a dataset containing 1465 observations of the rates per unit of surface paid to workers for threshing wheat, oats and barley, mowing and reaping. Some piece rates regarded the wine growing. All observations have been converted in local unit of account (sous tournois) per acre and have been used to extrapolate day wages. As piece wages varied considerably over time and across space, I limited their use to fill the gaps in the Île-de-France' series.
Table 6 of the Appendix shows the series of nominal wages obtained using regression analysis.

2.2.6 Sources of Prices

Most of the price data used in this study come from published secondary sources and classic accounts whose detailed description is left to the references section.
These sources have been supplemented with observations from published records of several building's projects that took place in France between the fourteenth and the seventeenth centuries.
This typology of source is particularly useful to reconstruct the price history of such goods as construction materials, candles, wood and firewood that are rarely registered in institutional records (Mercuriales des prix) and classic accounts. Furthermore, construction accounts provide some

relatively homogeneous information about bread and wine, two fundamental items of the consumption basket whose treatment is often made difficult by the lack of data (bread) and the presence of huge quality differences (wine).

A potential concern with the prices used here is that some of them are wholesale rather than retail prices. It is thus possible that the extensive use of such data may underestimate the cost of living experienced by ordinary consumers. To limit this problem, where possible, I used retail prices. In any case, comparison between retail and wholesale quotes does not suggest the existence of huge mark-ups.

On the whole I assembled a dataset that comprises more than 49,000 price quotes of 12 commodities, the ones included in Allen (2001)'s basket. As Figure 8 demonstrates, the number of price observations by 20-year windows decreases as one goes back in time.

In the pre-plague years price quotes average slightly above 50 per decade but between the 1400s and the 1780s these are never below 300 per decade. The distribution of the price observations over time reveals that there are two periods of sustained growth in the overall availability of sources. The first, by the sixteenth century until the 1590s, corresponds to the beginning of the first price series derived from the official market price-lists (Mercuriales).[14]

The second period (1680-1789) coincided in time with the diffusion of official statistics with the average number of price quotes passing from more than 2000 in the 1680s to about 4000 at the end of the eighteenth century.

[14] See among the others Frêche (1979) and Dupâquier et al. (1968) for a detailed analysis of some of the most important price lists in pre-industrial France.

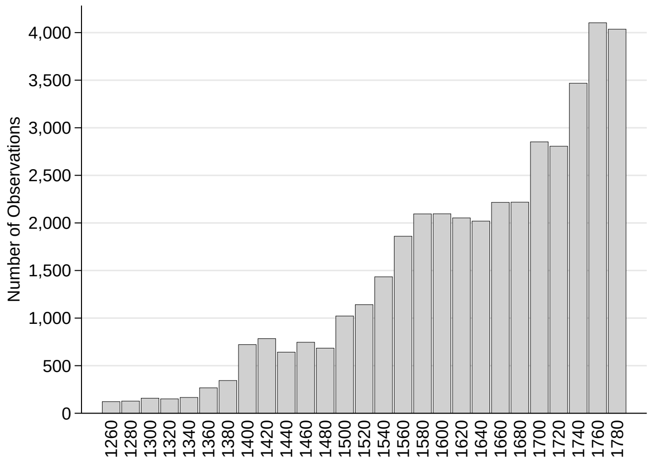

Figure 8: Price Observations by 20-year windows

2.2.7 Geographical Coverage of Prices

Figures 9 and 10 show the distribution of price quotes across space. The Centre and the South together supply most of the price data (about 55 percent) while about 38 percent of observations come from the Paris Basin and Île-de-France (Figure 9). At the regional level one observes that Rhône-Alpes provides most of the price quotes followed by Île-de-France and Nord-pas-de Calais while Franche-Comté and Champagne-Ardennes are less represented in the dataset (Figure 10).

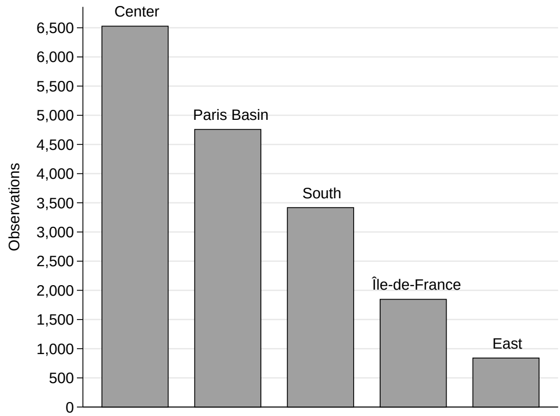

Figure 9: Price Observations by Macroregion

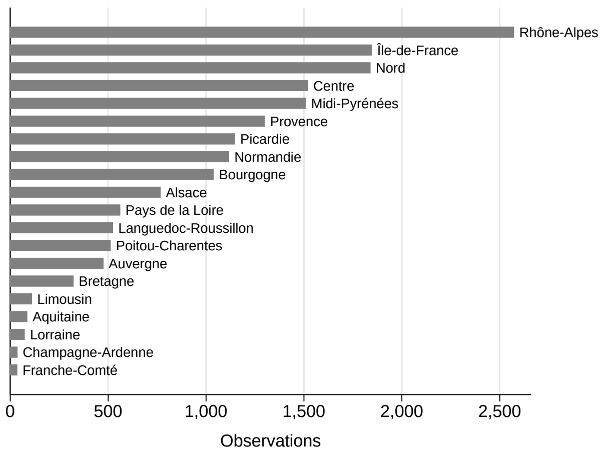

Figure 10: Price Observations by Region

2.2.8 Methodology

The individual component price series of the consumer price index have been computed using a piece wise OLS regression of the following form:

$$p_{it} = \alpha + \beta G(T_t)_{P_j} + \delta' \mathbf{X_{it}} + \varepsilon_{it} \qquad \text{if} \quad t \in P_j \quad \text{where} \quad j \in (1,2,3,4) \tag{2.2}$$

and:

- $P_1 = 1250s - 1348$
- $P_2 = 1348 - 1550s$
- $P_3 = 1550s - 1690s$
- $P_4 = 1690s - 1780s$

where p_{it} is the price at time t in location i; α is a constant; $G(T_t)$ is a function of time whose specification depends on period P_j and it is included in order to control for common time effects in the sample; $\mathbf{X_{it}}$ is a set of control variables that includes dummy variables for source, location, macro-region, quality and the unit of measurement of the commodity.

Bread was handled following the procedure proposed by Allen (2001). A dataset including 750 observations on the prices of bread, wheat and craftsmen's wages (assumed as representative of bakers incomes) was assembled. The coefficients of the bread equation were obtained regressing bread prices on wheat prices, craftsmen's wages and five dummies to capture macro-regional effects with Île-de-France as base case. The coefficient on wheat price is 1.37. This finding is in line with Allen's results (Allen's estimated coefficient is 1.226) and broadly consistent with the average flour extraction rate registered in France at that time.[15]

The coefficients on macro-regional dummies reveal that, ceteris paribus, Île-de-France had the highest bread prices, while Eastern territories had the lowest.

The estimated values were used to fill the gaps in the series of bread

[15] It is usually assumed in the range 0.7 - 0.9. See Allen (2001) and Bernard (1969).

price.
Analogous procedure was followed to derive meat prices. Typically few of the price quotes for earlier decades regard meat by the kilogram. I thus use animal prices to estimate the movement of meat prices. However, instead of assuming a constant or variable weight for the beast over time, I used regression analysis and estimate a meat equation.
As animal quotes regarded both cow and calf whose weights vary by about 2:1 over the years 1250-1789, I first reduced variability extrapolating calf prices using cow prices.
The meat price by the kilogram was then regressed on the animal price and the craftsmen's wage that captures the income of the butcher. Macroregional dummies are also included to measure variations in tax regimes across regions. The coefficient on the animal price indicates the expected weight of the calf. The result is consistent with d'Avenel (1894, vol.IV, p.587)'s table of the mean weight of calf over the years 1301-1800 and it is in line with recent findings of archeological research.[16]
Among alimentary products portions of the time series for cheese were extrapolated using butter.
The lighting component of the basket includes oil light, firewood and candles. Oil light prices were drawn from lower quality oils as olive oil was used for consumption.
Firewood was sold in various forms including the price in sous tournois per stere and per hundred bundles of faggots. All data were expressed as price by the cubic foot (stere). To increase sample dimension some prices per stere were obtained extrapolating from the price by the unit (hundreds, thousands etc). Following Allen (2001), price quotes were finally converted in local unit of account per million BTUs.
Some of the observations regarding candles and soap were obtained extrapolating from tallow, the main input in making these items. Table 5 of the Appendix shows the estimated price series and the resulting consumer price index.

[16]See for example the study of Audoin-Rouzeau (1986) that, on the basis of the bones found at the monastery of La Charité-sur-Loire, estimates the weight of beef, mutton and pork in the Middle Ages.

2.2.9 Consumer Price Index

The benchmark index proposed in this study reflects Allen (2001)'s barebones consumer price index.

The basket contains the same goods included there, with wine substituted for beer. It provides 1941 calories per day, sufficient proteins and implies some expenditure for lighting and clothing (Table 1). The weights are those proposed by Allen (2001).

Table 1: Consumer Price Index: Barebones Basket of Goods

Good	Unit (metric)	Weight	Calories per unit	Calories per day	Proteins per unit	Proteins per day
Bread	kg	182	2450	1221.6	100.0	49.9
Beans/peas	liter	52	1125	160.3	71.0	10.1
Beef	kg	26	2500	178.1	200.0	14.2
Butter	kg	5.2	7286	103.8	7.0	0.1
Cheese	kg	5.2	3750	53.4	214.0	3.0
Eggs	each	52	79	11.3	6.3	0.9
Wine	liter	91	850	211.9	0.0	0.0
Soap	kg	2.6				
Linen	meter	5				
Candles	kg	2.6				
Oil light	kg	2.6				
Firewood	BTU (Millions)	5				
Cal./day				**1940**		**78**
Period	1250-1789	1250-1789	1250-1789	1250-1789	1250-1789	1250-1789

Sources: Quantities and the caloric intake of goods are taken from Allen (2001).

As one goes back in time the prices of some of the commodities included in the basket become unavailable.

Prior to 1333 we do not dispose sufficient evidence to reconstruct firewood and textiles prices. When this is the case, a partial cost of living index is computed using the prices of available goods. However, we observe that the spending shares of missing items are rather stable during the Middle Ages. We thus assume that the resulting partial cost represented, in percentage terms, the total minus the average expenditure share of missing items computed in the first two overlapping decades. The consumer price index is finally obtained dividing partial expenditure by the estimated share it represented in total cost.[17] Even though

[17] We tried different computational schemes varying the number of decades on which computing the averages and taking into account the economic trend. We found that the

this procedure is prone to errors, it has little impact on final results. Indeed, by the 1300s disposable evidence allows us to estimate at least 93 percent of total expenditure. For earlier decades this percentage never goes below 72 percent.

At this point of the discussion, we start our analysis using Allen's approach as it makes possible to set our estimates in an international comparative context. In addition, this contribution also focuses on urban wages and Allen's weighting scheme fits well average urban consumption patterns for France especially in the long run.
Nevertheless, this study presents three alternative consumer price indices that differ in terms of weights and formulae used for construction (Tables 2 to 4).
Several issues arise indeed in interpreting a consumer price index.
First, one may wonder whether the composition and the caloric content of the basket fit well French reality. Allen's basket is very much a urban basket where quantities are derived from the consumption patterns of several European cities whose populations, at least in France, experienced more varied diets and consumed more of some (often expensive) goods as compared to the countryside.[18] For example, Expilly (1780) noted that in France,[19] the inhabitants of the cities consumed 38.9 kilograms of meat per year while those of the countryside only 8.2. Weighting for the share of urban and rural population, the average consumption of meat amounted to 12.3 kilograms per year in France in 1775, less than a half of the quantity implied by Allen (2001)'s barebones basket. The application of urban weighting schemes to the countryside may indeed underestimate farm and thus general real wages as the agricultural population was the large majority in pre-industrial France. To test if and to what extent these weights are consistent with French consumption patterns, I assembled material using several budgets studies from available secondary sources. I thus constructed a new dataset including 116

spending shares are rather stable over time.

[18] For an extensive description of the differences in consumption between city and the countryside, see Bennassar and Goy (1975).

[19] See Toutain (1961).

consumption budgets collected in the years 1343-1787. Table 7 in the Appendix specifies the source from which every consumption budget is derived, locates the baskets in time and space and indicates the type of institution or individual the budgets refer to. The dataset is representative of different social milieu as observations are drawn from the budgets of noble families, rich religious colleges, but also hospitals, charity institutions and rural workers. To save space, Table 7 reports only the caloric content of bread even though other items were included in the consumption baskets, namely, meat, wine or substitutes, legumes, olive oil, butter, cheese and eggs. For each good was reconstructed, when possible, the quantity consumed per person per day and the equivalent in calories per day as reported by the original source. The column labeled "Total calories" shows total calories per day provided by the baskets. Some budgets included additional items such as fruit, milk, spices and fish, whose daily quantities and calories have not been reported to save space. Nevertheless, their contribution is considered in the computation of total calories as these figures are those reported by the original source.

In some cases the source reported quantities per day but only partial information about calories per day. I thus assumed a certain caloric intake by the unit (kg or liter) to derive partial and total calories per day. To make this, I compared several tables of composition of nutrients and took into account the evaluations of scholars that worked on consumption budgets that were comparable in terms of time, space and social status.

Figures in bold of Table 7 are those derived in this way. The information collected here allows us to shed some light on the pattern of consumption in pre-modern France.

First, we can use these data to study variations in the consumption of bread, meat and wine from the fourteenth to the eighteenth centuries.[20] Figures below plot the yearly quantity of bread, meat and wine by social category or institution and compare the results to the levels implied by Allen (2001)'s barebones basket (horizontal line).

[20] We limit our analysis to these goods because they were the fundamental items of any consumption basket and disposable evidence was quite rich for them.

Several issues arise in interpreting these graphs.
One relates to the social composition of the budgets.
Allen (2001)'s basket is very much a pre-modern urban one with weights and calories defined so as to "mark a line between respectability and destitution."[21] To heighten any contrast with Allen (2001)'s figures and get a comprehensive picture, the quantities collected in this paper are derived from very different social contests ranging from the lord of Murol to the prisoner of Saulx-le-Duc in Bourgogne.
A second issue relates to the caloric intake of the baskets.
Allen (2001)'s barebones basket provides 1941 calories irrespective of time while our observations are derived from consumption bundles with caloric contents that lie between 523 and 8375 calories per day. This fact has to be handled with care because when the caloric requirements vary so significantly, failure to control for this feature may cause misleading interpretations of the estimated trends in consumption.
Indeed, the caloric content of the baskets is a source of variations of course as, ceteris paribus, diets requiring more than 3000 calories per day, for example, usually implied proportionately higher quantities of bread as compared to poorer caloric regimes.[22]
However, the interesting feature of the dataset is that between 1343 and 1450 the average caloric content of the consumption baskets is much higher than in the rest of the period even controlling for occupational and social heterogeneity. We thus find that per capita consumption of more than 2800 calories per day represented a lower bound even among professions requiring low-calorie consumption. During the eighteenth century daily consumption averaged about 2000 calories per consuming unit. Figure 11 shows the yearly consumption of bread between 1343 and 1800.

[21] See Allen (2001).

[22] There existed exceptions to this pattern. In fact rich and diversified diets often included relatively low quantities of bread but provided a very high daily caloric intake because bread substitutes were consumed in large amounts. Yet, among lower classes, low consumption of bread was usually associated with low per capita consumption of calories because bread was by far and large the most important item in the basket and its substitutes were relatively too expensive.

Until up the 1450s most of the bread quantities stood above 300 kilograms per year. By the second half of the fifteenth century quantities reduced below this level and clustered around 250 kilograms per year.
In this period the quantity implied by Allen (2001)'s barebones basket is a plausible downward limit. The available evidence thus suggests that the yearly consumption of bread decreased from the fourteenth to the eighteenth centuries. As observations are drawn from a large sample of more than 200 different budgets studies and individual quantity assessments, this result appears to be fairly robust to variations in time, place and social status.
In addition, the fact that one observes similar decreases of bread consumption for workers employed in different sectors would suggest that this trend is robust to occupational heterogeneity.
All in all this finding points to a deterioration of the average daily consumption of calories per consuming unit over this period unless the loss in total calorie due to the reduction of bread quantities was replaced by increased consumption of other items or the appearance of new ones.

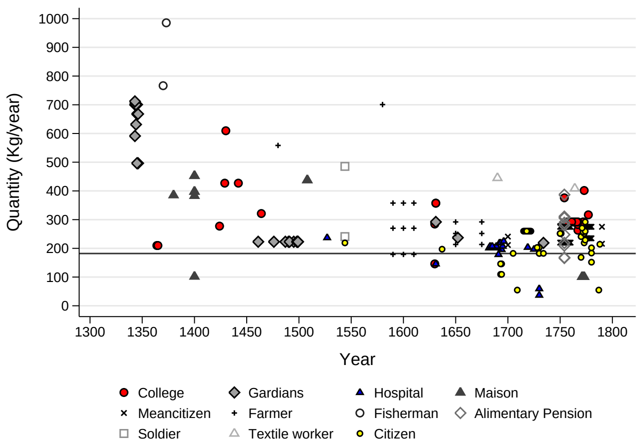

Figure 11: Bread

Notes: The flat line corresponds to 182 kilograms that is the quantity implied by Allen (2001)'s barebones basket.

Our figures suggest that the consumption of the most important complements of bread, namely meat and wine, was likely to decrease over this period. This result is broadly in line with literature.[23] As Figure 12 demonstrates during the Middle Ages meat was present in huge amounts in the tables of nobilities but it played a non negligible role also in the diet of lower classes.

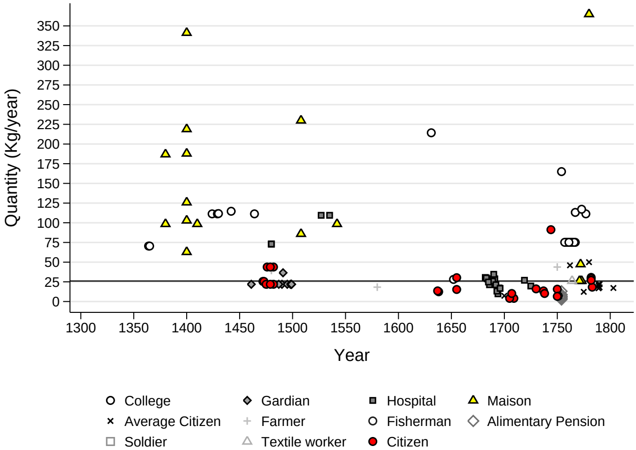

Figure 12: Meat

Notes: The flat line corresponds to 26 kilograms that is the quantity implied by Allen (2001)'s barebones basket.

As Stouff (1970) and Le Roy Ladurie (1966) demonstrated, meat consumption in the order of 30-40 kilograms per year was not unusual for farmers in southern France in the course of the fifteenth century. The 26 kilograms per year implied by Allen (2001)'s barebones basket are a reasonable approximation of the quantities consumed by guardians in Tours and the inhabitants of Paris in the second half of the fifteenth century. Unfortunately, we have very thin evidence for the period 1500-1650. Over these years and especially by the second half of the sixteenth century, meat prices underwent a dramatic increase. According to pre-

[23] See among the others Bennassar and Goy (1975); Livi Bacci (1987); Neveux (1973).

vailing literature and in line with Schmoller (1871) and Abel (2013)'s (originally published in 1935) hypotheses, the consumption of meat lost positions.[24] The quantitative reconstructions of Le Roy Ladurie (1966) for Languedoc and Hemardinquer (1968) for Bresse would confirm this trend for rural workers.[25] Nevertheless, we do not observe a similar decrease in the diets of upper-classes whose meat consumption appear to be relatively stable until up the end of the Ancient Regime.[26] By the second half of the seventeenth century one observes a generalized fall in meat consumption of lower classes with many observations located below 26 kilograms per year. Toutain (1961) estimated that the average consumption of meat amounted to 12.3 kilograms per person per year in 1775.

As demonstrated by Figure 13, the yearly consumption of wine witnessed a similar evolution between 1343 and 1800.

During the Middle Ages, one observes an incredibly high consumption of wine irrespective of social status and occupation.

Several sources confirm that consumption of more than one liter per day was common practice at that time.[27]

Furthermore as the analysis of Piponnier (1974) concerning fishermen in medieval Bourgogne revealed, quantities varied greatly even among the same typology of worker. By the eighteenth century, the consumption of wine was about 100 liters per year for the average French man.

These values compare to the much greater consumption observed in religious colleges where quantities were above 200 liters per year in the

[24] Originally Schmoller (1871) and successively Abel (2013) elaborated the hypothesis that during the late Middle Ages, meat consumption was large even among lower classes. This happened because breeding was convenient when pastures were abundant and population was relatively scarce. By the sixteenth century, population was on the rise and the demand of cereals increased. Agriculture became more important than breeding. When by the mid-sixteenth century a generalized increase of price levels took place, meat became a luxury good and nearly disappeared in the diet of lower-classes.

[25] Le Roy Ladurie (1966) documented a sustained fall in meat consumption of farmers in Languedoc between 1480 and 1590 (39.5 kg in 1480 against 18.2 in 1590).
Hémardinquer found that in Bresse meat consumption plummeted by the 1590s. Between 1630 and 1730 the consumption of lard decreased from 7 to 3 kilograms per year.

[26] This trend confirms the results published in Charbonnier (1975).

[27] See among the others Stouff (1970) and Piponnier (1974).

second half of the eighteenth century.

It is interesting to note that according to our figures, wine consumption in the religious colleges was much higher during the fifteenth century averaging 700 liters per year.

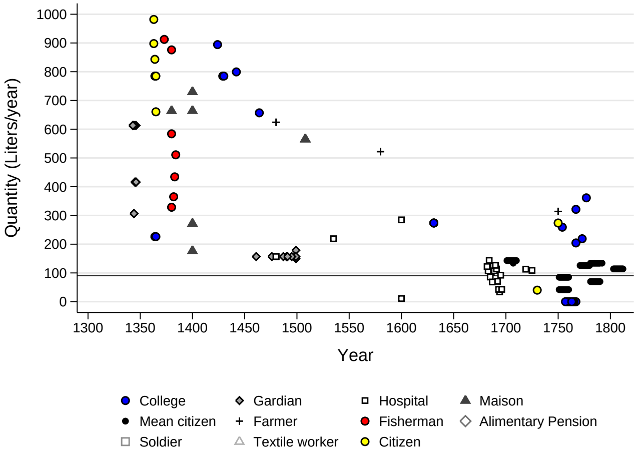

Figure 13: Wine

Notes: The flat line corresponds to 91 liters that is the quantity implied by Allen (2001)'s barebones basket.

We do not dispose sufficient evidence to determine the evolution over time of the average consumption of other commodities. However, it is unlikely that the loss in total calorie determined by the joint decrease in bread, wine and especially meat consumption, was compensated by other items such as legumes whose caloric intake was low or dairy whose consumption share was limited.[28]

Furthermore, colonial products such as tomatoes and sugar became important in the diets only by the end of the eighteenth century. This evidence would indicate that the calorie intake of the basket decreased over

[28]According to Flandrin and Montanari (1997) one of the most important feature that marked the transition from medieval to modern cuisine was the diffusion of butter consumption as witnessed by the increased number of butter quotes in the preparation of recipes. Nevertheless, this trend appeared to be limited to the upper classes.

time.
A second issue relates to the calorie intake of bread.
Figure 14 shows the share of bread in total calories between 1300 and 1800.

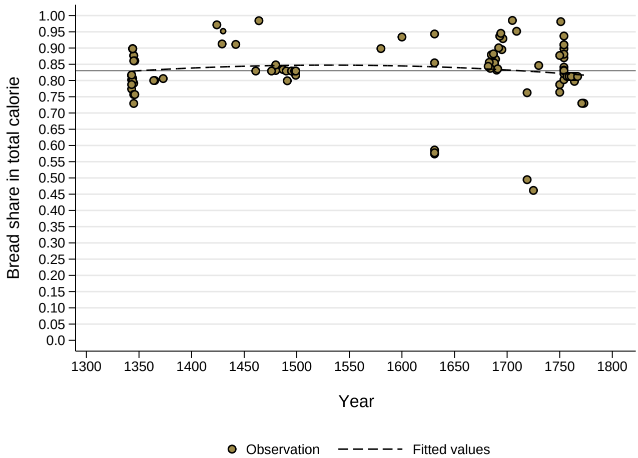

Figure 14: Bread Share

Notes: The flat line corresponds to the average share of bread in total calories.

Most of the observations lie above the threshold 0.75. As expected, the share of bread in total calories is much lower in the consumption baskets of upper-classes where it averages 50 per cent.
Our data suggest that on average bread represented roughly 84 percent of total per capita consumption of calories, irrespective of time, place, occupation and composition of the basket (see Table 7).[29]
This finding is broadly in line with the results presented by Toutain (1971) where the calorie intake from vegetables (cereals and legumes

[29] As a further check we use regression analysis to predict a trend for bread shares. The bread share in total calories of a specific consumption budget is regressed on a set of indicator variables including source, location (city or area), occupation, total number of calories of the basket, and a linear and quadratic term in time. All the coefficients are statistically not significant with the exception of the linear term in time. Predictions are broadly in line with simple averages.

mainly) amounts to 83 percent of the total for the period 1781-1870.

One difficulty in comparing consumption baskets is differences in composition across bundles. It is indeed possible that some budget studies overestimate the share of bread in total calories simply because they do not include information on some goods that were regularly consumed but were poorly documented in the sources.

To limit such difficulty and check the robustness of previous results, I exclude the budgets of nobility and place special emphasis on rural families, hospitals and charity institutions.

I then sought a wide but consistent set of baskets drawing on different sources per time period and area and focus on budgets whose composition was relatively homogeneous.

As a matter of rule I treated compositional heterogeneity as follows.

I began the analysis assuming that a consumption basket should have at least three main features.

First, it should include some bread as it was the single most important item of consumption for workers.

Second, it should imply some consumption of meat or dairy (cheese or butter) to assure at least some proteins. As an alternative, meat and dairy could be substituted by legumes.

Finally, the consumption bundle should include some drinks unless water regularly substituted for wine, beer or cider.[30]

Based on these requirements the "minimum" basket typically was composed of bread, meat and wine.[31]

The number of items reported by the original source was thus increased in two instances.

First, if one or more of the fundamental commodities were not reported. For example, if the bundle did not include neither meat nor legumes I increased the total calorie intake of the basket by a plausible amount for meat or legumes.

Secondly, I varied the original composition of the basket if the source explicitly mentioned that other goods were commonly consumed but were

[30] For a history of water consumption in pre-industrial Europe see Roche (1984).

[31] Meat could be substituted by cheese or butter or legumes while wine by beer or cider.

not included in the budget due to thin evidence.
To assign the calories of missing items I used the evaluations of the scholars that worked on consumption budgets that were more comparable in terms of time, space and social status with the specific bundle.
We claim that this procedure is a very parsimonious way of taking care of compositional heterogeneity because beyond the small set of necessary goods, it treats residual heterogeneity in composition across bundles as an endogenous variable, namely specific to the particular social milieu for a given time and place. And indeed it was the case as upper classes experienced more varied diets as compared to lower classes.[32]
Last column of Table 7 shows the shares of bread in total calorie corrected following this procedure.
The average caloric intake of bread was 83 percent between 1343 and 1789. This result is broadly in agreement with uncorrected figures but of course results are slightly lower because inclusion of additional items progressively diluted the share of bread in total calories.
This evidence allows us to derive a function that defines the relationship between total daily calorie in the basket and consumption of bread expressed in kilograms per year. As Figure 15 demonstrates, this function (dotted line) predicts that for a basket of 1941 calorie (Allen's barebones basket) the expected consumption of bread amounts to 230 kilograms. This quantity is higher than 182 kilograms assumed by Allen (2001)'s barebones basket. In any case these figures are compatible if one considers that Allen's estimation regards large urban agglomerates where bread consumption on average appeared to be lower than the countryside.[33]
The slope of the curve shows instead the sensitivity of bread consumption to slight variations in total calorie. For example, increasing total calories from 1940 (barebones basket) to 2500 (respectability basket), yearly consumption of bread raises of by about 67 kilograms. This find-

[32]It is interesting to note that some variability in the diet was induced by religious practice that implied substitution of meat with other products, fish and dairy mainly, during the so called "thin" days. Typically, this practice was regularly followed by hospitals and charity institutions and limited meat consumption to 200-250 days per year (Hohl, 1971; Stouff, 1970).

[33]See for example Bennassar and Goy (1975).

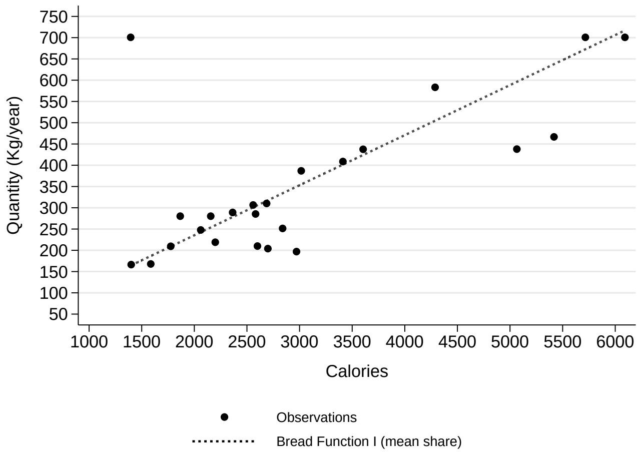

Figure 15: Bread Function

Notes: The straight line has been obtained using the mean share of bread in total calories.

ing is broadly in line with Allen (2001)'s estimation.[34]

As a further check, we test our curve against data. Figure 15 shows the function against several observations of the couples total calories-kilograms of bread consumed, derived from the sources. The empirical relationship predicts fairly well observed quantities. In correspondence of the caloric range 2700-3000 a cluster of points located under the curve appears to suggest that the function may over predict consumption. However these points regard the Hospital of Caen and the Papal studium of Trets in Provence.

In the first case we notice an unusual large consumption of legumes all along the eighteenth and second half of the nineteenth centuries (Villemon, 1971) that seems to be specific of this context. The second case regards fifteen-years old students whose bread consumption was lower than for adult rural workers (Stouff, 1970).

[34] Allen (2006) assumes that the consumption of bread amounts to 234 kilograms per year for a basket that provides 2500 calories per person per day (respectable lifestyle).

The empirical relationship developed here points to some important conclusions.
First, for each level or range of calorie intake the consumption of bread was fairly constant over time.
Thus from the fourteenth to the eighteenth centuries one expects that for a barebones basket the quantity of bread was stable around 230 kilograms per year (plus or minus 25 kg with 95 percent probability).
This result confirms that constant consumption of bread was a plausible assumption at least for lower-classes in pre-industrial France. The calorie intake provided by other items was instead much more volatile over time and across places.
Second, large shifts in bread consumption are expected to be determined by wide changes in total calorie intake of the benchmark basket. And indeed it was probably the case as our figures seemingly suggest that the average consumption of calories progressively declined between 1300 and 1790.
Finally, we can use information about the consumption of bread, meat and wine to construct a new Laspeyres index.
The quantities used as weights were derived from the budget studies of lower-classes, including rural families and hospitals, to make results comparable with Allen (2001)'s barebones basket which is our benchmark specification.
Table 4 shows the weights used to construct the index.
As quantities changed over time, the total number of calories in the basket is free to vary.
The consumption bundle contained about 2900 calories during the Middle Ages, passed to 2500 during the sixteenth century and finally plummeted to 2300 in 1700-1789.
This result is useful and plausible. It points to a deterioration of the condition of farmers and it is in line with (Fogel, 1991, p.45)'s finding that the average French man consumed 2290 calories per day circa 1785.
Starting from more than "respectable" positions during the Middle Ages, the content of the basket seems to approach barebones baskets' levels after the great inflation of the sixteenth century.

Figure 16 compares the evolution of the resulting index to the benchmark consumer price indices obtained using the weighting schemes implied by Allen (2001)'s barebones and Allen (2006)'s respectability baskets.[35]

It is possible to note that this index (CPI III) follows the evolution of the other indices over the long term but it is higher than the barebones consumer price index and closer to the inflationary levels predicted by the respectability basket.

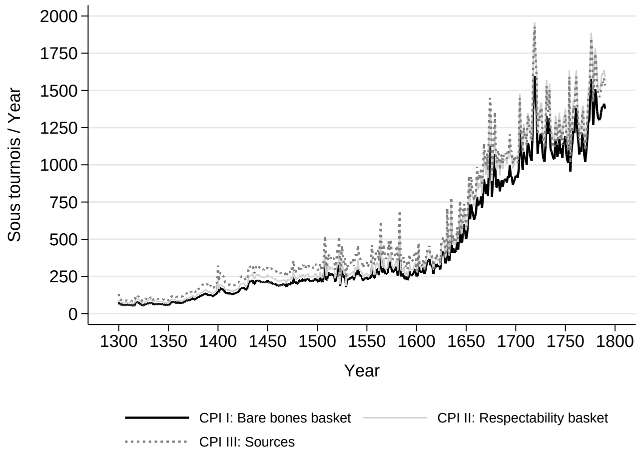

Figure 16: Consumer price indices: Different specifications

A second issue concerns the type of index as different formulae may suggest opposite conclusions.

We thus constructed a geometric price index and compare the results with the Laspeyres index.

In the geometric index, the spending shares are constant while quantities

[35] The weights of the respectability basket are detailed in Table 2 of the Appendix. Weights are derived from Allen (2006) with wine substituted for beer. All goods have the same weights of the barebones basket with the exception of bread that is increased from 182 to 234 kilograms per year.

are left free to vary over time. To define the weights I examined the expenditure shares of many family budgets using the available published sources. The analysis of these data requires great care as expenditure shares varied greatly over time, across places and according to the social and economic status of the subject considered, be it a family or an institution. To control for such heterogeneity and make results compatible with the barebones basket, I limit the analysis to the expenditures of rural families, hospitals and charity institutions.

Unfortunately, we dispose few rural budgets while those of charity institutions often rise issues of representativeness, related to the opportunity of extending conclusions derived in that context to the milieu of urban workers in general.

Factors specific to the health status of patients were sometimes significant determinants of the unusual large consumption of some goods. The patients of the Hopital de Dieu in Paris in the fifteenth and sixteenth centuries were regularly administered meat and great quantities of wine (Hohl, 1971) also because these goods were held useful to treat specific pathologies or beneficial in general (wine).

The alimentary regimes observed at the Hopital de Saint-Esprit in Marseille in 1409-1410 (Stouff, 1970) and the hospitals of Caen (Villemon, 1971) and Toulouse (Vedel, 1975) during the eighteenth century point to the same conclusion: presence of varied diets including sufficient quantities of dairy products and legumes; regular consumption of wine and meat even in large quantities; provision of regular meals also in period of crisis and starvation (Bennassar and Goy, 1975).

All these facts would suggest that the assisted poor were in a somewhat privileged position as compared to the lower class that populated the suburbs of the cities or the countryside (Bennassar and Goy, 1975).

To limit all these problems and ensure consistency we tried different spending shares. Most of the budgets examined here are alimentary budgets and do not provide information about lighting and clothing especially for earlier periods.

The weights for these categories are thus derived from the eighteenth century records.

Disposable evidence suggests that energy and clothing accounted for about 20 per cent of total expenditure excluding rents.
The remaining 80 per cent was spent on food. These numbers are very close to Allen (2001)'s spending shares. The preferred weighting schemes are reported in Table 3 of the appendix.
Following Allen (2001), in the first specification we set the spending share of bread at 0.5 and reduce those of the others goods proportionately according to their daily caloric intake.
The second weighting scheme derives expenditure shares from the available sources described above and actually coincides with the expenditure shares of Allen's barebones basket (Allen, 2001, p.421).
Figure 17 compares the Laspeyres index with the geometric consumer price indices obtained using the weights of Table 3.
It is possible to see that differences between the series are negligible.

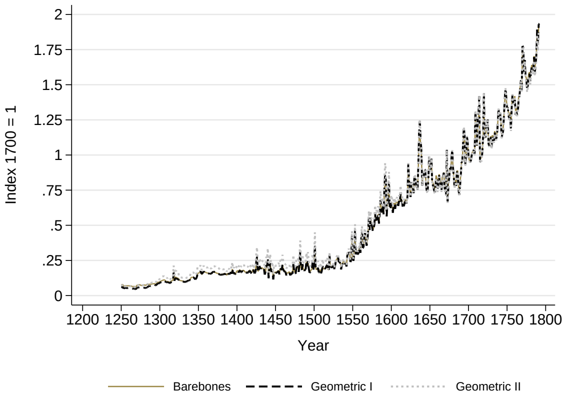

Figure 17: Consumer price indices

Notes: The index labeled "Geometric I" has been constructed using Allen (2001)'s weights (Table 3 column 1). The index labeled "Geometric II" has been obtained by applying the weighting scheme of Table 3 column 2.

2.3 Real Wages

Nominal wages and prices are used to construct real wages. To allow international comparisons and ease interpretation, we follow Allen (2001)'s approach and express results in welfare ratios. These are particularly scaled versions of real wages obtained dividing annual income of a family of four components (woman, man and two children) by the cost of maintaining it.

Computations of annual income rest on the assumptions that the adult male worked 250 days per year and was the only one who earned income in the family. Total expenses are set equal to 3.15 times the price of the basket of goods so as to include a housing cost of 5 percent of total expenditure and support the entire family at the same standard of living of the man.

Figure below shows the welfare ratios of craftsmen, laborers and farmers constructed using Allen (2001)'s barebones basket with the weights defined in Table 1.

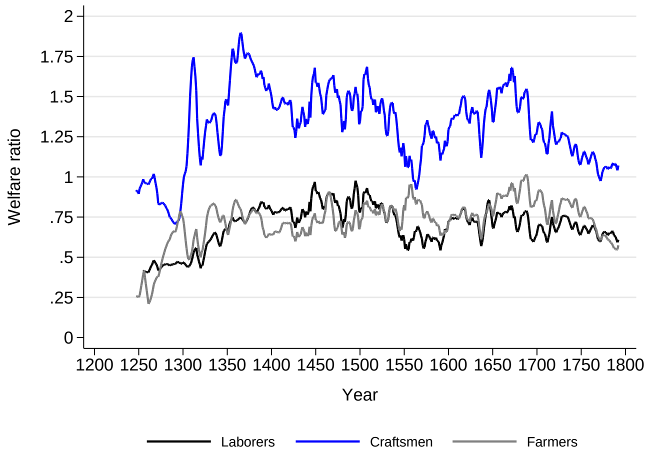

Figure 18: Welfare Ratios in France (1250-1789)

In the course of more than five centuries, the situation of skilled workers

was always more favorable as compared to unskilled workers.
Craftsmen's welfare ratios averaged above the threshold 1, meaning that the basic needs of the family were granted and some extra income was still available to afford to buy additional items.
Nevertheless, the pattern of craftsmen's relative prosperity changed over time and had its distinctive features. Until the 1280s living standards were below subsistence levels.
The period 1280-1380 witnessed the most spectacular growth of real wages in French history and after the Black Death, welfare ratios reached their peak for the entire period in the 1370s.
Between the 1370s and the 1530s real wages declined, remained stable around 1.5 but then returned to their pre-plague levels during the crisis of the first half of the sixteenth century. Successive years witnessed a sustained recovery of welfare ratios culminated in the 1670s and then a new sharp decline that continued throughout the eighteenth century.
After the 1380s the condition of the skilled working class in France had experienced no trend improvement in living standards and, on the eve of the French revolution real wages were returned to subsistence levels.
Farmers and laborers' condition was different. Their earnings were not sufficient to ensure a decent standard of living since welfare ratios on average were 25 percent below the poverty line, as reckoned here. Despite that, we notice some trend improvement.
The series developed here point to one important conclusion:
the fundamental event in French wage history was the sustained growth in real wages that brought living standards to rise by a factor of about 1.9 between the second half of the thirteenth century and the 1370s (Figure 18). This was the structural break that put the trajectory of French real wages on a higher level and set the pace of their growth. The Black Death strengthened this trend but was not decisive as most of real wage growth realized before its appearance. From the 1350s onwards with some typical differences between city and the countryside, real wages fluctuated around these levels and there was no dramatic fall that eroded the positions gained in the first half of the fourteenth century.
To highlight these improvements and make results more readable, fig-

ure below presents welfare ratios of farmers and laborers in index form where average welfare ratios in 1770-9 are set to 1.

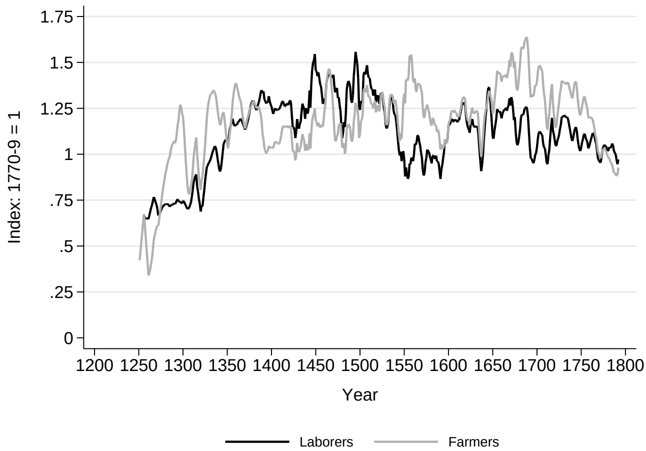

Figure 19: Real Wages in France (Index 1770-9 = 1)

Before 1280 the real wages of laborers averaged 30 percent below of their level in 1770-9 but in the decade just before the Black Death, they were already 20 percent above this threshold. After the plague, real wage growth gained momentum and in the 1490s welfare ratios reached the peak for the entire period averaging 40 percent above the 1770-9 level. Between 1510 and 1555 real wage rates witnessed a sharp decline, but soon after they regained previous positions. From the 1550s to the 1780s phases of expansion and contraction alternated but real wages remained high and stable around 10 percent above of the 1770-9 level.

Real farm wages experienced a similar long term evolution. To check the consistency of our figures it is useful to compare the results with those presented in other studies.

The discussion will proceed as follows.

First, we compare our estimates with the available series for France.

Second, we set our figures in an international comparative context to have a broader perspective.

Allen (2001) proposed the first series of welfare ratios for laborers and craftsmen for Paris over the period 1431-1911. To make comparisons more informative we used our dataset to construct new series of building laborers and craftsmen's welfare ratios for Île-de-France following the approach proposed by Allen (2001).

Figures 20 and 21 compare the results. The real wage series of construction workers in Île-de-France tracks well Allen's figures when they overlap even though our estimates suggest that real wages declined more during the first half of the fifteenth century and by the end of the eighteenth century.

From the graph it is also possible to analyze the pattern of relative prosperity between Paris and France in the course of five centuries. This process has its own distinct features.

First, Paris was not always Paris.

At the beginning of the period, in the pre-plague years, the dominant pattern was income convergence. This reflected the fact that the level of prices in Paris was similar to the rest of France and the wage premium was not large. It was only after the Black Death and especially by the end of 1400, that the gap in real wages arose.

It is possible that income divergence was fostered with some delay, by the unequal spread of disease over the French territory. Since the plague hit harder where population was more concentrated it is likely that the economic effects of the Black Death, including the rise of nominal wages, were relatively stronger in large urban agglomerates like Paris, than in France as a whole.[36]

[36] See Malanima (2012).

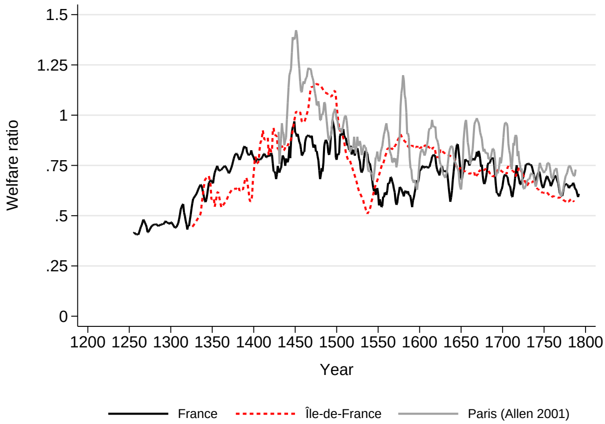

Figure 20: Welfare Ratios of Laborers in France: Comparison

Sources: France and Île-de-France (this study); Paris (Allen, 2001).

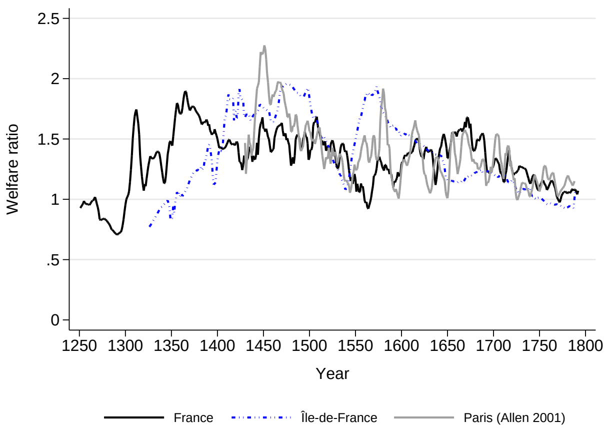

Figure 21: Welfare Ratios of Craftsmen in France: Comparison

Sources: France and Île-de-France (this study); Paris (Allen, 2001).

By the second half of the fifteenth century the real wage differential was at a maximum.
On the eve of the modern era, however, new dynamics were on the move. The figure indicates indeed that a phase of income convergence took place between 1480 and 1789.
At first it was sustained by the different rhythm of growth of prices and nominal wages at the beginning of 1500. While nominal wages were stable, prices grew much more rapidly and real wages decreased especially in the cities where the inflationary movements were stronger.
By the second half of the sixteenth century, nominal wages started to rise rapidly and provided that prices grew less, real wages increased. Again this process was more evident in large urban agglomerates than in small towns and in the cities rather than in the countryside.[37]
The gap between Île-de-France and the rest of the country temporarily enlarged. By the end of 1500 throughout the eighteenth century real wages trended downward in Île-de-France, while remained fairly stable in France. Fostered by the growing inflationary gap between Paris and the country, these joint dynamics brought the two series to cross and appeared to create income converge or even a reversal in the real wage differential between Paris and France on the Eve of the French revolution.
Second, the pattern of relative prosperity tracked closely the fluctuations of the economic cycle. Between 1300 and 1789 the phases of economic expansion were characterized by greater income dispersion while during crisis real wage differentials decreased.
Indeed, the perspective of this study tentatively shifts the ground from cross-country to in-country comparisons in the debate about living standards in pre-modern Europe.
As Allen (2001) demonstrated, by the sixteenth century, real wages diverged dramatically in Europe. The interesting feature is that over the same period we observe income convergence in France. It is premature to extend these results to other countries but it is plausible that one distinctive feature of modern economic growth was the coexistence of cross

[37] See Malanima (2012).

national divergence and national converge in real wages.
The expansion of international trade and the consolidation of national states were possible factors that by 1500, at least in France contributed to unify the labor market and were conducive to real wages equalization.

Second, we set our estimates in an international comparative context to have a broader perspective.
Allen (2001) provides estimates of the welfare ratios of construction workers of several European cities that can be compared with the figures presented here. In particular, it is useful to check our series against those of London, Antwerp and Northern Italy that, in the words of Allen (2001), represent three distinctive paradigms in the evolution of real wages by the sixteenth century onwards.
As Figure 22 demonstrates, real wages of unskilled construction workers in France were much lower than in the rest of Europe.

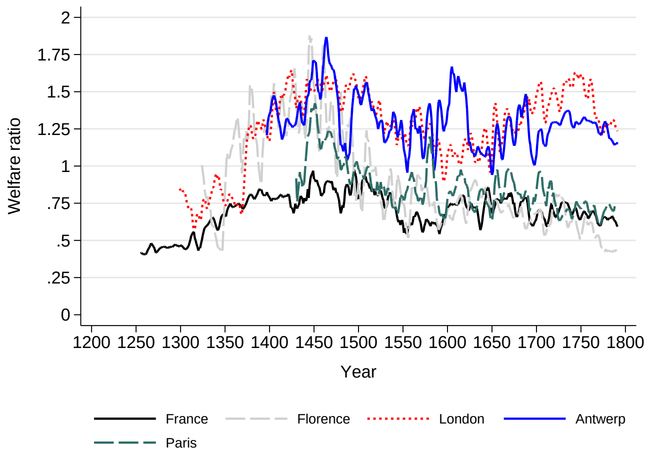

Figure 22: Welfare Ratios of Laborers in Europe

Sources: France (this study); other series Allen (2001).

The real wage gap between France and the Continent or at least with re-

spect to England was already established by the second half of the thirteenth century, when labourers in London had a labour income that was about 30 per cent higher than in France. The sustained growth of the pre-plague years temporarily closed this gap but the previous pattern of relative prosperity between France and the continent re-emerged definitively by the second half of the fourteenth century. Now in the decade prior to 1350 the real wage differential between France and its comparables was remarkably low. About a century later, in the 1450s, French building laborers had about half of the income of their European counterparts. As suggested by Figure 23, the income gap was not inherently urban and regarded farmers as well.
Thus, the period 1350-1500 witnessed the most important income divergence in French wage history as opposed to the "little" divergence of 1500 that marked the divide between London - Low Countries and the rest of Europe.

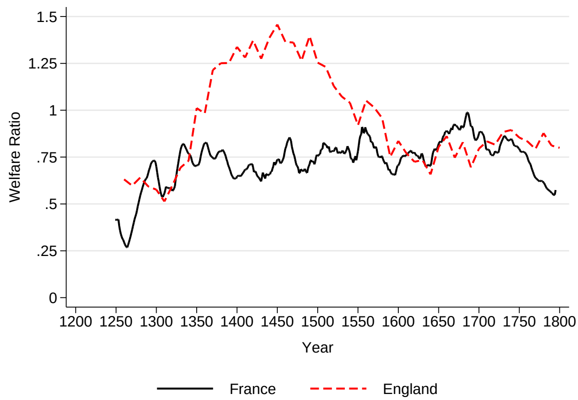

Figure 23: The French Little Divergence

Sources: France (this study). Nominal wages for England from (Clark, 2007) and prices discounting by 20 per cent the prices for London from (Allen, 2001).

Previous discussion highlighted cross-national comparisons of income

levels, but it is not fully revealing of real wages' evolution.
Figures below compare the series of real wages of construction workers and farmers developed here with analogous estimations proposed by Allen (2001) for London and Clark (2005) for England.
For real wages 1770-9 is set to 1.
These pictures establish the main result of this chapter.
Real wages in France and England grew at the same rate between the 1280s and the 1770s.
In particular, both in France and England real wages of building laborers and farmers rose more than 40 percent between the 1280s and the decade 1770-9. Over the same period craftsmen' real wages grew by about 25 percent in the two countries.
This evidence is even more striking if previous series are compared to the declining pattern of real wages in Northern Italy (Figure 27).

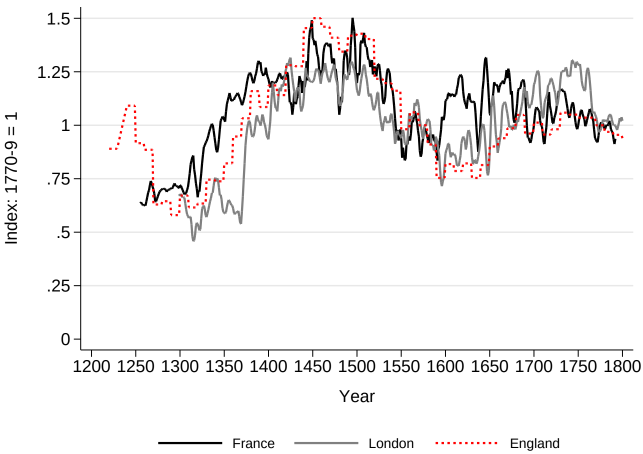

Figure 24: Real Wages of Laborers (Index 1770-9 = 1)

Sources: France (this study); London (Allen, 2001) ; England (Clark, 2005)

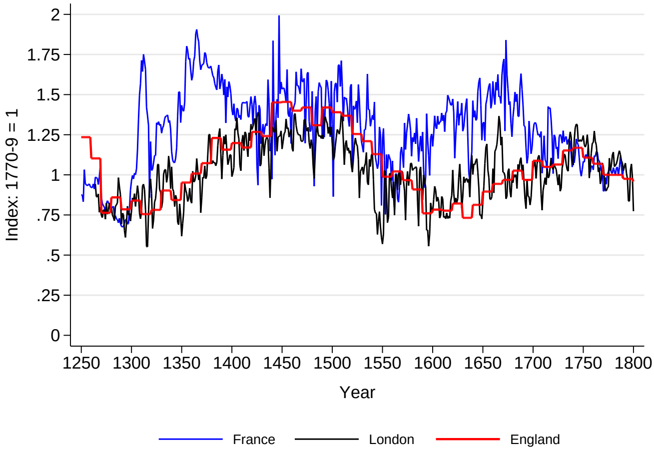

Figure 25: Real Wages of Craftsmen (Index 1770-9 = 1)

Sources: France (this study); London (Allen, 2001); England (Clark, 2005) .

Figure 26: Real Wages of Farmers (Index 1770-9 = 1)

Sources: France (this study); England (Clark, 2005).

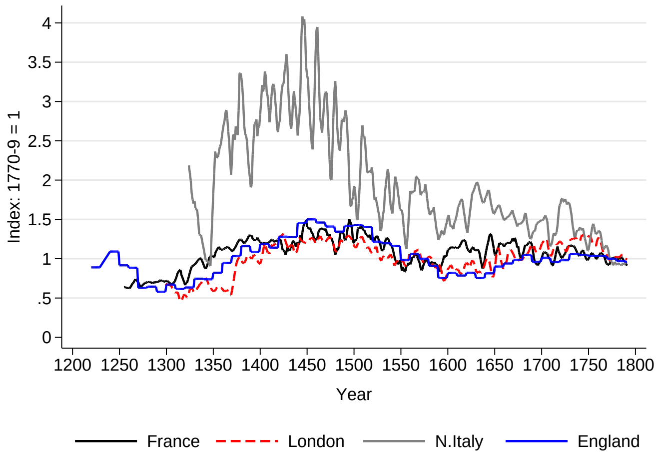

Figure 27: Real Wages of Laborers: Comparison

Sources: France (this study); London and Northern Italy (Allen, 2001); England (Clark, 2005).

Indeed, the broad perspective of this study shifting back in time our knowledge of real wages calls into question our previous understanding of the growth performance of France and provide a richer, but somewhat different, image of the very process of growth in Europe before the Industrial Revolution. Let us consider why.

The working hypothesis in the literature (Le Roy Ladurie, 1966) is that before the nineteenth century real wages stagnated and there was no trend improvement of living standards in France. This idea of a motionless society was grounded on a consistent body of empirical evidence that started from the mid-fifteenth century.

Yet, the factual basis for previous years was very scarce. Figures above show that if our series would have started in 1400 that is where previous series approximately arrived, our understanding of the process of growth would have confirmed this hypothesis. Indeed, between the 1400s and the 1770s welfare ratios of building laborers decreased by about 15 percent fluctuating around 0.7, 30 percent below the poverty line. These results would suggest that Malthusian stagnation was the dominant pat-

tern and confirm previous literature.
What is even more interesting is the fact that if one replicates the previous exercise starting from the pre-plague years welfare ratios exhibit no trend improvement in France. Nevertheless, over the same period real wages grew by about 40 percent in England. The conclusion would have been that while France was intrinsically stagnant, England was able to relax some of the Malthusian constraints even before the Industrial Revolution.
Going further back in time the overall picture becomes more informative. The monolithic view of the French economy as a stagnating system, loses ground and it is complicated but not denied. It becomes specific of a particular period (1350-1789) rather than of the overall French history. Figure 28 compares real wages with the series of French total population derived from Dupâquier (1988). These numbers are indices with 1770-9 set to 1.

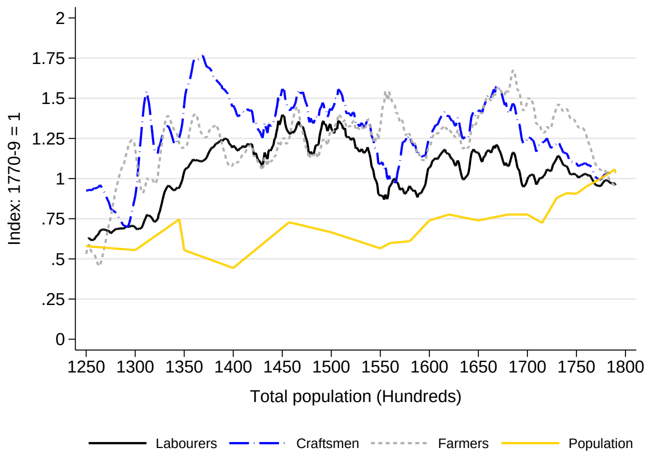

Figure 28: Real Wages and Population

Sources: Total Population (Dupâquier, 1988); Real wages (this study).

The image that comes out from this comparison points to the existence

of four distinct phases.
The first corresponds to the years 1280s-1340s. Prompted by the reforming action of King Philip IV, this is the era of state formation in France and the period that witnessed the de facto abolition of serfdom in many parts of the French kingdom. Real wages increased dramatically while population was on the rise. At the eve of the Hundred Years' War wages had reached their peak for the entire period. This sharp increase represented the most important break in French real wages history until up the Industrial Revolution.
The second phase (1340s-1550s) was characterized by a remarkably high degree of positive correlation between population and real wages.
The joint effect of political turmoil, war and famine complicated the evolution of real wages in a non trivial way. The inverse relationship between wages and population predicted by Malthusian theory was thus an exception rather than the rule.
The response of real wages after the Black Death is a typical example of this.
Between 1348 and 1360 real wages increased as result of the sharp fall in total population caused by the bubonic plague. However, real wages grew less and for a shorter period than in the rest of the Continent. By the end of the Hundred Years' War in 1453, real wages were below to their pre-plague levels the only exception being real wages of building laborers that show some trend improvement.[38]
No other country exhibits a similar decline. Indeed, elsewhere in Europe the welfare gains produced by the Black Death consolidated almost until up the 1450s.
It is thus possible that the rise in taxation, the growing cost of capital and the inflationary movements generated by persistent military conflict depressed real wages and were at the origin of the French uniqueness among our sample countries.
This picture is broadly consistent with Hoffman's hypothesis that exter-

[38] Evidence suggests that after the Black Death in some cases wages were regulated by law. This practice, whose diffusion is difficult to establish, was intended to limit the growth of nominal wages.

nal shocks, as well as wars and political turmoil, stunted the process of growth in France (Hoffman, 2000).
Between the 1550s and the 1730s French economy shows the first signs of significant productivity growth.
With some differences between city and the countryside and between skilled and unskilled professions, real wages soared by about 25 percent. However, for the first time by the epoch of state formation, this improvement was not explained by declines in population. Indeed, wage gains were reached despite population and real rents rose by 49 and 33 percent respectively over the same years and the tax burden was growing to sustain the military expenditures of the state.[39] It is thus interesting to note that the first escape from the stasis coincided in time with state centralization even though the consolidation of the Absolutist state under the reign of Louis XIV by the early 1680s, corresponded with a rapid decrease in real wages.
By the 1730s until the French revolution, a seemingly stable inverse relationship characterizes the dynamics between wages and population.
However, real wages were probably depressed by the growing cost of capital by the 1750s and the heavy taxation imposed to sustain the disastrous finances of the state during the reigns of Louis XV and Louis XVI. In the same period population expanded at an even higher rate.
The results proposed here sit uneasily with the theories emphasizing the notion of static society for France during the Ancient Regime.
As suggested by Clark (2005), if the Malthusian dynamics could be roughly measured, ceteris paribus, by the inverse relationship between population and real wages, then this was an exception in French real wage history. Most of the time, when population expanded, wages increased, when population dropped wages decreased (Figure 29).

[39] The tax burden can be approximated by yearly per capita revenues of the French state. Data come from Dincecco (2009). Evidence on land rents is derived from d'Avenel (1894) and Hoffman and Rosenthal (1997).

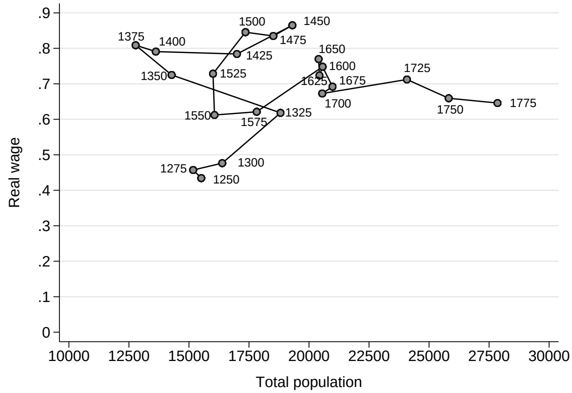

Figure 29: Real Wages vs Total Population

Sources: Total Population (Dupâquier, 1988); Real wage (this study).

In the course of five centuries between 1280 and 1789 roughly one century exhibited the expected relationship. Nevertheless, over these years the relationship was confounded by other factors including fiscal crisis and persistent military conflict as the Hundred Years' War and Seven Years' War.[40]

On the whole the series developed here suggest that there were two periods of sustained TFP growth. Even though we do not set any econometric specification to test correlation between state formation and growth, it is interesting to note that both of these growth episodes occurred after or coincided in time with periods of fiscal and political centralization.

In what follows, due to the lack of direct quantitative evidence, we can only advance a tentative explanation of these patterns.

The first phase, between 1280 and 1348, occurred after that France had reached a certain territorial stability under the reigns of Philip Augustus

[40] Note that at the end of the Hundred Years' War between 1460 and 1500 population fell while real wages of construction workers rose. It is possible that this depends on the higher demand of craftsmen in the phase of reconstruction after the war. Farm wages fell as well.

(1180-1223) and Louis VIII (1223-1226)[41] and pursued political and administrative centralization due to the reforming action of Louis IX (1226-1270) and Philip IV.[42]
Even more importantly, the royal expansion over the powerful feudal neighbors was at the origin, more or less directly, of the abolition of serfdom in many French regions (Boutruche, 1947, p.98). While the process took various forms and had several regional variants, it seems to have been marked by the monarchical intervention in favour of peasantry in the dispute over the burden of taxation between lords and rural villages (Brenner, 1976). Direct support consisted in the enfranchisement of new communities, the recognition of particular privileges or the creation of free cities in exchange of conspicuous sums of money (Lopez, 2004). This strategy enriched royal finances but at the same time, next to the traditional forms of seigniorial control, it created a new constellation of free or privileged areas that represented a serious threat over lords attempts to maintain their rights over peasants because serfs now had stronger incentives to escape their control. Seemingly, this dynamic raised the bargaining power of serfs and was conducive to the transition from an economy of serfs to an economy of waged labourers. Overall this process had the effect of reducing the availability of cheap labour force and seemingly resulted in an upward pressure on real wages well in advance of 1348.
The second phase coincided in time with the war of religion (1556-1598) and the rise and consolidation of Absolutism in France, though some of the increase in real wages was the result of the inflationary effects of gold inflows from the America.[43]

[41] The question of the English possessions in France was not yet resolved as the Hundred Years' War proved.
[42] See Lopez (2004).
[43] The fact that over these years other countries experienced similar or higher trend growth, would suggest that real wages' increase in France was more an international phenomenon than a matter of political economy.

2.4 Conclusion

Using a new large set of printed primary and secondary sources, this study traces the history of real wages for male farmers and construction workers in France from 1250 to 1789. The analysis highlighted three important aspects in the evolution of French real wages.

First, our series suggest that real wages were trendless between the 1360s and the end of the eighteenth century, but rejects the argument that there was no long run improvement in living standards before the Industrial Revolution. Instead, the evidence demonstrates that real wages of building laborers and farmers rose more than 40 percent between the 1280s and the 1770s displaying a trend improvement similar to England. Yet, most of the rise was explained by a single episode of growth that took place between the 1280s and the 1360s and shifted the trajectory of real wages on a higher path. We speculate that this episode of growth was deeply entrenched with the process of French state formation and its ramifications on real wages through changes in class structure and property relationship (Brenner, 1976).

Second, we found that the period 1350-1450 witnessed the most important income divergence in French wage history as opposed to the "little" divergence of 1500 that marked the divide between London - Low Countries and the rest of Europe. Still in the decade prior to 1350 the real wage differential between French and European workers of the construction sector was remarkably low. Seventy years later, in the 1420s, French building laborers had about half of the income of their European counterparts.

Comparing real wages of farmers in France and England we found a similar pattern and no trace of a French "golden age of labour".

Indeed, after the Black Death, real wages grew less and for a shorter period than elsewhere on the Continent where the welfare gains consolidated almost until up the 1450s. As a first step, we decompose the proximate causes of this gap between prices and wages. We found that while nominal wages were on a par with salaries of construction workers in Europe, the level of prices in France was structurally higher. It is thus possible that the inflationary effects of political turmoil and persistent military conflict, caused by the Hundred Years' War and the several feudal disputes on the French territory, contributed to explain the French uniqueness among our sample countries. These factors would explain the characteristic "dampened" Malthusian cycle of real wages in France as opposed to the "full" Malthusian cycle experienced by England and centre-northern Italy.

Finally, despite the fundamentally empirical nature of the claims being made in this study, this work has also important implications for the theory of growth in pre-industrial Europe. Indeed, the French case provides a fascinating laboratory to test the validity of the neo-Malthusian theory. Quite surprisingly, the predictions of the standard Malthusian model were not satisfied. Referring to the English economy, Michel Postan identified "the inexorable effects of rising and declining population" as the great objective forces explaining the process of growth. Yet, in France, demographic fluctuations were much less inexorable. Most of the time, when population expanded, real wages increased, when it dropped real wages decreased. Roughly one century exhibited the expected sign but even in these years the relationship was spurious because it occurred during fiscal crisis and war periods.

2.5 Appendix

Table 2: Respectability Consumption Basket of Goods

Good	**Unit**	**Weight**	**Cal./Unit**	**Cal./day**	**Protein/Unit**	**Protein/day**
Bread	kg	234	2450	1678.1	100.0	68.5
Beans/peas	liter	52	1125	160.3	71.0	10.1
Beef	kg	26	2500	178.1	200.0	14.2
Butter	kg	5.2	7286	103.8	7.0	0.1
Cheese	kg	5.2	3750	53.4	214.0	3.0
Eggs	each	52	79	11.3	6.3	0.9
Wine	liter	91	850	211.9	0.0	0.0
Soap	kg	2.6				
Linen	meter	5				
Candles	kg	2.6				
Oil light	kg	2.6				
Firewood	BTU (Millions)	5				
Cal./day				**2397**		**97**
Period						
from	1250	1250	1250	1250	1250	1250
to	1789	1789	1789	1789	1789	1789

Sources: The basket is based on Allen (2006).

Table 3: Consumption Basket: Expenditure Shares (%)

Good	Weights Allen (2001)	Weights Sources
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
Period		
from	1250	1250
to	1789	1789

Sources: See the text.

Table 4: Consumption basket: Actual Quantities

Good	Unit	Weight	Weight	Weight	Cal. unit	Cal. day	Cal. day	Cal. day	Prot. unit	Prot. day	Prot. day	Prot. day
Bread	kg	300	270	250	2450	2014	1812	1678	100	82	74	68
Legumes	liter	52	52	52	1125	160	160	160	71	10	10	10
Beef	kg	24	18	15	2500	164	123	103	200	13	10	8
Butter	kg	3	3	3	7286	52	52	52	7	0	0	0
Cheese	kg	3	3	3	3750	27	27	27	214	2	2	2
Eggs	each	52	52	52	79	11	11	11	6	1	1	1
Wine	liter	200	150	150	850	466	349	349	0	0	0	0
Soap	kg	3	3	3								
Linen	meter	5	5	5								
Candles	kg	3	3	3								
Oil light	kg	3	3	3								
Firewood	BTU	5	5	5								
Nutrients/day						**2894**	**2535**	**2380**		**108**	**96**	**89**
Period												
from	1280	1280	1600	1700	1280	1280	1600	1700	1280	1280	1600	1700
to	1800	1600	1700	1800	1800	1600	1700	1800	1800	1600	1700	1800

Sources: See the text.

Table 5: Price series: Index 1700 = 1

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1250	0.09		0.10			0.11	0.03					
1251	0.09		0.10			0.11	0.03					
1252	0.09		0.10			0.11	0.03					
1253	0.07		0.10			0.11	0.03					
1254	0.08		0.10			0.11	0.03					
1255	0.08		0.10			0.11	0.03					
1256	0.08		0.10			0.11	0.03					
1257	0.08		0.10			0.11	0.04					
1258	0.07		0.10			0.11	0.04					
1259	0.08		0.10			0.11	0.04					
1260	0.08		0.10			0.12	0.04					
1261	0.07		0.10			0.12	0.04					
1262	0.07		0.10			0.12	0.04					
1263	0.07		0.10			0.12	0.04					
1264	0.07		0.10			0.12	0.04					
1265	0.07		0.10			0.12	0.04					
1266	0.07		0.10			0.12	0.04					
1267	0.07		0.09			0.12	0.05					
1268	0.06		0.09			0.12	0.05					
1269	0.05		0.09			0.12	0.06					
1270	0.07		0.09			0.12	0.06					
1271	0.08		0.09			0.12	0.07					
1272	0.08		0.09			0.12	0.07					
1273	0.08		0.09			0.12	0.08					
1274	0.08		0.09			0.12	0.08					
1275	0.07		0.09			0.12	0.09					
1276	0.07		0.09			0.12	0.09					
1277	0.07		0.09			0.13	0.10					
1278	0.07		0.09			0.13	0.10					
1279	0.07		0.09			0.13	0.11					
1280	0.07		0.09			0.13	0.11					
1281	0.06		0.09			0.13	0.12					
1282	0.06		0.09			0.13	0.12					
1283	0.07		0.09			0.13	0.12					
1284	0.07		0.09			0.13	0.12					
1285	0.07		0.09			0.13	0.12	0.07		0.09	0.12	
1286	0.07		0.09			0.13	0.12	0.07		0.09	0.12	
1287	0.08		0.09			0.13	0.12	0.07		0.09	0.12	
1288	0.07		0.09			0.13	0.12	0.07		0.09	0.12	
1289	0.08		0.09			0.13	0.12	0.07		0.09	0.12	
1290	0.08		0.09			0.13	0.12	0.07		0.10	0.12	
1291	0.08		0.09			0.13	0.12	0.07		0.10	0.12	
1292	0.08		0.09			0.12	0.12	0.07	0.06	0.10	0.13	
1293	0.09		0.09			0.12	0.12	0.08	0.06	0.10	0.13	
1294	0.08		0.09			0.11	0.13	0.08	0.06	0.10	0.13	
1295	0.08		0.09			0.11	0.13	0.08	0.06	0.10	0.13	
1296	0.08		0.09			0.11	0.13	0.08	0.11	0.10	0.13	
1297	0.09		0.10			0.10	0.13	0.08	0.16	0.10	0.13	
1298	0.09		0.10			0.10	0.14	0.08	0.15	0.10	0.13	
1299	0.09	0.07	0.11			0.09	0.14	0.08	0.15	0.10	0.14	
1300	0.09	0.07	0.11			0.09	0.14	0.08	0.15	0.09	0.14	
1301	0.09	0.07	0.11			0.09	0.19	0.08	0.14	0.09	0.14	
1302	0.09	0.07	0.11			0.08	0.19	0.08	0.14	0.09	0.14	
1303	0.10	0.07	0.12			0.08	0.19	0.08	0.14	0.08	0.14	
1304	0.10	0.07	0.12			0.08	0.19	0.08	0.13	0.08	0.14	
1305	0.11	0.07	0.11			0.07	0.19	0.08	0.13	0.07	0.15	

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1306	0.13	0.06	0.11			0.07	0.13	0.08	0.15	0.07	0.15	
1307	0.11	0.06	0.11			0.06	0.17	0.08	0.15	0.07	0.15	
1308	0.10	0.06	0.11			0.06	0.17	0.08	0.13	0.07	0.15	
1309	0.09	0.06	0.11		0.06	0.06	0.19	0.08	0.13	0.07	0.15	
1310	0.09	0.06	0.11		0.06	0.05	0.17	0.08	0.12	0.12	0.15	
1311	0.09	0.07	0.11		0.06	0.05	0.20	0.08	0.12	0.12	0.15	
1312	0.09	0.07	0.11		0.06	0.05	0.14	0.08	0.12	0.12	0.15	
1313	0.09	0.07	0.11		0.06	0.05	0.14	0.08	0.12	0.12	0.15	
1314	0.09	0.07	0.11		0.06	0.05	0.14	0.08	0.12	0.12	0.15	
1315	0.09	0.07	0.11		0.06	0.05	0.23	0.08	0.12	0.12	0.15	
1316	0.09	0.07	0.11		0.06	0.04	0.23	0.09	0.12	0.13	0.15	
1317	0.09	0.07	0.12		0.06	0.03	0.23	0.10	0.13	0.13	0.15	
1318	0.21	0.06	0.12		0.05	0.03	0.23	0.10	0.13	0.13	0.15	
1319	0.10	0.06	0.12		0.05	0.03	0.23	0.10	0.13	0.13	0.15	
1320	0.10	0.06	0.12		0.05	0.06	0.38	0.10	0.15	0.13	0.15	0.06
1321	0.10	0.06	0.12		0.05	0.06	0.38	0.10	0.15	0.13	0.15	0.06
1322	0.10	0.06	0.11		0.05	0.07	0.33	0.10	0.15	0.13	0.16	0.06
1323	0.10	0.06	0.12		0.05	0.07	0.30	0.10	0.17	0.13	0.16	0.06
1324	0.10	0.06	0.11		0.05	0.07	0.30	0.10	0.16	0.13	0.16	0.06
1325	0.10	0.05	0.12		0.05	0.05	0.19	0.10	0.16	0.13	0.16	0.07
1326	0.10	0.06	0.12		0.06	0.05	0.17	0.10	0.18	0.13	0.16	0.08
1327	0.10	0.06	0.12		0.06	0.06	0.15	0.10	0.18	0.13	0.16	0.08
1328	0.10	0.05	0.12		0.06	0.08	0.14	0.09	0.18	0.13	0.16	0.08
1329	0.10	0.05	0.12		0.06	0.09	0.14	0.09	0.14	0.13	0.16	0.08
1330	0.10	0.05	0.12		0.06	0.11	0.14	0.09	0.14	0.13	0.16	0.08
1331	0.10	0.05	0.12		0.07	0.12	0.15	0.09	0.10	0.13	0.16	0.08
1332	0.09	0.04	0.12		0.07	0.12	0.15	0.09	0.10	0.13	0.16	0.08
1333	0.09	0.04	0.12	0.06	0.07	0.10	0.14	0.09	0.10	0.13	0.16	0.08
1334	0.09	0.04	0.13	0.06	0.07	0.10	0.14	0.09	0.10	0.13	0.16	0.08
1335	0.09	0.04	0.13	0.06	0.07	0.08	0.16	0.09	0.11	0.13	0.16	0.08
1336	0.09	0.04	0.14	0.06	0.08	0.07	0.17	0.09	0.12	0.13	0.16	0.08
1337	0.10	0.04	0.14	0.06	0.08	0.07	0.17	0.09	0.12	0.13	0.16	0.08
1338	0.10	0.04	0.14	0.07	0.08	0.06	0.19	0.09	0.13	0.14	0.09	0.08
1339	0.10	0.04	0.14	0.07	0.08	0.06	0.19	0.11	0.13	0.18	0.10	0.08
1340	0.12	0.04	0.14	0.08	0.08	0.08	0.19	0.11	0.16	0.18	0.10	0.07
1341	0.13	0.04	0.15	0.08	0.09	0.08	0.19	0.11	0.17	0.16	0.10	0.07
1342	0.13	0.04	0.15	0.09	0.08	0.08	0.19	0.11	0.15	0.16	0.11	0.07
1343	0.13	0.04	0.15	0.09	0.10	0.08	0.19	0.11	0.16	0.17	0.11	0.07
1344	0.13	0.04	0.15	0.10	0.10	0.08	0.19	0.09	0.16	0.14	0.11	0.07
1345	0.12	0.04	0.15	0.10	0.10	0.08	0.19	0.09	0.15	0.14	0.11	0.07
1346	0.10	0.04	0.15	0.11	0.10	0.09	0.19	0.10	0.14	0.15	0.11	0.07
1347	0.11	0.04	0.15	0.11	0.12	0.10	0.19	0.10	0.15	0.15	0.11	0.07
1348	0.13	0.03	0.15	0.11	0.13	0.11	0.19	0.10	0.15	0.14	0.12	0.07
1349	0.17	0.04	0.15	0.12	0.14	0.11	0.29	0.10	0.15	0.14	0.12	0.07
1350	0.18	0.04	0.16	0.12	0.15	0.12	0.24	0.10	0.15	0.14	0.12	0.07
1351	0.19	0.04	0.16	0.13	0.16	0.11	0.21	0.10	0.15	0.14	0.13	0.07
1352	0.19	0.05	0.17	0.13	0.17	0.10	0.21	0.10	0.15	0.14	0.13	0.07
1353	0.20	0.05	0.19	0.14	0.17	0.12	0.22	0.10	0.15	0.14	0.12	0.07
1354	0.17	0.05	0.19	0.14	0.18	0.12	0.13	0.10	0.15	0.15	0.12	0.07
1355	0.17	0.05	0.20	0.15	0.19	0.12	0.13	0.10	0.15	0.15	0.13	0.07
1356	0.17	0.05	0.20	0.15	0.20	0.14	0.24	0.11	0.15	0.16	0.12	0.07
1357	0.19	0.05	0.19	0.16	0.21	0.14	0.21	0.11	0.16	0.17	0.13	0.07
1358	0.18	0.05	0.18	0.16	0.21	0.09	0.21	0.11	0.18	0.17	0.13	0.07
1359	0.18	0.05	0.18	0.17	0.21	0.09	0.22	0.11	0.18	0.17	0.13	0.07
1360	0.17	0.05	0.18	0.17	0.21	0.09	0.22	0.11	0.18	0.17	0.14	0.07
1361	0.16	0.05	0.18	0.18	0.21	0.09	0.23	0.11	0.18	0.16	0.14	0.07

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1362	0.15	0.05	0.18	0.18	0.20	0.09	0.25	0.11	0.17	0.16	0.13	0.08
1363	0.15	0.05	0.18	0.19	0.20	0.10	0.28	0.11	0.16	0.16	0.13	0.08
1364	0.15	0.05	0.18	0.19	0.19	0.12	0.24	0.10	0.16	0.15	0.14	0.08
1365	0.15	0.05	0.18	0.20	0.18	0.13	0.25	0.10	0.16	0.14	0.13	0.08
1366	0.15	0.05	0.17	0.20	0.18	0.12	0.24	0.10	0.16	0.15	0.13	0.08
1367	0.15	0.05	0.17	0.21	0.17	0.12	0.23	0.10	0.16	0.14	0.13	0.07
1368	0.18	0.05	0.17	0.21	0.16	0.12	0.21	0.10	0.17	0.14	0.13	0.07
1369	0.18	0.05	0.17	0.21	0.16	0.11	0.22	0.10	0.17	0.14	0.13	0.07
1370	0.18	0.05	0.17	0.21	0.15	0.10	0.22	0.10	0.17	0.14	0.13	0.07
1371	0.18	0.05	0.17	0.21	0.14	0.10	0.22	0.10	0.18	0.14	0.13	0.07
1372	0.18	0.05	0.17	0.21	0.14	0.10	0.22	0.10	0.18	0.15	0.13	0.07
1373	0.16	0.05	0.17	0.21	0.13	0.10	0.25	0.10	0.17	0.15	0.14	0.07
1374	0.16	0.05	0.17	0.21	0.12	0.08	0.26	0.10	0.17	0.15	0.13	0.08
1375	0.16	0.05	0.17	0.22	0.12	0.08	0.25	0.10	0.17	0.15	0.13	0.08
1376	0.16	0.05	0.17	0.22	0.11	0.08	0.25	0.10	0.17	0.15	0.13	0.08
1377	0.14	0.05	0.16	0.22	0.10	0.08	0.26	0.10	0.17	0.15	0.13	0.08
1378	0.14	0.05	0.16	0.22	0.10	0.08	0.24	0.11	0.19	0.15	0.14	0.09
1379	0.14	0.05	0.17	0.22	0.10	0.09	0.25	0.11	0.20	0.15	0.14	0.08
1380	0.14	0.05	0.16	0.22	0.10	0.11	0.26	0.11	0.21	0.15	0.14	0.08
1381	0.13	0.05	0.17	0.22	0.10	0.12	0.25	0.11	0.22	0.16	0.14	0.08
1382	0.13	0.05	0.17	0.22	0.16	0.13	0.23	0.11	0.23	0.16	0.15	0.09
1383	0.13	0.05	0.17	0.22	0.23	0.13	0.24	0.12	0.23	0.17	0.15	0.08
1384	0.13	0.05	0.17	0.22	0.23	0.13	0.25	0.12	0.23	0.17	0.15	0.08
1385	0.14	0.05	0.17	0.22	0.23	0.13	0.25	0.12	0.24	0.17	0.15	0.08
1386	0.12	0.05	0.17	0.22	0.23	0.13	0.23	0.12	0.24	0.16	0.15	0.08
1387	0.11	0.05	0.17	0.22	0.23	0.13	0.23	0.12	0.24	0.16	0.15	0.07
1388	0.15	0.05	0.17	0.22	0.20	0.14	0.23	0.10	0.24	0.14	0.14	0.07
1389	0.14	0.05	0.17	0.22	0.16	0.15	0.24	0.10	0.24	0.14	0.14	0.07
1390	0.14	0.05	0.16	0.22	0.13	0.17	0.23	0.10	0.23	0.15	0.14	0.07
1391	0.14	0.05	0.17	0.22	0.13	0.17	0.26	0.10	0.23	0.15	0.14	0.07
1392	0.16	0.05	0.17	0.22	0.18	0.17	0.28	0.10	0.23	0.15	0.14	0.07
1393	0.14	0.05	0.17	0.22	0.18	0.17	0.27	0.11	0.23	0.16	0.14	0.08
1394	0.21	0.05	0.17	0.22	0.18	0.17	0.26	0.11	0.24	0.16	0.14	0.08
1395	0.14	0.05	0.16	0.23	0.24	0.12	0.25	0.11	0.24	0.17	0.15	0.08
1396	0.16	0.05	0.16	0.24	0.24	0.08	0.25	0.11	0.24	0.16	0.15	0.08
1397	0.13	0.06	0.17	0.25	0.20	0.08	0.25	0.11	0.24	0.17	0.15	0.08
1398	0.13	0.07	0.17	0.27	0.16	0.06	0.26	0.11	0.24	0.17	0.15	0.08
1399	0.14	0.09	0.18	0.28	0.13	0.06	0.27	0.11	0.24	0.16	0.16	0.08
1400	0.15	0.11	0.18	0.29	0.17	0.06	0.29	0.11	0.24	0.16	0.16	0.08
1401	0.15	0.14	0.19	0.29	0.18	0.07	0.29	0.10	0.24	0.15	0.17	0.08
1402	0.12	0.15	0.19	0.29	0.20	0.08	0.30	0.10	0.24	0.16	0.18	0.08
1403	0.15	0.15	0.19	0.29	0.19	0.10	0.31	0.10	0.23	0.15	0.18	0.08
1404	0.15	0.15	0.19	0.28	0.21	0.10	0.31	0.10	0.23	0.16	0.18	0.08
1405	0.13	0.15	0.19	0.28	0.21	0.12	0.30	0.11	0.23	0.17	0.18	0.08
1406	0.13	0.15	0.19	0.28	0.21	0.11	0.30	0.11	0.24	0.17	0.19	0.08
1407	0.15	0.15	0.19	0.28	0.21	0.11	0.29	0.11	0.24	0.17	0.19	0.08
1408	0.14	0.14	0.18	0.27	0.22	0.10	0.30	0.12	0.24	0.18	0.19	0.08
1409	0.15	0.12	0.17	0.27	0.22	0.11	0.30	0.12	0.24	0.19	0.19	0.07
1410	0.13	0.11	0.16	0.27	0.22	0.11	0.30	0.12	0.24	0.19	0.19	0.08
1411	0.13	0.09	0.16	0.26	0.22	0.11	0.31	0.12	0.24	0.20	0.18	0.08
1412	0.13	0.08	0.16	0.26	0.22	0.12	0.31	0.12	0.25	0.20	0.18	0.08
1413	0.13	0.08	0.16	0.26	0.21	0.13	0.31	0.13	0.25	0.20	0.18	0.08
1414	0.13	0.09	0.16	0.25	0.21	0.13	0.31	0.13	0.26	0.21	0.18	0.09
1415	0.13	0.08	0.16	0.25	0.20	0.13	0.31	0.13	0.27	0.20	0.19	0.08
1416	0.16	0.09	0.16	0.25	0.20	0.13	0.31	0.13	0.27	0.21	0.20	0.09
1417	0.15	0.08	0.18	0.25	0.20	0.13	0.31	0.13	0.27	0.22	0.20	0.09

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1418	0.12	0.08	0.19	0.24	0.23	0.13	0.31	0.13	0.28	0.21	0.21	0.09
1419	0.11	0.08	0.20	0.24	0.23	0.13	0.30	0.13	0.28	0.21	0.21	0.09
1420	0.12	0.09	0.20	0.24	0.23	0.14	0.29	0.13	0.28	0.22	0.21	0.09
1421	0.16	0.09	0.22	0.24	0.23	0.14	0.28	0.13	0.28	0.22	0.21	0.08
1422	0.12	0.09	0.21	0.23	0.23	0.14	0.28	0.13	0.28	0.22	0.21	0.08
1423	0.11	0.09	0.21	0.23	0.23	0.14	0.29	0.13	0.28	0.22	0.21	0.08
1424	0.12	0.10	0.22	0.23	0.21	0.13	0.30	0.13	0.28	0.21	0.21	0.08
1425	0.27	0.10	0.22	0.24	0.20	0.12	0.30	0.13	0.28	0.21	0.21	0.09
1426	0.34	0.10	0.20	0.24	0.20	0.12	0.31	0.12	0.27	0.20	0.21	0.09
1427	0.13	0.11	0.20	0.22	0.19	0.12	0.32	0.12	0.27	0.20	0.21	0.09
1428	0.14	0.10	0.20	0.21	0.17	0.12	0.31	0.13	0.27	0.21	0.21	0.09
1429	0.22	0.10	0.19	0.20	0.18	0.13	0.31	0.13	0.27	0.22	0.21	0.09
1430	0.20	0.10	0.17	0.17	0.18	0.13	0.30	0.13	0.27	0.23	0.21	0.09
1431	0.18	0.10	0.18	0.16	0.17	0.14	0.29	0.14	0.27	0.24	0.22	0.09
1432	0.21	0.11	0.19	0.17	0.16	0.13	0.29	0.14	0.27	0.23	0.21	0.09
1433	0.19	0.11	0.17	0.17	0.16	0.13	0.30	0.14	0.27	0.23	0.21	0.09
1434	0.18	0.11	0.17	0.17	0.16	0.13	0.31	0.13	0.27	0.22	0.21	0.09
1435	0.18	0.12	0.17	0.16	0.16	0.13	0.32	0.13	0.28	0.22	0.21	0.09
1436	0.11	0.12	0.16	0.16	0.16	0.13	0.31	0.13	0.27	0.22	0.21	0.09
1437	0.14	0.11	0.16	0.15	0.18	0.14	0.32	0.13	0.27	0.22	0.22	0.08
1438	0.24	0.11	0.16	0.15	0.18	0.14	0.32	0.13	0.28	0.22	0.22	0.08
1439	0.22	0.11	0.16	0.15	0.18	0.14	0.32	0.13	0.27	0.21	0.21	0.08
1440	0.33	0.11	0.16	0.15	0.18	0.14	0.33	0.13	0.28	0.21	0.21	0.08
1441	0.05	0.12	0.16	0.14	0.18	0.14	0.34	0.12	0.28	0.20	0.21	0.09
1442	0.18	0.12	0.16	0.14	0.18	0.14	0.34	0.12	0.28	0.19	0.20	0.09
1443	0.27	0.12	0.16	0.14	0.18	0.14	0.34	0.12	0.28	0.19	0.19	0.09
1444	0.17	0.12	0.16	0.13	0.18	0.14	0.34	0.12	0.28	0.20	0.20	0.09
1445	0.14	0.12	0.17	0.13	0.17	0.14	0.34	0.12	0.28	0.20	0.20	0.09
1446	0.17	0.12	0.17	0.14	0.18	0.13	0.34	0.13	0.28	0.21	0.20	0.09
1447	0.03	0.12	0.17	0.14	0.18	0.13	0.34	0.13	0.28	0.22	0.21	0.09
1448	0.13	0.12	0.17	0.13	0.18	0.12	0.34	0.13	0.27	0.21	0.21	0.09
1449	0.12	0.12	0.17	0.13	0.17	0.12	0.34	0.13	0.27	0.21	0.21	0.09
1450	0.13	0.12	0.15	0.13	0.16	0.13	0.35	0.13	0.27	0.21	0.21	0.09
1451	0.13	0.12	0.15	0.12	0.16	0.13	0.37	0.13	0.27	0.20	0.21	0.09
1452	0.13	0.12	0.14	0.12	0.15	0.13	0.38	0.12	0.26	0.20	0.21	0.09
1453	0.14	0.12	0.14	0.12	0.15	0.14	0.38	0.13	0.27	0.21	0.21	0.08
1454	0.15	0.13	0.15	0.12	0.15	0.15	0.39	0.13	0.27	0.21	0.21	0.08
1455	0.10	0.13	0.15	0.12	0.15	0.15	0.39	0.12	0.27	0.20	0.21	0.09
1456	0.18	0.12	0.14	0.12	0.15	0.14	0.39	0.13	0.27	0.21	0.21	0.09
1457	0.18	0.13	0.15	0.12	0.15	0.13	0.39	0.13	0.27	0.20	0.21	0.09
1458	0.16	0.13	0.15	0.12	0.15	0.12	0.39	0.12	0.27	0.20	0.22	0.09
1459	0.24	0.13	0.15	0.12	0.15	0.12	0.39	0.13	0.27	0.20	0.22	0.10
1460	0.16	0.13	0.15	0.12	0.16	0.13	0.39	0.13	0.28	0.20	0.22	0.10
1461	0.14	0.14	0.16	0.12	0.16	0.13	0.40	0.12	0.28	0.20	0.22	0.10
1462	0.13	0.14	0.15	0.12	0.16	0.13	0.40	0.12	0.28	0.20	0.21	0.10
1463	0.13	0.14	0.15	0.12	0.16	0.13	0.39	0.12	0.28	0.19	0.21	0.09
1464	0.09	0.13	0.15	0.12	0.16	0.13	0.37	0.12	0.27	0.18	0.21	0.09
1465	0.11	0.13	0.14	0.12	0.16	0.13	0.37	0.12	0.27	0.19	0.21	0.09
1466	0.12	0.13	0.14	0.12	0.16	0.13	0.36	0.12	0.27	0.19	0.21	0.09
1467	0.12	0.14	0.15	0.12	0.16	0.14	0.36	0.12	0.27	0.19	0.21	0.09
1468	0.13	0.14	0.15	0.12	0.16	0.14	0.38	0.12	0.27	0.20	0.22	0.09
1469	0.08	0.15	0.15	0.12	0.17	0.14	0.38	0.13	0.26	0.21	0.22	0.09
1470	0.10	0.15	0.15	0.12	0.18	0.15	0.39	0.12	0.27	0.21	0.22	0.09
1471	0.10	0.15	0.16	0.13	0.18	0.15	0.39	0.12	0.26	0.21	0.22	0.09
1472	0.10	0.16	0.16	0.13	0.17	0.15	0.38	0.13	0.26	0.21	0.22	0.09
1473	0.24	0.16	0.16	0.13	0.18	0.15	0.38	0.13	0.25	0.21	0.22	0.09

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1474	0.15	0.16	0.16	0.13	0.17	0.16	0.39	0.13	0.26	0.21	0.22	0.09
1475	0.10	0.16	0.16	0.13	0.17	0.16	0.40	0.13	0.25	0.22	0.22	0.09
1476	0.10	0.16	0.17	0.13	0.19	0.17	0.39	0.13	0.25	0.21	0.22	0.09
1477	0.18	0.16	0.17	0.13	0.19	0.18	0.40	0.13	0.25	0.21	0.22	0.10
1478	0.20	0.17	0.17	0.13	0.19	0.19	0.38	0.12	0.26	0.20	0.22	0.10
1479	0.20	0.17	0.17	0.13	0.20	0.19	0.37	0.13	0.26	0.21	0.22	0.10
1480	0.13	0.17	0.17	0.13	0.20	0.20	0.34	0.12	0.26	0.20	0.22	0.10
1481	0.24	0.18	0.16	0.13	0.20	0.20	0.35	0.13	0.26	0.21	0.22	0.10
1482	0.41	0.18	0.17	0.13	0.21	0.20	0.33	0.13	0.26	0.21	0.21	0.10
1483	0.18	0.18	0.16	0.13	0.21	0.20	0.34	0.13	0.26	0.22	0.21	0.10
1484	0.15	0.18	0.17	0.13	0.21	0.20	0.39	0.13	0.26	0.22	0.21	0.09
1485	0.23	0.18	0.17	0.14	0.21	0.21	0.40	0.13	0.26	0.20	0.21	0.09
1486	0.15	0.18	0.18	0.14	0.21	0.21	0.38	0.13	0.26	0.20	0.21	0.09
1487	0.14	0.19	0.18	0.14	0.22	0.21	0.37	0.12	0.26	0.20	0.21	0.09
1488	0.15	0.19	0.19	0.14	0.22	0.21	0.36	0.12	0.26	0.19	0.21	0.09
1489	0.17	0.19	0.19	0.14	0.22	0.21	0.30	0.12	0.25	0.19	0.21	0.09
1490	0.28	0.20	0.18	0.14	0.22	0.21	0.29	0.12	0.26	0.20	0.21	0.09
1491	0.21	0.20	0.17	0.14	0.22	0.21	0.31	0.12	0.25	0.20	0.21	0.09
1492	0.28	0.20	0.17	0.14	0.22	0.21	0.32	0.12	0.25	0.20	0.21	0.09
1493	0.18	0.20	0.17	0.14	0.22	0.21	0.32	0.12	0.25	0.20	0.21	0.09
1494	0.12	0.21	0.17	0.15	0.22	0.21	0.32	0.12	0.25	0.20	0.21	0.09
1495	0.12	0.21	0.17	0.15	0.22	0.22	0.35	0.12	0.25	0.20	0.21	0.08
1496	0.14	0.21	0.17	0.15	0.22	0.21	0.33	0.13	0.25	0.21	0.21	0.08
1497	0.16	0.21	0.18	0.15	0.22	0.21	0.33	0.13	0.25	0.21	0.21	0.09
1498	0.26	0.22	0.18	0.15	0.22	0.20	0.33	0.14	0.22	0.21	0.21	0.09
1499	0.16	0.22	0.19	0.15	0.21	0.20	0.33	0.14	0.19	0.21	0.20	0.10
1500	0.25	0.22	0.20	0.15	0.20	0.20	0.30	0.15	0.17	0.22	0.20	0.10
1501	0.51	0.22	0.19	0.17	0.20	0.20	0.31	0.16	0.14	0.21	0.20	0.11
1502	0.17	0.22	0.19	0.18	0.20	0.21	0.30	0.17	0.11	0.22	0.19	0.11
1503	0.16	0.22	0.19	0.19	0.20	0.20	0.30	0.16	0.11	0.21	0.19	0.11
1504	0.16	0.22	0.19	0.21	0.19	0.20	0.30	0.16	0.12	0.21	0.19	0.11
1505	0.19	0.22	0.19	0.22	0.19	0.20	0.30	0.16	0.12	0.21	0.19	0.11
1506	0.13	0.22	0.19	0.22	0.19	0.21	0.30	0.15	0.13	0.20	0.19	0.11
1507	0.13	0.23	0.19	0.22	0.18	0.21	0.28	0.15	0.13	0.20	0.19	0.11
1508	0.16	0.23	0.19	0.22	0.18	0.22	0.28	0.14	0.14	0.20	0.19	0.11
1509	0.11	0.23	0.19	0.23	0.19	0.22	0.27	0.14	0.15	0.20	0.20	0.10
1510	0.15	0.23	0.19	0.23	0.19	0.23	0.27	0.14	0.15	0.19	0.18	0.10
1511	0.22	0.23	0.19	0.23	0.20	0.23	0.27	0.14	0.16	0.19	0.19	0.10
1512	0.17	0.24	0.20	0.23	0.20	0.23	0.27	0.13	0.16	0.19	0.20	0.09
1513	0.17	0.24	0.20	0.23	0.21	0.23	0.27	0.13	0.16	0.19	0.20	0.09
1514	0.17	0.24	0.20	0.23	0.21	0.23	0.28	0.13	0.17	0.19	0.18	0.09
1515	0.18	0.25	0.20	0.24	0.21	0.23	0.28	0.13	0.18	0.19	0.21	0.09
1516	0.20	0.25	0.21	0.24	0.21	0.23	0.29	0.12	0.18	0.19	0.22	0.10
1517	0.22	0.25	0.21	0.23	0.22	0.23	0.30	0.12	0.19	0.19	0.23	0.10
1518	0.13	0.26	0.21	0.23	0.22	0.24	0.29	0.12	0.21	0.20	0.23	0.10
1519	0.13	0.26	0.21	0.23	0.22	0.24	0.28	0.12	0.22	0.20	0.27	0.10
1520	0.34	0.26	0.24	0.23	0.22	0.24	0.27	0.12	0.22	0.20	0.28	0.10
1521	0.17	0.27	0.24	0.24	0.22	0.24	0.26	0.12	0.23	0.21	0.29	0.11
1522	0.17	0.27	0.24	0.26	0.22	0.24	0.27	0.13	0.23	0.22	0.29	0.11
1523	0.17	0.27	0.24	0.26	0.22	0.24	0.28	0.13	0.23	0.22	0.30	0.11
1524	0.16	0.28	0.23	0.26	0.22	0.24	0.28	0.13	0.23	0.22	0.31	0.11
1525	0.21	0.28	0.23	0.27	0.22	0.24	0.28	0.13	0.25	0.22	0.31	0.11
1526	0.13	0.28	0.24	0.27	0.22	0.24	0.28	0.13	0.25	0.21	0.32	0.11
1527	0.17	0.28	0.24	0.27	0.22	0.25	0.28	0.12	0.26	0.20	0.30	0.11
1528	0.24	0.29	0.23	0.28	0.21	0.25	0.28	0.12	0.27	0.20	0.31	0.11
1529	0.27	0.29	0.23	0.28	0.20	0.24	0.29	0.12	0.28	0.20	0.32	0.11

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1530	0.29	0.29	0.23	0.29	0.19	0.23	0.29	0.13	0.27	0.20	0.32	0.11
1531	0.30	0.29	0.22	0.28	0.17	0.23	0.30	0.13	0.27	0.20	0.33	0.11
1532	0.23	0.30	0.22	0.29	0.17	0.23	0.30	0.13	0.28	0.20	0.37	0.11
1533	0.23	0.30	0.22	0.29	0.18	0.23	0.29	0.13	0.28	0.21	0.37	0.11
1534	0.21	0.31	0.21	0.29	0.19	0.25	0.29	0.12	0.28	0.21	0.38	0.11
1535	0.12	0.31	0.21	0.28	0.20	0.26	0.30	0.12	0.29	0.22	0.39	0.11
1536	0.19	0.32	0.20	0.28	0.21	0.26	0.29	0.12	0.30	0.23	0.40	0.12
1537	0.19	0.33	0.20	0.29	0.22	0.26	0.29	0.12	0.30	0.23	0.41	0.13
1538	0.23	0.33	0.20	0.29	0.24	0.26	0.30	0.12	0.31	0.24	0.39	0.14
1539	0.19	0.33	0.23	0.29	0.25	0.26	0.31	0.12	0.32	0.24	0.41	0.16
1540	0.18	0.34	0.22	0.29	0.27	0.26	0.31	0.12	0.32	0.26	0.39	0.16
1541	0.18	0.34	0.23	0.30	0.28	0.26	0.32	0.13	0.32	0.26	0.42	0.15
1542	0.13	0.34	0.23	0.30	0.26	0.26	0.33	0.13	0.33	0.26	0.45	0.14
1543	0.29	0.34	0.23	0.30	0.27	0.27	0.34	0.13	0.33	0.26	0.45	0.12
1544	0.31	0.35	0.22	0.31	0.28	0.27	0.36	0.14	0.34	0.26	0.44	0.09
1545	0.33	0.35	0.21	0.33	0.30	0.27	0.37	0.14	0.34	0.26	0.48	0.09
1546	0.31	0.35	0.20	0.34	0.32	0.27	0.38	0.14	0.34	0.26	0.46	0.10
1547	0.18	0.36	0.21	0.35	0.36	0.27	0.39	0.15	0.35	0.27	0.45	0.10
1548	0.20	0.36	0.22	0.35	0.34	0.30	0.38	0.14	0.35	0.27	0.47	0.11
1549	0.54	0.37	0.23	0.35	0.35	0.34	0.37	0.15	0.35	0.28	0.48	0.12
1550	0.21	0.37	0.25	0.36	0.36	0.37	0.38	0.15	0.36	0.29	0.49	0.10
1551	0.17	0.37	0.27	0.36	0.37	0.40	0.39	0.16	0.35	0.30	0.49	0.12
1552	0.28	0.38	0.28	0.35	0.37	0.43	0.38	0.16	0.35	0.31	0.50	0.14
1553	0.60	0.38	0.29	0.35	0.40	0.43	0.40	0.17	0.35	0.31	0.49	0.13
1554	0.25	0.37	0.29	0.36	0.40	0.43	0.41	0.17	0.35	0.32	0.49	0.14
1555	0.30	0.38	0.29	0.36	0.40	0.43	0.42	0.17	0.35	0.32	0.50	0.16
1556	0.24	0.38	0.28	0.36	0.40	0.45	0.42	0.17	0.36	0.33	0.50	0.16
1557	0.25	0.38	0.29	0.36	0.41	0.47	0.43	0.18	0.37	0.33	0.50	0.17
1558	0.25	0.39	0.30	0.37	0.43	0.49	0.45	0.18	0.38	0.34	0.52	0.19
1559	0.33	0.41	0.30	0.38	0.44	0.51	0.47	0.19	0.39	0.35	0.54	0.20
1560	0.23	0.41	0.30	0.38	0.45	0.50	0.50	0.19	0.40	0.35	0.55	0.24
1561	0.40	0.42	0.31	0.39	0.47	0.50	0.53	0.19	0.42	0.36	0.57	0.26
1562	0.50	0.42	0.30	0.39	0.48	0.50	0.57	0.20	0.44	0.37	0.58	0.26
1563	0.27	0.42	0.30	0.40	0.50	0.49	0.57	0.20	0.46	0.38	0.59	0.27
1564	0.27	0.43	0.31	0.41	0.52	0.48	0.57	0.21	0.47	0.38	0.59	0.28
1565	0.42	0.43	0.33	0.42	0.52	0.48	0.57	0.22	0.48	0.39	0.57	0.27
1566	0.46	0.43	0.34	0.42	0.54	0.51	0.56	0.22	0.48	0.40	0.55	0.28
1567	0.36	0.44	0.34	0.44	0.55	0.53	0.55	0.23	0.49	0.40	0.56	0.29
1568	0.27	0.45	0.35	0.45	0.56	0.56	0.56	0.23	0.50	0.40	0.57	0.27
1569	0.32	0.47	0.35	0.45	0.57	0.58	0.57	0.24	0.50	0.42	0.58	0.29
1570	0.46	0.49	0.34	0.45	0.58	0.61	0.58	0.25	0.50	0.43	0.60	0.28
1571	0.64	0.50	0.35	0.45	0.58	0.62	0.60	0.25	0.50	0.45	0.62	0.28
1572	0.46	0.52	0.35	0.44	0.58	0.63	0.61	0.27	0.51	0.46	0.62	0.29
1573	0.63	0.53	0.36	0.45	0.59	0.64	0.61	0.27	0.51	0.48	0.62	0.32
1574	0.54	0.53	0.37	0.43	0.59	0.65	0.61	0.28	0.52	0.49	0.63	0.31
1575	0.49	0.53	0.38	0.43	0.59	0.66	0.63	0.29	0.51	0.49	0.65	0.30
1576	0.43	0.54	0.39	0.42	0.60	0.67	0.64	0.29	0.50	0.50	0.66	0.29
1577	0.45	0.54	0.40	0.42	0.60	0.67	0.66	0.30	0.49	0.50	0.66	0.28
1578	0.49	0.55	0.41	0.42	0.62	0.68	0.71	0.30	0.48	0.50	0.69	0.26
1579	0.64	0.55	0.42	0.43	0.63	0.69	0.79	0.31	0.48	0.51	0.69	0.28
1580	0.51	0.55	0.43	0.44	0.65	0.70	0.84	0.32	0.48	0.52	0.70	0.29
1581	0.55	0.56	0.45	0.45	0.67	0.71	0.85	0.32	0.49	0.53	0.72	0.30
1582	0.50	0.56	0.45	0.45	0.65	0.72	0.87	0.32	0.49	0.53	0.73	0.30
1583	0.59	0.57	0.46	0.46	0.65	0.72	0.87	0.33	0.50	0.55	0.75	0.33
1584	0.45	0.57	0.47	0.47	0.64	0.73	0.84	0.34	0.51	0.56	0.76	0.34
1585	0.59	0.58	0.48	0.49	0.65	0.74	0.83	0.35	0.51	0.57	0.77	0.37

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1586	0.78	0.58	0.44	0.49	0.65	0.75	0.84	0.36	0.52	0.58	0.78	0.39
1587	0.65	0.58	0.44	0.50	0.69	0.76	0.84	0.37	0.52	0.60	0.80	0.41
1588	0.59	0.59	0.45	0.51	0.71	0.77	0.82	0.38	0.52	0.63	0.80	0.39
1589	0.69	0.59	0.49	0.52	0.74	0.78	0.81	0.38	0.53	0.66	0.81	0.40
1590	0.56	0.60	0.49	0.50	0.74	0.79	0.79	0.39	0.53	0.69	0.82	0.37
1591	0.89	0.60	0.55	0.51	0.73	0.79	0.80	0.40	0.53	0.75	0.82	0.37
1592	1.10	0.60	0.56	0.52	0.74	0.80	0.81	0.40	0.54	0.78	0.83	0.36
1593	0.99	0.61	0.59	0.54	0.77	0.82	0.82	0.42	0.54	0.79	0.84	0.38
1594	0.48	0.62	0.58	0.55	0.78	0.83	0.84	0.43	0.55	0.80	0.85	0.39
1595	0.67	0.62	0.60	0.57	0.80	0.84	0.86	0.45	0.56	0.81	0.86	0.41
1596	0.75	0.62	0.54	0.57	0.83	0.84	0.87	0.45	0.56	0.79	0.88	0.42
1597	0.94	0.63	0.56	0.57	0.83	0.85	0.91	0.46	0.56	0.79	0.90	0.41
1598	0.57	0.63	0.57	0.58	0.84	0.83	0.92	0.48	0.58	0.79	0.90	0.42
1599	0.54	0.64	0.59	0.59	0.82	0.84	0.93	0.49	0.59	0.78	0.88	0.43
1600	0.64	0.64	0.58	0.59	0.81	0.82	0.92	0.50	0.60	0.77	0.86	0.43
1601	0.60	0.65	0.60	0.59	0.80	0.82	0.89	0.53	0.61	0.76	0.85	0.44
1602	0.49	0.65	0.63	0.59	0.79	0.81	0.86	0.54	0.63	0.75	0.82	0.45
1603	0.59	0.65	0.65	0.58	0.76	0.80	0.85	0.56	0.63	0.74	0.81	0.45
1604	0.61	0.66	0.69	0.58	0.78	0.79	0.84	0.57	0.63	0.75	0.82	0.45
1605	0.54	0.66	0.66	0.59	0.79	0.80	0.83	0.58	0.64	0.74	0.81	0.46
1606	0.62	0.67	0.68	0.59	0.80	0.81	0.80	0.59	0.64	0.74	0.80	0.46
1607	0.61	0.68	0.69	0.61	0.81	0.82	0.79	0.60	0.65	0.74	0.80	0.47
1608	0.62	0.69	0.68	0.62	0.83	0.83	0.81	0.62	0.66	0.74	0.77	0.47
1609	0.57	0.69	0.67	0.63	0.84	0.84	0.81	0.66	0.67	0.73	0.75	0.47
1610	0.63	0.69	0.68	0.63	0.85	0.85	0.82	0.68	0.69	0.73	0.75	0.47
1611	0.60	0.70	0.68	0.64	0.86	0.87	0.85	0.71	0.70	0.73	0.75	0.47
1612	0.73	0.70	0.68	0.65	0.86	0.90	0.88	0.73	0.72	0.73	0.75	0.47
1613	0.61	0.70	0.67	0.64	0.85	0.94	0.85	0.74	0.72	0.74	0.77	0.48
1614	0.61	0.70	0.67	0.64	0.86	0.95	0.84	0.73	0.73	0.73	0.78	0.50
1615	0.50	0.71	0.69	0.64	0.86	0.98	0.84	0.73	0.73	0.73	0.77	0.53
1616	0.53	0.71	0.71	0.64	0.87	0.99	0.84	0.73	0.74	0.72	0.77	0.55
1617	0.56	0.72	0.70	0.64	0.87	1.00	0.82	0.73	0.74	0.72	0.76	0.58
1618	0.59	0.73	0.72	0.65	0.87	1.01	0.83	0.72	0.75	0.72	0.75	0.61
1619	0.60	0.74	0.71	0.66	0.88	1.00	0.81	0.73	0.75	0.73	0.76	0.61
1620	0.56	0.74	0.72	0.69	0.89	1.05	0.81	0.72	0.75	0.73	0.77	0.60
1621	0.67	0.75	0.72	0.69	0.89	1.06	0.79	0.72	0.76	0.74	0.77	0.60
1622	1.11	0.76	0.73	0.70	0.90	1.07	0.78	0.72	0.76	0.73	0.77	0.61
1623	0.88	0.76	0.73	0.71	0.92	1.09	0.79	0.72	0.76	0.73	0.78	0.62
1624	0.75	0.77	0.73	0.71	0.91	1.13	0.80	0.72	0.77	0.73	0.77	0.62
1625	0.64	0.77	0.73	0.71	0.89	1.09	0.80	0.72	0.77	0.73	0.78	0.62
1626	0.85	0.77	0.71	0.71	0.89	1.10	0.81	0.72	0.77	0.73	0.78	0.63
1627	0.77	0.78	0.70	0.72	0.89	1.11	0.82	0.72	0.77	0.73	0.77	0.63
1628	0.77	0.79	0.68	0.73	0.90	1.12	0.85	0.72	0.77	0.73	0.75	0.62
1629	0.69	0.79	0.68	0.74	0.91	1.16	0.85	0.72	0.78	0.73	0.75	0.66
1630	0.93	0.80	0.68	0.75	0.93	1.17	0.87	0.72	0.78	0.73	0.74	0.67
1631	0.89	0.81	0.69	0.76	0.94	1.18	0.88	0.72	0.79	0.74	0.75	0.67
1632	0.79	0.82	0.69	0.77	0.95	1.19	0.88	0.73	0.79	0.75	0.76	0.66
1633	0.74	0.82	0.70	0.77	0.95	1.19	0.85	0.73	0.79	0.75	0.77	0.67
1634	0.70	0.83	0.72	0.78	0.96	1.18	0.85	0.73	0.80	0.75	0.77	0.64
1635	1.04	0.83	0.72	0.79	0.97	1.19	0.85	0.73	0.81	0.75	0.77	0.64
1636	1.51	0.84	0.73	0.80	0.98	1.20	0.84	0.74	0.81	0.76	0.76	0.65
1637	1.65	0.84	0.76	0.80	0.98	1.18	0.86	0.75	0.81	0.77	0.75	0.64
1638	1.38	0.84	0.78	0.81	0.98	1.19	0.88	0.75	0.82	0.77	0.75	0.64
1639	1.23	0.85	0.80	0.81	0.99	1.20	0.87	0.75	0.83	0.78	0.77	0.65
1640	0.73	0.85	0.81	0.82	1.00	1.21	0.85	0.76	0.83	0.78	0.78	0.67
1641	0.88	0.86	0.81	0.83	1.01	1.22	0.86	0.76	0.83	0.78	0.77	0.70

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1642	0.84	0.87	0.81	0.84	1.01	1.25	0.84	0.75	0.83	0.77	0.77	0.71
1643	0.96	0.88	0.81	0.85	1.02	1.26	0.83	0.75	0.84	0.77	0.77	0.71
1644	0.94	0.88	0.83	0.87	1.03	1.27	0.84	0.75	0.84	0.78	0.77	0.70
1645	0.71	0.89	0.84	0.88	1.03	1.28	0.87	0.74	0.84	0.78	0.76	0.70
1646	0.63	0.89	0.84	0.89	1.04	1.29	0.87	0.75	0.85	0.78	0.76	0.67
1647	0.60	0.89	0.84	0.90	1.05	1.30	0.87	0.75	0.85	0.78	0.75	0.67
1648	0.78	0.93	0.86	0.90	1.06	1.36	0.87	0.76	0.85	0.80	0.75	0.69
1649	1.11	0.96	0.86	0.91	1.06	1.38	0.85	0.76	0.87	0.80	0.74	0.69
1650	0.91	0.98	0.87	0.92	1.06	1.43	0.84	0.77	0.87	0.79	0.75	0.67
1651	0.88	1.01	0.88	0.94	1.06	1.47	0.85	0.76	0.88	0.81	0.77	0.62
1652	1.06	1.02	0.90	0.95	1.07	1.52	0.85	0.76	0.88	0.81	0.77	0.61
1653	0.70	1.00	0.90	0.96	1.07	1.51	0.85	0.76	0.88	0.80	0.78	0.62
1654	0.66	0.98	0.92	0.97	1.08	1.51	0.86	0.77	0.87	0.80	0.79	0.61
1655	0.62	0.97	0.91	0.98	1.08	1.50	0.87	0.77	0.88	0.80	0.79	0.61
1656	0.58	0.95	0.93	0.99	1.10	1.50	0.86	0.78	0.88	0.81	0.79	0.65
1657	0.56	0.93	0.92	1.00	1.10	1.52	0.89	0.79	0.88	0.83	0.79	0.65
1658	0.78	0.91	0.92	1.02	1.10	1.52	0.90	0.79	0.89	0.83	0.79	0.66
1659	0.74	0.88	0.91	1.03	1.09	1.55	0.89	0.79	0.88	0.83	0.80	0.70
1660	0.59	0.87	0.92	1.04	1.09	1.55	0.90	0.79	0.88	0.83	0.80	0.70
1661	0.71	0.84	0.93	1.04	1.07	1.55	0.90	0.79	0.87	0.82	0.80	0.71
1662	0.81	0.82	0.93	1.05	1.06	1.49	0.89	0.78	0.86	0.81	0.79	0.71
1663	0.65	0.80	0.92	1.04	1.07	1.45	0.89	0.78	0.85	0.81	0.80	0.69
1664	0.71	0.79	0.92	1.04	1.06	1.45	0.90	0.79	0.86	0.82	0.81	0.67
1665	0.60	0.77	0.91	1.04	1.06	1.45	0.90	0.79	0.86	0.82	0.82	0.67
1666	0.79	0.76	0.88	1.03	1.07	1.39	0.91	0.79	0.86	0.83	0.82	0.68
1667	0.79	0.75	0.89	1.03	1.06	1.42	0.91	0.80	0.87	0.84	0.83	0.68
1668	0.86	0.74	0.90	1.04	1.04	1.41	0.89	0.80	0.90	0.84	0.84	0.71
1669	0.66	0.73	0.88	1.03	1.04	1.41	0.88	0.80	0.90	0.84	0.84	0.72
1670	0.59	0.72	0.87	1.02	1.03	1.41	0.87	0.81	0.90	0.84	0.83	0.76
1671	0.56	0.71	0.88	1.00	1.02	1.42	0.87	0.81	0.93	0.85	0.84	0.76
1672	1.19	0.71	0.88	0.98	1.02	1.38	0.85	0.82	0.94	0.85	0.85	0.77
1673	0.47	0.70	0.90	0.96	1.01	1.38	0.85	0.82	0.92	0.86	0.85	0.73
1674	0.69	0.69	0.92	0.95	1.00	1.34	0.85	0.82	0.92	0.86	0.84	0.72
1675	0.80	0.69	0.93	0.95	1.00	1.28	0.86	0.82	0.92	0.86	0.85	0.69
1676	0.94	0.68	0.95	0.96	1.01	1.28	0.86	0.82	0.89	0.86	0.86	0.69
1677	0.90	0.68	0.95	0.97	1.00	1.27	0.87	0.83	0.89	0.87	0.85	0.71
1678	1.07	0.68	0.96	0.97	1.00	1.24	0.88	0.83	0.90	0.88	0.85	0.76
1679	1.17	0.68	0.95	0.97	1.00	1.21	0.89	0.84	0.90	0.88	0.87	0.87
1680	0.92	0.68	0.95	0.98	1.00	1.19	0.89	0.84	0.91	0.89	0.87	0.87
1681	0.79	0.68	0.95	0.98	0.99	1.17	0.90	0.85	0.91	0.89	0.87	0.89
1682	0.63	0.68	0.95	0.97	0.99	1.15	0.91	0.84	0.92	0.89	0.88	0.88
1683	0.72	0.68	0.94	0.95	0.99	1.17	0.92	0.84	0.90	0.89	0.89	0.87
1684	0.67	0.68	0.94	0.94	0.99	1.14	0.94	0.85	0.91	0.89	0.89	0.79
1685	0.86	0.69	0.95	0.93	0.99	1.12	0.96	0.85	0.91	0.90	0.90	0.81
1686	0.86	0.71	0.96	0.93	0.99	1.10	0.98	0.86	0.91	0.91	0.90	0.82
1687	0.61	0.72	0.95	0.94	0.99	1.07	0.98	0.86	0.91	0.92	0.92	0.83
1688	0.52	0.73	0.95	0.95	0.98	1.01	1.00	0.87	0.92	0.92	0.94	0.88
1689	0.63	0.75	0.95	0.96	0.99	1.03	0.99	0.87	0.92	0.93	0.95	0.90
1690	0.76	0.76	0.96	0.96	0.99	1.06	0.99	0.87	0.92	0.93	0.95	0.94
1691	0.96	0.80	0.95	0.95	0.99	1.05	0.98	0.87	0.93	0.93	0.97	0.95
1692	0.96	0.84	0.97	0.96	0.99	1.05	0.99	0.88	0.93	0.94	0.96	0.97
1693	1.20	0.86	1.00	0.97	1.00	1.06	0.99	0.89	0.94	0.94	0.95	0.93
1694	1.42	0.91	0.99	0.96	0.99	1.05	1.00	0.90	0.95	0.95	0.96	0.94
1695	1.29	0.96	0.98	0.97	1.00	1.01	1.01	0.92	0.95	0.98	0.98	0.92
1696	0.86	0.99	0.99	0.98	1.01	0.99	1.02	0.94	0.98	0.99	0.97	0.96
1697	1.03	1.02	0.98	0.98	1.00	0.99	1.02	0.94	1.00	1.00	0.96	0.96

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1698	1.26	1.02	0.98	0.99	1.00	1.00	1.02	0.98	0.99	1.00	0.99	0.97
1700	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1701	0.92	0.98	1.01	0.99	1.00	1.00	0.99	1.01	0.98	1.00	1.01	0.98
1702	0.91	0.95	1.02	0.99	1.00	1.00	0.96	1.02	0.98	1.01	1.03	1.03
1703	0.91	0.97	1.04	0.99	1.02	1.03	0.95	1.01	0.99	1.01	1.02	1.07
1704	0.97	0.98	1.07	0.99	1.03	1.06	0.94	1.00	1.01	1.01	1.02	1.11
1705	1.03	0.98	1.10	0.99	1.02	1.08	0.94	0.99	1.02	1.01	1.02	1.10
1706	1.01	0.98	1.14	1.01	1.04	1.11	0.93	0.99	1.03	1.02	1.03	1.11
1707	1.04	0.99	1.14	1.02	1.05	1.14	0.93	0.98	1.02	1.02	1.04	1.11
1708	0.98	0.99	1.15	1.03	1.05	1.15	0.94	0.98	1.03	1.02	1.05	1.08
1709	1.59	1.00	1.14	1.03	1.06	1.15	0.95	0.98	1.03	1.03	1.06	1.06
1710	1.33	1.00	1.12	1.06	1.07	1.15	0.97	0.98	1.03	1.03	1.06	1.07
1711	1.09	1.01	1.11	1.07	1.05	1.16	0.99	0.98	1.03	1.02	1.07	1.12
1712	1.47	1.01	1.09	1.06	1.04	1.15	1.00	0.98	1.03	1.03	1.07	1.19
1713	1.53	1.01	1.09	1.07	1.05	1.17	1.03	0.98	1.03	1.03	1.08	1.20
1714	1.76	1.02	1.09	1.08	1.05	1.17	1.04	0.98	1.03	1.02	1.10	1.21
1715	0.84	1.02	1.10	1.08	1.05	1.17	1.03	0.98	1.02	1.03	1.12	1.27
1716	0.86	1.03	1.11	1.09	1.06	1.18	1.04	0.98	1.02	1.03	1.12	1.27
1717	0.84	1.04	1.14	1.11	1.07	1.16	1.05	0.99	1.02	1.03	1.13	1.25
1718	0.96	1.06	1.14	1.12	1.07	1.15	1.05	0.99	1.02	1.05	1.16	1.26
1719	1.17	1.06	1.16	1.12	1.08	1.14	1.07	1.00	1.07	1.06	1.17	1.27
1720	1.76	1.06	1.16	1.14	1.09	1.17	1.07	1.01	1.13	1.07	1.19	1.23
1721	1.13	1.07	1.15	1.15	1.09	1.17	1.08	1.02	1.19	1.08	1.20	1.21
1722	1.12	1.07	1.15	1.16	1.10	1.20	1.08	1.01	1.26	1.09	1.21	1.17
1723	1.29	1.07	1.16	1.17	1.11	1.21	1.08	1.01	1.31	1.09	1.21	1.17
1724	1.22	1.07	1.17	1.18	1.12	1.22	1.08	1.01	1.31	1.09	1.20	1.18
1725	1.35	1.07	1.18	1.21	1.12	1.20	1.10	1.01	1.31	1.10	1.19	1.19
1726	0.99	1.07	1.22	1.20	1.13	1.21	1.11	1.02	1.31	1.10	1.19	1.20
1727	0.96	1.08	1.23	1.22	1.13	1.21	1.13	1.03	1.31	1.11	1.17	1.22
1728	0.99	1.09	1.23	1.21	1.14	1.22	1.11	1.04	1.32	1.11	1.17	1.23
1729	1.08	1.10	1.22	1.23	1.15	1.23	1.09	1.04	1.33	1.12	1.16	1.23
1730	0.95	1.11	1.21	1.25	1.15	1.25	1.06	1.05	1.34	1.14	1.14	1.24
1731	1.10	1.12	1.20	1.28	1.18	1.25	1.04	1.05	1.36	1.14	1.13	1.24
1732	1.05	1.13	1.20	1.30	1.20	1.26	1.02	1.05	1.36	1.15	1.12	1.24
1733	1.02	1.13	1.22	1.34	1.20	1.26	1.06	1.06	1.36	1.17	1.10	1.29
1734	1.11	1.14	1.26	1.34	1.20	1.27	1.11	1.06	1.37	1.18	1.09	1.31
1735	1.01	1.14	1.29	1.34	1.22	1.26	1.16	1.06	1.37	1.19	1.08	1.36
1736	0.99	1.15	1.29	1.36	1.21	1.27	1.18	1.07	1.37	1.21	1.07	1.39
1737	1.03	1.15	1.30	1.35	1.22	1.28	1.21	1.08	1.37	1.22	1.10	1.45
1738	1.19	1.17	1.31	1.34	1.23	1.29	1.24	1.08	1.36	1.23	1.10	1.47
1739	1.40	1.18	1.30	1.34	1.24	1.30	1.23	1.08	1.36	1.23	1.10	1.49
1740	1.26	1.19	1.30	1.35	1.24	1.32	1.26	1.09	1.36	1.24	1.10	1.46
1741	1.32	1.20	1.30	1.35	1.25	1.32	1.31	1.10	1.36	1.25	1.10	1.46
1742	1.18	1.21	1.30	1.36	1.26	1.32	1.33	1.10	1.37	1.25	1.07	1.42
1743	0.96	1.23	1.31	1.38	1.28	1.33	1.32	1.11	1.37	1.26	1.06	1.38
1744	1.01	1.24	1.30	1.39	1.28	1.34	1.34	1.13	1.38	1.27	1.06	1.38
1745	1.05	1.25	1.30	1.39	1.30	1.36	1.32	1.14	1.39	1.28	1.08	1.40
1746	1.26	1.25	1.29	1.41	1.31	1.37	1.31	1.15	1.41	1.29	1.08	1.41
1747	1.49	1.26	1.30	1.43	1.32	1.38	1.32	1.15	1.41	1.29	1.07	1.41
1748	1.63	1.25	1.31	1.45	1.33	1.39	1.33	1.16	1.38	1.29	1.08	1.44
1749	1.50	1.25	1.31	1.48	1.34	1.39	1.35	1.16	1.39	1.31	1.09	1.45
1750	1.34	1.26	1.33	1.49	1.35	1.37	1.37	1.16	1.40	1.32	1.10	1.44
1751	1.32	1.26	1.36	1.51	1.38	1.40	1.39	1.18	1.41	1.33	1.12	1.44
1752	1.19	1.28	1.37	1.51	1.41	1.43	1.41	1.20	1.42	1.35	1.15	1.46
1753	1.13	1.27	1.38	1.50	1.43	1.46	1.43	1.21	1.47	1.37	1.17	1.47
1754	1.17	1.29	1.40	1.53	1.44	1.50	1.44	1.22	1.49	1.37	1.18	1.49

Price series: Index 1700 = 1 (cont.)

Year	Bread	Legumes	Meat	Butter	Cheese	Eggs	Wine	Soap	Linen	Candles	Oil Light	Wood
1755	0.95	1.30	1.40	1.54	1.44	1.53	1.45	1.23	1.49	1.38	1.19	1.54
1756	1.26	1.31	1.38	1.55	1.43	1.54	1.46	1.23	1.48	1.40	1.20	1.58
1757	1.44	1.33	1.40	1.58	1.43	1.54	1.46	1.24	1.47	1.40	1.21	1.59
1758	1.30	1.35	1.42	1.61	1.44	1.57	1.46	1.25	1.46	1.41	1.22	1.58
1759	1.29	1.36	1.44	1.64	1.46	1.57	1.47	1.26	1.44	1.42	1.21	1.58
1760	1.37	1.37	1.47	1.68	1.47	1.56	1.47	1.27	1.45	1.43	1.21	1.56
1761	1.12	1.38	1.48	1.71	1.49	1.58	1.47	1.28	1.41	1.44	1.21	1.57
1762	1.15	1.39	1.48	1.72	1.50	1.59	1.48	1.29	1.42	1.45	1.21	1.58
1763	1.11	1.41	1.46	1.74	1.50	1.59	1.48	1.30	1.43	1.47	1.22	1.60
1764	1.15	1.43	1.45	1.72	1.51	1.59	1.47	1.32	1.45	1.47	1.23	1.61
1765	1.32	1.44	1.45	1.72	1.51	1.62	1.47	1.33	1.45	1.49	1.24	1.62
1766	1.34	1.45	1.45	1.72	1.52	1.61	1.46	1.34	1.52	1.49	1.25	1.62
1767	1.47	1.47	1.46	1.75	1.54	1.62	1.46	1.35	1.52	1.50	1.27	1.63
1768	1.55	1.50	1.47	1.73	1.55	1.62	1.47	1.36	1.54	1.50	1.28	1.65
1769	1.41	1.51	1.48	1.74	1.57	1.64	1.47	1.36	1.55	1.49	1.28	1.67
1770	2.02	1.54	1.47	1.78	1.59	1.65	1.48	1.35	1.56	1.48	1.29	1.68
1771	1.99	1.56	1.48	1.81	1.61	1.64	1.48	1.37	1.57	1.49	1.31	1.72
1772	1.63	1.59	1.47	1.87	1.63	1.65	1.48	1.38	1.59	1.50	1.33	1.74
1773	1.77	1.59	1.47	1.96	1.67	1.68	1.49	1.39	1.62	1.51	1.36	1.81
1774	1.53	1.61	1.47	2.00	1.69	1.66	1.49	1.42	1.64	1.54	1.38	1.83
1775	1.48	1.62	1.48	2.04	1.73	1.67	1.49	1.44	1.65	1.56	1.40	1.84
1776	1.32	1.64	1.47	2.10	1.77	1.70	1.47	1.46	1.66	1.57	1.44	1.90
1777	1.37	1.65	1.47	2.16	1.80	1.71	1.47	1.47	1.67	1.58	1.49	1.94
1778	1.50	1.67	1.48	2.13	1.82	1.70	1.47	1.49	1.66	1.59	1.52	1.89
1779	1.50	1.69	1.50	2.21	1.85	1.74	1.48	1.50	1.65	1.59	1.56	1.96
1780	1.38	1.71	1.51	2.28	1.86	1.75	1.49	1.51	1.68	1.60	1.57	2.00
1781	1.49	1.73	1.53	2.26	1.86	1.76	1.50	1.53	1.70	1.61	1.56	1.97
1782	1.57	1.75	1.57	2.24	1.87	1.77	1.51	1.54	1.73	1.62	1.57	1.88
1783	1.49	1.78	1.59	2.27	1.92	1.77	1.50	1.55	1.79	1.63	1.57	1.91
1784	1.48	1.80	1.60	2.27	1.94	1.78	1.49	1.57	1.80	1.64	1.58	1.90
1785	1.65	1.81	1.62	2.29	1.99	1.77	1.51	1.58	1.85	1.65	1.61	1.90
1786	1.42	1.83	1.64	2.38	2.05	1.75	1.51	1.59	1.91	1.65	1.64	1.91
1787	1.49	1.85	1.63	2.45	2.09	1.78	1.48	1.62	2.01	1.68	1.66	1.98
1788	1.63	1.86	1.65	2.42	2.05	1.84	1.52	1.61	1.98	1.67	1.68	2.08
1789	1.96	1.83	1.69	2.57	2.08	1.88	1.47	1.62	2.04	1.68	1.70	2.08

Table 6: Nominal Wages, CPI and Real Wages: Index 1700 = 1

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1250	0.04	0.05	0.02	0.08	72		0.69	0.29
1251	0.04	0.05	0.02	0.08	72		0.69	0.29
1252	0.04	0.05	0.02	0.08	72		0.66	0.28
1253	0.04	0.05	0.02	0.06	72		0.82	0.34
1254	0.04	0.05	0.03	0.07	72		0.75	0.47
1255	0.04	0.05	0.03	0.07	72		0.74	0.47
1256	0.04	0.05	0.03	0.07	72		0.74	0.47
1257	0.04	0.05	0.03	0.07	72	0.62	0.74	0.48
1258	0.04	0.05	0.03	0.07	72	0.63	0.75	0.48
1259	0.04	0.05	0.02	0.07	72	0.60	0.73	0.24
1260	0.04	0.05	0.02	0.07	72	0.60	0.73	0.24
1261	0.04	0.05	0.02	0.07	72	0.61	0.73	0.24

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1262	0.04	0.05	0.02	0.07	72	0.63	0.75	0.24
1263	0.04	0.05	0.02	0.07	72	0.62	0.72	0.24
1264	0.05	0.05	0.02	0.06	72	0.70	0.78	0.28
1265	0.05	0.05	0.02	0.06	72	0.71	0.78	0.31
1266	0.05	0.05	0.02	0.06	72	0.71	0.77	0.34
1267	0.05	0.05	0.02	0.07	72	0.69	0.74	0.35
1268	0.05	0.05	0.03	0.06	72	0.73	0.78	0.40
1269	0.05	0.05	0.03	0.06	72	0.79	0.84	0.46
1270	0.05	0.05	0.03	0.07	72	0.65	0.68	0.40
1271	0.05	0.05	0.03	0.07	72	0.63	0.65	0.41
1272	0.05	0.05	0.03	0.08	72	0.63	0.64	0.43
1273	0.05	0.05	0.03	0.08	72	0.63	0.63	0.45
1274	0.05	0.05	0.04	0.08	72	0.61	0.61	0.45
1275	0.05	0.05	0.04	0.07	72	0.66	0.65	0.51
1276	0.05	0.05	0.04	0.07	72	0.69	0.66	0.55
1277	0.05	0.05	0.04	0.07	72	0.69	0.65	0.57
1278	0.05	0.05	0.04	0.07	72	0.69	0.64	0.59
1279	0.05	0.05	0.04	0.08	72	0.67	0.62	0.59
1280	0.05	0.05	0.05	0.07	72	0.69	0.63	0.62
1281	0.05	0.05	0.05	0.07	72	0.70	0.63	0.65
1282	0.05	0.05	0.05	0.07	72	0.72	0.64	0.68
1283	0.05	0.05	0.05	0.08	72	0.67	0.59	0.66
1284	0.05	0.05	0.05	0.08	72	0.68	0.59	0.68
1285	0.05	0.05	0.06	0.08	82	0.67	0.57	0.69
1286	0.05	0.05	0.06	0.08	82	0.68	0.57	0.71
1287	0.06	0.05	0.06	0.08	82	0.67	0.55	0.72
1288	0.06	0.05	0.06	0.08	82	0.71	0.58	0.77
1289	0.06	0.05	0.06	0.08	82	0.69	0.55	0.76
1290	0.06	0.04	0.06	0.08	82	0.68	0.54	0.74
1291	0.06	0.04	0.06	0.08	82	0.69	0.53	0.74
1292	0.06	0.04	0.06	0.08	89	0.70	0.54	0.75
1293	0.06	0.05	0.06	0.09	89	0.69	0.55	0.73
1294	0.06	0.05	0.07	0.08	89	0.73	0.57	0.81
1295	0.06	0.05	0.07	0.08	89	0.74	0.57	0.88
1296	0.06	0.05	0.08	0.09	89	0.72	0.55	0.90
1297	0.06	0.05	0.08	0.10	89	0.64	0.55	0.85
1298	0.06	0.06	0.09	0.09	89	0.69	0.62	0.92
1299	0.07	0.07	0.09	0.10	93	0.71	0.72	0.91
1300	0.07	0.07	0.08	0.10	93	0.71	0.76	0.82
1301	0.07	0.08	0.08	0.10	93	0.70	0.79	0.79
1302	0.07	0.08	0.08	0.10	93	0.71	0.77	0.78
1303	0.07	0.09	0.08	0.11	93	0.69	0.80	0.72
1304	0.07	0.09	0.07	0.11	93	0.66	0.79	0.62
1305	0.07	0.09	0.06	0.11	93	0.66	0.82	0.52
1306	0.07	0.10	0.06	0.11	93	0.65	0.91	0.51
1307	0.07	0.11	0.06	0.11	93	0.66	1.06	0.54
1308	0.07	0.12	0.06	0.10	93	0.69	1.18	0.58
1309	0.07	0.13	0.06	0.10	95	0.68	1.24	0.59
1310	0.07	0.13	0.06	0.10	95	0.73	1.35	0.61
1311	0.07	0.13	0.06	0.10	95	0.72	1.30	0.60
1312	0.08	0.13	0.06	0.10	95	0.81	1.38	0.64
1313	0.08	0.13	0.07	0.09	95	0.86	1.35	0.76
1314	0.09	0.13	0.08	0.10	95	0.89	1.31	0.84
1315	0.09	0.12	0.08	0.11	95	0.82	1.12	0.74

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1316	0.08	0.11	0.08	0.11	95	0.80	1.08	0.74
1317	0.09	0.11	0.08	0.11	95	0.85	1.03	0.75
1318	0.09	0.11	0.07	0.16	95	0.54	0.68	0.46
1319	0.09	0.11	0.07	0.11	95	0.76	0.95	0.60
1320	0.08	0.11	0.07	0.13	97	0.63	0.81	0.56
1321	0.09	0.11	0.08	0.13	97	0.67	0.82	0.60
1322	0.08	0.11	0.08	0.13	97	0.65	0.85	0.63
1323	0.09	0.11	0.08	0.12	97	0.70	0.89	0.64
1324	0.09	0.11	0.08	0.12	97	0.73	0.89	0.65
1325	0.09	0.11	0.08	0.11	97	0.86	1.05	0.76
1326	0.09	0.11	0.09	0.11	97	0.86	1.04	0.79
1327	0.10	0.11	0.09	0.11	97	0.89	1.05	0.85
1328	0.10	0.11	0.09	0.11	97	0.90	1.03	0.89
1329	0.09	0.11	0.10	0.10	97	0.91	1.04	0.94
1330	0.09	0.10	0.10	0.10	97	0.89	1.00	0.91
1331	0.09	0.10	0.09	0.10	97	0.92	1.02	0.92
1332	0.09	0.10	0.09	0.10	97	0.93	1.03	0.92
1333	0.09	0.10	0.09	0.10	100	0.96	1.07	0.97
1334	0.10	0.11	0.09	0.10	100	0.98	1.08	0.94
1335	0.10	0.11	0.10	0.10	100	0.98	1.08	0.95
1336	0.10	0.11	0.10	0.10	100	0.99	1.09	0.96
1337	0.11	0.11	0.10	0.11	100	0.99	1.05	0.92
1338	0.11	0.11	0.10	0.11	100	1.01	1.06	0.91
1339	0.11	0.11	0.10	0.11	100	0.95	1.01	0.91
1340	0.11	0.11	0.10	0.12	100	0.85	0.91	0.82
1341	0.11	0.11	0.10	0.13	100	0.84	0.86	0.80
1342	0.11	0.11	0.10	0.13	100	0.84	0.85	0.80
1343	0.11	0.11	0.11	0.13	100	0.86	0.85	0.81
1344	0.12	0.11	0.11	0.13	100	0.90	0.87	0.83
1345	0.12	0.11	0.11	0.12	100	0.95	0.92	0.88
1346	0.12	0.13	0.11	0.12	100	1.03	1.08	0.91
1347	0.13	0.15	0.11	0.12	100	1.07	1.20	0.88
1348	0.14	0.16	0.11	0.13	100	1.06	1.20	0.82
1349	0.15	0.17	0.11	0.16	100	0.94	1.05	0.69
1350	0.16	0.18	0.12	0.16	100	1.01	1.13	0.72
1351	0.17	0.18	0.12	0.16	100	1.02	1.11	0.73
1352	0.17	0.18	0.12	0.16	100	1.01	1.10	0.74
1353	0.17	0.20	0.13	0.17	100	1.02	1.15	0.74
1354	0.18	0.20	0.13	0.15	100	1.17	1.35	0.83
1355	0.18	0.22	0.13	0.15	100	1.19	1.43	0.88
1356	0.18	0.23	0.15	0.17	100	1.10	1.40	0.87
1357	0.19	0.23	0.16	0.17	100	1.09	1.36	0.92
1358	0.18	0.23	0.16	0.16	100	1.11	1.37	0.98
1359	0.18	0.22	0.17	0.17	100	1.07	1.31	1.00
1360	0.18	0.21	0.16	0.16	100	1.10	1.26	0.99
1361	0.18	0.21	0.16	0.16	100	1.11	1.28	0.97
1362	0.18	0.22	0.15	0.16	100	1.11	1.35	0.93
1363	0.18	0.22	0.15	0.16	100	1.10	1.38	0.91
1364	0.18	0.23	0.14	0.16	100	1.14	1.48	0.93
1365	0.18	0.24	0.14	0.16	100	1.12	1.51	0.90
1366	0.18	0.23	0.14	0.16	100	1.14	1.47	0.90
1367	0.18	0.22	0.14	0.16	100	1.15	1.45	0.90
1368	0.18	0.22	0.13	0.16	100	1.09	1.35	0.81
1369	0.18	0.22	0.13	0.17	100	1.07	1.31	0.78

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1370	0.18	0.22	0.13	0.17	100	1.07	1.33	0.79
1371	0.18	0.22	0.14	0.17	100	1.07	1.33	0.81
1372	0.18	0.22	0.13	0.17	100	1.08	1.34	0.81
1373	0.18	0.22	0.14	0.16	100	1.12	1.39	0.86
1374	0.18	0.22	0.14	0.16	100	1.15	1.38	0.88
1375	0.18	0.21	0.14	0.16	100	1.15	1.34	0.86
1376	0.18	0.21	0.14	0.16	100	1.18	1.32	0.86
1377	0.18	0.20	0.13	0.15	100	1.21	1.32	0.88
1378	0.19	0.20	0.14	0.15	100	1.25	1.32	0.91
1379	0.19	0.20	0.14	0.15	100	1.25	1.33	0.91
1380	0.18	0.20	0.14	0.15	100	1.22	1.30	0.91
1381	0.18	0.19	0.14	0.15	100	1.20	1.28	0.90
1382	0.18	0.19	0.14	0.15	100	1.19	1.27	0.90
1383	0.18	0.19	0.14	0.16	100	1.17	1.24	0.87
1384	0.18	0.19	0.14	0.16	100	1.15	1.22	0.86
1385	0.19	0.19	0.14	0.16	100	1.17	1.21	0.86
1386	0.19	0.19	0.14	0.15	100	1.25	1.30	0.90
1387	0.19	0.19	0.14	0.14	100	1.30	1.33	0.93
1388	0.20	0.19	0.13	0.16	100	1.23	1.21	0.83
1389	0.20	0.19	0.13	0.16	100	1.27	1.24	0.81
1390	0.20	0.20	0.12	0.15	100	1.31	1.29	0.79
1391	0.20	0.20	0.12	0.16	100	1.28	1.25	0.76
1392	0.21	0.20	0.12	0.17	100	1.22	1.18	0.70
1393	0.20	0.20	0.12	0.16	100	1.28	1.26	0.75
1394	0.20	0.20	0.12	0.19	100	1.06	1.05	0.63
1395	0.20	0.19	0.12	0.16	100	1.27	1.22	0.75
1396	0.20	0.20	0.12	0.17	100	1.22	1.17	0.70
1397	0.20	0.19	0.12	0.16	100	1.27	1.25	0.75
1398	0.20	0.19	0.12	0.16	100	1.26	1.23	0.75
1399	0.20	0.20	0.12	0.16	100	1.22	1.19	0.73
1400	0.20	0.20	0.12	0.18	100	1.14	1.11	0.71
1401	0.20	0.19	0.13	0.18	100	1.13	1.09	0.71
1402	0.21	0.19	0.13	0.17	100	1.22	1.14	0.75
1403	0.21	0.19	0.13	0.18	100	1.15	1.08	0.73
1404	0.21	0.19	0.13	0.18	100	1.14	1.06	0.73
1405	0.21	0.19	0.13	0.17	100	1.22	1.12	0.77
1406	0.21	0.19	0.13	0.17	100	1.20	1.11	0.77
1407	0.21	0.19	0.13	0.18	100	1.16	1.07	0.74
1408	0.21	0.19	0.13	0.18	100	1.17	1.08	0.73
1409	0.21	0.19	0.13	0.18	100	1.14	1.06	0.71
1410	0.20	0.19	0.13	0.17	100	1.21	1.14	0.76
1411	0.20	0.19	0.13	0.17	100	1.22	1.15	0.78
1412	0.20	0.19	0.13	0.17	100	1.22	1.14	0.80
1413	0.20	0.19	0.14	0.17	100	1.22	1.15	0.82
1414	0.21	0.19	0.14	0.17	100	1.22	1.14	0.82
1415	0.21	0.19	0.14	0.17	100	1.23	1.15	0.83
1416	0.21	0.19	0.14	0.18	100	1.15	1.08	0.78
1417	0.21	0.19	0.14	0.18	100	1.16	1.07	0.78
1418	0.21	0.19	0.14	0.17	100	1.23	1.13	0.82
1419	0.21	0.19	0.14	0.16	100	1.28	1.18	0.85
1420	0.21	0.19	0.14	0.17	100	1.23	1.14	0.82
1421	0.21	0.20	0.14	0.19	100	1.11	1.04	0.75
1422	0.21	0.20	0.14	0.17	100	1.23	1.15	0.80
1423	0.21	0.20	0.14	0.17	100	1.28	1.18	0.84

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1424	0.21	0.20	0.14	0.17	100	1.22	1.13	0.81
1425	0.21	0.20	0.14	0.24	100	0.90	0.83	0.59
1426	0.21	0.20	0.14	0.27	100	0.81	0.74	0.53
1427	0.21	0.20	0.14	0.17	100	1.23	1.13	0.81
1428	0.21	0.20	0.14	0.18	100	1.20	1.12	0.79
1429	0.21	0.20	0.14	0.21	100	1.01	0.94	0.67
1430	0.21	0.20	0.14	0.20	100	1.08	1.00	0.71
1431	0.21	0.20	0.14	0.19	100	1.12	1.04	0.74
1432	0.21	0.20	0.14	0.20	100	1.07	0.99	0.70
1433	0.22	0.20	0.14	0.19	100	1.11	1.03	0.72
1434	0.22	0.20	0.14	0.19	100	1.14	1.04	0.73
1435	0.22	0.20	0.14	0.19	100	1.13	1.03	0.73
1436	0.22	0.20	0.14	0.16	100	1.38	1.26	0.89
1437	0.22	0.20	0.14	0.17	100	1.28	1.15	0.82
1438	0.22	0.19	0.14	0.21	100	1.03	0.91	0.65
1439	0.22	0.20	0.14	0.21	100	1.08	0.95	0.67
1440	0.22	0.20	0.14	0.25	100	0.88	0.77	0.54
1441	0.22	0.20	0.14	0.13	100	1.66	1.45	1.02
1442	0.22	0.20	0.14	0.19	100	1.18	1.05	0.73
1443	0.22	0.20	0.14	0.22	100	0.99	0.89	0.61
1444	0.23	0.20	0.14	0.18	100	1.23	1.08	0.75
1445	0.23	0.20	0.14	0.17	100	1.32	1.16	0.80
1446	0.23	0.20	0.14	0.19	100	1.22	1.07	0.73
1447	0.23	0.20	0.14	0.13	100	1.80	1.58	1.06
1448	0.23	0.20	0.14	0.17	100	1.36	1.19	0.82
1449	0.23	0.20	0.14	0.16	100	1.42	1.25	0.85
1450	0.23	0.20	0.14	0.17	100	1.38	1.21	0.83
1451	0.23	0.20	0.14	0.17	100	1.38	1.22	0.83
1452	0.23	0.20	0.14	0.17	100	1.37	1.22	0.83
1453	0.23	0.21	0.14	0.17	100	1.34	1.19	0.80
1454	0.23	0.21	0.14	0.18	100	1.29	1.15	0.77
1455	0.23	0.21	0.14	0.16	100	1.48	1.31	0.90
1456	0.23	0.21	0.15	0.19	100	1.23	1.09	0.77
1457	0.23	0.21	0.15	0.19	100	1.21	1.08	0.78
1458	0.23	0.21	0.16	0.18	100	1.28	1.12	0.85
1459	0.24	0.21	0.16	0.22	100	1.08	0.95	0.74
1460	0.23	0.20	0.16	0.19	100	1.24	1.10	0.88
1461	0.23	0.20	0.17	0.18	100	1.27	1.11	0.92
1462	0.23	0.20	0.17	0.17	100	1.31	1.13	0.96
1463	0.22	0.20	0.17	0.17	100	1.28	1.15	0.97
1464	0.22	0.20	0.17	0.15	100	1.46	1.30	1.11
1465	0.22	0.20	0.17	0.16	100	1.38	1.23	1.04
1466	0.22	0.20	0.17	0.16	100	1.35	1.23	1.02
1467	0.22	0.20	0.17	0.17	100	1.32	1.21	1.01
1468	0.22	0.20	0.16	0.17	100	1.31	1.19	0.94
1469	0.22	0.20	0.15	0.15	100	1.42	1.31	0.95
1470	0.22	0.20	0.14	0.16	100	1.34	1.25	0.86
1471	0.22	0.20	0.13	0.16	100	1.35	1.25	0.81
1472	0.22	0.21	0.12	0.16	100	1.38	1.27	0.76
1473	0.23	0.21	0.13	0.22	100	1.03	0.95	0.58
1474	0.23	0.21	0.14	0.19	100	1.24	1.14	0.74
1475	0.23	0.21	0.14	0.16	100	1.41	1.29	0.87
1476	0.23	0.21	0.15	0.16	100	1.39	1.30	0.91
1477	0.22	0.21	0.16	0.20	100	1.12	1.05	0.79

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1478	0.22	0.21	0.16	0.21	100	1.05	1.00	0.75
1479	0.22	0.21	0.16	0.21	100	1.05	1.01	0.76
1480	0.22	0.21	0.16	0.17	100	1.25	1.20	0.90
1481	0.23	0.21	0.16	0.22	100	1.02	0.95	0.70
1482	0.23	0.22	0.15	0.29	100	0.79	0.73	0.52
1483	0.24	0.22	0.15	0.20	100	1.21	1.11	0.78
1484	0.24	0.22	0.15	0.19	100	1.30	1.18	0.82
1485	0.25	0.22	0.15	0.22	100	1.12	1.00	0.69
1486	0.25	0.23	0.16	0.19	100	1.35	1.20	0.83
1487	0.26	0.23	0.16	0.18	100	1.41	1.25	0.86
1488	0.26	0.23	0.16	0.19	100	1.38	1.23	0.85
1489	0.26	0.23	0.16	0.19	100	1.37	1.22	0.85
1490	0.26	0.23	0.16	0.24	100	1.07	0.97	0.67
1491	0.26	0.23	0.16	0.21	100	1.23	1.12	0.77
1492	0.26	0.23	0.16	0.24	100	1.08	0.98	0.67
1493	0.26	0.22	0.16	0.20	100	1.32	1.14	0.80
1494	0.26	0.21	0.16	0.17	100	1.56	1.26	0.95
1495	0.27	0.22	0.16	0.17	100	1.56	1.25	0.95
1496	0.27	0.22	0.17	0.18	100	1.50	1.21	0.92
1497	0.27	0.22	0.17	0.19	100	1.43	1.14	0.88
1498	0.27	0.23	0.17	0.23	100	1.16	0.98	0.72
1499	0.27	0.24	0.17	0.19	100	1.42	1.25	0.92
1500	0.26	0.23	0.18	0.22	100	1.18	1.04	0.79
1501	0.26	0.23	0.17	0.34	100	0.77	0.68	0.52
1502	0.26	0.23	0.18	0.19	100	1.35	1.20	0.94
1503	0.26	0.23	0.18	0.18	100	1.39	1.24	0.98
1504	0.25	0.23	0.18	0.19	100	1.37	1.24	0.95
1505	0.25	0.23	0.17	0.20	100	1.25	1.15	0.86
1506	0.25	0.23	0.17	0.17	100	1.43	1.33	1.00
1507	0.24	0.23	0.17	0.17	100	1.42	1.33	0.98
1508	0.24	0.23	0.17	0.19	100	1.32	1.23	0.90
1509	0.25	0.22	0.17	0.17	100	1.49	1.35	1.01
1510	0.25	0.22	0.17	0.18	100	1.37	1.23	0.94
1511	0.25	0.22	0.17	0.21	100	1.19	1.06	0.83
1512	0.25	0.22	0.17	0.19	100	1.34	1.17	0.92
1513	0.25	0.22	0.17	0.19	100	1.32	1.16	0.92
1514	0.25	0.22	0.18	0.19	100	1.31	1.17	0.92
1515	0.25	0.23	0.18	0.20	100	1.26	1.13	0.88
1516	0.25	0.23	0.18	0.21	100	1.20	1.07	0.84
1517	0.26	0.23	0.18	0.22	100	1.16	1.03	0.82
1518	0.26	0.23	0.18	0.18	100	1.40	1.23	0.99
1519	0.26	0.23	0.18	0.18	100	1.39	1.24	0.99
1520	0.26	0.23	0.18	0.28	100	0.93	0.82	0.66
1521	0.26	0.23	0.19	0.21	100	1.29	1.13	0.90
1522	0.26	0.23	0.19	0.21	100	1.26	1.11	0.90
1523	0.26	0.23	0.19	0.21	100	1.26	1.12	0.91
1524	0.26	0.24	0.19	0.20	100	1.30	1.16	0.96
1525	0.26	0.24	0.20	0.23	100	1.15	1.05	0.86
1526	0.26	0.24	0.20	0.20	100	1.35	1.24	1.02
1527	0.27	0.25	0.20	0.21	100	1.26	1.16	0.95
1528	0.27	0.25	0.20	0.24	100	1.11	1.03	0.85
1529	0.27	0.25	0.21	0.26	100	1.06	0.96	0.80
1530	0.28	0.24	0.21	0.26	100	1.05	0.93	0.79
1531	0.28	0.24	0.21	0.27	100	1.02	0.90	0.76

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1532	0.28	0.24	0.21	0.24	100	1.16	1.01	0.87
1533	0.28	0.24	0.21	0.24	100	1.16	1.01	0.87
1534	0.28	0.25	0.21	0.23	100	1.19	1.07	0.90
1535	0.28	0.25	0.21	0.20	100	1.41	1.29	1.06
1536	0.28	0.25	0.21	0.23	100	1.23	1.11	0.92
1537	0.28	0.25	0.21	0.23	100	1.23	1.11	0.91
1538	0.27	0.25	0.21	0.25	100	1.11	1.03	0.85
1539	0.27	0.25	0.21	0.24	100	1.13	1.06	0.88
1540	0.27	0.25	0.21	0.23	100	1.16	1.08	0.92
1541	0.27	0.25	0.21	0.24	100	1.13	1.06	0.91
1542	0.26	0.25	0.22	0.22	100	1.21	1.15	0.98
1543	0.27	0.25	0.22	0.29	100	0.94	0.88	0.75
1544	0.27	0.25	0.22	0.30	100	0.91	0.85	0.73
1545	0.27	0.25	0.22	0.31	100	0.88	0.82	0.70
1546	0.27	0.25	0.21	0.30	100	0.89	0.85	0.71
1547	0.27	0.26	0.22	0.25	100	1.08	1.03	0.87
1548	0.27	0.26	0.23	0.26	100	1.04	0.99	0.90
1549	0.27	0.26	0.25	0.41	100	0.67	0.64	0.62
1550	0.27	0.26	0.27	0.27	100	0.99	0.96	1.00
1551	0.27	0.26	0.29	0.26	100	1.04	1.02	1.13
1552	0.27	0.27	0.31	0.31	100	0.87	0.86	1.02
1553	0.27	0.27	0.32	0.45	100	0.60	0.60	0.71
1554	0.27	0.27	0.32	0.30	100	0.90	0.89	1.08
1555	0.27	0.27	0.33	0.32	100	0.84	0.82	1.01
1556	0.27	0.27	0.33	0.30	100	0.91	0.89	1.11
1557	0.28	0.27	0.34	0.31	100	0.90	0.88	1.11
1558	0.30	0.27	0.34	0.31	100	0.96	0.86	1.10
1559	0.31	0.27	0.35	0.35	100	0.87	0.76	0.98
1560	0.32	0.27	0.35	0.32	100	1.01	0.86	1.12
1561	0.35	0.27	0.36	0.40	100	0.87	0.68	0.90
1562	0.38	0.28	0.37	0.45	100	0.85	0.62	0.82
1563	0.39	0.28	0.37	0.35	100	1.12	0.80	1.07
1564	0.41	0.28	0.38	0.35	100	1.16	0.80	1.06
1565	0.42	0.29	0.38	0.43	100	0.99	0.67	0.89
1566	0.42	0.29	0.38	0.44	100	0.94	0.66	0.87
1567	0.41	0.29	0.39	0.40	100	1.03	0.73	0.97
1568	0.40	0.33	0.40	0.37	100	1.10	0.90	1.08
1569	0.40	0.37	0.41	0.40	100	1.02	0.93	1.03
1570	0.41	0.41	0.41	0.46	100	0.89	0.88	0.90
1571	0.41	0.45	0.42	0.54	100	0.76	0.83	0.78
1572	0.42	0.49	0.42	0.47	100	0.89	1.05	0.91
1573	0.42	0.50	0.43	0.54	100	0.77	0.92	0.79
1574	0.45	0.51	0.43	0.51	100	0.88	1.00	0.85
1575	0.47	0.51	0.44	0.49	100	0.95	1.04	0.89
1576	0.48	0.51	0.44	0.46	100	1.03	1.09	0.94
1577	0.49	0.51	0.44	0.48	100	1.01	1.06	0.92
1578	0.50	0.51	0.43	0.50	100	0.99	1.01	0.86
1579	0.49	0.51	0.44	0.58	100	0.84	0.88	0.76
1580	0.49	0.52	0.44	0.53	100	0.93	0.98	0.84
1581	0.50	0.53	0.45	0.56	100	0.90	0.95	0.81
1582	0.51	0.54	0.45	0.54	100	0.95	1.00	0.84
1583	0.51	0.55	0.47	0.58	100	0.89	0.94	0.82
1584	0.54	0.56	0.47	0.52	100	1.03	1.07	0.91
1585	0.55	0.56	0.48	0.58	100	0.94	0.97	0.82

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1586	0.56	0.57	0.48	0.66	100	0.84	0.86	0.73
1587	0.56	0.57	0.49	0.62	100	0.91	0.93	0.79
1588	0.57	0.58	0.49	0.59	100	0.97	0.98	0.82
1589	0.57	0.58	0.50	0.64	100	0.89	0.91	0.78
1590	0.55	0.58	0.50	0.58	100	0.94	1.00	0.86
1591	0.58	0.60	0.51	0.73	100	0.78	0.81	0.70
1592	0.59	0.60	0.51	0.83	100	0.71	0.73	0.61
1593	0.62	0.62	0.52	0.79	100	0.78	0.78	0.65
1594	0.66	0.63	0.51	0.58	100	1.14	1.09	0.88
1595	0.70	0.64	0.51	0.67	100	1.04	0.96	0.77
1596	0.67	0.62	0.50	0.70	100	0.96	0.89	0.72
1597	0.69	0.62	0.50	0.79	100	0.87	0.79	0.64
1598	0.69	0.62	0.50	0.63	100	1.08	0.97	0.79
1599	0.67	0.62	0.51	0.62	100	1.08	0.99	0.81
1600	0.68	0.62	0.51	0.66	100	1.03	0.93	0.77
1601	0.71	0.65	0.53	0.65	100	1.09	0.99	0.82
1602	0.72	0.65	0.54	0.60	100	1.19	1.08	0.89
1603	0.72	0.66	0.55	0.65	100	1.11	1.03	0.85
1604	0.72	0.67	0.56	0.66	100	1.09	1.02	0.85
1605	0.72	0.68	0.57	0.63	100	1.15	1.08	0.90
1606	0.73	0.69	0.57	0.66	100	1.10	1.04	0.86
1607	0.74	0.69	0.57	0.66	100	1.12	1.05	0.86
1608	0.74	0.70	0.57	0.67	100	1.11	1.05	0.85
1609	0.75	0.71	0.57	0.65	100	1.15	1.10	0.88
1610	0.75	0.72	0.58	0.68	100	1.11	1.06	0.85
1611	0.76	0.73	0.58	0.67	100	1.14	1.09	0.86
1612	0.77	0.74	0.58	0.73	100	1.05	1.00	0.79
1613	0.78	0.74	0.58	0.68	100	1.15	1.10	0.86
1614	0.79	0.75	0.59	0.68	100	1.16	1.10	0.87
1615	0.79	0.75	0.60	0.64	100	1.25	1.18	0.93
1616	0.80	0.76	0.61	0.65	100	1.23	1.17	0.93
1617	0.81	0.77	0.62	0.66	100	1.21	1.15	0.93
1618	0.81	0.77	0.62	0.68	100	1.19	1.13	0.90
1619	0.82	0.78	0.62	0.68	100	1.20	1.13	0.91
1620	0.83	0.78	0.62	0.67	100	1.23	1.16	0.93
1621	0.83	0.79	0.63	0.72	100	1.15	1.10	0.88
1622	0.83	0.79	0.63	0.91	100	0.91	0.87	0.70
1623	0.83	0.80	0.64	0.81	100	1.03	0.99	0.79
1624	0.84	0.81	0.65	0.76	100	1.10	1.07	0.85
1625	0.84	0.82	0.65	0.71	100	1.18	1.15	0.92
1626	0.85	0.83	0.66	0.80	100	1.06	1.03	0.82
1627	0.86	0.84	0.66	0.77	100	1.12	1.09	0.87
1628	0.86	0.83	0.67	0.77	100	1.12	1.08	0.87
1629	0.86	0.84	0.68	0.74	100	1.17	1.14	0.92
1630	0.86	0.85	0.68	0.84	100	1.02	1.01	0.81
1631	0.86	0.85	0.69	0.83	100	1.04	1.03	0.83
1632	0.87	0.86	0.69	0.79	100	1.10	1.08	0.87
1633	0.87	0.87	0.70	0.77	100	1.14	1.13	0.90
1634	0.88	0.88	0.70	0.75	100	1.17	1.17	0.93
1635	0.89	0.88	0.71	0.90	100	0.99	0.98	0.78
1636	0.89	0.89	0.72	1.11	100	0.81	0.80	0.65
1637	0.90	0.90	0.72	1.17	100	0.76	0.76	0.62
1638	0.90	0.90	0.73	1.06	100	0.84	0.85	0.68
1639	0.90	0.90	0.73	1.00	100	0.90	0.90	0.73

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1640	0.91	0.91	0.74	0.79	100	1.15	1.16	0.94
1641	0.91	0.92	0.74	0.86	100	1.07	1.07	0.86
1642	0.97	0.93	0.74	0.84	100	1.16	1.11	0.88
1643	1.03	0.94	0.75	0.89	100	1.15	1.06	0.84
1644	1.07	0.95	0.75	0.89	100	1.21	1.07	0.84
1645	1.07	0.95	0.75	0.79	100	1.35	1.20	0.95
1646	1.07	0.95	0.76	0.76	100	1.40	1.25	0.99
1647	1.01	0.95	0.76	0.75	100	1.34	1.27	1.02
1648	0.97	0.94	0.77	0.83	100	1.17	1.13	0.92
1649	0.93	0.94	0.77	0.98	100	0.95	0.96	0.79
1650	0.93	0.93	0.78	0.89	100	1.04	1.04	0.87
1651	0.93	0.93	0.79	0.89	100	1.05	1.05	0.88
1652	0.94	0.93	0.79	0.97	100	0.97	0.96	0.82
1653	0.92	0.93	0.80	0.82	100	1.13	1.14	0.98
1654	0.93	0.93	0.80	0.80	100	1.15	1.16	1.00
1655	0.93	0.94	0.80	0.78	100	1.18	1.20	1.03
1656	0.93	0.94	0.80	0.77	100	1.21	1.23	1.05
1657	0.93	0.95	0.81	0.76	100	1.22	1.24	1.06
1658	0.93	0.96	0.81	0.85	100	1.09	1.12	0.95
1659	0.94	0.96	0.81	0.84	100	1.12	1.15	0.97
1660	0.94	0.97	0.81	0.77	100	1.21	1.25	1.05
1661	0.94	0.98	0.82	0.83	100	1.14	1.18	0.99
1662	0.95	0.98	0.81	0.86	100	1.10	1.14	0.94
1663	0.96	0.99	0.82	0.79	100	1.21	1.25	1.03
1664	0.96	0.99	0.81	0.82	100	1.18	1.21	0.99
1665	0.97	0.99	0.81	0.77	100	1.26	1.29	1.06
1666	0.97	0.99	0.82	0.85	100	1.15	1.17	0.97
1667	0.97	1.00	0.84	0.85	100	1.15	1.18	0.99
1668	0.99	1.00	0.84	0.88	100	1.13	1.14	0.96
1669	0.99	1.01	0.85	0.79	100	1.26	1.28	1.08
1670	0.99	1.01	0.86	0.76	100	1.32	1.34	1.13
1671	0.99	1.01	0.86	0.75	100	1.32	1.36	1.15
1672	0.97	1.02	0.87	1.01	100	0.96	1.01	0.86
1673	0.95	1.02	0.86	0.70	100	1.35	1.46	1.22
1674	0.94	1.02	0.87	0.80	100	1.18	1.29	1.10
1675	0.93	1.03	0.87	0.84	100	1.10	1.22	1.03
1676	0.93	1.03	0.86	0.90	100	1.03	1.14	0.96
1677	0.93	1.03	0.87	0.89	100	1.04	1.15	0.98
1678	0.93	1.01	0.89	0.97	100	0.96	1.04	0.92
1679	0.93	0.99	0.90	1.02	100	0.92	0.98	0.88
1680	0.93	0.98	0.91	0.91	100	1.02	1.07	1.00
1681	0.94	0.96	0.92	0.85	100	1.10	1.13	1.08
1682	0.95	0.94	0.93	0.79	100	1.20	1.20	1.18
1683	0.95	0.95	0.91	0.82	100	1.16	1.15	1.11
1684	0.96	0.95	0.92	0.80	100	1.20	1.19	1.15
1685	0.97	0.96	0.92	0.88	100	1.10	1.08	1.04
1686	0.97	0.96	0.93	0.89	100	1.09	1.08	1.05
1687	0.97	0.96	0.94	0.78	100	1.24	1.23	1.19
1688	0.97	0.97	0.93	0.75	100	1.29	1.29	1.25
1689	0.97	0.97	0.94	0.80	100	1.21	1.21	1.17
1690	0.97	0.97	0.94	0.86	100	1.13	1.14	1.10
1691	0.97	0.98	0.95	0.95	100	1.02	1.03	1.00
1692	0.97	0.98	0.95	0.95	100	1.01	1.03	1.00
1693	0.97	0.98	0.95	1.06	100	0.91	0.92	0.90

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1694	0.96	0.98	0.96	1.16	100	0.83	0.85	0.83
1695	0.95	0.98	0.97	1.11	100	0.86	0.89	0.87
1696	0.95	0.99	0.98	0.93	100	1.02	1.06	1.05
1697	0.95	0.99	0.98	1.01	100	0.94	0.98	0.98
1698	0.96	0.99	0.98	1.11	100	0.86	0.89	0.89
1699	0.97	1.00	0.99	1.08	100	0.90	0.93	0.92
1700	1.00	1.00	1.00	1.00	100	1.00	1.00	1.00
1701	1.02	1.00	1.00	0.96	100	1.06	1.04	1.04
1702	1.04	1.00	1.01	0.96	100	1.08	1.05	1.05
1703	1.05	1.00	1.03	0.96	100	1.09	1.04	1.07
1704	1.06	1.00	1.03	0.99	100	1.06	1.01	1.04
1705	1.05	1.01	1.04	1.02	100	1.03	0.99	1.02
1706	1.06	1.01	1.04	1.02	100	1.04	0.99	1.02
1707	1.08	1.01	1.04	1.04	100	1.04	0.98	1.00
1708	1.08	1.02	1.03	1.01	100	1.07	1.00	1.02
1709	1.08	1.02	1.01	1.28	100	0.84	0.80	0.79
1710	1.08	1.03	0.98	1.17	100	0.93	0.89	0.84
1711	1.08	1.05	0.96	1.07	100	1.01	0.98	0.90
1712	1.07	1.06	0.95	1.23	100	0.87	0.86	0.77
1713	1.09	1.08	0.96	1.26	100	0.86	0.85	0.76
1714	1.10	1.09	0.97	1.36	100	0.81	0.80	0.71
1715	1.12	1.09	0.99	0.97	100	1.16	1.13	1.03
1716	1.14	1.09	1.00	0.98	100	1.16	1.12	1.02
1717	1.17	1.10	0.99	0.98	100	1.19	1.12	1.01
1718	1.17	1.10	0.98	1.03	100	1.14	1.06	0.95
1719	1.17	1.10	0.95	1.13	100	1.03	0.98	0.84
1720	1.18	1.11	0.93	1.39	100	0.85	0.80	0.67
1721	1.19	1.11	0.95	1.13	100	1.06	0.99	0.84
1722	1.18	1.10	0.95	1.12	100	1.05	0.98	0.85
1723	1.18	1.10	0.98	1.20	100	0.98	0.92	0.82
1724	1.20	1.09	1.02	1.17	100	1.02	0.93	0.87
1725	1.21	1.08	1.05	1.24	100	0.98	0.87	0.85
1726	1.22	1.07	1.06	1.09	100	1.12	0.98	0.97
1727	1.24	1.07	1.08	1.08	100	1.14	0.99	1.00
1728	1.25	1.07	1.08	1.09	100	1.14	0.98	0.99
1729	1.27	1.07	1.08	1.13	100	1.12	0.95	0.95
1730	1.28	1.08	1.08	1.07	100	1.19	1.01	1.01
1731	1.28	1.09	1.09	1.14	100	1.12	0.95	0.95
1732	1.29	1.09	1.10	1.12	100	1.15	0.97	0.98
1733	1.30	1.09	1.10	1.12	100	1.17	0.98	0.99
1734	1.30	1.10	1.11	1.17	100	1.11	0.94	0.95
1735	1.29	1.10	1.11	1.14	100	1.14	0.96	0.98
1736	1.29	1.10	1.13	1.14	100	1.14	0.97	0.99
1737	1.29	1.10	1.13	1.16	100	1.11	0.95	0.98
1738	1.29	1.10	1.15	1.23	100	1.05	0.89	0.93
1739	1.30	1.10	1.16	1.32	100	0.98	0.83	0.88
1740	1.29	1.10	1.17	1.27	100	1.02	0.87	0.92
1741	1.29	1.10	1.17	1.30	100	1.00	0.85	0.90
1742	1.30	1.11	1.18	1.24	100	1.05	0.89	0.95
1743	1.30	1.11	1.18	1.15	100	1.13	0.97	1.03
1744	1.31	1.11	1.18	1.17	100	1.11	0.95	1.01
1745	1.32	1.12	1.18	1.19	100	1.11	0.94	0.99
1746	1.33	1.12	1.19	1.28	100	1.04	0.88	0.92
1747	1.33	1.13	1.18	1.38	100	0.96	0.81	0.85

Nominal Wages, CPI and Real Wages: Index 1700 = 1 (cont.)

Year	Nominal Wage Labourers	Nominal Wage Craftsmen	Nominal Wage Farmers	CPI Barebones Basket	% Not Imputed	Real Wage Labourers	Real Wage Craftsmen	Real Wage Farmers
1748	1.33	1.14	1.18	1.45	100	0.92	0.78	0.81
1749	1.33	1.14	1.18	1.40	100	0.95	0.82	0.84
1750	1.34	1.15	1.17	1.34	100	1.00	0.86	0.88
1751	1.34	1.14	1.18	1.34	100	1.00	0.85	0.88
1752	1.35	1.15	1.18	1.29	100	1.04	0.89	0.92
1753	1.35	1.14	1.19	1.28	100	1.06	0.89	0.93
1754	1.35	1.14	1.19	1.30	100	1.04	0.87	0.91
1755	1.36	1.14	1.19	1.21	100	1.12	0.94	0.98
1756	1.36	1.15	1.18	1.35	100	1.01	0.85	0.88
1757	1.36	1.15	1.18	1.43	100	0.95	0.80	0.83
1758	1.36	1.15	1.17	1.38	100	0.99	0.83	0.85
1759	1.36	1.15	1.17	1.38	100	0.99	0.83	0.85
1760	1.36	1.16	1.15	1.42	100	0.96	0.82	0.81
1761	1.38	1.16	1.14	1.31	100	1.05	0.89	0.87
1762	1.40	1.17	1.12	1.33	100	1.05	0.88	0.84
1763	1.41	1.19	1.12	1.32	100	1.07	0.91	0.85
1764	1.43	1.21	1.10	1.33	100	1.07	0.90	0.83
1765	1.47	1.22	1.11	1.41	100	1.04	0.86	0.79
1766	1.47	1.22	1.11	1.42	100	1.03	0.86	0.78
1767	1.46	1.23	1.12	1.49	100	0.98	0.83	0.75
1768	1.46	1.24	1.12	1.53	100	0.96	0.81	0.73
1769	1.46	1.23	1.12	1.47	100	1.00	0.84	0.77
1770	1.46	1.23	1.13	1.74	100	0.84	0.71	0.65
1771	1.47	1.24	1.14	1.73	100	0.85	0.71	0.65
1772	1.49	1.23	1.14	1.58	100	0.94	0.78	0.72
1773	1.52	1.23	1.13	1.66	100	0.91	0.74	0.68
1774	1.53	1.24	1.14	1.56	100	0.98	0.80	0.73
1775	1.53	1.24	1.12	1.55	100	0.99	0.80	0.73
1776	1.54	1.24	1.11	1.49	100	1.03	0.84	0.75
1777	1.54	1.26	1.10	1.52	100	1.01	0.83	0.72
1778	1.52	1.26	1.10	1.57	100	0.97	0.80	0.70
1779	1.52	1.27	1.10	1.59	100	0.96	0.80	0.69
1780	1.53	1.28	1.10	1.55	100	0.99	0.83	0.71
1781	1.54	1.29	1.10	1.60	100	0.96	0.81	0.69
1782	1.55	1.30	1.10	1.64	100	0.95	0.79	0.67
1783	1.63	1.34	1.10	1.62	100	1.01	0.82	0.68
1784	1.66	1.34	1.10	1.62	100	1.02	0.83	0.68
1785	1.64	1.34	1.10	1.70	100	0.96	0.79	0.64
1786	1.61	1.34	1.09	1.62	100	0.99	0.83	0.67
1787	1.71	1.46	1.04	1.66	100	1.03	0.88	0.63
1788	1.66	1.46	1.07	1.73	100	0.96	0.84	0.62
1789	1.64	1.46	1.12	1.88	100	0.87	0.78	0.59

Table 7: Budget studies (France 1343-1787): Bread calories

Source	Year	Place	Occupation	Bread Cal./ day	Total calories Original	Total calories Adjusted	Bread %	Bread % Adjusted
11	1343	Bourgogne	Fisherman	4050	5234	5234	0.77	0.77
11	1343	Saulx-le-Duc	Prisoner	4050	5142	5142	0.79	0.79
11	1343	Bourgogne	Guardian	4800	5984	5984	0.80	0.80
11	1343	Bourgogne	Valet	4800	5892	5892	0.81	0.81
11	1343	Saulx-le-Duc	Prisoner	4875	5967	5967	0.82	0.82
11	1343	Bourgogne	Farmer	4875	5967	5967	0.82	0.82
11	1344	Bourgogne	Fisherman	4325	5478	5478	0.79	0.79
11	1344	Saulx-le-Duc	Prisoner	4325	5417	5417	0.80	0.80
11	1344	Bourgogne	Guardian	4800	5953	5953	0.81	0.81
11	1344	Saulx-le-Duc	Guardian	4800	5346	5346	0.90	0.90
11	1344	Saulx-le-Duc	Prisoner	4800	5346	5346	0.90	0.90
11	1344	Bourgogne	Valet	4800	5346	5346	0.90	0.90
11	1344	Bourgogne	Farmer	4800	5346	5346	0.90	0.90
11	1345	Bourgogne	Fisherman	3400	4662	4662	0.73	0.73
11	1345	Bourgogne	Valet	4575	5218	5218	0.88	0.88
11	1345	Bourgogne	Farmer	4575	5218	5218	0.88	0.88
11	1345	Bourgogne	Guardian	4800	6062	6062	0.79	0.79
11	1345	Saulx-le-Duc	Prisoner	3400	4492	4492	0.76	0.76
11	1345	Saulx-le-Duc	Prisoner	4575	5316	5316	0.86	0.86
11	1346	Saulx-le-Duc	Prisoner	3400	4492	4492	0.76	0.76
11	1346	Saulx-le-Duc	Prisoner	4575	5316	5316	0.86	0.86
12	1364	Trets-en-Provence	Studium papal de Trets	2080	2600	2600	0.80	0.80
12	1365	Trets-en-Provence	Studium papal de Trets	2080	2600	2600	0.80	0.80
11	1373	Argilly	Fisherman	6750	8375	8375	0.81	0.81
3	c. 1400	Murol	Noble family	3750	5697	5697	0.66	0.66
12	1424	Arles	Archbishop	2715	2795	**3095**	0.97	**0.88**
12	1429	Arles	Archbishop	4180	4580	4580	0.91	0.91
12	1430	Arles	Archbishop	5967	6268	**6368**	0.95	**0.94**
12	1442	Arles	Archbishop	4180	4588	4588	0.91	0.91
4	1461	Tours	Guardian	2027	2445	2445	0.83	0.83
12	1464	Arles	Archbishop	3144	3195	**3535**	0.98	**0.89**
4	1476	Tours	Guardian	2027	2445	2445	0.83	0.83
8	1480	Languedoc	Paysan	3531	4163	4163	0.85	0.85
4	1487	Tours	Guardian	2027	2445	2445	0.83	0.83
4	1490	Tours	Guardian	2027	2445	2445	0.83	0.83

Budget studies (France 1343-1787): Bread calories (cont.)

Source	Year	Place	Occupation	Bread Cal./ day	Total calories Original	Total calories Adjusted	Bread %	Bread % Adjusted
4	1491	Tours	Guardian	2027	2536	2536	0.80	0.80
4	1495	Tours	Guardian	2027	2445	2445	0.83	0.83
4	1498	Tours	Guardian	2027	2432	2432	0.83	0.83
4	1499	Tours	Guardian	2027	2653	2653	0.76	0.76
4	1499	Tours	Guardian	2027	2484	2484	0.82	0.82
4	1499	Tours	Guardian	2027	2445	2445	0.83	0.83
6	1527	Meaux	Hospital	1625	2391	**2441**	0.68	**0.67**
8	1580-90	Languedoc	Paysan	4417	4917	4917	0.90	0.90
13	1600-1700	Toulouse	Citizen	1281	1371	1371	0.93	0.93
13	1631	Toulouse	Hospital	1260	1475	**1445**	0.85	**0.87**
13	1631	Toulouse	Hospital	1376	1458	1458	0.94	0.94
5	1631	Marcigny	College	2198	3830	4280	0.57	0.51
5	1631	Marcigny	College	2198	3751	4201	0.59	0.52
5	1631	Marcigny	College	2199	3808	4258	0.58	0.52
14	1682	Caen	Hospital	1382	1640	**1740**	0.84	**0.79**
14	1683	Caen	Hospital	1421	1661	**1761**	0.86	**0.81**
14	1684	Caen	Hospital	1382	1650	**1750**	0.84	**0.79**
14	1685	Caen	Hospital	1421	1616	**1716**	0.88	**0.83**
14	1686	Caen	Hospital	1382	1575	**1675**	0.88	**0.82**
14	1687	Caen	Hospital	1382	1566	**1666**	0.88	**0.83**
14	1688	Caen	Hospital	1382	1618	**1718**	0.85	**0.80**
14	1689	Caen	Hospital	1421	1642	**1742**	0.87	**0.82**
14	1690	Caen	Hospital	1382	1661	**1761**	0.83	**0.78**
14	1691	Caen	Hospital	1224	1464	**1564**	0.84	**0.78**
14	1692	Caen	Hospital	1500	1665	**1765**	0.90	**0.85**
14	1693	Caen	Hospital	1500	1602	**1702**	0.94	**0.88**
14	1694	Caen	Hospital	1342	1420	**1520**	0.95	**0.88**
14	1695	Caen	Hospital	1421	1588	**1688**	0.90	**0.84**
14	1696	Caen	Hospital	1540	1657	**1757**	0.93	**0.88**
10	c.1690-c.1710	Rouen	Weaver	2934	3604	3302	0.81	0.89
13	1700-1800	Toulouse	Citizen	2200	2799	2799	0.79	0.79
13	1705	Toulouse	Citizen	1659	1684	**1754**	0.98	**0.95**
13	1709	Toulouse	Citizen	498	523	**593**	0.95	**0.84**
14	1719	Caen	Hospital	1242	2510	**2610**	0.49	**0.48**
14	1719	Caen	Hospital	1537	2125	**2900**	0.72	**0.53**

Budget studies (France 1343-1787): Bread calories (cont.)

Source	Year	Place	Occupation	Bread Cal./ day	Total calories Original	Total calories Adjusted	Bread %	Bread % Adjusted
14	1725	Caen	Hospital	1358	2972	2972	0.46	0.46
13	1730-51	Verfeil	Citizen	1659	1960	1960	0.85	0.85
10	1750	Arles	Paysan	2033	2582	2582	0.79	0.79
13	1750	Toulouse	Citizen	2289	2331	2331	0.98	0.98
13	1751	Toulouse	Citizen	2289	2333	2333	0.98	0.98
7	1754-55	Toulouse	College	2468	4903	**4852**	0.50	**0.51**
1	1754-67	Gevaudan	Spousal support	1053	1195	**1245**	0.88	**0.85**
1	1754-67	Gevaudan	Spousal support	1112	1386	**1436**	0.80	**0.77**
1	1754-67	Gevaudan	Spousal support	1386	1666	**1716**	0.83	**0.81**
1	1754-67	Gevaudan	Spousal support	1415	1576	**1626**	0.90	**0.87**
1	1754-67	Gevaudan	Spousal support	1565	1861	**1911**	0.84	**0.82**
1	1754-67	Gevaudan	Spousal support	1780	1956	**2006**	0.91	**0.89**
1	1754-67	Gevaudan	Spousal support	1873	1999	**2049**	0.94	**0.91**
1	1754-67	Gevaudan	Spousal support	1882	2164	**2214**	0.87	**0.85**
1	1754-67	Gevaudan	Spousal support	1937	2359	**2409**	0.82	**0.80**
1	1754-67	Gevaudan	Spousal support	2064	2487	**2537**	0.83	**0.81**
1	1754-67	Gevaudan	Spousal support	2563	2816	**2866**	0.91	**0.89**
13	1757	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1758	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1759	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1760	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1761	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1762	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1763	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1764	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
10	1764	Abbeville	Weaver	2683	3365	3412	0.80	0.79
13	1765	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
13	1766	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
7	1767	Beaumont	College	1723	2085	**3147**	0.83	**0.55**
13	1767	Carcassonne	Ursulines	2654	3267	3267	0.81	0.81
7	1767-77	Molsheim	College	1858	4062	**3896**	0.46	**0.48**
13	1771	Toulouse	Parliamentary	919	1329	**1399**	0.69	**0.69**
2	1772	Willgottheim	Barber	665	802	802	0.83	0.83
13	1772	Toulouse	Parliamentary	919	1329	**1399**	0.69	**0.69**
2	1772-89	Willgottheim	Laborer	3766	4132	4132	0.91	0.91

Budget studies (France 1343-1787): Bread calories (cont.)

Source	**Year**	**Place**	**Occupation**	**Bread Cal./ day**	**Total calories Original**	**Total calories Adjusted**	**Bread %**	**Bread % Adjusted**
2	1772-90	Willgottheim	Worker	1567	1746	1746	0.90	0.90
13	1773	Toulouse	Parliamentary	919	1329	**1399**	0.69	**0.69**
2	1773	Willgottheim	Weaver	1329	1453	1453	0.91	0.91
7	1773-79	Auch	College	2640	4506	**4388**	0.59	**0.60**
2	1775	Willgottheim	Stone mason	886	1049	1049	0.84	0.84
2	1776	Willgottheim	Hunter	1993	2203	2203	0.90	0.90
2	1776	Willgottheim	Merchant	1993	2143	2143	0.93	0.93
7	1777-87	Molsheim	College	2087	4240	**4028**	0.49	**0.52**
2	1780	Willgottheim	Laborer	4350	4868	4868	0.89	0.89
2	1781	Willgottheim	Merchant	1329	1453	1453	0.91	0.91
2	1781	Willgottheim	Merchant	2900	3138	3138	0.92	0.92
2	1784	Willgottheim	Carpenter	1329	1470	1470	0.90	0.90
2	1785	Willgottheim	Weaver	1993	2194	2194	0.91	0.91
2	1785	Willgottheim	Laborer	2657	2916	2916	0.91	0.91
2	1787	Willgottheim	Laborer	1329	1527	1527	0.87	0.87
9	1789	Vivarais	Farmer	965	1650	1391	0.59	0.69
2	1789	Willgottheim	Laborer	5316	5733	5733	0.93	0.93

Notes: The codes for the column "Source" are the following:

1: Bernard (1969) 2: Boehler (1995) 3: Charbonnier (1975) 4: Chevalier (1971) 5: Couperie (1963) 6: Endres (1971) 7: Frijhoff and Julia (1975)

8: Le Roy Ladurie (1966) 9: Molinier (1985) 10: Morineau (1985) 11: Piponnier (1974) 12: Stouff (1970) 13: Vedel (1975) 14: Villemon (1971)

Chapter 3

Working Time

3.1 Introduction

The debate about working time in pre-industrial Europe is characterized by an endemic dearth of quantitative evidence. Existing contributions measuring basic patterns of time-use in pre-industrial Europe and its connection with the rise of new consumer aspirations, mostly rely on indirect information drawn upon literary sources, regulations, demographic data and probate inventories.

These exercises in historical reconstruction, though valuable for their theoretical and practical implications, mainly focus on England and provide contrasting accounts of the main contours of the patterns of change of labour input.

From the one side, there is no consensus on the very existence of significant increases in workers' labour input. Indeed, while Clark and Van Der Werf (1998) found little evidence of "an industrious revolution of any consequence"[1] in pre-modern England, De Vries (1994), Voth (2000) and Allen and Weisdorf (2011) challenged this view, detecting several episodes of industrious behavior that preceded the Industrial Revolution. Yet, while multiple industrious revolutions were progressively identified in English history, the debate concentrated on the pos-

[1] Clark and Van Der Werf (1998).

sible explanations for why workers might supply more hours of work to the market. Voth (2000) argued that the increased labour supply in the late eighteenth century London came out of economic hardship with no signs of consumer revolution. However, the quantitative reconstruction of Allen and Weisdorf supported a more optimistic reading of the evidence on working days in England, suggesting that industrious behavior between 1600 and 1750 was a predominantly urban phenomenon driven by consumer revolution rather than necessity.

From the other side, literature on working time was primarily concerned with the reconstruction of actual workloads rarely considering alternative measures of labour input. Nevertheless, while labour supply ultimately depended upon workers' decision making, the individual choice parameter set was constrained by institutional setting and prevailing market conditions.

This study contributes to the current debate on working time in pre-industrial Europe adding two elements.

First, we consider three dimensions of working time namely, calendar, actual and implied working year. Using new direct information, we offer quantitative evidence of their patterns of change in England and France from the Middle Ages to the eighteenth century.

Second, we analyze the co-movements between calendar, actual and implied working year to detect and characterize episodes of industrious behavior.

The analysis is structured as follows.

Section 3.2 deals with calendar time and presents methods and materials used to construct a series of calendar working year in France for the period 1300-1790. The subsequent section will be devoted to the analysis of changes in actual workloads in France and England between the fourteenth and the eighteenth centuries. In particular, section 3.3 provides a formal presentation of the two econometric models used to extract basic patterns from available data and obtain estimates of actual working year. Section 3.4 presents several series of the implied working year necessary to buy a basket of basic consumption items and explore alternative specifications. Finally, in section 3.5 we compare the evolution of calendar, actual and implied working year and identify two distinct patterns of industriousness in France and England in the pre-industrial era. Section 3.6 concludes.

3.2 Calendar Time

Calendar working year is the first dimension of time analyzed in this study. This corresponds to the calendar year net of general holidays and religious festivities. In the Middle Ages this was essentially the time of the church. Its rhythm was set by the occurrence of the great religious holidays around which other minor celebrations gravitated and alternated, contributing to distinguish a city from the other. Nevertheless, Medieval Europe followed a calendar that was a synthesis, inherited from the past, between ecclesiastical elements, pagan and celestial cults laid to astronomy, agriculture and the cycle of the seasons (Cressy, 1989).

The basic structure of time codified in the Middle Ages passed to the modern era but was shaped by the great forces of the epoch. As the modern era witnessed the rise of centralized institutions, even the calendar times underwent a process of convergence within individual states. This process culminated in the eighteenth century with the rise of the first national calendars and the development of a new repertory of festivities celebrating the regnal and political anniversaries of the state (Cressy, 1989; Shusterman, 2010).

On the other side the advent of Protestant Reform saw the reduction of holidays in the protestant countries and brought about a divergence in calendar times between Catholic and Protestant states. The gap was not closed until the end of the eighteenth century.

Overall, the analysis of calendar times has received little attention from the economic historians and systematic quantitative reconstructions of the calendar year are limited to Spain between 1250 and 1900 (García-Zuniga, 2014) and France between 1642-1789 (Shusterman, 2010).

This study addresses this gap by offering an overview of the patterns of change of calendar times in France and other European countries from

the Middle Ages to the end of the eighteenth century.
I start this section with a discussion of the sources and methods used to construct the series and introduce the main findings.
I began by assembling material from available secondary sources. Chief among them was the work of Shusterman (2010) that reconstructed the number of holidays in France from Louis XIV to Napoleon. Additional material was also extracted from classic accounts, as documented in the references section, that provided some scattered information about the length of the calendar year in several cities. Despite that, especially for earlier centuries, evidence from secondary sources is patchy. To get a continuous time series of the calendar working year I thus collected additional evidence from a consistent set of printed primary sources that included the fabric rolls of some medieval cathedrals and the synodal statutes. The synodal statutes were "a set of prescriptions at once legal, theological and pastoral, intended to serve as guide to the priest"[2] and the diocese. Among the others, they often contained useful information about the number of holidays that were observed in the diocese.
I considered the first synodal statutes of the thirteenth century France, published and commented by Pontal (1971), and explore how successive codifications changed the calendar structure. The dataset thus constructed included 21 lists providing information about holidays in the dioceses of West, North-East and Paris between the thirteenth and the fifteenth centuries. Most of the manuscripts date back to the thirteenth century which is the era of the first great codifications.[3] With respect to the first synodal statutes, successive editions introduced only limited changes to the list of festivities.
Typically, the list of holidays was introduced by the heading "De festis celebrandis"[4] and sometimes festivities were classified according to their importance.[5] The division between major and minor holidays seemingly dates back to the thirteenth century as documented by the synodal

[2] Vauches (2002).

[3] See Pontal (1971) for the work of the bishops Eudes de Sully and Guiard de Laon that inspired and informed successive codifications.

[4] My translation; *Holy days that should be observed*.

[5] See on this (Avril, 1995).

statutes of Arras and Noyon in France, Worcester and London in England (Avril, 1995).

In the synodal statutes the distinction between major and minor holidays was grounded on economic rather than religious principles suggesting that the synodal statutes were first and foremost a set of practical (rather than theological) prescriptions intended to serve as guide to the faithful. Major holidays were defined as:

> *Days that should be carefully observed by our subjects in which priest should not and cannot license their subjects for accommodating coaches or horses or animals used for these purposes for themselves or for anyone else* (Avril, 1995, p.175).[6]

During minor holidays it was possible to work the fields (*in quibus licet arare et carrucare* (Avril, 1995, p.175). Again, the reference to plowing suggests that these texts were mainly normative and spoke, through the priest, to the community of the believers-workers. This hierarchy may also include simple, semi-double and double holidays (Barralis, 2007).

A complete rest of the activity occurred only during double holidays while some form of work was allowed during simple and semi-double feast days. The institution of semi-double feasts represented a compromise solution between the necessity of limiting the number of holidays and the needs of worship that suggest caution in the suppression of existing cult practices. By the mid-sixteenth century, the notion of semi-feasts appears frequently in the provincial statutes (Grenier, 2012, p.105).

To get from the list of holidays an estimate of the total number of calendar days I proceeded as follows.

First, I summed up all the days of feast implied by the holidays listed in the synodal statutes.[7] The sum of the days of feast did not perfectly match with the number of celebrations as some of them lasted more than

[6] My translation; original: *Ab omnibus subditis nostris diligenter observari in quibus non debent nec possunt presbiteri licentiare subditos suos pro accommodatione carrucarum, vel equorum vel animalium ad hec deputatorum pro se vel pro aliis quibuscumque.*

[7] In the computation, major and minor holy days were assigned the same weight because rest from work was not compulsory during minor holydays. In addition only some statutes distinguished between minor and major festivities.

a day. For example, Pentecost was usually followed by another two days of feast.
Secondly, I added all the Sundays that were always included among holidays.
Thirdly, I corrected the resulting sum for the number of occurrences that fell on Sunday such as Easter, the first day of Pentecost and Holy Trinity, and for the number of local feast days. Indeed, local celebrations were usually introduced by the heading "The dedication of the church and the feast of the patron of the church"[8] but were not listed in their entirety. When detailed information was not available I prudentially assumed that these represented 5 per cent of total holidays.[9]

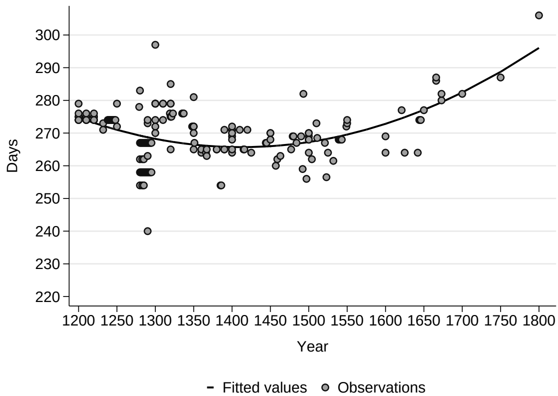

Figure 30: Calendar Working Year in France

Figure 30 shows the scattered observations of calendar working days and the trend in the calendar working year in France between the thirteenth and the nineteenth centuries.[10]

[8] My translation; original: *Dedicatio ecclesie et festum patroni ecclesie*.

[9] We assumed that local holidays outside Sundays were approximately two (5 per cent of 45 days of feast). García-Zuniga (2014) used a similar procedure to impute the share of local holidays in total days of feast.

[10] The series of calendar working year was obtained by regressing observations of the calendar working year on linear and quadratic trends in time. In the final series, data

The results offer several insights.
First, the reduction of holidays followed a non linear trend in time. In the thirteenth century, the calendar working year averaged 275 days and by 1400 it was about 265 days. Reductions were not coral and rested on the reformism of single personalities of Catholicism whose activity was often inspired by the practical and moral needs of their diocese.[11] As a consequence, efforts were isolated and small changes were produced. The calendar working year remained approximately stable until the second half of the seventeenth century when the reformation activity conducted by the Gallican Church between 1666 and 1669 brought about reductions in the number of holy days in a dozen dioceses (Grenier, 2012, p.106). These reforms were guided by the state and prompted by the publication in 1642 of the Papal bull *Universa per orbem* that limited the possibility for the bishops of instituting new feast days. Yet, in the Catholic world, France represented an early example of holidays reduction also for the particular autonomy enjoyed by the French Church vis à vis Rome and the traditional influence exerted by the state over religious affairs (Grenier, 2012).
At the onset of the French Revolution the working year averaged 287 days. The reforms brought about in the course of the Revolution and by Napoleon finally established a working year of more than 300 days. Elsewhere on the Catholic Continent drastic reductions in the days of feast occurred by the mid-eighteenth century (Fig.31).
Second, between 1200 and 1800 the rise in the calendar working year was very limited, averaging 10 per cent. In absolute terms this corresponded to a modest gain of close to 30 days in the course of six centuries.
These results can be checked against the experience of other countries in Europe. Figure below shows the evolution of the calendar working year in France and Spain as well as some scattered observations for several European countries between 1200 and 1800.

between 1642 and 1789 are taken from Shusterman (2010).

[11] See on this Barralis (2007).

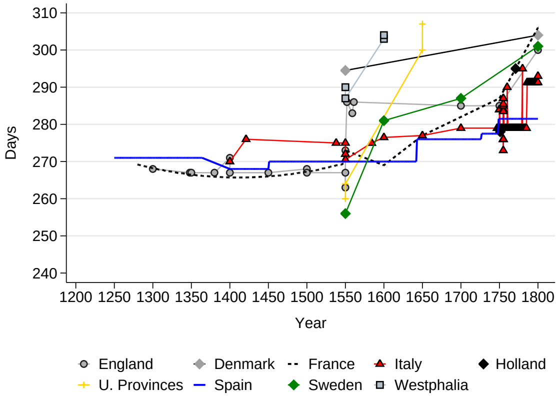

Figure 31: Calendar Working Year in Europe

Potential working days in Austria, Bamberg, Denmark, Catholic Ireland, United Provinces, Protestant Ireland, Sweden and Westfalia as well as the series for Spain are taken from García-Zuniga (2014).
Data for the Catholic Low Countries come from Lambrecht (2014).
I constructed a new series of the calendar working year for Italy combining into a single time series the seemingly similar experiences of several cities and reigns now belonging to the Italian state. Indeed, observations were drawn upon Florence, Lombardy, Piedmont and the Kingdom of Naples. The resulting series provides an approximate evolution of the calendar working year in Italy since the late fourteenth century.
A new series of the calendar working year in England is also presented. Material was extracted from several sources, including, among the others, Cressy (1989, 2003); Harvey (1956) and Pfaff (1998) that provided information about the number of festivities and their evolution from the Middle Ages to the Stuart Reign. Additional data were obtained from the fabric rolls of Exeter cathedral and the churchwarden's accounts of several parishes in England from which we recover the number of festivities and infer the basic structure of the calendar working year.
Three observations spring to mind.
Firstly, in the course of the Middle Ages the average length of the calen-

dar working year was broadly similar across Europe though saints and patrons varied widely across dioceses. In Spain the calendar working year was close to 270 days, with average variations in the order of 6 days. The dioceses of Northern and Central France experienced similar rates as well as Florence, Siena and Orvieto in Italy and Exeter in England. This result is consistent with the view that calendar dispersion across countries was more qualitative (differences in cults and practices of devotion) than quantitative (differences in the actual number of feast days) in the Middle Ages. The conventional assumption that holidays varied between 40 and 50 except Sundays, and the calendar working year was in the range 263 - 273 was approximately correct.
Secondly, after the 1550s a rising gap created inside Christianity between Catholic and Protestant countries. While the calendar year of Catholic states displayed little or no improvement as compared to the Middle Ages, the territories of the Holy roman empire that embraced Calvinism, Denmark, Sweden, the Reformed Ireland and the United Provinces witnessed large decreases in the number of days of feast. Still in 1600, in Westphalia and the United Provinces the calendar working year averaged 300 days and was slightly shorter in Denmark and the Reformed Ireland. The calendar working year in the Protestant Low Countries was 30 days longer than the Catholic Low Countries.
Pre-reformation England followed a calendar that was heavy with holy days and religious festivities. The advent of the Protestant Reform saw "an assault on the proliferation of saint days"[12] and the reduction of existing festivities to a manageable number as part of the reform enacted by King Henry VIII in 1536 as supreme head of the Church of England. The constellation of local parish dedication feasts scattered over the year was rationalized forcing their observance on standard days and it was introduced the concept that work took precedence over worship during harvest period (Cressy, 1989, p.5).
In 1552 the Parliament of King Edward VI included in the perimeter of the official holy days, all Sundays in the year, the Mondays and Tuesdays in Easter week, Whitsun week and a list of other 23 festivities.

[12] Cressy (1989).

The purged calendar resulting from the reforms defined a total set of about 80 holy days. The working year passed from c. 270 days characterizing medieval calendar to c. 285 days.
With few differences, the underlying structure of Edwardian calendar governed the official Christian year also under Elizabeth's reign and held sway in the seventeenth and eighteenth centuries.
At the end of the eighteenth century calendar working years converged. While the working year in Protestant countries remained stable at the levels of the sixteenth century, with no relevant further improvements, several Catholic countries underwent drastic reductions in the days of feast. Drops in the number of holy days took place in rapid succession in the Kingdom of Naples in 1748, in the Austrian Low Countries and Austria in 1751. Between the 1770s and the 1790s Baviera, Poland, Prussia and Spain witnessed expansions in the time available for work as well as France where the reforms of the late seventeenth century gained momentum (Grenier, 2012).
García-Zuniga (2014) found that in Spain working days increased by a modest 4 per cent between 1250 and 1800 and still in the 1870s the calendar working year was only 10 per cent (a month) longer than in the Middle Ages.
The study of the evolution of calendar time enables us to shed some light on the link between the effects of economic conditions on holidays' reductions. It is typically held that reforms of calendar year were driven by poverty. The connection between multiplication of the days of feast and misery dates back to the discussion of holidays in the Middle Ages (Rodgers, 1940). It was already a central concern of Parisian humanists at the court of King Charles VI in France[13] but survived the time and became a key argument in the writings of catholic intellectuals in the course of the eighteenth century.[14] Pressure on authorities to extend working time should have increased during economic crisis when the demand for work was higher. Nevertheless, our figures provide mild evidence that the reduction of days of feast followed a similar pattern to real

[13] Barralis (2007).
[14] Grenier (2012).

wages. In France, before 1348 there were between 40 and 50 holidays, which did not fall on Sunday. After the Black Death real wages rose but reduction of the calendar working year was less substantial and days of feast remained largely unchanged. By the mid-sixteenth century drops in real standards of living typically corresponded to small reductions in the number of holidays. The reforms of the mid-eighteenth century took place while real wages were declining in many parts of Europe. Yet, the religious motif played a major role in the reduction of holidays. Successive waves of reformism characterized France and Europe since the early Middle Ages and seemingly exerted a decisive influence over the process of reduction of holy days by the late eighteenth century. A typical example of this was the catholic Aufklarung. This was a theological movement that promoted a reduction of holidays in a broader picture of wide theological reform aimed at reaffirming the centrality of Christ, Mary and the Apostles in popular devotion and limit the proliferation of the cult of minor saints.[15]

3.3 Actual Working Time

Actual working time is the second dimension of time considered in this study. Literature conventionally assumes that the actual number of days worked per year was fixed and that changes in the standard of living were driven by variations in prices and nominal wages.

This assumption has become so common in the debate about living standards in pre-industrial Europe, that only recently some scholars have tried to turn the conventional wisdom about fixed labour input into a broader concept where actual working time is interpreted as a choice variable.

Chief among them were the analyses of Allen and Weisdorf (2011),

De Vries (1994) and Voth (2001) that called into question the common assumption of an invariant actual working year and documented the existence of episodes of industrious behavior in the course of the English

[15] See on this Grenier (2012).

history. Different in their methodological and practical implications,[16] these works still shared the common view that there existed a significant circular relation between market conditions and the labour supply decision.

Nonetheless, workers' economic activities are hard to measure.

Data on the working time are fragmentary and sometimes difficult to interpret. Daily payment often coexisted with other forms of remuneration, including team work and work by the task, for which a duration has to be imputed.

To date only some scholars have tried to measure actual workloads and very few authors have produced systematic direct estimates of actual working time.

Existing contributions can be classified as follows.

First, there exists a set of indirect estimates that uses price and wage series (or GDP series) to derive the implied number of working days required to buy a benchmark consumption basket at the prevailing wage rates.[17] These estimates are sometimes erroneously used as proxy for actual working days but results have to be interpreted with great care and can be more fruitfully used in comparison with direct measures of actual workloads.

Second, another set of indirect estimates is obtained by comparing the annual earnings of full-year employees relative to their average day wage. Clark and Van Der Werf (1998) is an influential attempt to measure actual working year following this approach. Based on estate and farm accounts from various places in England, this work provides estimates of work input that together cover the period between 1560 and 1870.

The main advantage of this approach is the possibility to get time series of actual working days spread over long time spans. Nevertheless, wage observations are usually recorded in the form of payments by the day and due attention has to be paid to the interpretation of yearly wage quotes.

[16] Allen and Weisdorf (2011) document an episode of industrious behaviour between 1600 and 1750;De Vries (2008) posits that an industrious revolution occurred in the seventeenth century England as a consequence of the appearance of novel consumption goods. Voth (2001) locates the industrious revolution much later, between 1760 and 1830.

[17] See among the others Allen and Weisdorf (2011); Malanima (2011).

Workers employed by the year typically received a cash wage plus food and lodging.[18] Yet, the value of benefits provided in a non-cash form has to be imputed and this is an exercise which is often prone to errors .
The third approach was proposed by Voth (2000, 2001) and derives estimates of male labour input for London and the North of England between 1760 and 1830, based on witnesses' accounts and court records. This methodology has the indisputable merit of providing estimates for several occupational categories on a hourly basis. However, the peculiarity of the source as well as the methodological and technical challenges it proposes (Voth, 2001, p.1067), make it hard to replicate a similar exercise for other periods and countries.
Finally, some direct evidence is currently available from the price and wage histories of several cities in Europe. These sources document the working habits of workers in the years before 1800 but provide only limited quantitative information about their actual workloads.[19]
This study seeks to circumvent some of these problems developing a direct approach for estimating actual working days. In essence, this method uses direct information contained in the fabric rolls and building accounts to set up an econometric model and obtain predictions of the actual working year. This approach has two main advantages.
First, for the very nature of the source, this study concentrates on the relatively homogeneous group of construction workers whose wages are the most frequently used in the literature dealing with living standards in pre-industrial Europe. Focusing on building labourers allows one to match well-known results from literature about real wage rates with precise information concerning actual working days.
The second advantage relates to the large availability of information recording the activity of construction sites over time and across places.
Overall this approach has thus the potential to produce the first set of long-run time series on the actual working year and provide a more comprehensive reconstruction of the patterns of time-use in several coun-

[18] See on this the approach recently developed by Humphries et al. (2016) to impute the benefits.
[19] See among the others Thompson (1967); Thrupp (1971) and Knoop and Jones (2003).

tries.
In what follows I describe the main features of this approach and discuss the results.

3.3.1 The Data

The empirical analysis conducted in the first part of this study is based on the construction of an entirely new dataset. Material was extracted from a large set of secondary and printed primary sources that included the published records of several building's projects that took place in France and England between 1299 and 1513. Building a dataset from heterogeneous sources requires great care. To ensure consistency I used several sources per time period that covered provincial and peripheral areas. The dataset contains weekly observations from 52 building projects and spans several cities including among the others Paris, Chartres, Troyes, London and Exeter. Table below provides a summary of the variables included in the dataset.
The building accounts record the actual working days and the compensation of individual workers on a weekly basis. As illustrated by the extract of the building account of Chartres' cathedral presented in the Appendix, the indication of working days and wages is often accompanied by a brief description of the task accomplished. These sections offer details about the identity of the workers and sometimes their occupation. The organization of the data follows the exact deployment of work on site. Though payments by the day were the more frequent, the fundamental unit of account was the week. The building accounts contained an incipit that reported the name of the redactor and a brief description of the building project. This incipit introduced to the main body of the source that was divided in many subsections each of them describing the activity of the building project over the week. Interestingly enough, weekly headings contained typical expressions ("in the week in which it was the holiday of Saint ...) suggesting that dating was first and foremost related to religious occurrences. On the whole the dataset includes more than 53,000 quotes of weekly days of work of 876 male workers. Each of them was employed in a building project for at least one week.

We observe the weekly labour offer for the 58 per cent of total observations.

Table 8: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
Id	483.372	235.596	1	876	53374
source	6.248	1.291	1	12	53374
country	1.161	0.368	0	1	53374
idbuildingsite	27.631	14.296	1	52	53374
city	3.236	1.272	1	9	53374
place	4.298	1.435	1	11	53374
profession	17.77	8.505	1	34	53374
skill	0.606	0.489	0	1	53374
month	6.701	3.495	1	12	53374
winter	0.423	0.494	0	1	53374
days	1.106	2.16	0	7	53374
year	1424.149	39.139	1299	1513	53374
wwage	0.983	3.611	0	60	53374
turnover	0.217	0.384	0	2.476	53374
sizeweek	6.892	6.013	0	35	53374
sizetot	32.816	18.519	2	88	53374
expweek	41.533	100.937	0	934.98	53374
exptot	1463.263	2140.001	72.8	9265.190	53374
duration	49.304	9.841	3	58	53374
workingdays	5.12	1.327	0	7	53374

Notes: "Id" and "idbuildingsite" are the identifiers for the workers and the building project; "source", "city", "place", "profession" and "month" are categorical variables indicating respectively the original source, city, typology of the building site (church, palace, etc.), occupation of the worker and month; "country" is a dummy taking value 1 if the observation regards France and 0 for England; "skill" is a dummy taking value 1 if the worker is skilled and 0 otherwise; "winter" is a dummy taking value 1 between november and march, and 0 otherwise; "wwage" is the weekly wage expressed in local unit of account; "turnover" is the ratio between those who left the site between time $t-1$ and time t and the average number of men at work on site over the same period; "days" indicates the actual workweek; "year" indicates when the building site took place; "sizeweek" records the number of workers on site in a specific week while "sizetot" is the total number of workers employed on a specific building project for its entire duration; "expweek" is the weekly cost of labour, while "exptot" is the total cost of labour; "duration" is the lenght in days of the building project. The variable "workingdays" indicates the number of workable days on site. These largely approximated the calendar workweek as rests of the activity often coincided with festivities and religious holy days.

Construction sites were moving entities characterized by great fluidity in the process of entry and exit of construction workers. The weekly size of the building project followed the deployment of labour and depended upon the very nature of the work.

Ordinary maintenance of existing edifices usually involved small equips of workers while large scale work required the supply of huge numbers of workers. The presence of men at work was then influenced by weather conditions, the availability of financial resources and the occurrence of festivities during the week.

This means that the size of the same building project varied greatly over time. To capture these changes, I define two alternative measures of the size of building projects: weekly and total size.

Weekly size is the total number of men working on site in a specific week. It is an index of activity of the building project that seemingly influenced the likelihood of working in a certain week.

Total size is instead defined as the total number of workers employed in the building project over its entire duration.[20]

The building projects studied here differed widely in size, ranging from the two workers employed in the ordinary maintenance of Exeter cathedral in 1513 to the 88 employees recorded on site for the construction of the royal palace of the Duke of Berry in Poitiers at the end of the fourteenth century. The average size of the building sites amounts to 33 workers.

Furthermore, construction sites differed in terms of duration. Building work, especially on extraordinary projects, required many workers for short periods of time while other construction sites lasted several years. I defined a variable labeled "duration" that measures the length of the construction work in weeks. Building sites included in our sample lasted between 3 and 58 weeks and the average duration was lower in France than England. To capture variations in the labour activity of the building work I constructed two variables (weekly and total expenditure) that measure the weekly and total cost of labour.

Building sites with similar size and duration could differ for the degree of mobility experienced by the labour force. A first measure of labour

[20] Notice that we included in the computation of total and weekly size even those workers whose identity was unknown.

mobility can be derived from the analysis of individual participation rates. Participation rates were obtained as the ratio between total number of days worked by a certain individual and the overall duration of the building project including Sundays.
Table below reports the percentiles by country of the individual participation rates.

Table 9: Percentiles of the participation rates

England				
	Percentiles	**Smallest**		
1%	0.003	0.001		
5%	0.004	0.001		
10%	0.008	0.001	**Obs**	44772
25%	0.016	0.001	**Sum of Wgt**	44772
50%	0.055		**Mean**	0.160
		Largest	**Std. Dev.**	0.213
75%	0.200	0.816		
90%	0.543	0.816	**Variance**	0.045
95%	0.684	0.816	**Skewness**	1.540
99%	0.755	0.816	**Kurtosis**	4.124
France				
	Percentiles	**Smallest**		
1%	0.004	0.000		
5%	0.005	0.000		
10%	0.007	0.000	**Obs**	8602
25%	0.023	0.000	**Sum of Wgt**	8602
50%	0.064		**Mean**	0.147
		Largest	**Std. Dev.**	0.189
75%	0.190	0.764		
90%	0.454	0.764	**Variance**	0.036
95%	0.617	0.764	**Skewness**	1.793
99%	0.758	0.764	**Kurtosis**	5.440

On average the great majority of construction workers (75 per cent) was employed for less than 20 per cent of the total duration of the building project while the top five percent remained on site for more than 60 per cent of the time. Comparison by nation of the cumulative density function of the average participation rates suggests that labour mobility in France was similar to England (Table 9). These values are consistent with the situation of other building projects in Europe (Cailleaux, 2006). Labour mobility was also influenced by seasonal effects and religious calendar. In some extreme cases one observes that about 90 per cent of the labour force worked on site less than 10 per cent of the available time and only few highly specialized workers remained on the same building work for its entire duration. Mobility also depended upon the entity of the work and the nature of the commissioner, be it private or public, be it the priest of the convent of Saint Augustine in Paris or the Pope in Avignon. Ordinary maintenance of small buildings often required small equips of relatively stable workers. Large building works commissioned by lords and archbishops, usually involved the presence of a great number of workers, hierarchically organized and employed by different contractors on a flexible basis.

To quantify these dynamics I constructed a weekly measure of turnover that corresponds to the ratio between those who left the site between time $t-1$ and time t and the average number of men at work on site over the same period (Table 8). When there was a complete rest of the activity I assumed that in the following week there was no turnover.

Finally, fully to characterize the activity on the building project I reconstructed the number of workable days on site on a weekly basis (Table 8, variable labeled "workingdays").[21] Indeed, building accounts recorded days of feast and sometimes reported the exact date in which certain holidays were celebrated. Once allowance was made for Sundays and saints days, I was able to reconstruct the calendar year and compare working days with actual workloads on a weekly basis.

Typically, building accounts of Exeter and Chartres' cathedrals (Findlay,

[21] This variable considers rests of the activity due to religious holy days and other festivities. As a robustness check we construct another variable that considered the workable days on site including all possible rests of the activity (season, technical requirements). Results are largely unchanged.

1939; Merlet, 2010) were the most complete.
When days of feast were not reported, as in the case of the castle of Gaillon (Deville et al., 1850), I inferred the number of working days net of holidays matching evidence of actual workloads with information drawn upon those liturgical calendars that were comparable with the one under study. When it was not possible to solve the uncertainty about the presence and exact location of a certain holiday in the course of the week, I prudentially assumed that it fell on Sunday. It is possible that this practice overestimates calendar working days on occasion.[22] Nevertheless, it avoided to reach the misleading conclusion that employees constantly worked above the threshold identified by calendar days simply because feast days had been incorrectly imputed. Several instances indicate that continuity of the building process was the dominant pattern (Hamon, 2008). Yet, there existed differences between construction projects over time and across places but few instances of total rest of the activity are observed. For example, the building accounts of the Exeter cathedral reveal that, with the exclusion of the great religious festivities (Christmas, Easter and the Pentecost), workers tended to work at the margin of production possibilities set by the calendar days. Furthermore, several instances indicate that for some workers it was fairly common to toil even more than this.

3.3.2 The Econometric Methodology I

The actual number of days of work per year can be computed using the following simple expression:

$$d_y = \sum_{w=1}^{52} d_w \tag{3.1}$$

[22]Notice that we do not distinguish between major and minor holy days because sources were silent on this. This is a reason for why our estimates of calendar workweek seemingly represent a lower bound.

where days per year d_y correspond to the sum of the days worked in the 52 weeks of the year.[23]

Expression (3.1) can be generalized to consider those weeks where the labour offer of a certain individual was different from zero:

$$d_y = \sum_{w=1}^{52} d_w = \sum_{w=1}^{N_w} d_w \tag{3.2}$$

where $(N_w \subseteq 52)$ is the number of weeks worked over the year. Rearranging (3.2) we get:

$$d_y = \sum_{w=1}^{N_w} d_w = \frac{\sum_{w=1}^{N_w} d_w}{N_w} \frac{N_w}{52} 52 \tag{3.3}$$

where annual days of work correspond to the product of the average length of the working week; the likelihood of being employed in a certain week, namely the share of worked weeks in total weeks; the length of the calendar year assumed to correspond to 52 weeks.

Annual work days are typically computed on the assumption that the average work-week lasted 5 days that with a calendar year of 52 weeks per year amounted to 260 annual work days.

This assumption represents a first useful approximation.

Nevertheless, as illustrated by expression (3.3), this procedure produces biased estimates of actual working days unless one can convincingly argue that the likelihood of being employed (the share of worked weeks in total weeks) approached unity.

While this assumption was approximately true for full-time workers, it becomes untenable for those categories that were recruited on a casual basis and experienced high degree of labour mobility.

In what follows, we explore the self-contained nature of our sources and formalize this simple intuition in an econometric model of sample selection.

[23] We assume that the normal year was composed of 52 weeks.

Our dataset shares one of the features common to many empirical exercises, namely non-randomness of the selected sample.
Let us consider the following situation.
We wish to estimate the labour offer equation for all male construction workers. By definition, our estimate is thus supposed to represent all people, whether or not a person is actually working. However, because we can only observe the labour offer when people work, this limitation raises a sample selection issue because data on the labour offer are available or missing as a result of the outcome of another variable, labor force participation.[24]
To formalize this problem we consider a model of sample-selection and investigate the robustness of our findings against alternative specifications. The estimates are computed using Heckman (1979)'s two-step procedure.
Let y_2^* denote the outcome of interest, namely the weekly labour supply. We introduce a second variable, y_1^*, and assume that the outcome y_2^* is observed if $y_1^* > 0$. In this case, y_1^* determines whether an individual participates in the labour market while y_2^* determines the intensity of work $y_1^* \neq y_2^*$. The two-equation model comprises a selection equation for y_1 (working on site) where:

$$y_1 = \begin{cases} 1 & if \quad y_1^* > 0 \\ 0 & if \quad y_1^* \leq 0 \end{cases}$$

and a resultant outcome equation for y_2, where:

$$y_2 = \begin{cases} y_2^* & if \quad y_1^* > 0 \\ - & if \quad y_1^* \leq 0 \end{cases}$$

The individual labour supply (y_2) is observed only when the worker is employed on site ($y_1 = 1$) event that happens when $y_1^* > 0$. On the contrary, when the worker is not employed on site ($y_1 = 0$), we do not observe his labour supply y_2. We assume that y_1^* depends linearly on a set of covariates (x_1) while y_2^* dependes on weekly wages w and a set of covariates x_2:

[24] This situation is commonly referred to as incidental truncation. See Wooldridge (2002).

$$y_1^* = x_1'\beta_1 + \varepsilon_1 \tag{3.4}$$

$$y_2^* = w'\gamma + x_2'\beta_2 + \varepsilon_2 \tag{3.5}$$

where
$\varepsilon_1 \sim N(0,\sigma)$
$\varepsilon_2 \sim N(0,1)$
$corr(\varepsilon_1, \varepsilon_2) = \rho$

In the first step the likelihood of working (the likelihood of the days being observed) is estimated by a probit model:

$$P(y_1 = 1|\mathbf{x_1}) = \Phi(\mathbf{x_1}\beta_1) \tag{3.6}$$

where β_1 is a vector of unknown parameters, Φ is the cumulative density function of the standard normal distribution and $\mathbf{x_1}$ is a vector of explanatory variables including the following covariates: turnover, weekly size, total size, weekly expenditure, duration, calendar working days, dummy variables for country, skill, season and a time trend.
In the second step we estimate through ordinary least-squares (OLS) a labour supply equation (outcome equation) including only working men. The expected work week conditional on worker's participation, corresponds to the following expression:

$$E(y_2|\mathbf{x}, y_1 = 1) = w'\gamma + x_2'\beta_2 + E(\varepsilon_2|y_1^* > 0) = w'\gamma + x_2'\beta_2 + \beta_\lambda\lambda(x_1'\beta_1) \tag{3.7}$$

where the dependent variable is the natural logarithm of actual weekly days of work while the regressors ($\mathbf{x}_2 \subset \mathbf{x}_1$) constitute a subset of the independent variables included in the selection equation and $\lambda = \phi(\cdot)/\Phi(\cdot)$ is the inverse Mills ratio corresponding to the ratio between the density function and cumulative distribution of a normal random variable.
In particular, the independent variables included in $\mathbf{x_2}$ are: weekly wage, calendar working days, dummy variables for country, skill, season and a time trend.

Our benchmark model uses cluster-robust standard errors that accommodate heteroscedasticity and within-cluster correlation.[25]
The variables omitted from the outcome equation but included in the participation equation were those describing the characteristics of the building projects.
These exclusion restrictions together with non linearity of the Mills ratio allow one to obtain more robust identification of the coefficients in the outcome equation (Cameron and Trivedi, 2005; Wooldridge, 2002).
This set of covariates had a substantial, nontrivial impact on the probability of working in a given week but did not directly affect the intensity of weekly labour supply once the worker was hired.
For example, weekly turnover together with weekly and total size of the building project had a significant effect on the probability of working in a given week but lost significance once they were included in the outcome equation. In addition, the results suggest that specialization was an important factor in explaining the likelihood of working over the week but did not significantly affect the labour offer.
The estimation was carried out for several rates of participation, namely the top and bottom 1, 5, 10, 15, 25 and 50 per cent.
Estimations were computed on the subsample constituted by the relevant share obtained for each of the building projects.
Just for illustration, global estimations of the top five per cent were obtained taking the five per cent more assiduous workers from each of the building sites included in the sample.
This approach avoided distortions due to the presence of unusually large (low) participation rates on some construction sites.

3.3.3 Results

Table 10 reports the estimation results for the Heckman's two-step procedure which represents our preferred specification. Results are presented for selected groups of labour attendance (top 5, 10, 25 and 50 per cent respectively) along with the implied statistics.

[25] Errors are clustered over the individual identifiers as the same worker is observed several times.

Table 10: Heckman 2-step: top 5, 10, 25 and 50 % more assiduous workers

	(1)	(2)	(3)	(4)
	dh	dh	dh	dh
wwage	0.042**	0.044***	0.069**	0.068***
	(0.013)	(0.011)	(0.021)	(0.019)
workingdays	0.556***	0.583***	0.551***	0.561***
	(0.030)	(0.025)	(0.022)	(0.022)
country	-0.754***	-0.785***	-1.133**	-1.127**
	(0.216)	(0.196)	(0.388)	(0.354)
skill	0.050	0.015	-0.015	-0.049
	(0.077)	(0.044)	(0.052)	(0.053)
winter	-0.083**	-0.072**	-0.105**	-0.126***
	(0.030)	(0.023)	(0.033)	(0.037)
year	-0.004*	-0.004***	-0.004**	-0.005**
	(0.002)	(0.001)	(0.002)	(0.002)
_cons	3.880	3.790*	4.537*	4.762*
	(2.555)	(1.655)	(2.284)	(2.220)
Selection				
turnover	-0.638***	-0.567***	-0.316***	-0.252***
	(0.087)	(0.072)	(0.062)	(0.036)
sizeweek	0.120***	0.156***	0.141***	0.107***
	(0.030)	(0.023)	(0.013)	(0.008)
sizetot	-0.030***	-0.034***	-0.037***	-0.033***
	(0.008)	(0.005)	(0.004)	(0.004)
expweek	-0.001	-0.001	-0.001	-0.000
	(0.002)	(0.001)	(0.001)	(0.000)
duration	0.019	0.016	0.015	0.012
	(0.015)	(0.011)	(0.009)	(0.007)
workingdays	0.284***	0.203***	0.130***	0.109***
	(0.029)	(0.024)	(0.016)	(0.012)
country	0.932*	0.736*	0.745**	0.685***
	(0.472)	(0.335)	(0.244)	(0.177)
skill	-0.533**	-0.445*	-0.223	-0.102
	(0.195)	(0.183)	(0.126)	(0.116)
winter	-0.003	-0.141	-0.068	-0.058
	(0.123)	(0.097)	(0.054)	(0.036)
year	0.003	0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
_cons	-4.421	-1.430	0.941	0.375
	(3.242)	(2.518)	(2.175)	(2.100)
Mills lambda	-0.492***	-0.378***	-0.361***	-0.301***
N	3736	6492	14761	28352

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Dep. var. "dh" is the natural logarithm of the weekly participation rate.
Variable "country" equals 1 if observation comes from France, 0 otherwise.
Variable "skill" equals 1 if the worker is skilled, 0 otherwise.
"winter" equals 1 if the construction site was between November and March.

A first important thing to note is the value of the coefficient of lambda. This has a large z statistic and it is significantly different from zero for all selected groups. Thus the two-step estimator produces somewhat strong evidence of selection and justifies the adoption of the Heckman's procedure instead of models that postulate independence between the selection and outcome equations (two-part model).[26]

The estimates suggest that weekly turnover, size (weekly and total), together with calendar working days and, to a lesser extent, duration are important factors in explaining weekly participation of male workers to the work activity irrespective of the specific rates of attendance (only slight variations). In general, turnover and total size have negative impacts on the participation probability but the effect differs across groups of labour attendance. As can be seen from the table, the coefficient of turnover becomes larger, in absolute terms, for the more assiduous groups. Weekly size of the building project has a positive effect on the participation probability with no particular pattern of changes across the various attendance groups. Total duration of the construction work increases instead the likelihood of being employed in a certain week. The fact that workers employed in relatively large construction sites that did last long experienced higher degree of labour mobility is consistent with the characterization of the patterns of casual employment in large-scale enterprises provided by Salzman (1952) and Stephenson (2016).

We observe a significant positive effect of calendar working days on the participation process. This result suggests that institutional time played a role in defining actual working time. Seasonal effects have the expected

[26] As a robustness check I estimated the same model using the Two part model and the Heckman ML model (Tobit-2 model). The Two part model assumes that the selection and outcome processes are independent. The Heckman ML model allows instead for some form of dependence between the two stages of the regression assuming that the errors are correlated, jointly normally distributed and homoskedastic. If the above assumptions are satisfied this model is more efficient than Heckman two-steps. The significance of the value rho and the low p-value of the likelihood ratio test point to the existence of some form of dependence between the two parts even though the foregoing conclusions should be treated with caution because the bivariate normality assumption is itself suspect. Prediction of the actual working year are largely unchanged with respet to our preferred specification. See Table 17 for a comparison between the estimates obtained using the TWO part model, the Heckman ML model and the Heckman two-step model. All these models have been implemented using routines in STATA12.

sign. Working in winter on average reduced the probability of being employed as compared to summer, but results are not statistically significant. The coefficient on the skill dummy suggests that specialization was an important factor in explaining the likelihood of working over the week. The effect was negative and increasing in magnitude with the level of attendance. This result is partly counter-intuitive, but it is consistent with the fact that for high degree of labour attendance, more specialized workers (particularly master masons) were relatively less assiduous because they were employed on several sites while regular unskilled workers mainly operated on the same site. We find that being in France increases the probability of selection. This is consistent with the fact that the French building sites included in our sample were characterized by relatively small groups of assiduous workers and lasted compatively less than English ones.

With the exception of the skill dummy, all the coefficients of the variables included in the outcome equation are statistically significant. The effect of weekly wages and calendar working days on the weekly labour offer is positive and decreasing across different groups of labour attendance. It appears that working during winter time slightly reduces the intensity of labour offer with few differences across groups. Finally, the negative coefficient on the country dummy suggests that the actual workweek of French construction workers was shorter than in England even though results for France are less robust for the limited sample size.

Tables below display the estimate of the average probability of selection and the expected average workweek for men conditional on participating in the labor force. The results portray several important findings.

First, the top 5 per cent more assiduous workers were employed in the construction site about 82 per cent of the weeks available in the calendar year. As expected, average rates of participation decreased with labour attendance.

For the top 10 per cent more assiduous workers the rate of participation averaged 74 per cent, decreased to 55 per cent for the top 25 per cent and reached a staggering 37 per cent for the top 50 per cent more assiduous ones.

There existed country differences.

Table 11: Probability of being selected

Variable	Mean	Std. Dev.	N
Probability top 5%	0.820	0.217	53374
Probability top 10%	0.742	0.243	53374
Probability top 25%	0.546	0.25	53374
Probability top 50%	0.367	0.206	53374

Table 12: Average Workweek

Variable	Mean	Std. Dev.	N
Workweek top 5%	5.153	0.869	3200
Workweek top 10%	5.143	0.913	5139
Workweek top 25%	4.982	1.109	9080
Workweek top 50%	4.829	1.210	12765

It is important to remind that these results regard rates of participation for the construction work on site and are in no way representative of the actual rates experienced by construction workers.
Indeed, one can not track the overall employment history of a certain individual except when he is named in project accounts. The resulting implication is that our estimates constitute a downward biased representation of actual workloads. Nevertheless, it was highly probable that construction workers were employed on multiple sites over the year as illustrated by Table 15 of the Appendix.
Just for illustration, one can consider the case of carpenter Thomas Osemond. His situation is a telling example of labour mobility in the Middle Ages. From the account roll of London Bridge of 1461-62, one gets to know that he worked 61 and 104 days in two different phases at the London Bridge and spent 85 days working at Carshalton, Norbury and Bedington, in hewing and squaring elms.[27] Taking these figures individually one may conclude that Osemond worked few days per year when in reality his actual workload was perfectly consistent with a typical (ac-

[27] See Harding and Wright (1995).

cording to literature) working year of 250 days. Unfortunately we cannot say if this case reflected a more general pattern of employment. Yet, we detect intense work schedules among workers employed on multiple sites over the year (Table 15 of the Appendix).
Second, the predicted values of days of work conditional on participating in the labor force indicate that the normal work week averaged 5.15 days for the top 5 per cent more assiduous workers while decreased to 5 for the top 25 per cent and 4.83 for the top 50 per cent more assiduous ones.
Predictions of actual workloads are also computed on the assumption that the expected labour offer was zero when the worker did not work on the building site (Table 3.3.3, models labeled "HECK*yexpected"). This amounts to assume that construction workers had not any other source of labour income. As expected, the implied actual work week is shorter but broadly consistent with previous estimates, suggesting that weeks of total rest were relatively rare for these workers.
It is now possible to obtain estimates of the actual working year by combining predictions of the probability of selection with the expected weekly days of work according to expression (3.3). Table below displays the results for the overall sample.

Table 13: Predicted Actual Working Year (Overall Sample)

Actual Working Year	Mean	Std. Dev.	N
HECK95yxb	244.980	53.059	3200
HECK95yexpected	234.942	56.160	3200
HECK95ycond	**239.801**	56.397	3200
HECK90yxb	228.146	62.127	5139
HECK90yexpected	215.683	65.300	5139
HECK90ycond	**222.889**	64.966	5139
HECK75yxb	177.499	74.893	9080
HECK75yexpected	159.042	74.800	9080
HECK75ycond	**170.387**	76.940	9080
HECK50yxb	124.31	68.706	12765
HECK50yexpected	104.635	63.581	12765
HECK50ycond	**117.979**	69.132	12765

Notes: HECK*yxb is the actual working year estimated using Heckman 2-step model where the dependent variable (the average work week) is obtained using linear prediction.
HECK*yexpected is the actual working year estimated using Heckman 2-step model where the expected value of the dependent variable (the average work week) is obtained assuming that labour supply is 0 when the worker is not observed on the building site.
HECK*ycond is the actual working year estimated using Heckman 2-step model calculating the dependent variable (the average work week) conditional on the dependent variable being observed.
Estimations are obtained using bootstrap standard errors clustered over Id. Estimations in bold are our preferred specifications.

Our figures suggest that the actual working year of the top 5 per cent more assiduous workers averaged 240 days
(Table 3.3.3, model labeled "HECK95ycond").
Assuming instead that the labour offer is null when one is not observed on the building site, the implied working year reduces to 235 days (Table 3.3.3, model labeled "HECK95yexpected"). The difference between the two predictions is negligible (5 days).
This result holds across different groups of labour participation.
As Table 3.3.3 illustrates, still for the top 50 per cent more assiduous workers the difference in the predicted number of days is 13. This result indicates that if the estimates of actual workloads are downward biased as compared to the true values of the population, this mainly depends upon underestimation of actual participation rates.[28]

[28] Estimates obtained using linear predictions of the dependent variable (the average

In order to find out, we need to consider extreme cases. Assuming that the participation rate equaled unity and the length of the week was 5.16 days, one obtains that the number of days worked per year amounted to 268. This means that our inability to fully track the employment history of the worker determines a downward bias that at most is in the order of about 13 per cent.[29]

Finally, figure below plots our estimates by nation of the actual working year against time for different rates of participation. Continuous series are predictions for England, while scatter observations regard French building projects. In general, actual workloads display few or no trend improvement, even though early estimates are more erratic especially for France. The expected actual working year of the top 5 per cent more assiduous workers averaged 246 days in England and 206 days in France.[30]

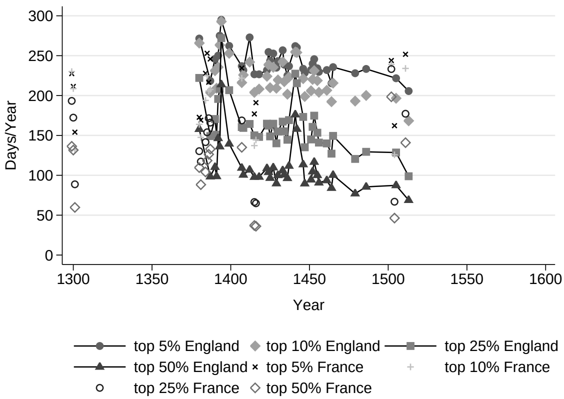

Figure 32: Actual Working Year

work week) imply a longer working year (Table 3.3.3, models labeled "HECK*yxb").

[29] This occurs because $((268-238)/238)\cdot 100 = 13\%$. Here we are assuming that the average workweek corresponds to the conditional average workweek of the top 5 per cent more assiduous workers employed on site.

[30] Notice that estimates of actual workloads for France are more imprecise due to the limited number of building projects included in the sample.

3.3.4 The Econometric Methodology II

The previuos approach required detailed information about days (and other covariates) on a weekly basis.
Indeed, as the frequency (week, month, year etc.) with which data are recorded decreases, the likelihood of being employed in a certain period increases (and actually tends to unity) and one fails to track the features of the participation process existing behind the individual supply of labour. Nonetheless, actual workloads are often recorded on a monthly and yearly basis.
These differences can be ascribed to several factors including, among the others, the nature of the source, the style of redaction of the building accounts and variations in the accounting system. To include this information in our estimates a new dataset that combined the weekly data analyzed above with additional observations was created.
The dataset thus constructed contained individual observations of the total days worked over the duration of the building site.
Weekly and monthly observations were collapsed on the year.
The empirical exercise carried out in this way allows us to extend estimations to a broader period covering, with gaps, the years between c. 1300 and 1700.
The dataset includes about 4400 observations of work days for male construction workers from 96 building sites in France and England (Table 14). Despite the sample has some limitations as most of the observations are based on the building accounts of few cities, overall the geographic scope of the dataset is much wider.
Among the others, it includes information about the construction of the Papal Palace in Avignon in the course of the fourteenth century (Piola Caselli, 1981); data on actual workloads recorded in the building accounts of Rouen's cathedral between 1457 and 1533 as reported in Lardin (2005, 2007); days of work in the church of Troyes between 1529 and 1531 (Galletti, 2010) and the cathedrals of Sens (Cailleaux, 1999), York (Raine, 1859) and Exeter (Erskine, 1983, 1981; Findlay, 1939).
Additional material was finally extracted from the building accounts of

several castles.

Table 14: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
source	31.731	11.987	5	44	4416
city	10.435	5.930	1	25	4416
country	1.243	0.429	1	2	4416
location	3.665	1.172	1	6	4416
contractor	2.67	1.438	1	4	4416
year	1518.433	136.311	1278	1679	4416
idch	66.371	29.713	1	96	4416
period	290.842	130.102	17	462	4416
sizeperiod	116.559	101.586	1	272	4416
sizetot	116.561	100.593	1	242	4416
Id	992.683	571.764	1	2000	2549
profession	27.135	9.783	1	53	4416
skill	0.366	0.482	0	1	4416
days	81.182	84.316	0.5	345	4416
dailywage	5.302	4.270	0.04	26	4416
participation rate	0.317	0.262	0.001	0.933	4416

Notes: "Id" and "idch" are the identifiers for the workers and the building project; "source", "city", "location", "contractor" and "profession" are categorical variables indicating respectively the original source, city, typology of the building site (church, palace, etc.), the nature of the contractor (church, household, king, lord, state) and the occupation of the worker; "country" is a dummy taking value 1 if the observation regards France and 0 for England; "year" indicates when the building site took place; "period" indicates the duration of the building site in days; "sizeperiod" records the number of workers on site for the period; "sizetot" records the number of workers on site for the total period; "skill" is a dummy taking value 1 if the worker is skilled and 0 otherwise; "days" indicates actual days of work; "dailywage" is the daily wage expressed in local unit of account; "participation rate" is the ratio between actual and workable days.

Jean Mesqui and coauthors meticulously reconstructed the building campaigns promoted by the great feudal lords of the fourteenth century France. These included the building projects initiated by Jean Duke of Berry, Louis II Duke of Bourbon and Louis I Duke of Orléans for the construction or the ordinary maintenance of numerous castles scattered in their vast possessions (Bruand, 1972; Ledos et al., 1894; Mesqui and Ribéra-Pervillé, 1980).
Further information was gathered from the building accounts of the castles of Amboise, Gaillon and Chambord during the fifteenth and sixteenth centuries.
In general, it was not possible to directly compare total days of work be-

cause building projects had different construction durations.
Duration is itself an ambiguous concept.
Contemporary manuals of construction engineering provide several definitions of construction time (Callahan et al., 1992; Nkado, 1995).
One fairly standard approach maintains that construction time is the elapsed period from the commencement of site works to the completion time of building to the client. The definition adopted here matches only partly with the one mentioned above.
Indeed, in this research, construction duration is the time required to complete a specified task or activity as defined by the accounting rules in use at a given time.
This distinction was made necessary by the fact that accounting time did not often coincide with the actual deployment of labour activity.
The implication is that building projects that lasted several years were split on the basis of the accounting year and analyzed separately according to the structure of the accounting book.
Provided that construction durations were different across sites, we rescaled individual observations of actual working days on the length of the building site and get individual participation rates.
Figure below shows the individual participation rates over the period 1280-1850. Typically, individual participation rates of workers employed on the same site are disposed along a vertical line with higher density of the circles for lower levels of work attendance. The great majority of the observations regard construction works undertaken between the end of the thirteenth century and the first half of the sixteenth century.
Additional data were taken from secondary sources that recorded actual workloads of more assiduous workers.
Figures 34 and 35 plot individual participation rates against time for England and France distinguishing between building sites for which the entire distribution of workers was known or truncated from above.

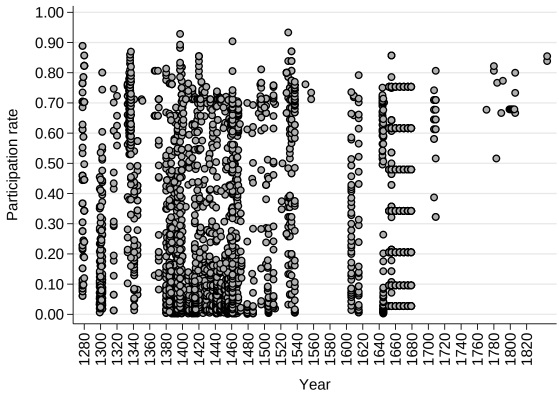

Figure 33: Overall Participation Rates

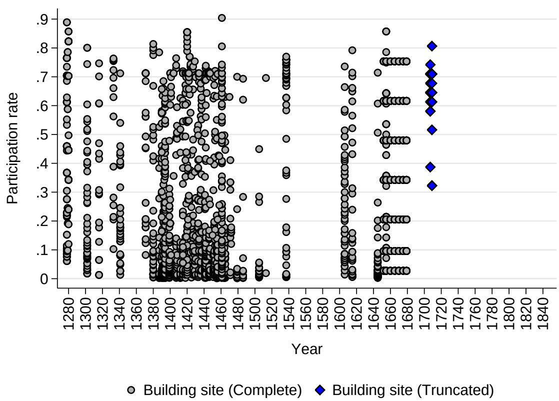

Figure 34: Participation rates in England

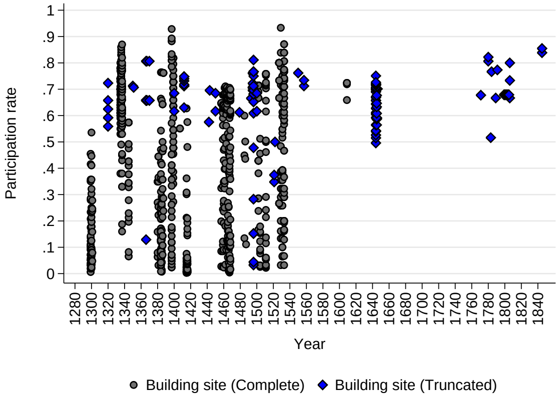

Figure 35: Participation rates in France

Predictions of actual participation rates are obtained by estimating the following benchmark regression equation:

$$ln(r_{it}) = \alpha + \beta w_{it} + \gamma y_{it} + \delta^{'} \boldsymbol{X_{it}} + \varepsilon_{it} \tag{3.8}$$

where the natural logarithm of the individual participation rate (r_{it}) is regressed on daily wages, a linear trend in time (y_{it}) and a set of controls ($\boldsymbol{X_{it}}$). In this regression, we thus try to derive trends in average rates of participation net of idiosyncratic features of the building site including size, duration, geographic location, nature of the labor contractor and mean level of activity along with the type of task accomplished and the factors related to the economic cycle (level of wages).[31] Observations were ordered by work attendance and estimations were carried out for the top 5, 10, 25 and 50 per cent more assiduous workers.
The coefficients of the regression are presented in Table 18 of the Appendix. Figure below displays the results for several groups of work

[31] It is important to note that for the very structure of the data, here we do not control for inner variations in the size, duration and level of activity of the same building site (within variation) but only for average variations in size, duration and level of activity across different building projects (between variation).

attendance in England.

Even though the series present several gaps, one can distinguish three phases.

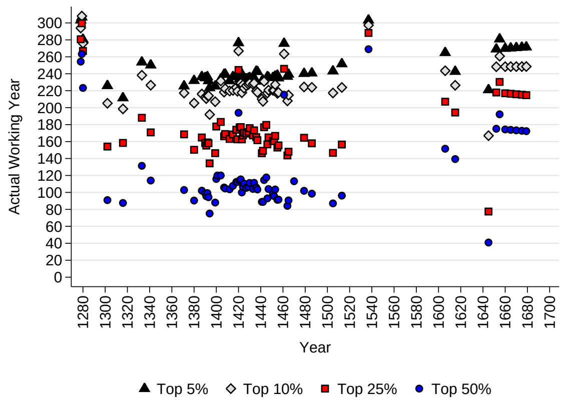

Figure 36: Actual Working Year in England

First, between the last years of 1200 and the first decade of 1300, our scattered estimations tentatively suggest that the working year of construction workers was already extraordinarily long by pre-industrial standards with a normal work week of six days and actual workloads averaging close to 290 days per year.

Second, by the 1310s the working year declined and then between the post-plague period and the end of the fifteenth century remained on a plateau displaying very low trend improvement. The top 5 per cent more industrious workers spent close to 70 per cent of the year on site, that amounted to an actual working year of by about 256 days.[32] This result is quantitatively new and challenges the conventional view that Medieval workers displayed low attitude to work.

Finally, by the first decades of 1500 one observes a gradual increase in the number of days worked per year. Between 1500 and circa 1700 the ac-

[32] This occurs because (0.7·365) = 255.5 days.

tual working year rose by about 15 per cent. It is interesting to note that this result is broadly in agreement with the pattern of change implied by Clark and Van Der Werf (1998)'s figures. Provided that French data were very erratic and presented notable limitations, we obtained actual workloads by taking averages, by site, of the more assiduous workers. As figure below suggests, the pattern of change of time-use in France was similar to England.

Figure 37: Actual Working Year in France

Previous predictions were obtained using, as dependent variable, the ratio between the individual number of days worked on site by an individual and duration of the building site. Construction duration was defined as the elapsed period from the commencement of the site to completion of the activity including Sundays and holy days as recorded in the building accounts. Nevertheless, the number of holidays was variable over time meaning that a proper evaluation of variations in industrious behavior should take into account this fact. One way to make this is by dividing total number of days worked by duration of the building site net of Sundays and holidays. This specification allows one to relate calendar and actual working days over time. This provides a measure of industriousness that is relative to the frontier of the institutional possi-

bilities of the time as opposed to the more common measure of "absolute industriousness" that detects the signs of industrious behavior from increases in actual working days.
It is interesting to note that absolute and relative measures of industriousness tend to diverge at key junctures along the way.
Let us consider why.
Absolute industriousness (I_a) can be defined as the ratio between actual working year $\left(d_{ay}\right)$ and calendar year (d_{cy}):[33]

$$I_a = \frac{d_{ay}}{d_{cy}} \tag{3.9}$$

Provided that calendar year has a length of 365 days irrespective of time and space,[34] growth rates in absolute industriousness (g_{Ia}) actually depend upon variations of actual working year (g_{ay}):

$$g_{Ia} = g_{ay} \tag{3.10}$$

[33]Notice that the notions of absolute and relative industriousness can be generalized to include actual and calendar working days, according to the following expressions:

$I_a = \frac{d_{ay} \cdot h_{ad}}{d_{cy} \cdot h_{cd}}$;

$I_r = \frac{d_{ay} \cdot h_{ad}}{d_{wy} \cdot h_{wd}}$

where absolute industriousness (I_a) is the product between actual days of work per year $\left(d_{ay}\right)$ and actual hours of work per day (h_{ad}) divided by the product between calendar year (d_{cy}) and calendar day (h_{cd}). Similarly, relative industriousness (I_r) can be simply defined as the product between actual days of work per year and actual working day divided by the product between calendar working year (d_{wy}) and calendar working day (h_{wd}).
As illustrated by the edicts that regulated work schedules on site, calendar day was set by the rise and fall of the sun. Yet, we dispose only scattered evidence of the length of the actual working day. Available sources suggest that the working day averaged 10-11 hours in preindustrial France. For example, this appears from the analysis of the working time on several building sites in Normandy (Lardin, 1998b), Gisors (Hamon, 2008), Alsace (Hanauer, 1878) and Île de France (Baulant, 1971; Potofsky, 2004). Seemingly, elsewhere on the Continent the duration of the working day was similar. See Thompson (1967) and Voth (2000) for England and Sella (1968) for Italy. In what follows we thus assume that the working day was constant over time. This amounts to assume that the length of the working day had no bear on the growth of absolute and relative industriousness.

[34] It is possible that the calendar year, on occasions, was longer than 365 days.

In turn, relative industriousness (I_r) corresponds to the ratio between annual number of days of work and calendar working year (d_{wy}):

$$I_r = \frac{d_{ay}}{d_{wy}} \tag{3.11}$$

As days of feast differed widely over time and across places, growth in relative industriousness results from the joint patterns of growth of both actual and calendar working days:

$$g_{Ir} = g_{ay} - g_{wy} \tag{3.12}$$

The implications of this formulation are many.
The first thing to note is that the dynamics of the two measures of industriousness diverge when there are variations in total number of festivities. Ceteris paribus, rises in the number of holy days reduce the working year and consequently, relative industriousness grows more than absolute industriousness. The reverse holds during phases of contraction of the calendar working year. Between 1300 and 1800 the dominant pattern was gradual reduction of days of feast with spikes in England after the council of Ratisbon in 1524 and France after the general reduction promoted by Pope Urban VIII in 1642.[35] As the frontier of production possibilities tended to expand over time, relative industriousness predicts low trend growth as compared to absolute industriousness.
The second observation to be made relates to the static implications of our different measures of industriousness. By construction relative industriousness is greater in level than absolute industriousness because calendar year is longer than calendar working year. This means that, ceteris paribus, periods characterized by a relatively short calendar working year exhibit high levels of relative industriousness.
Typically this was the case in the Middle Ages when full-time construction workers were working 240 or more days per year, the calendar working year averaged 265 days and the level of relative industriousness was

[35] See Barralis (2007).

about 90 per cent. By the end of the seventeenth century labor input of regular construction workers increased to c. 280 days while calendar working year approached 300 days. Relative industriousness averaged slightly above 0.93.

These results indicate that regular employees were already working at the margin of their production possibilities in the course of the Middle Ages, hence displaying few signs of growth in the levels of relative industriousness between 1300 and the end of the modern era. This evidence is very supportive of Clark and Van Der Werf (1998)'s conclusion that even in the Middle Ages labor input per person in England was at high levels. Nevertheless, using an absolute measure of industriousness, these same data tell a different story of increased labor input. Indeed, if actual workloads passed from 240 to circa 280 days between the Middle Ages and the end of the modern era, the rise in industriousness was close to 20 per cent in England as well as France.[36]

On the whole, present estimates are useful to check if and to what extent episodes of industrious behavior occurred, but they do not provide details about the nature of increased labor offer. Typically, industrious behavior was related to economic hardship or consumer behavior.[37]

In the first case, workers toiled more to compensate drops in their purchasing power, while in the second they labored longer than required for basic subsistence to afford to buy novelties.

In the following section we introduce a third dimension of time (economic time) which provides a measure of the minimum time required for household subsistence. Subsequently, we jointly analyze actual, calendar and economic time and try to understand if surplus labour input was spent on a increasingly wide range of consumption goods and luxuries or it was a response to falls in real wage rates.

[36] Clark and Van Der Werf (1998) estimated that the working year lasted about 280 days in England in 1771. This may represents a prudential estimate as compared to the values predicted by Voth (2001) for London and Marchand and Thélot (1997) for France over the same period.

[37] Economic hardship included also the motif of increasing taxation, that can be seen as an item of the basket whose price varied over time.

3.4 Economic Time

In this section I introduce the third dimension of time, namely economic time. Following Allen and Weisdorf (2011), this is defined as the working time necessary for a representative household to buy a basic pre-modern consumption bundle whose composition reflects the barebones basket proposed by Allen (2001). The idea behind this definition arises from considering the balance between total revenues and expenditures of a representative household over the year.

Household's revenues correspond to labor and non-labor income net of taxes. Annual consumption expenditures depend on the size of the family and the consumption attitudes of its members.

More formally, total revenues of household h at time t correspond to the following expression:

$$Rev_{ht} = LI_{ht} + NLI_{ht} = \sum_{i=1}^{N_w} (w_{it} \cdot d_{it}) + ((1-\tau) \cdot \varphi \cdot r)_{ht} \tag{3.13}$$

where LI and NLI are labor and non-labor income respectively; w_{it} is nominal day wage of individual i at time t; d_{it} is the days worked per year by individual i at time t; N_w ($N_w \subseteq N$) is the number of working units in the family; r is property-income (rents) and τ is the tax rate applied to this type of income; $\varphi \in [0;1]$ is the institutional capacity, namely the ability of institutions (church, state etc.) to collect taxes.

On the other hand total expenditures at time t correspond to the sum of annual consumption expenditures (CPI_i) of the N components of the household h:

$$Exp_{ht} = \sum_{i=1}^{N} CPI_i \tag{3.14}$$

Assuming that the basic expenditure is the one of the adult male, one can rescale proportionately the consumption of the other members according to this expression:

$$Exp_{ht} = \sum_{i=1}^{N} \alpha_i \cdot CPI_{am} \tag{3.15}$$

where the consumption of individual i in household h at time t is α_i times the basic consumption expenditure of the adult male (CPI_{am}).

The difference between net income plus total wealth (W_{ht}) and total expenditures determines the budget position (positive, negative or balanced) of the household for a given period. It reads as follows:

$$\begin{aligned} Rev_{ht} + W_{ht} - Exp_{ht} = &\left(\sum_{i=1}^{N_w} (w_{it} \cdot d_{it}) + ((1-\tau) \cdot \varphi \cdot r)_{ht} + W_{ht} \right)_{ht} + \\ &- \left(\sum_{i=1}^{N} \alpha_i \cdot CPI_{am} \right)_{ht} \lesseqgtr 0 \end{aligned} \tag{3.16}$$

Separating the labor income gained by the adult male from the labor earnings of other components (woman and children), the previous expression can be rewritten in these terms:

$$\begin{aligned} &\left(w_{amt} \cdot d_{amt} + \sum_{i=1}^{N_{w|am}} (w_{it} \cdot d_{it}) + ((1-\tau) \cdot \varphi \cdot r)_{ht} + W_{ht} \right)_{ht} + \\ &- \left(\sum_{i=1}^{N} \alpha_i \cdot CPI_{am} \right)_{ht} \lesseqgtr 0 \end{aligned} \tag{3.17}$$

where w_{amt} is the nominal day wage of the adult male; d_{amt} is the annual number of days worked by the adult male and $N_{w|am}$ is the number of working people in the household excluding the adult male.

Assuming a perfectly balanced budget position one can rearrange equation (3.17) in the following way:

$$d_{amt} = \frac{\left(\sum_{i=1}^{N} \alpha_i \cdot CPI_{am}\right)_{ht} - ((1-\tau)\cdot \varphi \cdot r)_{ht} - W_{ht} - \left(\sum_{i=1}^{N_{w|am}} (w_{it} \cdot d_{it})\right)_{ht}}{w_{amt}} \tag{3.18}$$

This expression summarizes the main idea behind economic time as defined in this study.

It corresponds to the annual number of days of work necessary by an adult male to support a household based on the consumption patterns of its components at prevailing prices; the participation rate to the labor market of members of the households other than the adult male; the remuneration paid for their labor input; the role of institutions through taxation; the contribution of property income and the propensity to save. This formulation is sufficiently general to describe the implied working year of different percentiles of the wealth distribution. Indeed, ceteris paribus, increases in the level of wealth W_{ht} decrease the amount of working time required for subsistence with the potential for negative values of d_{amt} for the more affluent strata of the society (*rentiers*).

In what follows we calibrate expression (3.18) and calculate the implied working year for a representative household.

The concept of representativeness is not easy to define. For example, if one approximates it with the characteristics of the mean or median household, this would imply precise information on the distributional properties of the main variables involved in (3.18).

In the first place I adopt the basic specification proposed by Allen and Weisdorf (2011). Seemingly their approach requires strong assumptions of which they were aware. Nonetheless, most of these have no bear on the final result of their study that aims at showing if and to what extent different categories of workers exhibited "industrious behavior" before the industrial revolution of the eighteenth century.

First, I suppose that the representative household consists of two adults and two-and-a-half children. The robustness of this assumption will be discussed in the analysis conducted below. For now it is sufficient to say that the overall effect of an increase in the size of the representative household on the implied working year is uncertain. Ceteris paribus, from the one side it raises annual consumption expenditures as well as the days necessary by the adult male to provide for his family. From the other side it increases the potential contribution of children to household earnings at the prevailing employment rate and thus exerts a downward pressure on the relative contribution of the adult male.

Secondly, we assume that the adult male provided for the entire family and the other members did not earn any labor income.

Thirdly, we posit that labor earnings were the only source of income and do not consider the contribution of rents and wealth.

The final assumption concerns annual consumption expenditures that reflect Allen (2001)'s pre-modern barebones basket and Cobb-Douglas type preferences (Laspeyres index).

The list of commodities includes food, clothing and some expenditure for heating while a fix rent of 5 per cent is added to total expenditures to account for the cost of housing. Children consume half as much as adults.

Based on these assumptions, expression (3.18) simplifies to:

$$d_{amt} = \frac{\left(\sum_{i=1}^{N} \alpha_i \cdot CPI_{am}\right)_{ht}}{w_{amt}} \tag{3.19}$$

where days per year depend on the annual cost of the consumption baskets of the family members and the day wage of the adult male.

Unless one assumes that household wealth (W_{ht}) can take large negative values, expression (3.19) is always larger than (3.18).

Provided that financing consumption through debt was hardly the case for the mean or median household of the time, the basic specification (3.19) tends to overestimate the number of days of work necessary for the adult male to sustain the entire family, as compared to the more general formulation (3.18).

To calibrate expression (3.19), we use the price and day wage series of building laborers, craftsmen and farmers presented in the previous sections.

Following Allen and Weisdorf (2011), the sum of α_i is set to 3.25. Figures (38-40) show the annual number of days of work required by a French labourer, craftsman and farmer to provide for his family.
Figure 38 suggests that between 1300 and at the end of the modern era (c. 1750), the days of work required by a French urban labourer to support his family were close to 365, except for periods of great famine, corresponding to the spikes in the dashed line at the beginning, c. 1570 and at the end of the period.
The gloomy picture portrayed here is supportive of Allen (2001)'s pessimistic conclusion that most of the laborers in the continent would have been straining to gain sufficient resources to buy necessities.
The situation of farmers was broadly similar or even worse (Fig.40), while skilled construction workers experienced higher material standards of living (Fig.39).

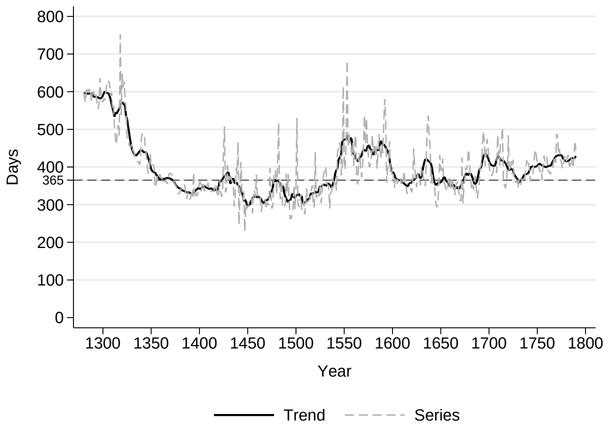

Figure 38: Implied Working Year of Labourers

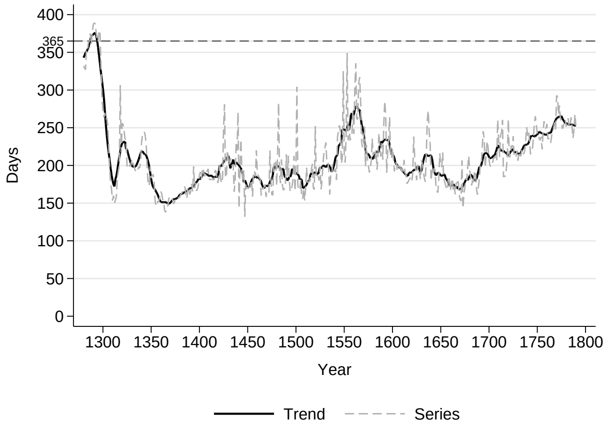

Figure 39: Implied Working Year of Craftsmen

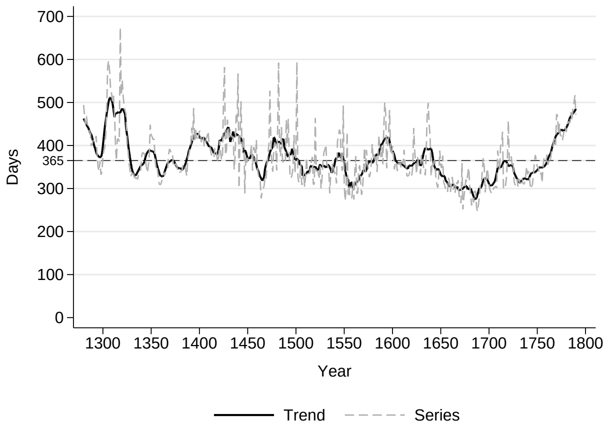

Figure 40: Implied Working Year of Farmers

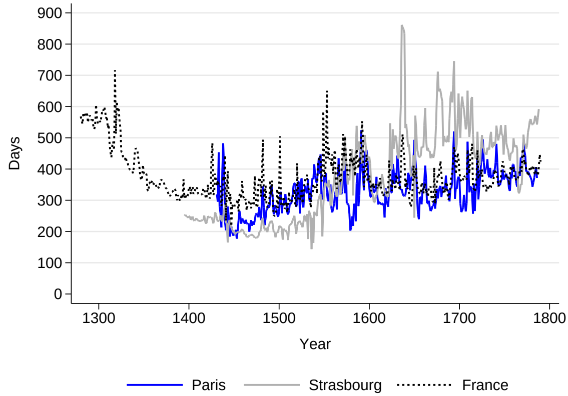

Figure 41: Implied Working Year in France

To check the consistency of these estimates, we constructed a series of the implied working year for Paris and Strasbourg using Allen (2001)'s price and wage data and compare the results. As Figure 41 illustrates, our series agrees reasonably well with the working year of Parisian labourers. One interesting thing to note is that our series predicts a somewhat more intense workload for French than Parisian workers which is mainly due to the existence of a significant wage premium between Paris and France. The differences between France and Strasbourg are instead greater.
This result is not surprising as the high wages earned by labourers in Strasburg until circa 1550 did not reflect the gains of their comparables in France. This implies that by the second half of 1400, the working year necessary to support a family in Strasbourg averaged 200 days.
These results can be tested against the experience of other European countries. To make this, I computed the implied number of working days per year of several European cities, including Amsterdam, Antwerp, London, Milan, Florence and Valencia using the price and wage series of building labourers constructed by Allen (2001). Estimations are based on expression (3.19). This means that, among the others, we assume that family size was equal among the cities included in our sample. The main reason for doing this is that in the absence of precise demographic data

it appeared theoretically unsound to introduce arbitrary variations in the family size across countries. Data on Milan and Florence have been linked in a unique series representative of Northern Central Italy. Figure below summarizes the results.

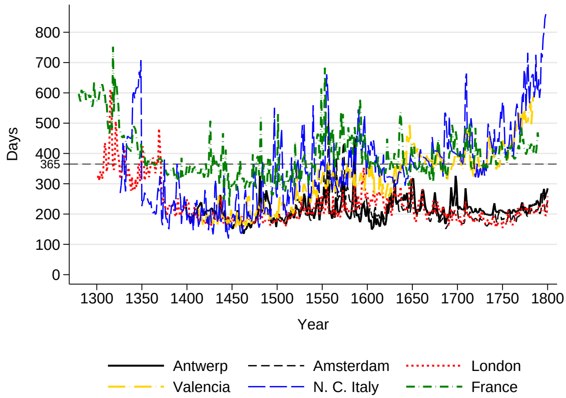

Figure 42: Implied Working Year in Europe

The work requirements of building workers were typically high across Europe in the first years of the fourteenth century.
Remarkably, the rise of real wages fostered by the Black Death decreased the days of work necessary for subsistence with the notable exception of France where the short-lived upsurge in nominal day wages did not allow to explore all the benefits offered by the post-plague period.
By that time a French male urban labourer was still required to toile about 330 days per year to provide for his family, while his European colleague took c. 130 days less to reach the same goal.[38] The "Golden

[38] It is possible that 130 days, i.e. the difference in the implied working year between France and the Continent represents an upper limit. Indeed, while the French series has been obtained aggregating price and wage data from both rural and urban areas, the other series reflect the patterns of change of time-use of large urban agglomerates where the presence of consistent wage premiums with respect to the countryside might possibly produce downward biased representations of the national implied working year.

Age of labour"[39] lasted approximately one century and a half. At the beginning of the modern era, new dynamics, fuelled by the rapid growth of inflation, determined a rapid and generalized upsurge in the implied working year that reached its peak by the second half of the sixteenth century. Between c. 1500 and the end of the sixteenth century, the destinies of Europe started to diverge.

A large and widening gap created between England and the Low Countries on the one side and the rest of the continent on the other.

Building labourers in Italy and Spain witnessed a dramatic increase in the implied workloads and by c. 1600 they had to toile for about 365 days per year, much more than the 250 days required in London, Amsterdam and Antwerp.

Apart from London and the Low Countries, the rise of labour input was not a sign of consumer revolution and appeared to have come out of economic hardship. Between 1600 and the first half of 1700 this gap enlarged. While European work requirements stagnated around the threshold of 365, the labour input required by urban builders in London and the Low Countries dropped to a staggering 170 annual days of work. By 1750 work requirements per year increased from 170 up close to 280 in London and the Low Countries and from 365 up to about 600 elsewhere on the Continent.

The analysis conducted up to this point derived the implied working year using expression (3.19).

Some observations are in order here.

First, for a given set of parameters, this formula provides an upper bound of the estimates of the implied working year with respect to the more general specification (3.18). This occurs because allowing for participation to household earnings of children and women and introducing some sort of non-labour income and wealth, the required labor input of the adult male decreases.

Second, among all the possible calibrations of expression (3.19), provided that the price and wage series correspond to the actual values experienced by ordinary consumers and workers, we are interested in eval-

[39] See Allen and Weisdorf (2011).

uating the most likely range of variation of parameter N (family size).
In what follows, we depart from the basic expression (3.19) and try to explore two alternative specifications.
First, we derive a series of the implied working year that fits as much as possible French reality.
This specification is particularly useful to explain why for some countries, equation (3.19) predicts extremely large values of the implied working year with respect to actual workloads.
Second, in the next section we want to find an upper bound of expression (3.18), at the prevailing wage and price patterns.
This can be easily done by estimating expression (3.19) while assuming that family size takes the maximum among all its possible values in the course of this period. It is indeed perfectly possible that assuming constancy in the family size may turn in an underestimation of the implied working year over some periods. The resulting series can be combined with independent estimates of the actual working year to provide useful insights into the debate of the "industrious revolution" as originally initiated by De Vries.[40]
Large and persistent positive gaps between actual and implied working year would then suggest that industrious behavior was not associated to economic hardship, but related to a consumer revolution.

How can one reconcile differences of close to 150 days per year between implied and actual working year?
A possible explanation is that, at the prevailing market conditions, the contribution of some of the factors omitted from the basic specification (3.19) would instead play an important role.
I thus calibrated expression (3.18) considering the effects of non-labour income, taxation, female and children participation. The price and wage series are the same as before and the household size was fixed to 3.25, the value used by Allen and Weisdorf (2011) for England.
I assumed that the representative household earned some non-labour income. The series of land rents constructed by Rouzet (2004) was used

[40] See De Vries (1994); De Vries (2008).

as proxy of non-labour income. The rent is expressed as the monetary yearly yield of an hectare of land. Institutional capacity was set to unity. Due to the dearth of direct evidence for France, I assumed that the contribution of women and children to household income accounted for about 20 per cent of family earnings. This value follows the estimates put forward by Horrell and Humphries (1995) for the eighteenth century England.

Figure below compares our benchmark specification with the implied working year obtained by considering the contribution of rents (series labeled "Rent"), women participation (series labeled "Women") and the joint effect of the two (series labeled "Rent plus Women"). The implied working year is lower than before and always below 365 days, but again there are no signs of industrious behaviour instrumented by consumer revolution because the annual number of days required by a male labourer to provide for his family is still close to the year. Women participation contributes the most to lowering minimum work requirements. When both rent and women participation are considered, the implied working year approaches the actual working year of regular construction workers in the fifteenth century.

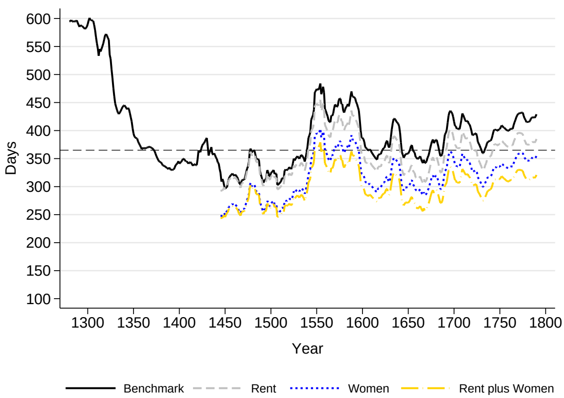

Figure 43: Implied Working Year: Different Specifications

It is interesting to note that, while this empirical exercise can reconcile the seemingly paradoxical evidence of the presence of large gaps between implied and actual workloads for a given country, it does not add anything to our knowledge of the cross-national differences of working time. Indeed, unless one can convincingly demonstrate that the factors included in (3.18) had a significantly large role in some countries, but not in others, the overall picture does not change. For example, Horrell and Humphries (1995) concluded that the contribution of children and women to low-income agricultural family earnings was close to 20 per cent in England at the end of the eighteenth century. Nonetheless, at the moment, we do not dispose sufficient evidence to conclude that, for example, in France the participation rate of women and children to household income exceeded significantly this threshold or that the share of non-labour income was much more important in France than England. As illustrated above, by circa 1600 a large and widening gap occurred between England-the Low Countries and the rest of the Continent. Between 1600 and 1750 the average workload of a male worker in London and the Low Countries was about 170 days shorter than in the rest of our sample.

One should assume the extreme, but unrealistic case, that in England the contribution of non-labour income and that of other family members was null, while in the rest of Europe it accounted for a very large share of family earnings to get a similar evolution across Europe over this period.

3.5 Calendar, Actual and Economic Time: Joint Analysis

The study conducted up to this point analyzed separately three aspects of working time that yet were deeply connected in the daily life. The offer of labour was related to individual preferences and tastes. Yet, the range of possible alternatives depended on the prevailing market conditions that determined the minimum required for subsistence and the institutional setting that dictated the timing of labour and located in time the frontier of production possibilities. The relative positioning of calendar, actual and implied days of work typified different regimes of industriousness for construction workers. The range of all possible rankings actually included six different orderings:

1. $\boldsymbol{d_{yc} \geq d_{ya} \geq d_{yi}}$
2. $\boldsymbol{d_{yi} \geq d_{yc} \geq d_{ya}}$
3. $\boldsymbol{d_{ya} \geq d_{yc} \geq d_{yi}}$
4. $d_{ya} \geq d_{yi} \geq d_{yc}$
5. $d_{yi} \geq d_{ya} \geq d_{yc}$
6. $d_{yc} \geq d_{yi} \geq d_{ya}$

where d_{yc} are calendar, d_{ya} actual and d_{yi} implied working days per year. Most of the time, pre-industrial countries typified one of the first three orderings (expressions in bold). It was fairly possible that the same country experienced transitions and reversal from one regime to another as result of structural breaks in prevailing market and institutional conditions as well as changes in consumer preferences. Nevertheless, episodes of such scale were relatively rare and in normal times each country had its distinctive regime.

England and seemingly the Low Countries were characterized by regime 1 where, most of the time realizations of actual workloads were located in the region limited from below by economic days and from above by calendar working year as defined by the institutional setting. These conditions were conducive to creation of surplus labor input. The extent to which this translated into industrious behavior driven by consumer revolution, depended upon how far beyond the time for family subsistence workers could go and how far beyond this level actually they went.

Elsewhere on the continent the prevailing regime was typified by more assiduous workers laboring less than or at the margin of the region bounded from below by the calendar working year and from above by the days required for family subsistence (regime 2).

Variations in actual working days basically occurred inside this area and had their distinctive features.

For a certain time period, at the prevailing market and institutional conditions (that determined the equilibrium levels of price, wage, market participation and calendar days) the levels and distance between economic and calendar time was fixed.

When this distance was sufficiently large, a wide gap between actual working year and the working year required by a male construction worker to support his family, seemingly provided great scope for industrious behavior not driven by economic hardship (Allen and Weisdorf, 2011). Figures 44 and 45 show the annual number of days of work required by a male construction worker to provide for his family along with the series of actual and calendar working year for England as well as France.

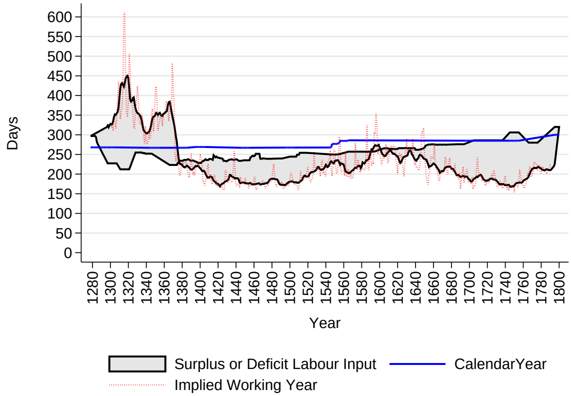

Figure 44: Calendar, actual and implied working year: England

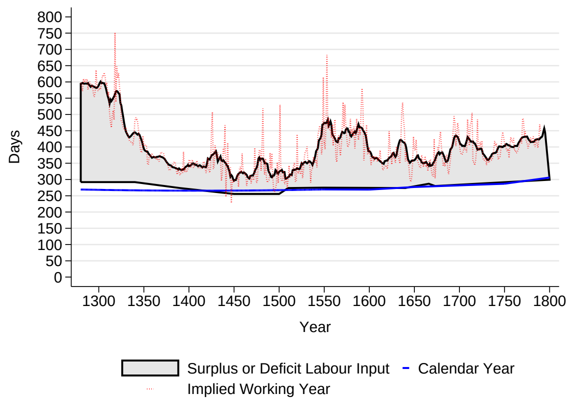

Figure 45: Calendar, actual and implied working year: France

The series of calendar working year are those presented in the previous sections while actual working years regard the top 5 per cent more assiduous workers on site.
As explained above, these series presumably represented a downward biased estimate of actual working year due to failure to track the entire

employment history of individual workers outside the building site.
The series of the annual number of days of work required by a male construction worker to sustain his family, result from calibration of expression (3.19) and actually provide an upward bound of the time necessary for subsistence. By consequence, for a certain level of work attendance, eventual gaps between actual working days and days required for subsistence represent a minimum among all possible realizations, provided that prices, wages and family structure reflected actual patterns and the composition of the basket of goods was correctly specified.
Indeed, results are obtained on the extreme assumption that there was any contribution of non labour income to household earnings; no other member than the adult male participated into the labor force and the worker did work exclusively on the building site with no additional source of labour income.
Nonetheless, relaxing these assumptions and allowing for some form of contribution of these variables, that would increase the size of the gap raising the scope of a consumer revolution beyond what our figures would hitherto suggest.
For example, it is typically held, on the base of a backdating of the 1851 census figures, that the contribution of women and children to earned incomes was about 20 per cent in pre-industrial Europe. Yet, the analyses conducted by Penn (1987) and Goldberg (1992) in the medieval England have demonstrated that the participation of women in the labour force was even stronger (Clark and Van Der Werf, 1998, p. 841).

3.5.1 The French Pattern

Between 1300 and 1800 French building labourers were rarely able to support their families even toiling for the entire calendar year or more.
Most of the time days required by a male construction worker to provide for his family were higher than actual workloads and deficit labor input was structural.
The Malthusian cycle fueled by the Black Death witnessed an effective improvement in the conditions of building labourers with days required for subsistence passing from more than 500 to slightly more than 300 at

the end of the fifteenth century. This value represented a global minimum for the entire period.

Despite that, actual workloads averaged 250 days per year, that amounted to a structural deficit of at least 50 days to maintain basic consumption of the family. Provided that, the contribution of women and children to family earnings and the presence of additional sources of non-labour income became necessary to support the household.

Elsewhere on the Continent,[41] between the Black Death and the beginning of the modern era, labour requirements decreased much more and a workload of less than 200 days was typically required by a labourer to support his family. Though we do not dispose sufficient information about actual working days to pin down the matter on its own, we suspect that surplus labor input should have characterized a large proportion of full time construction workers across Europe. Indeed, assuming that European construction workers toiled on average 250 days per year, there still existed close to 50 days of surplus labour input.

Between 1500 and 1800, labour requirements rapidly increased and then stagnated, averaging close to 350 days. The condition of labourers deteriorated.

This pattern confirms the time evolution of implied working year derived by Sharp and Weisdorf (2012) for Parisian labourers between 1500 and 1800 but the overall picture painted here is even bleaker. Indeed, the work requirements of a French labourer to provide for his family were usually higher than those required by a Parisian labourer. This is consistent with the view that over that period the Paris Basin experienced higher standards of living as compared to the rest of France (Hoffman, 2000). Again our account confirms and reinforces the view that large part of the French society was exposed to Malthusian constraints.

Episodes of industrious behavior were thus associated to economic hardship. Yet, the exercise conducted here suggests that relatively skilled construction workers enjoyed higher standards of living. Indeed, they were better paid and relatively more assiduous on site. This avoided the

[41] Using Allen (2001)'s dataset of prices and wages, we computed the implied working year of building labourers in Valencia, Florence and London.

risks associated to intermittent employment.
Between 1300 and 1600, the implied working year of craftsmen averaged well below 200 days (Fig.39), while actual labour input was close to 250 days, raising the scope for industrious behavior not driven by economic hardship. Labour requirements increased by the end of the sixteenth century peaking at the onset of the French Revolution when they approached 250 days per year, while actual workloads averaged more than 280 days.

3.5.2 The English Pattern

Our estimations suggest that in the course of five centuries the history of English regular construction workers witnessed two phases of excess labour input.
The first corresponds to the great Malthusian cycle initiated by the Black Death of 1348-1352 and terminated at the end of the fifteenth century.
The second phase coincided in time with the industrious revolutions identified by De Vries by the second half of 1600 and Voth between 1750 and 1830.
The second result is known in the literature and broadly consistent with the work of Allen and Weisdorf (2011), while the first one is quantitatively new. In what follows several observations will be made with regard to this evidence.
First, between the end of 1400 and the beginning of 1500 a workload of close to 170 days was usually sufficient to support a family but the actual labor offer of more assiduous workers averaged 240 days per year.
Scaling down the ranking of the average rates of participation of workers on construction sites, one observes that still for the top 25 per cent more assiduous workers there was some scope for industrious behavior driven by consumption if one allows for some contribution of women or non-labour income to total family earnings. This means that surplus labour was already present in the Middle Ages for a relevant share of construction workers' population. Yet, this result sits uneasily with received wisdom dominated by the image of a mediaeval worker devoted to mere satisfaction of subsistence needs with strong preferences for leisure and

few attitude over further work.[42]

The fact that some workers offered more labour input than necessary, also at high levels of income, challenges the common assumption that labour supply curve was backward bending. On the contrary, our extensive body of empirical evidence suggests that the best paid workers were also the more assiduous on the building sites.

This evidence is consistent with the idea that individual attitude toward labour offer was conditioned by the actual availability of time on site. In addition, individual work intensity was distorted by the technical times of the production process.

How can one thus reconcile these results with large part of existing anecdotal evidence?

First, our analysis concentrates on construction workers of several building sites in France and England not the overall population of workers.

The salient feature of employment on site was the high mobility of the labour force. While the annual number of days worked on site averaged 55, a limited share of workers, engrossing some 15 per cent of the operatives, was relatively stable on the same building project.

It is thus possible that such patterns of employment depended upon cross-sectional differences in individual reservation wages, intended in the economic jargon, as the minimum level for entry in the labour market. In this respect, the two work ethics described in Blanchard (1978)'s study of Mendip's miners in Somerset were seemingly present. The dominant one was typical of village oriented workers that saw in employment outside agriculture a useful complement to their earnings that yet basically originated from arable holdings.

The second was proper of market oriented assiduous workers with high propensity to consume and relatively short connections with villages and agriculture (Blanchard, 1978, p.9).

These patterns of employment often coincided with occupational specialization as skilled workers enjoyed the advantage of relatively more continuous employment with respect to construction labourers. Nevertheless, labour mobility could arise from technical requirements of dif-

[42] See Koyama et al. (2009) for a review of the literature.

ferent phases of building work, as well as fluctuations in the patterns of unemployment. Whether employment behavior reflected the presence of large outside options or resulted from structural turnover, our inability to track the employment history of construction workers outside building site and check whether they had additional sources of non labour income, does not allow us to provide a definite answer for the entire distribution of construction workers.

Yet, disposable evidence allows us to reach the following conclusions.

First, between 1400 and 1500 there existed considerable surplus labour input in England for regular construction workers. This approximately regarded at least the top 15-20 per cent more assiduous workers employed on site. From an occupational point of view more assiduous workers were often the more specialized but this was not the rule. Instances of extreme mobility were observed among relatively skilled workers while some labourers had a stable job.

At lower levels of participation we remain agnostic about the actual labor intensity expressed in the course of the year. The few days worked on site suggest that other sources of income existed that integrated household earnings. These might include land holdings as in the case of the farming miners of Mendip, day labor in agriculture in the summer time (Beutler, 1971), as well as work on several construction sites as demonstrated in the previous section (Table 15).

Provided that it is hard to impute the share of off site work in total annual labor offer, we prefer not to go further though it was perfectly possible that off site work actually created a surplus labor input also for some of these workers.

Indeed, it is commonly held that construction workers on average toiled for 180 - 200 days per year in pre-industrial Europe.

In France, Vauban (1933) typically assumed that actual workloads averaged 180 days. Blanchard (1994) estimated that in periods of high population pressure, as in the late-thirteenth century England, peasants approached 264 days per year and reduced their total workload to 200-210 days per year when population decreased and real wages increased as in the fifteenth-century England.

The actual working year of construction workers averaged 225 days after the Black Death (Blanchard, 1994, p.25).
For Italy, Sella (1968, p.20) and Goldthwaite and Romanello (1984, p.423) found that between 1600 and 1700 the length of the actual working year of building workers touched 200 days in Milan and Florence respectively. Even assuming that a male average construction worker was employed 180 days per year (close to 3.5 days per week for 52 weeks), seemingly there still existed some (limited) scope for industrious behavior driven by consumer revolution if one allows for some sort of contribution to household earnings of non-labour and or female income.
On the whole 15 per cent probably represents a downward estimation of the actual share of construction workers exhibiting some form of surplus labour input.

3.5.3 Possible Explanations of the English Pattern

Provided that a non negligible share of construction workers appears to show surplus labor input between 1400 and 1500, it remains to be understand why workers worked more than necessary.
In what follows we formulate three possible explanations and discuss their plausibility.
The first possibility is that workers had to provide for a family that on average was more numerous than implied by our benchmark specification.
If this was the case, surplus labor input would reflect demographic expansion and increased fertility rather than consumer revolution.
To test this hypothesis it would be useful to check if and to what extent family requirements, in the Middle Ages, differed from the basic structure of two adults and two-and-a-half children assumed in this analysis (Allen and Weisdorf, 2011, p.718).
Unfortunately, due to the dearth of data, family size in the Middle Ages can not be estimated directly.
To circumvent this problem I used results from Allen and Weisdorf (2011) of the measure of dependency burden after 1541 to infer a plausible upward bound of family size before 1541. To measure variations in the

family size, Allen and Weisdorf used the ratio multiplied by 1000 between the individuals aged 0-14 and 60 plus, and the number of people between 15 and 59 years.[43]
Resulting numbers are then normalized using the index 1756=3.25.
Figure 3 in Allen and Weisdorf (2011) shows the evolution of the dependency ratio between 1541 and c. 1830.
One may notice that two dominant patterns emerge.
Between 1541 and 1670 the dependency ratio decreased from circa 3.5 up close to 2.7 and then started to rise peaking above 3.5 in the 1820s.
What can be learned from these figures?
First, at the end of the Middle Ages, the dependency ratio was on the rise and eventually at a peak by pre-industrial standards.
Second, combining these numbers with estimations of the population distribution between 1500 and 1800 (Bairoch et al., 1988), one observes that when population rose, typically the dependency ratio increased too. Between 1600 and 1700 the rhythm of growth of total population slowed down and the dependency ratio stagnated or declined. By the end of 1600, population increased and, in the course of two centuries, almost doubled. The dependency ratio saw a rapid expansion.
The idea of this study is to derive a relation that links total population and dependency ratio and use this relation to tentatively predict how the dependency ratio moved in the Middle Ages when data are not available.
First, we know that the dependency ratio corresponds to the following expression:

$$D = \frac{y + o}{m} \tag{3.20}$$

where y, o, m represent young, old and the people aged between 15 and 59 respectively as defined above. Total population (p) is equal to the sum of these three age groups:

$$p = y + o + m \tag{3.21}$$

[43] This measure was actually defined by Wrigley (1997). Allen and Weisdorf (2011) propose also the net reproduction rate as another possible measure of dependency burden. We concentrate on the first measure only, because this index predicts similar variations in the family size over time.

Combining expression (3.20) and (3.21) one obtains that the dependency ratio corresponds to the following expression:

$$D = \frac{p-m}{m} = \frac{p}{m} - 1 \tag{3.22}$$

Taking the logarithm of expression (3.22) and differentiating with respect to time one obtains that the rate of growth of the dependency ratio corresponds to the difference between the rate of growth of total population and the rate of growth of people aged between 15 and 59:

$$g_D = g_P - g_m \tag{3.23}$$

Simple as it is, this formula shows that when the cohort of middle aged people grows less (more) than total population, the dependency ratio increases (falls). When the rate of growth of the middle aged group equals the average growth of population the dependency ratio is stagnant. Data suggest that upsurges in the dependency ratio usually corresponded to growth in total population. This evidence indicates that expansions in total population (and the dependency ratio) were often characterized by the total population getting younger.[44] Seemingly, in the course of the thirteenth century, the English population was on the rise but it almost halved after the Black Death of 1348 when it approached 2.5 million inhabitants. It remained on a plateau or declined up to the end of 1400 and rapidly expanded in the course of the sixteenth century. These dynamics are consistent with the hypothesis that between 1300 and 1500, the dependency ratio followed a U-shaped trend.

Seemingly at the onset of the great plague it dropped because the disease affected comparatively more the weaker groups of the population (children and the old people) than the working age class. When the economy started to recover, fertility increased and population as well as the dependency ratio, gradually expanded. Provided that between 1348 and 1500 the dependency ratio first decreased and then increased and at the beginning of the sixteenth century was at a peak for the period (averaged

[44] Seemingly, the share of people aged 60 plus was low and the net balance of people entering the cohort minus those leaving was presumably negative. This implies that most of the time growth of the dependency ratio was sustained by new births.

3.5), we expect that in the post plague period, the trend of the dependency ratio never exceeded this value.
Yet, as a robustness check we assumed that in the Middle Ages a household contains the equivalent of 3.75 adults, which is the maximum detected for the period where data are available (1541-1820).
Table 16 (Model IV) of the Appendix shows that the days of work required by a male labourer to provide for his family increased to 207 when the household comprises the equivalent of 3.75 adults. Even so there was some scope for industriousness driven by consumer behavior.
The second hypothesis is that the caloric intake of our basic consumption basket is too low to satisfy the standard energy requirements of workers employed in hard work.
If this was the case, the composition of the basket may underestimate the actual level of prices experienced by ordinary consumers employed in the building sector as well as the annual number of days of work required by a male worker to provide for his family. This may turn in a substantial reduction of the gap between actual and minimum workloads limiting the scope for a consumer revolution.
Indeed, the level of calories that marked a line between respectability and destitution seemingly depended on the type of occupation.
Work in the fields or in the construction sector required a minimum level of calories that on average was higher than the energy requirement of more sedentary professions. To heighten any contrast with our basic basket we raised the caloric intake so as to fit the minimum energy requirements of hard workers.
Following Allen (2001)'s lead, total calories consumed by the adult male worker were increased to 2500 and 2800 calories per day by raising the annual consumption of bread. The shares of other items were reduced commensurately so as to reflect a lower and basic standard of living (Models II and III respectively).
Since these baskets do not contain luxuries and novelties and imply high levels of bread consumption that are typical of a low standard of living, ceteris paribus, an expansion of actual workloads over the implied working year could reflect the desire to consume new and high quality items.

As illustrated by Table 16 of the Appendix, raising the calories of the working man brings about increases in the average implied working year of construction workers (between 1400 and 1500) in the order of 5 (Model II) and 9 (Model III) per cent with respect to the benchmark specification. These changes are still compatible with the existence of a surplus labour input of by about two months.

The third hypothesis is that the joint effect of increased family burden and higher energy requirements was responsible for the observed surplus labour input. To check the consistency of this hypothesis and heighten any contrast with our benchmark specification, we assumed that family size was 3.75 and the daily caloric intake of the consumption basket of the male worker corresponded to 2500 calories (Model V) and 2800 calories (Model VI). The minimum work requirements increase more substantially, passing from 180 to 216 days of work per year in the first case and from 180 to 223 in the second, but still one observes a surplus labour input of at least 30 days between 1400 and 1500.

Figure below offers a synthesis of the results discussed above.

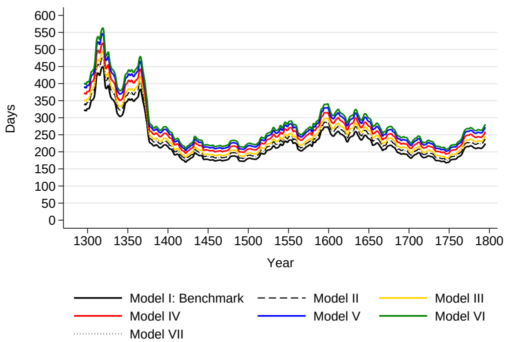

Figure 46: Robustness Checks

Previous results suggest that between 1400 and 1500 regular construction workers displayed strong signs of industrious behavior not driven by economic hardship.

Why then did workers toile more than necessary?
By looking at the joint dynamics of calendar, actual and implied working year we can draw a possible answer.
Indeed, by the first decade of the fourteenth century, one may notice a reduction in the offer of labor, while real wage rates were on the rise.
Received wisdom typically holds that pre-modern households aimed at keeping consumption stable over time. Based on this premise, workers would have totally (or in large part) compensated increases in real wage rates by reducing labour supply of approximately the same amount consuming a considerable proportion of their augmented purchasing power in the form of leisure (Blanchard, 1978, 1994).
Yet, our data challenge this view as our series suggest that actual workloads decreased much less than implied by the contemporary increase in real wage rates. This created a gap between actual and implied working year and raised the scope for surplus labour input.
In general terms, the partial response of actual workloads to real wage rates' increases could be involuntary or voluntary.
In the first case workers reduced less than expected the intensity of labour because institutional conditions and technical requirements constrained their choice. Workers on sites had to follow the rhythm of the construction process, the rests dictated by calendar working year as well as the recruiting schemes of contractors and the organizational forms of entrepreneurs.
In the second case workers toiled more than necessary because they effectively want to gain extra income. In turn, these additional revenues could be put on saving or could be used to raise living standards through additional or better quality consumption.[45]
The hypothesis advanced here is that the surplus labour input resulted from inelasticity of labour supply.
This in turn depended upon two main factors limiting the reduction of actual working days.
First, the existence of technical requirements and institutional settings

[45] We do not dispose any evidence suggesting that the propensity to save increased over this period.

that bounded from below the choice parameter set of individual workers and limited voluntary reductions of actual workloads.
Second, the rise of a different attitude toward consumption that reflected the aspiration for higher alimentary standards less dependent upon cereal-based and lower quality foodstuff. This new attitute does not seem to have been marked by more and new items entering the basket, rather the quality of the basic consumption bundle improved as well as the consumption of some of its components- especially meat - that till then were considered luxuries.
Several sources suggest that this was indeed the case.
For instance, Dyer (1988) concluded that the diet of the harvest workers changed by the second half of the fourteenth century.
While the diet of the thirteenth century was typified by a high proportion of bread and dairy products, by the early fourteenth century the percentage spent on bread as well as dairy and, to a lesser extent fish, declined. Meat increased greatly in importance. In the third quarter of the thirteenth century it accounted for about 4 and 8 per cent of the total cost while in the early fifteenth century 42-47 per cent of expenditure went on meat (Dyer, 1988, p.85).
These changes came along with improvements in the quality of food. Wheat substituted for rye and barley in preparation of bread as well as fresh meat and fish replaced bacon and preserved fish.
Nonetheless, as Dyer put it, the substitution of cereals foodstuff with meat products occurred long before the Black Death as early the 1290s with the plague only intensifying this process. In the same vein, Blanchard argued that during the years 1400-1450, professional miners could enjoy real material prosperity, with diets characterized by white bread, fresh flash and fish fried (Blanchard, 1978, p.8).
On the whole this evidence suggests that, by the late fourteenth century and early fifteenth century, improvements in the diet were achieved and "a general tendency can be recognized for the balance of the diet to shift from cereal-based foods (bread, oat-meal pottage and ale), towards meat, fish, and dairy produce" (Dyer, 1988, p.29). Changes were more evident in the case of relatively skilled workers employed in agriculture

and construction but plenty of evidence suggests that the diet of lower orders generally improved in much the same way in England as well as in the continent.

I found similar patterns of eating in France in the course of the fourteenth century, with wage-earners strongly favoring meat consumption and fish and substituting white to brown bread. The fifteenth century saw the development of specialized pastoral farms in the countryside and butcheries in the cities that were responding to an increased demand for meat from a growing share of lower orders that "were aping the lesser gentry."[46]

Evidence after the Black Death for a more rapid shift in agricultural production from arable to pasture is also consistent with Abel (2013)'s narrative of *Wustungen* process.[47]

Abel, following Schmoller (1871)'s studies, held that the Black Death and the consequent drop of the population accelerated the abandon of cultivated lands and made convenient their conversion to pasture. This in turn fostered meat consumption across large strata of the population. According to Abel "the demand of cereals is relatively inelastic; it varies with population and provided that in the late Middle Ages population decreased, the demand of cereals decreased too. The demand of meat is instead elastic; it varies with income and the rise of purchasing power for large strata of the population between the end of the fourteenth century and the beginning of the fifteenth century, compensated for the drop in aggregate demand due to contraction of population, shifting consumption toward pasture products."[48] While Abel estimated that in Germany meat consumption reached a staggering 100 kilograms per capita in the late Middle Ages, plenty of evidence suggests that increased meat consumption regarded Europe as a whole. The evolution in the number of butcheries is typically held a good indicator of meat consumption. According to Stouff (1969) there was a butcher every 256 inhabitants in Arles in 1306 and 1 out of 290 in 1436. In Carpentras, the ratio was 1

[46] Dyer (1988).

[47] Abel's work was originally published in 1935.

[48] My translation; quoted in Livi Bacci (1987).

to 355 between 1472 and 1473 and 1 to 226 in 1322. On average these proportions were much higher than contemporary figures. Baratier et al. (1951), Wolff (1953) and Stouff (1969, 1970) collected a large body of empirical evidence based on the analysis of butcher books (Liber macelli) and the activity of local markets specialized in the commercialization of meat. Their figures indicate a strong consumption of meat in Languedoc and Provence in the course of the Middle Ages and a decline between the end of the fifteenth century and the first half of 1500.

In the late Middle Ages relatively high levels of meat consumption were detected in Piedmont and Palermo[49] as well as Venice where huge herds of beefs came from the Balkans to provide the city with meat (Goldenberg, 1969). The share of the meat-eating class in total population was seemingly on the rise also in Valencia and Holland.[50]

Evidence indicating a shift in the diet towards meat is also apparent from the analysis of the food provisions of construction workers on site. I found that in the early fourteenth century craftsmen and laborers employed in the construction work of Chartres' cathedral were given much meat with relatively small quantities of bread and dairy. Lardin (1993) showed the importance of white bread, meat and wine in the feeding of construction workers in the building sites of Normandy in the course of the fifteenth century. Furthermore, work by Le Roy Ladurie (1966) has established that meat consumption was important for peasants of Languedoc still at the end of 1500 but then declined. The argument advanced by Álvarez-Nogal and Prados de la Escosura (2011) for Spain of a passage from a pastoral, trade-oriented regime between the 1270s and the 1590s to a more agricultural and densely populated low-wage economy after 1600, is broadly consistent with our hypothesis.

The rise of inflation by the end of the sixteenth century and the expansion of total population seemingly brought about a new relocation of consumption and production choices inside the horizon of traditional consumption. Expenditures were re-shifted toward bread since it was the cheapest source of calories. The *Wustungen* process lost momentum

[49] See Giuffrida (1975) for Palermo and Patrone (1981) for Piedmont.

[50] See Llop (1976) for Valencia and Neveux (1973) for Holland.

and new surfaces were cultivated. Meat consumption reduced substantially or shifted from higher to lower quality consumption (Bennassar and Goy, 1975) and breeding of pigs replaced beef farming. The end of the sixteenth century marked a shift from pasture to arable in the agricultural sector.

3.6 Conclusion

This study traces the evolution of calendar, actual and implied working year in France and England from the fourteenth to the eighteenth century. Despite the data underlying the reconstructions present some notable limitations and further evidence should be gather to improve the coverage by area and period of the series, it is all the more remarkable that some clear patterns are equally discernible.

Indeed, looking at the experience of construction workers, it is shown that there existed two distinct patterns of industriousness.

In France, expansions in labour input were attributable to economic hardship. The participation of women and children was indeed necessary for compensating the lack of adequate resources and assure the basic levels of consumption in the face of rising inflation.

By contrast, English construction workers displayed two episodes of surplus labour input.

The first took place after the Black Death and lasted until the end of the Middle Ages while the second corresponded to the industrious revolution described by De Vries (2008).

Seemingly, both of them were driven by consumer behavior rather than necessity, but differed in two fundamental ways.

First, they originated from different dynamics.

Indeed, the episode of surplus labour input located by De Vries in the seventeenth century England and the Low Countries, derived from an upsurge in actual workloads and a contemporary drop of work requirements necessary for family subsistence in a context of progressive expansion of the frontier of working possibilities.

On the contrary, the episode of surplus labour input detected in the post-

plague period was characterized by the contemporary reduction of actual, calendar and implied working year and resulted from incomplete adjustment of actual workloads to rising real wage rates.
Second, these episodes had different implications for the relationship between changes in labor offer, consumption and production.
Indeed, the phase of surplus labour input in the seventeenth century England was seemingly related to a consumer revolution (Allen and Weisdorf, 2011) and could be thought of as a transition from traditional consumption cluster to a broader and more modern one that included colonial products and luxuries (De Vries, 2008).
Surplus labour input in the post-plague era was not marked by more and new items entering the basket but seemingly coincided in time with a relocation of consumption choices within the horizon of traditional consumption.
From the production side, the implication was that, while the seventeenth century phase of surplus labour input saw the rise and development of new sectors outside agriculture, the first episode coincided in time with a shift of agriculture from arable to pasture. This process is consistent with a large body of empirical evidence documenting changes in alimentary regimes during the fourteenth and fifteenth centuries.

3.7 Appendix

COMPTE DE L'OEUVRE
DE LA
CATHÉDRALE DE CHARTRES
EN 1415-1416
par
M. L. MERLET

C'EST LE COMPTE des mises de l'euvre de l'eglise Nostre-Dame de Chartres, faictes par venerables et discrètes personnes messeigneurs maistres Jaques de Templeuve, soubz-chantre, Jehan d'Autueil et Hervé Estrivart, chanoines et proviseurs d'icelle euvre; lesquelles mises ont esté distribué es par moy, Pierre Ferrant, presbtre, clerc de ladite euvre, depuis la feste de la Nativité saint Jehan-Baptiste an mil quatre cens quinze inclus jusques à la dicte feste l'an mil quatre cens et seze exclus

....

En la sepmaine de la saint Martin, commençant le derrenier jour de juing.
A Jehan Leraut, plommier, pour 4 jours et demi qu'il a ouvré à couvrir de plon près la cheminée de la Chambre des comptes et selon la couverture d'icelle chambre, par jour 5 s.
A Jehan Motet, pour 4 jours et demi qu'il a besongné avec ledit Leraut, par jour 3 s, 4 d.

....

En la sepmaine sainct Thomas appostre commençant le 15e de decembre.
A Jehan Perier, verrier, pour 5 jours qu'il a besongnié en la haulte verrière de Saint Lubin qui est près du clochier de plon, par jour 4 s.
A Jaquet le Bastonnier, verrier, pour 5 jours qu'il a ouvré en ladicte besongne avec ledict Perier, par jour 4 s.
A Jehan Duchesne, maçon, pour 5 jours qu'il a besongné à eschever de clorre de plastre la petite chambrè te nouvellement faicte derrière le maistre-autel, et aussi à besongner en la table de l'autel de Saint-Mathurin, par jour 5 s.
A Denis Dumesnil, pour 5 jours qu'il a servi ledict Duchesne, pour jour 20 d.
A Jehan Douge, pour 5 jours qu'il a besongni étant à nectaier l'eglise comme à destaindre les chandelles, par jour 20 d.
A Guillaume Porcheret et son compaignon, pour avoir fait guet nuit et jour ou clochier de plon, 35 s.;–en chandelles, 10 d.
En charbon pour les verriers, 10 d.
Pour 64 aulnes de toille pour faire des aulbes et seurplis pour les enfans, 9l. 6 s.

....

Table 15: Working Days on multiple sites

Name	Profession	Year	Site 1	Site 2	Site 3	Total Days
J. Grace		1316-17	59	71		130
J. de Gardino		1316-17	197	6		203
R. de Galmenton		1316-17	3	9		12
Jakil		1412-13	198	4		202
Johannes	Plummer	1420-21	152	20		172
Richard Combe	Mason	1461-62	67	204		271
Richard Blanford	Mason	1461-62	18	30		48
Thomas Gunne	Mason	1461-62	56	27		83
Peter Burbage	Mason	1461-62	60	270		330
Latther	Mason	1461-62	55	166		221
John Beket	Mason	1461-62	64	171		235
Thomas Hale	Mason	1461-62	47	171		218
Thomas Osemond	Carpenter	1461-62	61	104	85	250
John Wykes	Carpenter	1461-62	51	154		205
John Bolour	Carpenter	1461-62	66	80		146
Thomas Roland	Tiler	1461-62	186	36	19	241
Roland’s labourer	Labourer	1461-62	186	36	19	241
Patrick Kele	Dauber	1461-62	218.5	9	3	230.5
Kele’s labourer	Labourer	1461-62	218.5	9	3	230.5
William Atkyn	Labourer	1461-62	255	39		294
Alexander Herryson	Labourer	1461-62	142	39		181
John Canyng	Labourer	1461-62	39	7		46
Robert Bateman	Labourer	1461-62	20	155		175
Thomas Mede	Carpenter	1461-62	12	160		172
John Holme	Carpenter	1461-62	99	153		254
John Chambre	Carpenter	1461-62	160	95		255
Bennet	Mason	1537-38	185	59		244
Thomson	Mason	1537-38	203	55	9	267
Arnold	Mason	1537-38	197	54	12	263
Fylde	Mason	1537-38	177	59	12	248
Haynes	Mason	1537-38	194	59	18	271
William Cockes (elder)	Carpenter	1537-38	260	17		277
Browne the elder	Carpenter	1537-38	260	17		277
Henry Godfreye	Carpenter	1537-38	260	17		277
Browne junior	Carpenter	1537-38	257	17		274
Ingledewe	Carpenter	1537-38	227	17		244
Pasmer	Carpenter	1537-38	243	17		260
Palmer	Carpenter	1537-38	260	17		277
Thomas Browne	Carpenter	1537-38	242	12		254
John Proveste	Carpenter	1537-38	237	17		254
Leonard Holmes	Carpenter	1537-38	260	17		277
Simon Cockes	Carpenter	1537-38	24	253		277
John Pasmer	Carpenter	1537-38	139	129		268
William Wynter	Carpenter	1537-38	44	180		224
Sherman	Labourer	1537-38	170	50		220
Tanner	Labourer	1537-38	187	65		252
William Swenson	Bricklayer	1537-38	240	17		257
Nevell	Bricklayer	1537-38	212	59		271
Thomas Grene	Bricklayer	1537-38	200	59		259
Brogett	Bricklayer	1537-38	212	59		271
Jacson	Bricklayer	1537-38	28	6		34
Sherman	Bricklayer	1537-38	44	15		59
Thomas Monkest	Dauber	1537-38	218	11		229
John Turfyt	Dauber	1537-38	190	39		229

Sources:Findlay (1939); Harding and Wright (1995).

Table 16: Implied Working Year: Different Specifications

Model	Family composition	Male Labour Income	Female Labour Income	Male Calories	Female Calories	Boys/Children Calories	Total Calories	Housing Cost	Implied Working Year
I (Benchmark)	Man, woman, 2 boys, 1 children	Yes	No	1941	1941	2500	6382	5%	180
II	Man, woman, 2 boys, 1 children	Yes	No	2500	1941	2500	6941	5%	189
III	Man, woman, 2 boys, 1 children	Yes	No	2800	1941	2500	7241	5%	195
IV	Man, woman, 2 boys, 3 children	Yes	No	1941	1941	3500	7382	5%	207
V	Man, woman, 2 boys, 3 children	Yes	No	2500	1941	3500	7941	5%	216
VI	Man, woman, 2 boys, 3 children	Yes	No	2800	1941	3500	8241	5%	223
VII	Man, woman 2 boys, 3 children	Yes	Yes	2500	2500	3500	8500	5%	188

Sources and Definitions: The data used to construct the series of the implied working year are referred to London and are taken from Allen (2001). The average implied working years are computed on the period 1410-1510.
The benchmark model is based on Allen and Weisdorf (2011) where household is assumed to consist of 2 adults and 3 children (two guys and one baby) that corresponds to 3.25 adults equivalents as children consume half as much as adults. The daily amount of calories consumed by children corresponds to half the calories assumed by the guys. The cost of housing represents 5 per cent of total consumption expenses (Allen and Weisdorf, 2011). Models IV-V-VI assume that the household contains the equivalent of 3.75 adults: two adults, two guys and three babies or alternatively two adults, three guys and one baby. In model VII we assumed that the contribution of women to total family earnings corresponds to 20 per cent. This number is based on Horrell and Humphries (1995).

Table 17: Actual Working Year: Different Models

Model	Mean	Std. Dev.	N
TWOparts95	240	50.498	3120
ML95	238	53.534	3200
HECK95tc2c	238	54.674	3200
TWOparts90	224	55.513	4910
ML90	219	60.273	5139
HECK90tc2c	219	61.315	5139
TWOparts75	173	59.255	8103
ML75	163	67.332	9080
HECK75tc2c	163	68.489	9080

Notes: Estimations from Heckman two-steps model are obtained using conditional mean. TWOparts* are predictions obtained using the Two-part model; ML* are predictions obtained using ML Heckman estimator; HECK*tc2c are predictions from Heckman 2-step model.

Table 18: Regression table for top 5, 10, 25 per cent more assiduous workers respectively

	(1)	(2)	(3)
	dh	dh	dh
dailywage	0.055	0.107**	0.172***
	(0.041)	(0.040)	(0.038)
period	-0.002**	-0.002**	-0.002**
	(0.001)	(0.001)	(0.001)
sizetot	-0.001	-0.006**	-0.009***
	(0.003)	(0.002)	(0.002)
_Ic	-0.307	-0.400*	-0.320
	(0.183)	(0.190)	(0.193)
_Isk_1	0.154	-0.084	-0.157
	(0.129)	(0.104)	(0.093)
_Iloc_2	-0.586	-0.438	-0.174
	(0.489)	(0.479)	(0.453)
_Iloc_3	-1.013	-0.556	-0.192
	(0.543)	(0.459)	(0.394)
_Iloc_4	-2.307***	-2.817***	-3.561***
	(0.550)	(0.519)	(0.469)
_Iloc_5	-2.778***	-3.129***	-3.666***
	(0.550)	(0.509)	(0.446)
_Iloc_6	-1.759***	-1.943***	-2.360***
	(0.395)	(0.359)	(0.331)
_Icontr_2	-0.360	-0.193	0.179
	(0.402)	(0.359)	(0.305)
_Icontr_3	-1.613**	-2.123***	-2.573***
	(0.487)	(0.502)	(0.464)
_Icontr_4	-1.179***	-1.732***	-2.371***
	(0.329)	(0.284)	(0.220)
year	0.001	0.000	-0.001
	(0.001)	(0.001)	(0.001)
_cons	1.682	3.825*	5.915***
	(1.664)	(1.553)	(1.379)
N	269	494	1164

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Model (1) relates to top 5 per cent more assiduous workers
Model (2) relates to top 10 per cent more assiduous workers
Model (3) relates to top 25 per cent more assiduous workers
Dep. var. "dh" is the natural log of the weekly participation rate

Chapter 4

GDP

4.1 Introduction

The quantification of the long term dynamics of economic growth dates back to relatively recent years with the pioneering work of Angus Maddison. Combining his own extensive knowledge of economic history with modern statistical techniques, Maddison was a precursor in the measurement of economic performance on global historical scale and the construction of the first national accounts (Maddison, 2001, 2003, 2007).
Output measures were established both on the basis of a minimum subsistence threshold and measuring the degree of complexity of the economy surmised by considering the urbanization rates or the social structures. Following these contributions, economic historians have devoted increasing research efforts in the improvement of the level of accuracy of their reconstructions passing from the benchmark years figures reported in Maddison to decadal or even yearly time series.[1]
Moreover, several exercises in historical reconstruction have been applied to such areas as Asia or South America that since then have been hardly documented in historical accounts. In parallel, new techniques have been adopted for estimating agricultural, industrial and total pro-

[1] For a comprehensive presentation of the current status of the literature on Europe see Fouquet and Broadberry (2015). See also Gupta et al. (2011) for Japan and Allen et al. (2005) for a comparison between Asian and European living standards.

duction. Economic historians have followed four approaches to construct historical estimates of GDP (Fouquet and Broadberry, 2015).
The first method derives national income from the side of the production using direct output measures of all economic sectors. This is the more direct and thus generally preferred approach. With few notable exceptions (Broadberry et al., 2011; Van Zanden and Van Leeuwen, 2012), this methodology has been used very little in practice tough, due to the dearth of sufficient information on the main sources of production.
The second method uses data on tithes to derive trends in agricultural production. Tithes were taxes levied on peasants by the ruling class. Provided that the tithe represented a proportion of the gross product, it seemingly reflected trends in production of a whole region when taken over long stretches of time. This approach has found quite extensive application in French historiography and the constitution of long series of tithes has made it possible to reconstruct changes in gross agricultural product of several places including the area of Arles (Baehrel, 1961), the Cambresis (Neveux, 1980) and Languedoc (Le Roy Ladurie, 1966). Nevertheless, this source involves several methodological issues. Indeed, the rate at which the tithe was levied as well as the surface and yield of land under consideration, could vary greatly over time complicating the correct imputation of total quantities (Le Roy Ladurie and Goy, 1982). Furthermore, while tithes were levied on several commodities, most of the tithe series regard cereals and thus they provide only very limited information about trends in pasture product.
The third method, the income approach, derives national output from the sum of all property and labour incomes (Clark, 2010). Yet, unless one correctly evaluates changes in labour input in the computation of real wages, this method offers only limited evidence on actual variations in output through time (Fouquet and Broadberry, 2015) as the resulting trend in output per capita is mainly driven by the series of real day wages.
Finally, a last set of estimations has been conducted using the demand side approach. This methodology, also known as indirect approach, reconstructs the levels of national income starting from the quantification

of the aggregate demand of agricultural products, while the shares of industry and services in total output are usually proxied through changes in urban population (Álvarez-Nogal and Prados de la Escosura, 2011; Malanima, 2011). Again, the correct specification of income per head is often crucial to provide reliable estimates.
In general terms, these approaches have had the merit of enhancing our understanding of the long run process of growth leading to a variety of interpretations. Broadly speaking, the debate among historians is now focused on the dispute between Malthusians and early modernists[2] or in other words between a perspective that describes preindustrial Europe as "an inherently stagnating, growthless system",[3] and another line of thought that challenges this view identifying elements of economic dynamism since the early modern times.
In this context, the French economy is usually referred to as the prototype of motionless society unable to escape the Malthusian constraints as compared to the dynamism of England and the Low Countries.
Nevertheless, to date, literature provided only a very partial quantitative characterization of French economy in the pre-industrial era. Indeed, the reconstruction of national indices of production only focused on the eighteenth century. The first series were elaborated in 1961 in the context of the French program of quantitative economic history initiated by the Institut de Science Economique Appliquée (ISEA) in conjunction with a broader international project inspired by Simon Kuznets.
The enquiry produced the first evaluations of agricultural (Toutain, 1961) and industrial (Markovitch, 1965) production for France by the eighteenth century using direct output measures.
Nevertheless, these contributions went under severe criticism. From the one side, many historians "rejected outright the macroeconomic history, its concepts and its long series to stick to the arrangement of the micro-observations and monographs."[4]

[2] The definition "revolt of the early modernist" was used for the first time by De Vries (1994) to summarize the position of some economic historians challenging the then predominant Malthusian representation of the growth process.

[3] Le Roy Ladurie (1977).

[4] Asselain et al. (2007).

From the other side, results were questioned in merit, criticizing for example the excessive use and confidence in the evaluation of contemporary sources. The debate brought to the production of alternative series (Crouzet, 1966; Lévy-Leboyer and Bourguignon, 1985) and the publication of new estimates by Toutain (1987) which improved on (but substantially confirmed) the first results of 1961.

The panorama for earlier centuries is still far from providing a coherent idea of long run economic growth in France. This fact is mostly dependent on the uneven coverage by area and period of existing series.

Maddison's figures provide a useful indication of possible trends since the Middle Ages but his "guesstimates of GDP from the output side are no substitute for country-specific output estimates painstakingly reconstructed from the empirical evidence."[5]

Over the last decade, building upon data originally collected by Allen (2001) for the cities of Strasbourg and Paris, a number of benchmark year estimates has been produced that documented the patterns of change of GDP since 1500 (Malanima, 2009).

Scattered estimates of output per capita were obtained from the demand side. Yet, for the very limited spatial coverage of the sources, results were hardly representative (at least a priori) of national trends.

In addition, French economic historians have long been primarily concerned with the analysis of micro-areas and the reconstruction of partial output measures of specific regions considered over long stretches of time (Baehrel, 1961);(Le Roy Ladurie, 1966).

This attitude explains why to date there exists no series of national output for France over the pre-industrial era.

This study proposes to address this gap in existing literature tracing the history of output growth in France from 1280 to 1789. The lack of evidence on direct measures of agricultural and industrial production prior to the eighteenth century, led us to use a demand side approach. However, with respect to previous exercises in historical reconstruction, our study brings two major innovations.

First, our estimates are based on a much larger dataset of price and wage

[5] Broadberry et al. (2011).

data that allows us to extend considerably the spatial and temporal coverage of the series. This seemingly provides a much more reliable picture of national trends, and actually sheds some light on the previously unknown dynamics of growth at the early stages of state formation.
Second, using econometric technique, we propose a different way of aggregating data and extracting basic patterns from the mass of disparate information.
The analysis is structured as follows.
In the next section we provide a formal presentation of the model (section 4.2). The subsequent sections will be devoted to the analysis of the economic variables necessary for estimation. In particular section 4.3 deals with the agricultural, industrial and consumer price indices as well as the series of real day wages. Using these variables we obtain a new series of agricultural GDP per capita. Section 4.4 presents the estimates of the share of agriculture in total output while in section 4.5 we set out our estimates of total and per capita output and compare the results with previous literature. Section 4.6 concludes.

4.2 The Model

Output measures are obtained using the so called "demand side" approach following a two-step procedure. In the first step the exercise involves computing agricultural output per capita (y_A) using estimates of agricultural consumption per head (c) adjusted for international trade:

$$y_A = r \cdot c \tag{4.1}$$

where r is the ratio of domestic agricultural production to agricultural consumption. Per capita consumption of agricultural products is then computed by means of an aggregate demand function that depends on real prices of agricultural (P_a) and manufacturing (P_m) products and real day wages[6] according to the following expression:

$$c = W^{\alpha} \cdot {P_a}^{\beta} \cdot {P_m}^{\gamma} \tag{4.2}$$

[6] For a more comprehensive specification of real income per head see the Appendix.

where prices are expressed as indices and the exponents α, β and γ represent the income, own price and cross price elasticities of demand, respectively. Standard microeconomic theory suggests that the sum of these elasticities is equal to zero.[7]

Substituting (4.2) in (4.1) one obtains a more explicit form of agricultural output per capita:

$$y_A = r \cdot W^{\alpha} \cdot P_a{}^{\beta} \cdot P_m{}^{\gamma} \tag{4.3}$$

In the second step we assess the contribution of agricultural output per capita in total GDP so as to quantify real GDP per capita.

Different approaches have been proposed to deal with this problem.[8]

In this work we follow the one developed by Nuvolari and Ricci (2013) for England.

The share of agriculture in total output, S_A, is formally defined as:

$$S_A = \frac{Y_A}{Y} \tag{4.4}$$

where Y_A is total agricultural output and Y is the total production.

We assume that agricultural output depends proportionally on the level of productivity of the agricultural sector (π_A) and the number of workers employed in agriculture. Total output is instead function of the productivity level of the entire economy (π) and the total number of workers in the economy (L). Provided that, equation (4.4) can be rewritten as follows:

$$S_A = \frac{\pi_A \cdot L_A}{\pi \cdot L} \tag{4.5}$$

Crucial for our goals is the formulation of the main determinants of the sectoral and global productivities. We assume perfect competition in the labor market and define productivities as follows:

$$\pi_A = \frac{Y_A}{L_A} = \frac{W_A}{P_A} \tag{4.6}$$

[7] See Malanima (2011).

[8] See among the others Malanima (2011) for the Italian case where two methods are proposed for estimating the share of agriculture in total output.

where the agricultural productivity, measured in terms of agricultural output per worker, equals real wages in agriculture;[9]

$$\pi = \frac{Y}{L} = \frac{W}{P} \tag{4.7}$$

where the global productivity of the economy, measured in terms of output per worker, is equal to real wages. Finally, substituting (4.6) and (4.7) in (4.5) we get the final expression:

$$S_A = \frac{\frac{W_A}{P_A} \cdot L_A}{\frac{W}{P} \cdot L} \tag{4.8}$$

where the ratio of real wages in agriculture to real wages $\left(\frac{W_A}{P_A}/\frac{W}{P}\right)$ is used as a proxy for the relative productivity of agriculture with respect to the entire economy $\left(\frac{\pi_A}{\pi} \cong \frac{\frac{W_A}{P_A}}{\frac{W}{P}}\right)$ and $\left(\frac{L_A}{L}\right)$ is the share of working population employed in agriculture. Finally, dividing agricultural output per capita (4.3) by the share of agriculture in total output (4.8) we obtain the final expression for GDP per capita (y):

$$y = \frac{y_A}{S_A} = \frac{r \cdot\ W^{\alpha} \cdot\ {P_a}^{\beta} \cdot {P_m}^{\gamma}}{\frac{\frac{W_A}{P_A} \cdot L_A}{\frac{W}{P} \cdot L}} \tag{4.9}$$

[9] This result comes from standard microeconomic theory where the profit maximization problem of the representative firm under perfect competition implies that the marginal productivity of labor equals the real wage. The assumption of competitive labor markets and the consequent equality between labor productivity and real wage has been recently adopted in some formal models of preindustrial economic growth. See among the others Sharp et al. (2012) and Voigtländer and Voth (2012).

4.3 The Agricultural Output

In this section we set out the estimates of per capita and total agricultural output and check their consistency with respect to other studies.
Calculation of agricultural output per head requires all of the variables involved in equation (4.3), namely the ratio of domestic production to consumption of agricultural goods (r), the elasticities, as well as the series of wages and prices.
Let us consider each of them in detail.

4.3.1 The ratio of domestic production to consumption

Due to the dearth of data, estimations of the ratio of domestic production to consumption of agricultural products are difficult to obtain for preindustrial France. Yet, Romano (1957) provides estimates (in millions of livre tournois) of foreign trade in France in the course of the eighteenth century as well as the value of imports and exports. In addition, Arnould (1791) reports some information, recently re-proposed by Léon (1974) and Daudin (2012), about the sectoral distribution of foreign trade at the beginning and at the end of the eighteenth century.
Four sectors are identified, namely colonial consumption goods and slaves; raw materials; other agricultural goods; industrial commodities including drinks.
Summing up the contribution of raw materials and other agricultural goods one obtains an estimate of the share of agricultural products in total exports and imports for the years 1716 and 1787.
The eighteenth century France was an importer of raw materials and consumption goods and an exporter of manufactures and industrial products. In 1716 about 60 per cent of the total value of imports was represented by agricultural products. This proportion remained fairly stable at the end of the eighteenth century. In 1787 it amounted to about 50 per cent of the total value of imports. The share of agricultural products in total exports was about 25 per cent in 1716 as well as in 1787. We thus assumed that it remained constant through the eighteenth century.
Using these shares, the continuous series of imports and exports of Ro-

mano (1957) and the mean values of domestic agricultural production of Toutain (1961),[10] we obtained an estimate of r by applying the following expression:

$$r = \frac{Y_{ad}}{C_a} = \frac{Y_{ad}}{Y_{ad}+S_{aI}\cdot I - S_{aE}\cdot E} \tag{4.10}$$

where Y_{ad} is the domestic agricultural production; C_a is total consumption of agricultural products; I and E represent total imports and exports while S_{aI} and S_{aE} are the shares of agriculture in total import and total export. All the variables are expressed in nominal terms (millions of livre tournois). It turns out that the ratio of domestic production to consumption of agricultural products averaged 0.95 in the course of the eighteenth century. Following Allen (2000, p.14), prior to 1700, we assumed that France had a relatively closed economy with perfectly balanced trade position in agricultural goods. As a consequence, the value of r has been set equal to one.

4.3.2 Elasticities

The own price, cross price and income elasticities were set to -0.4, 0.1 and 0.3, respectively. This parameter set reflects reasonable demand patterns in pre-industrial France and implies low absolute values of the own price and income elasticities so as to capture changes in demand of agricultural goods that were relatively less income-elastic. Yet, in the following section we explored different sets of parameters and their effect on the final estimates of agricultural and total output per capita.

4.3.3 Wages

The series of rural and urban nominal day wages are those presented in Chapter 2. Since most French urban wages are recorded for workers in the building industry, the present study concentrates on skilled and

[10] For the eighteenth century, Toutain (1961) provides upper and lower bounds of the nominal value of agricultural output for the following benchmark decades: 1701-10, 1751-60, 1771-80, 1781-90. I compute the mean value for each decade and fill the gaps by interpolation.

unskilled male construction workers whose salaries are assumed to be representative of urban wages in general.[11]

The aggregate series of real day wages has been obtained as an average of farm and nonfarm wages (building craftsmen and unskilled building laborers) weighted for the employment shares of agricultural and non agricultural workers in total labor force.[12]

4.3.4 Prices

The estimation of per capita agricultural output is based on the prices of both agricultural goods and manufactures. A new dataset that comprises more than 49,000 price quotes of 26 different items was assembled. Most of the price data used in this study come from classic accounts, printed primary sources and institutional records (Mercuriales des prix) whose detailed description is left to the references section. A virtue of the dataset is its comprehensive regional coverage. The Centre and the North of France together supply most of the price data (about 55 percent) while about 38 percent of observations come from the South, the East and Île-de-France. At the departmental level one observes that Rhône-Alpes provides most of the price quotes followed by Île-de-France and Nord-pas-de Calais while Franche-Comté and Champagne-Ardennes are less represented in the dataset.

The Agricultural Price Index

The agricultural price index includes 15 products divided in two main categories: arable and pastoral products.

I follow Toutain (1961)'s lead, with slight variations, in defining these categories and their sub-components.

[11] This assumption is customary in the literature. See for example Allen (2001). On the plausibility of this assumption see Malanima (2011); Parenti (1939).

[12] See Table 29 for the construction of the shares of agricultural and non agricultural workers in total labor force. Nominal wages in the construction sector were aggregated assuming the following weights: 0.7 for labourers and 0.3 for craftsmen. This weighting scheme is derived by considering the distribution by skill on several building projects between 1300 and 1700.

In particular, the arable products include cereals (wheat, oats, barley and rye), beverages (wine), legumes (peas and beans) and firewood, while pastoral goods comprise meat (beef, mutton, pork and chicken) and dairy (butter, cheese and eggs). The individual component price series of the price indices have been computed using piece wise OLS regressions of the following form:

$$p_{it} = \alpha + \beta G(T_t)_{P_j} + \delta' \mathbf{X_{it}} + \varepsilon_{it} \qquad \text{if} \quad t \in P_j \quad \text{where} \quad j \in (1,2,3,4) \quad (4.11)$$

and:

- $P_1 = 1250s - 1348$
- $P_2 = 1348 - 1550s$
- $P_3 = 1550s - 1690s$
- $P_4 = 1690s - 1780s$

This specification allows us to derive time trends for each commodity while controlling for differences in source, location, quality, quantity and unit of measurement over time, across places and sources ($\mathbf{X_{it}}$). A function of time ($G(T_t)$) is also included. Estimations are conducted on the same sub-periods as the wage regressions. Tables 33 to 35 of the Appendix show the estimated price series as well as the arable, pasture and agricultural price indices. The aggregate price index was finally obtained as an arithmetic weighted index of the individual price series using as weights the assumed output shares of each commodity.

The shares of commodities in net output changed over time.

For the eighteenth century I estimated the output shares of the components, sub-components and individual items building upon Toutain (1961). This contribution is an influential attempt to measure agricultural productivity and growth in France. Using a vast set of mostly contemporary secondary sources, Toutain (1961) establishes reasonable estimates of the volumes of production sector by sector and an overall index of agricultural production since the eighteenth century. Though criticized for the very nature of its sources and the extensive use of backward extrapolation, his figures provide useful information and are "compatible with what we know of the French economy at that time."[13]

I used Toutain (1961)'s production figures to derive the relative importance of each sector and the weight of single commodities within its relevant sector. Due to the dearth of data, I do not include in the computations soya, milk and spices. The shares of these items were attributed proportionately to the most similar categories. Before 1700, there are few sources of data readily available and shares have to be inferred indirectly using the evaluations of contemporary authors and the budgets studies that detailed the relative expenditure of several commodities. For the period 1550-1699, the relative shares of the components of the index were largely derived from the evaluations of Moreau de Jonnès (1867) that provides information on the extension of arable and pasture lands as well as the volume of production of wheat, other cereals and wine in France from the reign of Henry IV (1589-1610) to the reign of Louis XIV (1643-1715).

Using these pieces of evidence, I concluded that cereals should have amounted to about 80 per cent of arable product while wheat was about 33 per cent of the overall production of cereals. One important feature is the much greater importance of firewood during the Middle Ages and the Modern time when wood output must have been a much greater share of production as it was used both as construction material and as the main source of heating (Devèze, 1961).

Based on this, I estimated that in the years before 1700, wood was 10 percent of output from French agriculture while I retained the evaluation of Toutain (1961) for the eighteenth century (about 6 percent). Furthermore, these figures are consistent with the weights implied by Clark (2004)'s agricultural price index for England.

It is important to note that as one goes back in time the price of some items becomes unavailable. In that case the share of the missing item has been imputed proportionately to the commodities included in the same sector. For example, between 1280 and 1500 the share of wool has been attributed to linen.

[13] Daudin (2012).

Earlier figures have been set matching information from the expenditure shares of several budget studies as provided by Allen (2001) for Europe, Clark (2005) for England and using results presented in Chapter 2 for France.
On the whole, data before 1700 are speculative and represent only a rough approximation of real output shares. Nevertheless, the exact definition of the weighting scheme has little bearing on final results.
First, because the wide spectrum of goods included in the indices reduces substantially possible errors contained in individual price series.
Second, as most of the price series included in the arable as well as the pasture indices experienced similar trend improvements, the definition of the weighting scheme has a low impact on the computation of the average trend in prices.[14]
Tables 19 to 25 give the resulting weights assigned to the components, sub-components and individual items included in the arable and pasture indices as well as the weights of the overall agricultural index.

Table 19: Weights of the components of the Arable Index by period

Period	**1280-1298**	**1299-1319**	**1320-1549**	**1550-1699**	**1700-1749**	**1750-1769**	**1770-1789**
Cereals	0.92	0.89	0.80	0.80	0.80	0.60	0.62
Wine	0.08	0.08	0.07	0.07	0.09	0.17	0.17
Wood			0.10	0.10	0.06	0.06	0.05
Legumes		0.03	0.03	0.03	0.05	0.17	0.16
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Sources:de Jonnès (1867); Devèze (1961); Toutain (1961). See text.

[14]Notice that wine and legumes rose more than the other items included in the arable index and the same occurred for chicken prices in the pasture index. Nonetheless, the shares of chicken and legumes were relatively low as compared to other items. We tried to vary the share of wine but results were largely unchanged.

Table 20: Weights of the sub-components of the Arable Index by period

Period	1280-1298	1299-1319	1320-1549	1550-1699	1700-1749	1750-1769	1770-1789
Wheat	0.33	0.33	0.33	0.33	0.27	0.32	0.25
Rye	0.22	0.22	0.22	0.22	0.27	0.38	0.30
Barley	0.23	0.23	0.23	0.23	0.24	0.12	0.21
Oats	0.22	0.22	0.22	0.22	0.24	0.18	0.24
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wine	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Firewood	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Beans / Peas	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Sources:de Jonnès (1867); Devèze (1961); Toutain (1961). See text.

Table 21: Weights of the individual components of the Arable Index by period

Period	1280-1298	1299-1319	1320-1549	1550-1699	1700-1749	1750-1769	1770-1789
Wheat	0.30	0.29	0.26	0.26	0.21	0.19	0.16
Rye	0.20	0.20	0.18	0.18	0.21	0.23	0.19
Barley	0.21	0.20	0.18	0.18	0.19	0.07	0.13
Oats	0.20	0.20	0.18	0.18	0.19	0.11	0.15
Wine	0.08	0.08	0.07	0.07	0.09	0.17	0.17
Firewood			0.10	0.10	0.06	0.06	0.05
Beans / Peas		0.03	0.03	0.03	0.05	0.17	0.16
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Sources:de Jonnès (1867); Devèze (1961); Toutain (1961). See text.

Table 22: Weights of the components of the Pasture Index by period

Period	1280-1308	1309-1332	1333-1549	1550-1699	1700-1749	1750-1769	1770-1789
Meat	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Dairy	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Sources:de Jonnès (1867); Toutain (1961). See text.

Table 23: Weights of the sub-components of the Pasture Index by period

Period	1280-1308	1309-1332	1333-1549	1550-1699	1700-1749	1750-1769	1770-1789
Beef	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Mutton	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Pork	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Chicken	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Butter			0.33	0.33	0.33	0.33	0.33
Eggs	1.00	0.50	0.33	0.33	0.33	0.33	0.33
Cheese		0.50	0.33	0.33	0.33	0.33	0.33
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Sources:de Jonnès (1867); Toutain (1961). See text.

Table 24: Weights of the individual components of the Pasture Index by period

Period	1280-1308	1309-1332	1333-1549	1550-1699	1700-1749	1750-1769	1770-1789
Beef	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Mutton	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Pork	0.11	0.11	0.11	0.11	0.11	0.11	0.11
Chicken	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Butter			0.18	0.18	0.18	0.18	0.18
Eggs	0.55	0.28	0.18	0.18	0.18	0.18	0.18
Cheese		0.28	0.18	0.18	0.18	0.18	0.18
Total weight	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Sources:de Jonnès (1867); Toutain (1961). See text.

Table 25: Weights of the individual components of the Agricultural Index by period

Period	1300 - 1550	1550 - 1700	1700 - 1780	1780-1789
Arable	0.75	0.81	0.81	0.81
Pasture	0.25	0.19	0.19	0.19
Total weight	1.00	1.00	1.00	1.00

Sources:de Jonnès (1867); Toutain (1961). See text.

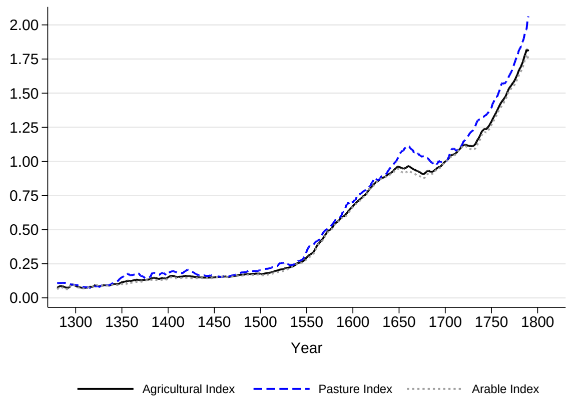

Figure 47: Agricultural index and its components (1700 = 1)

Figure 47 shows the evolution of arable, pasture and agricultural prices. One may notice that the indices followed a similar evolution. While during the Middle Ages prices averaged 10 per cent of their level in 1700, by the second half of the sixteenth century they started to rise dramatically. At the end of 1500 they were already 70 per cent of the 1700 level. When the increase of prices came to an halt by the second half of 1600, prices had reached the 1700 levels. In the course of the eighteenth century a rapid expansion of inflation brought prices to double in less than a century.

There are few terms of comparisons to check the reliability of our estimation because most of the existing series do not regard France as whole or are limited to the eighteenth century. According to Labrousse (1932), agricultural prices increased by about 166 per cent between 1726-1741 and 1785-1789. This evolution is broadly consistent with the estimates offered here that imply agricultural prices rose by about 170 per cent in the same period. In addition, I checked the series against the agricultural price index proposed by Allen (2000, p.13) for France for the period 1400-1800. This index differs from the one proposed here both in composition[15] and for the spatial coverage of the series that is limited to the Paris Basin and the Strasburg's area. Yet, as Figure 48 demonstrates, the two series are very similar along the way.

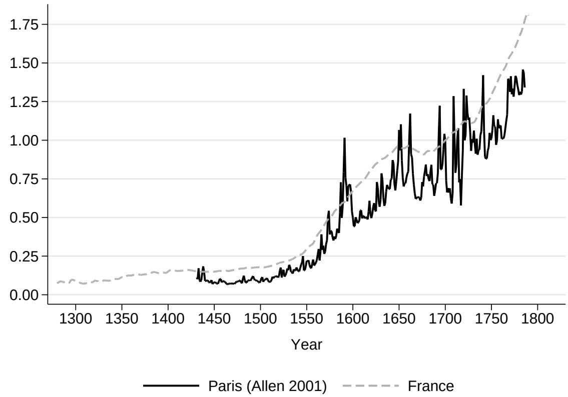

Figure 48: Agricultural price index (1700 = 1)

The Industrial Price Index

The price index of manufactured goods is an arithmetic weighted index with the output shares of each commodity used as weights. This index includes eleven products divided in five categories, namely textiles (linen and wool clothes), toiletries (soap), construction materials (lime and tiles), lighting (candles and oil light) and metals (coal, lead, copper and iron). Iron was included as it represented the main input in making sickles, cutlery and other work instruments. Other metals as well as lime and tiles were used as construction materials. For the eighteenth century we dispose sufficient evidence to reconstruct the output shares of the French industry. The weighting scheme elaborates on Markovitch (1965) and Toutain (1987). Weights are rescaled to take into account of the fact that the paper and food industries were not considered in our

[15]This is a Laspeyres index that includes bread, beans or peas, meat, butter or olive oil, cheese, eggs and beer or wine.

analysis.[16] Tables 26 to 28 show the relative weights assigned to the different categories and goods.

Table 26: Weights of the components of the Industrial Index by period

Period	**1280-1311**	**1312-1333**	**1334-1412**	**1413-1500**	**1501-1699**	**1700-1789**
Textiles	0.55	0.55	0.55	0.55	0.55	0.55
Toiletries	0.02	0.02	0.02	0.02	0.02	0.02
Construction Materials	0.18	0.18	0.18	0.18	0.18	0.18
Lighting	0.17	0.17	0.17	0.17	0.17	0.17
Metals	0.08	0.08	0.08	0.08	0.08	0.08
Total weight	1.00	1.00	1.00	1.00	1.00	1.00

Sources:Markovitch (1965); Sprandel (1969); Toutain (1987). See text.

Table 27: Weights of the sub-components of the Industrial Index by period

Period	**1280-1311**	**1312-1333**	**1334-1412**	**1413-1500**	**1501-1699**	**1700-1789**
Linen	1.00	1.00	1.00	1.00	0.55	0.55
Wool					0.45	0.45
Total	1.00	1.00	1.00	1.00	1.00	1.00
Soap	1.00	1.00	1.00	1.00	1.00	1.00
Total	1.00	1.00	1.00	1.00	1.00	1.00
Lime	0.50	0.50	0.50	0.50	0.50	0.50
Tiles	0.50	0.50	0.50	0.50	0.50	0.50
Total	1.00	1.00	1.00	1.00	1.00	1.00
Candles	0.35	0.35	0.35	0.35	0.35	0.35
Oil light	0.65	0.65	0.65	0.65	0.65	0.65
Total	1.00	1.00	1.00	1.00	1.00	1.00
Coal	0.26	0.26	0.06	0.05	0.05	0.05
Lead	0.74	0.74	0.16	0.14	0.14	0.14
Copper				0.14	0.14	0.14
Iron			0.779	0.67	0.67	0.67
Total	1.00	1.00	1.00	1.00	1.00	1.00

Sources:Markovitch (1965); Sprandel (1969); Toutain (1987). See text.

The weighting scheme for earlier times mirrored the distribution by sector of the eighteenth century France but it is constructed to capture the changing structure of the economy. Direct evidence is available only c.

[16]Paper industry was not considered due to the dearth of data while the food industry was not included as most of its components (oil) or inputs (wheat) have been already considered in the agricultural price index.

Table 28: Weights of the individual components of the Industrial Index by period

Period	1280-1311	1312-1333	1334-1412	1413-1500	1501-1699	1700-1789
Linen	0.55	0.55	0.55	0.55	0.30	0.30
Wool					0.25	0.25
Soap	0.02	0.02	0.02	0.02	0.02	0.02
Lime	0.09	0.09	0.09	0.09	0.09	0.09
Tiles	0.09	0.09	0.09	0.09	0.09	0.09
Candles	0.06	0.06	0.06	0.06	0.06	0.06
Oil light	0.11	0.11	0.11	0.11	0.11	0.11
Coal	0.02	0.02	0.00	0.00	0.00	0.00
Lead	0.06	0.06	0.01	0.01	0.01	0.01
Copper				0.01	0.01	0.01
Iron			0.06	0.05	0.05	0.05
Total weight	1.00	1.00	1.00	1.00	1.00	1.00

Sources:Markovitch (1965); Sprandel (1969); Toutain (1987). See text.

1700. This is important since detailed information is usually available for the late nineteenth century when the process of industrialization was already developed on a large scale and the organization of French industry greatly differed from preindustrial one, with some new sectors (metallurgy and services) gaining importance at the expense of more traditional ones. The eighteenth century France maintained instead the traits of the traditional society (Daudin, 2012).

This suggests that retro dating back in time the structural features derived from the eighteenth century would be approximately correct.

Textile industry was, by far and large, the most important sector and it accounted for about 50 per cent of industrial output in the eighteenth century. An important role was played by lighting and construction materials. Based on Toutain and Markovitch's elaborations, the shares of these two sectors averaged 35 per cent of total output.

Due to the lack of additional evidence, I assumed that the sectoral distribution of weights remained approximately constant between the thirteenth and the eighteenth centuries.

This implies that changes in relative weights of industrial commodities were driven by substitution effects between goods of the same sector with, for example, the wool industry gaining importance at the expense of linen industry. Again for earlier centuries one could infer some of the weightings of textiles products and toiletries from the consumption patterns of workers in medieval and early modern France.

I used the production figures of Sprandel (1969) to trace the evolution of iron industry between 1300 and 1800.

It is important to note that as one goes back in time the price of some commodities becomes unavailable. In that case the share of missing goods has been imputed proportionately to the items included in the same sector. For example, between 1280 and 1500 the share of wool has been attributed to linen.

As illustrated by Figure 49, industrial prices witnessed a phase of slight increase (in the course of the Middle Ages) and a period of sustained growth by the end of the fifteenth century. The overall dynamics resembles the movement of agricultural prices.

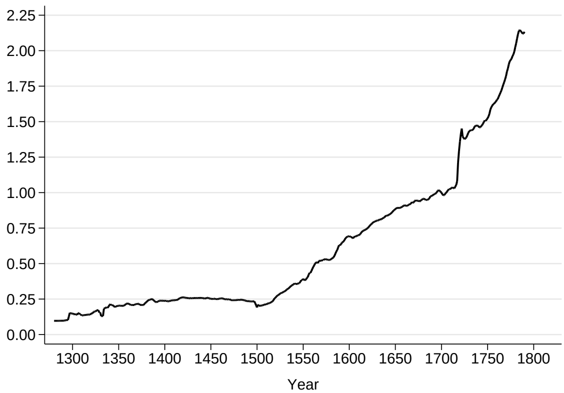

Figure 49: Industrial price index (1700 = 1)

The Consumer Price Index

Finally, nominal wages and prices are deflated using a consumer price index, the same discussed in Chapter 2, that reflects Allen (2001)'s bare-bones basket. This provides 1941 calories per day, sufficient proteins and implies some expenditure for lighting and clothing (Table 1). The individual component price series of the Laspeyres index have been obtained using a piece wise OLS regression model for the same sub-periods used for nominal wages and prices. The regression includes dummy variables for source, location, macro-region, quality and the unit of measurement of the commodity. A function of time is also included.[17] As Figure 50 illustrates the consumer price index tracks closely the evolution of the agricultural and industrial prices.

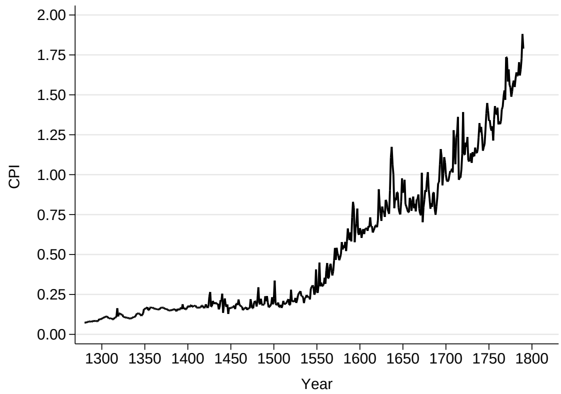

Figure 50: Consumer price index (1700 = 1)

4.3.5 The Agricultural Output: Results

Agricultural output per capita was computed by calibrating expression (4.3). Figure 51 displays the resulting estimates and checks their consistency with the series reported in Allen (2000, p.17).

[17] See Chapter 2.

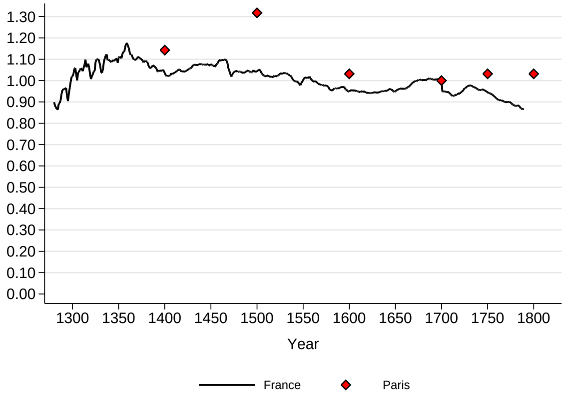

Figure 51: Agricultural output per capita (1700 = 1)

This step actually provides some confidence in the figures offered here. Between the seventeenth and the first half of the eighteenth century, our estimates closely match Allen (2000)'s series. Both of them point to substantial stagnation in the levels of output per capita in agriculture. Yet, by the second half of the eighteenth century, our estimates portray a more pessimistic view of agricultural production per head as compared to Allen (2000)'s series. Furthermore, our series suggests lower levels of agricultural GDP per capita during the late Middle Ages and a less rapid decrease in output per head throughout the sixteenth century. It is likely that these differences result, at least partly, from the fact that our estimates regard France as whole while Allen's series deals with Paris. The resulting implication is that, due to aggregation, our index is less erratic. It is interesting to note that Allen (2001)'s series and the one presented in this study are located in the low range among estimations put forward for the eighteenth century using direct output measures.

While Toutain (1961) and more recently Morrisson et al. (1999) predicted that total agricultural output increased by about 50-60 per cent between the decades 1701-1710 and 1781-1790, Goy and Le Roy Ladurie (1972) concluded that between 1715 and 1789 the rise of agricultural output was less substantial ranging between 25 and 40 per cent.

Over the same period total population grew by about 30 per cent. As a consequence, predictions of changes in agricultural output per capita from the first decade of the eighteenth century to the Revolution, vary between a slight decline, if one opts for the lower figures, and a sustained increase if one retains the upper bound (Asselain et al., 2007, p.11). Though our series sounds in fact "Ladurian", it is worth noting that the demand side approach tends to predict lower rates of growth due to stickiness of nominal wages as compared to flexibility of prices and production figures. For example, rising demand from an expanding population contributed to the increase in food prices that led, in turn, to a sustained fall in real wage rates as nominal wages were much more stable. The main reason for the difference in growth between direct and indirect output measures is that the demand side approach relies on a series of real day wages that declined in the course of the eighteenth century. Drops in real day wages imply, by equation (4.3), that per capita consumption declined. In contrast, direct measures of output posit a rise in production per head even though incomes were falling. Estimating output growth from the demand side precludes that conclusion.
Following literature (Álvarez-Nogal and Prados de la Escosura, 2011; Malanima, 2011), I explored different sets of parameters setting the cross-price elasticity γ constantly at the value of 0.1 and varying the income elasticity in the interval 0.2/0.6 and the own-price elasticity in the range -0.3/-0.6 such that the Slutsky-Schultz relation was always satisfied (the sum of the parameters is equal to zero). Figure 52 demonstrates that these variations produce very similar outcomes.

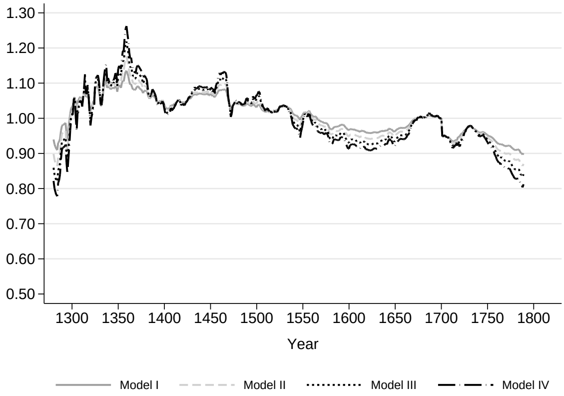

Figure 52: Agricultural Output (Sensitivity test)

Multiplying agricultural output per capita by the total population (using Dupâquier (1988)'s figures) one obtains an estimate of total agricultural production.

Figure 53: Total, per capita agricultural product and total population (1700 = 1)

Agricultural production tracks closely the movements of population

(Fig. 53). During phases of demographic expansion production soared to assure basic subsistence to the growing population while during crisis agricultural output contracted. The dominant pattern was stagnation in the levels of agricultural output per capita. The only noteworthy exception was the period 1280-1320 when output growth was close to 30 per cent as the sustained increase in the total population failed to keep pace with the growth of agricultural production.

The estimates of total agricultural production can be compared with those reported in other studies.

Using a demand side approach, Allen (2000)'s estimated that between 1500 and 1800 agricultural output increased by about 33 per cent while Hoffman (2000)'s total factor productivity measures imply a 45 per cent rise on average. Our series suggests that output growth was close to 30 per cent over the same period. These different methods give similar results. The main reason for the slight undervaluation of our figures is that the estimates presented here relies on France while Allen and Hoffman's series are primarily concerned with the Paris Basin and Île de France that seemingly were the most dynamic areas of France.

4.4 Share of Agriculture in Total Output

Data on the share of agricultural workers in the total French working population are derived from Allen (2000, p.8) that provides estimates for the following benchmark years: 1400, 1500, 1600, 1700, 1750, 1800. Following the method originally proposed by Wrigley (1985), Allen proceeds by subtraction deducting from the total population its urban and rural non-agricultural components. By assuming that the fraction of urban farmers was negligible, the quantification of the segments of population outside agriculture is computed in two steps.

First, by subtracting urbanities from the total population using Bairoch (1976) and Bairoch et al. (1988)'s figures.

Secondly, by assessing the share of rural agricultural workers in rural population.

Using Wrigley (1985) and Grantham (1991, p.341)'s evaluations, Allen estimated that in France the agricultural fraction of the rural population passed from about 80 per cent to 68 per cent between circa 1400 and 1800. I adopted a similar approach for estimating back to the fourteenth century the share of agricultural workers in the total working population. I used the total population figures of Dupâquier (1988) and subtract the urban population using Bairoch et al. (1988)'s data to get the rural population.

Assuming that 80 percent of rural population was agricultural between 1200 and 1400, I found that in this period the proportion of rural non agricultural amounted to about 75 percent of the total population.

Intervening values were interpolated to get a continuous series of the share of agricultural workers in the labor force. Table 29 shows the estimated proportions for the entire period.

Table 29: Population

Period	Total Population	Urban Population	Rural Population	Share Agricultural in Rural	Agricultural Population	Share Agricultural in Total
1200	15.30	1.00	14.30	0.80	11.44	**0.75**
1300	15.00	1.19	13.81	0.80	11.05	**0.74**
1345	20.20			0.80		
1350	15.00			0.80		
1400	12.00	1.29	10.71	0.80	8.57	**0.71**
1500	17.00	1.49	15.51	0.80	12.41	**0.73**
1600	19.00	2.05	16.95	0.76	12.88	**0.68**
1700	22.00	2.72	19.28	0.72	13.88	**0.63**
1750	24.50	3.11	21.39	0.70	14.97	**0.61**
1800	28.30	3.65	24.65	0.68	16.76	**0.59**

Sources and Definitions: Data between 1400 and 1800 come from Allen (2001).
Total population before 1400 is taken from Dupâquier (1988). Urban population before 1400 is computed using urbanization rates from Bairoch et al. (1988). Rural population equals the difference between total and urban population. The share Agricultural in Rural population is the fraction of agricultural in rural population.
Agricultural population is equal to total population times the share agricultural in total population.
The share Agricultural in total population is the ratio between agricultural and total population.

Using this series we can compute the share of agriculture in total output using equation (4.8). Our figures suggest that the contribution of agriculture in total output was relevant until the first half of the sixteenth century, accounting about 65-70 per cent of GDP (Figure 54). By the sec-

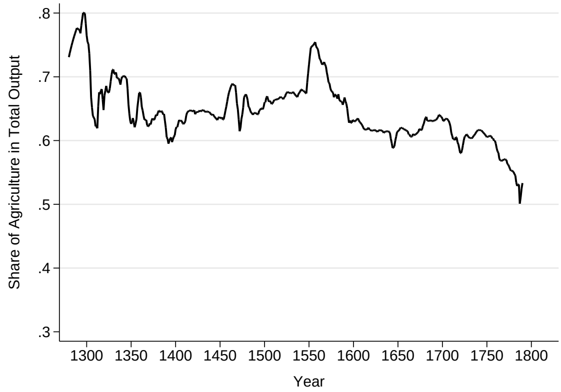

Figure 54: Share of Agriculture in total output

ond half of the sixteenth century one observes a gradual decline of the relative importance of agriculture in total output with an average share of about 50 per cent by the end of the eighteenth century.[18]

Comparison with the estimates presented in other studies provides some confidence in the figures offered here. Indeed, using a direct approach, Toutain (1987) estimated that industry represented 48 percent of GDP in France during the eighteenth century while Marczewski and Toutain (1961) revised downward the importance of industry lowering its share to 38 percent of GDP for the same period. More recently, Daudin (2012) pointed out that the share of industry in total output should have varied between 35 and 45 percent. Taking the mean over this range, and considering that at that time services should have accounted to no more than 15 per cent, which is the value estimated by Marchand and Thélot (1997), one obtains that the implied share of agriculture in total output was at least 45 per cent. These results are also consistent with the dis-

[18]As a robustness check, we follow a fairly standard approach in the literature (Álvarez-Nogal and Prados de la Escosura, 2011; Palma and Reis, 2014) and estimated the share of output outside agriculture using trends in urbanization rates corrected for the share of urban workers living in the countryside. Results are broadly consistent with the estimates presented in this study.

tribution by sector of national GDP as presented in Lévy-Leboyer and Bourguignon (1985). Indeed, they estimated that, still in 1820, agriculture represented 46 per cent of total output. From a broader perspective, it is interesting to note that French values are high relative to the most industrialized European countries. In particular, as Dean and Cole (1967), Crafts (1983, 1985) and more recently Nuvolari and Ricci (2013) have demonstrated, the contribution of English agriculture in total output was much lower in the late eighteenth century, averaging 30 per cent of total output.

4.5 Output per capita

GDP per capita has been obtained calibrating expression (4.9). The estimates developed here (Table 38, Model I; Fig.55) point to one important conclusion: the dominant pattern in pre-industrial France was stagnation in the levels of output per capita. Nevertheless, stability was not the same as immobility. French economic performance was characterized by major fluctuations and these can be more suitably interpreted using a two-stage account.

The first phase corresponds to the years 1280s-1340s. Sustained per capita growth took place between the 1280s, when royal power in France reached its medieval apogee during Philip's IV reign, until the 1340s, when the Black Death and to a larger extent the Hundred Years' War interrupted it. Over this period, output per capita increased by about 30 per cent. This sharp increase shifted the trajectory of growth on a higher path and seemingly represented the most important break in French history until up the Industrial Revolution.

Thus, French relative prosperity by modern era can be dated back to the pre-plague period. This pattern resembles dynamics recently identified for Spain by Álvarez-Nogal and Prados de la Escosura (2011) but contrasts with the experience of most European countries where the highest standards of living were reached in the decades after the Black Death by the mid-15th century.

To what extent is this conjectural result, regarding France, consistent

with what we know about this period?
Georges d'Avenel is clear in his judgment:

> *There were, between the end of the reign of Saint Louis and the beginning of the Hundred Years' War (1270-1350), eighty years of undeniable material prosperity... So let us assume that population was stationary before Saint Louis; we know by the documents, for sure, that agriculture at that time took a strong growth and that the clearing of forests and vain and waste lands, belonging either to the king or to the lords, not exploited hitherto, was initiated with great zeal* (d'Avenel, 1894, p.180, vol.I).[19]

The French historian continued identifying the sustained progress with the de facto abolition of serfdom in many parts of the French kingdom. The process of royal expansion over the powerful feudal neighbors seemingly accelerated the enfranchisement of new communities (Boutruche, 1947; Patault, 1978).
Indeed one turning point that emerged in the conflicts between peasants and landlords over seigniorial attempts to extend the right to arbitrarily tax their customary peasants, was the monarchical intervention in favour of peasantry (Brenner, 1976, p.69). This strategy, cultivated particularly by King Philip Augustus, aimed at breaking the bonds between the lords and their serfs and was a way to protect the security of peasants, extend their landholdings and create a wider and unified fiscal unit for taxation (Lopez, 2004, p.261).[20]

[19] My translation; original: *Il y eut, entre la fin du règne de saint Louis et le commencement de la guerre de Cent ans (1270-1350), quatre-vingts ans de prospérité matérielle indéniable... Supposons donc la popolation stationnaire avant saint Louis; nous savons par les chartes, d'une façon certaine, que l'agriculture prit de son temps un vif essor, et que les défrichements de forèts et de terres vaines et vagues, appartenant soit au roi, soit aux seigneurs, et non exploitées jusqu'alors, s'exécutèrent avec une ardeur excessive.*

[20] The fact that the abolition of serfdom was more a political instrument in the hands of the king against his powerful vassals rather than a matter of religious pietas, is confirmed by the fact that enfranchisements took the form of collective rather than personal emancipation. These coincided with the creation of free communes and the recognition of the autonomy of (rich) cities or rural communities from the control of their lords. Yet, the dynamics was not linear and existed several exceptions. It is nonetheless interesting to note that, where royal power and the nascent state were stronger, the abolition of serfdom was more precocious (the area around Paris), while in those regions where royal authority was

Whatever the exact dynamics of this process, the abolition of serfdom had two effects.
First, the transition from an economy of serfs to an economy of freemen fostered the formation of a new class of small landholdings.
Georges d'Avenel described the process in these terms:

> *The freed peasant will become the owner when he will become free - an economic together with political revolution. He contends land to the lord and the convent.... Under the reign of Saint Louis, the people of king and following their example the lords' intendants, the abbeys' prosecutors rented millions of hectares of land that until then had not been in circulation* (d'Avenel, 1894, p.195,vol.I).[21]

Second, the consolidation of peasant property in relationship to the development of the French state had the effect of reducing the availability of cheap labour force for the lords, that now, to maintain workers on their properties had to raise wages.
In a period of mild inflation, the result was an upward pressure on real wages well in advance of 1348.[22] The hypothesis that the trend in output per capita (before the great plague of 1348) was deeply entrenched with the particular form of evolution of the French monarchical state and its related effect on class structure and property relationship, needs to be supported by additional evidence. Nevertheless, several pieces of evidence suggest that this hypothesis represents a plausible scenario.
First, the presence of a phase of sustained progress is confirmed by population data. The survey of the parishes and hearts in the royal domain,

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weaker, landlords were more successful in establishing and maintaining their rights over peasants (north and east of the Paris region). For a broad geographic characterization of serfdom in France see Petot (1984).

[21] My translation; original:*Le paysan affranchi va devenir propriétaire au moment où il vient de devenir libre,-révolution économique en même temps que révolution politique.-Il dispute la terre au seigneur et au convent... Sous le règne de saint Louis, les gens du roi et à leur exemple les intendants des seigneurs, les procureurs des abbayes "baillent", "fieffent" ou "accensent" (car tous ces mots sont synonymes) des millions d'hectares de terre qui jusque-là n'avaient pas été dans la circulation...*

[22] Notice that for the way output measures are obtained in this study, real wage increases usually correspond to GDP per capita growth.

carried out in 1328 to determine the extent of royal rights in levying taxes, suggests that French population was extraordinarily high at that time. Though, since the first evaluation of Lot (1929), uncertainties exist on the exact number of people, scholars are in agreement that total population was high by pre-industrial standards and that level was not replicated until the late seventeenth century. In addition, the experience of other areas on the Continent indicates that growth of living standards in the pre-plague period was not an international phenomenon.[23]

First, even though documental evidence is scattered and population numbers are controversial, disposable series indicate that the levels of output per capita in both England and Central and Northern Italy were stagnant.

Second, the decisive decline of serfdom in most Western Europe took place by the second half of the fourteenth century. This trend is usually explained in terms of reduced population pressure and increased bargaining power of workers in the post-plague era. For example, in England, the end of serfdom is usually identified with the Peasants' Revolt of 1381. In this respect the abolition of serfdom in France represents an exception in the panorama of European countries either because the process was already concluded by the beginning of 1300[24] or because it saw the active participation and decisive contribution of the monarchical authority.

The second phase (1350s-1780s) was characterized by a long period of decline followed by a sustained recovery.

Between the 1350s and the 1550s, GDP per capita decreased by about 20 per cent even though the rate of decline accelerated by the end of the fifteenth century. This pattern is perfectly consistent with Hoffman (2000)'s hypothesis that exogenous shocks, as well as wars and disorder, stunted the process of economic growth in France.[25] Between the 1550s and the 1660s the French economy shows signs of significant expansion.

[23]Spain was a partial exception.

[24]Serfdom was de facto ended in France by the beginning of 1300. See on this Arnoux (2012); Druon (1965).

[25]Notice that political fragmentation fostered by the Hundred Years' War might have tightened seigneurial control over the paesantry.

Real output per head soared by about 30 percent from the minimum of the mid-1500. The first escape from the stasis coincided in time with the rise and consolidation of the Absolutist state before the advent to the throne of King Louis XIV. Yet, one can not advance any relation of causality between the two patterns. Indeed, several other European countries experienced similar or even stronger episodes of growth over this period (Fouquet and Broadberry, 2015) but again, the presence of internal (the Wars of Religion) other than external conflicts and political turmoil seemingly decreased the rhythm of French growth.

Finally, by the 1660s until the end of the eighteenth century, output per capita stagnated.

On the whole it appears that in the course of almost six centuries, the gains in living standards were reached before the 1340s and in successive years France did not exhibit any sustained trend improvement in the levels of output. Our series is very supportive of the narrative advanced by Le Roy Ladurie (1966, 1977) of the pre-industrial French economy as a stagnating system.

At this stage of the discussion, it is useful to check our estimates against those presented in other studies. Figure below compares our series with the benchmark estimates of Maddison (2001) and Malanima (2011).

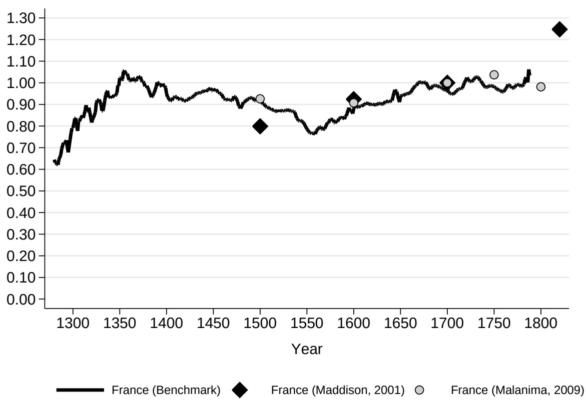

Figure 55: GDP per capita (1700 = 1)

Our estimates are broadly consistent with those reported in these studies. Yet, while Maddison's numbers imply a growth in the levels of output per head during the sixteenth century, on the whole Malanima's figures as well as our series predict stagnation (drop and then rise) of GDP per capita over the same years.

The process of growth can be better figured out by computing rates of growth (Table 30). Our series implies that at the end of the eighteenth century per capita GDP averaged 15 per cent above its level in 1500. Similar conclusions were reached by Álvarez-Nogal and Prados de la Escosura (2006) and to a lesser extent by Malanima (2011), while Maddison (2001)'s numbers imply more sustained growth between 1500 and 1800. Another feature of Figure 55 is worth mentioning. Our series predicts an increase in the level of GDP per capita in the second half of the eighteenth century. This is an interesting finding because it shows consistency between our series and the trend predicted by Toutain (1987) using an output based approach.

Finally, an estimate of total output has been obtained multiplying GDP per capita by the total population (Figure 56). The results show that total population and production followed similar trends.

In what follows we compare real and nominal GDP together with the price level. It is evident that the increase of nominal GDP was merely due to the growing inflation (Figure 57). In fact, between the Middle Ages and the eighteenth century, the level of national inflation increased eightfold while real GDP only doubled.

Table 30: GDP per capita growth

Period	**1500-1600**	**1600-1700**	**1700-1800**	**1500-1800**
Maddison (2001)	16	8	25	56
Álvarez-Nogal and Prados de la Escosura (2006)	0	7	5	12
Malanima (2011)	-2	10	-2	6
This paper	5	2	7	15

Notes: in the third and fourth columns, output growth from Maddison (2001) is computed on the periods 1700-1820 and 1500-1820 respectively. Figures are expressed in percentage.

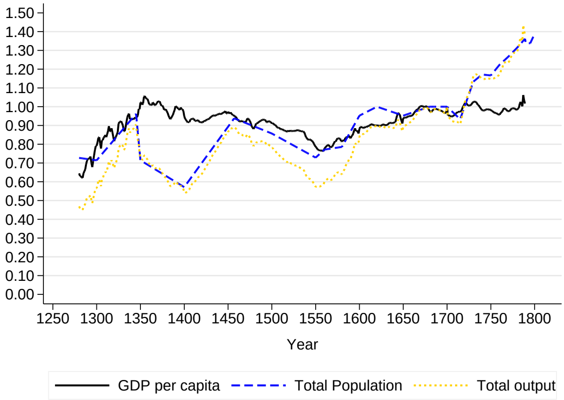

Figure 56: Total, per capita output and total population (1700 = 1)

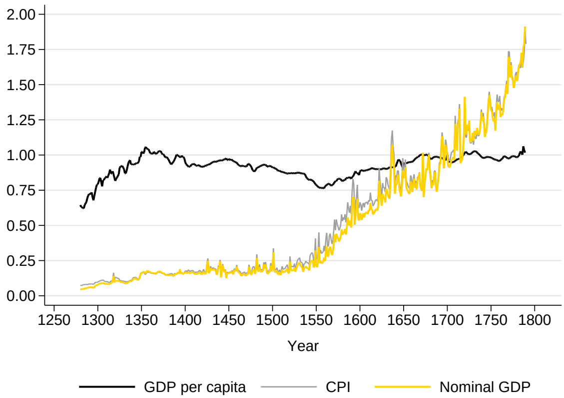

Figure 57: Real, nominal GDP per capita and CPI (1700 = 1)

4.5.1 GDP per capita in 1990 dollars

In this section we compare French per capita GDP levels, expressed in 1990 "Geary-Khamis" PPP dollars, and analogous yearly series from a number of European countries. The conversion of the indexed series in this unit of account makes results more readable and allows to relate different living standards to a minimum level of subsistence. The conversion of French per capita GDP in dollars 1990 has been made projecting backwards Maddison's value of French GDP per capita for the year 1820 using our time series of per capita GDP.[26] Figure 58 compares the estimates of French GDP per capita provided in this study with the series of six European countries that have been produced over the last years by a number of economic historians. The dataset includes England-Great Britain (Broadberry et al., 2011),[27] Holland (Van Zanden and Van Leeuwen, 2012), Northern and Central Italy (Malanima, 2011), Portugal (Palma and Reis, 2014; Reis et al., 2013), Spain (Álvarez-Nogal and Prados de la Escosura, 2011), and Sweden (Schön and Krantz, 2012). The series differ in terms of duration and the methods employed for estimating output.[28] In particular all of the series have been constructed using a demand-side approach with the exception of England-Great Britain (Broadberry et al., 2011), Holland (Van Zanden and Van Leeuwen, 2012) after 1510 and partly Sweden (Schön and Krantz, 2012) where the estimates of national income were obtained by using direct output measures.

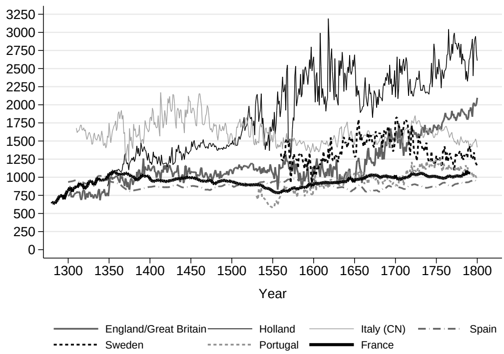

Figure 58: GDP per capita in Europe (dollars 1990)

[26]Maddison (2001) does not provide an estimate of per capita GDP in 1789, so I assume a constant growth rate between 1700 and 1820 to link the two series.

[27]England between 1300 and 1700. Great Britain afterwards.

[28]See Fouquet and Broadberry (2015) for a summary of the methods and materials.

Table 31: GDP per capita (Geary-Khamis 1990 dollars)

Year	England/Gr. Britain	France	Holland	Italy (CN)	Portugal	Spain	Sweden
1300	757	843		1679		946	
1400	1103	985	1291	1710		863	
1500	1091	935	1459	1616		888	
1600	1068	901	2422	1401	860	961	1140
1700	1546	992	2386	1492	937	867	1619
1700	1876	1045	2556	1495	1100	925	1308

Sources: See text.

The comparison highlights several important aspects of growth in pre-industrial Europe.

First of all, our estimates imply that Maddison (2001)'s figures were approximately correct. Indeed Maddison estimated that per capita GDP amounted to 727$ in 1500, 841$ in 1600 and 910$ in 1700 and we found that output per head was slightly above, averaging 930$ in 1500, 900$ in 1600 and 1000$ in 1700.[29] In addition, our data are broadly consistent with the benchmark years figures presented in Malanima (2011). It is worth noting that all these estimates are substantially in agreement that per capita income was constantly well above 400 dollars, the annual subsistence level assumed by Maddison but recently identified in 700 dollars per year by Lo Cascio and Malanima (2009).[30]

In this respect, between 1280 and 1789 French GDP fluctuated in a range comprised between circa 1 and 1.5 times the basic subsistence level of 700 dollars per year.

Second, our results can be tested against the experience of other European countries. It is thus possible to outline the main features of the process of growth in preindustrial Europe and evaluate the role of France in this broader international context. We distinguish two long historical phases.

The first, spanning from the late thirteenth century to the second half of 1500, coincided in time with the first significant (at least by pre-

[29] These values have been computed on the benchmark specification using a 40-year window around a date, e.g. we code 1500 as the average of the values comprised between 1480 and 1520. This avoids distortions caused by the presence of few unusual years.

[30] See on this Lo Cascio and Malanima (2009).

industrial standards) changes in the levels of GDP per capita. Typically, the post-plague period witnessed an expansion in the levels of output per head as it was the case of Northern and Central Italy between 1350 and 1420, Holland and to a lesser extent England. In some cases, variations in output per capita were fuelled by the appearance of the Black Death but the dynamics established by the disease appeared as accelerating or reverting processes that had begun in previous decades.

In France the disease was not an initiator of trends but slightly improved upon a previous phase of rapid expansion that coincided in time with the consolidation of royal power and was followed by a long phase of political turmoil that seemingly stunted economic growth leading to stagnation and then decline until the second half of 1500.

In Spain the Black Death together with the Spanish phase of the Hundred Years' War (1365-89) interrupted rather than consolidating a preexistent phase of economic expansion that dated back to the 1270s (Álvarez-Nogal and Prados de la Escosura, 2011).

Disposable evidence suggests that in England the level of production was already expanding since the first decades of the thirteenth century (Broadberry et al., 2011; Clark, 2010; Nuvolari and Ricci, 2013) while population was declining.

By the second half of the fifteenth century these trends lost momentum and one observes a generalized stagnation (France, Spain and England) or even decline (Northern and Central Italy) in the levels of output per capita through the second half of the sixteenth century.

The remarkable exception was Holland. This country witnessed a spectacular and continuous rise in output per capita between the 1340s and the last decade of 1500 that marked the first great divergence in pre-industrial Europe. The process occurred in two phases.

Between the 1340s and c. 1500 Holland caught up Northern and Central Italy. At the eve of the modern era these two economies enjoyed a position of leadership with levels of income per capita averaging more than 50 per cent above the rest of Europe.

Between the 1500s and the 1590s while Northern and Central Italy witnessed a phase of rapid decline, the Dutch economy expanded at an even

faster pace with per capita GDP rising by about 70 per cent (Fouquet and Broadberry, 2015, p.4). At the beginning of the modern era Holland was the leader among our sampled countries.
The second phase goes from the second half of 1500 to the end of the eighteenth century. This coincided in time with the beginning of the modern era, the rise and consolidation of new states (Spain, France) and the opening of new trade routes from Europe to Asia and the Americas. Three episodes of sustained growth characterized this period that changed the relative positioning of countries by GDP (Fouquet and Broadberry, 2015). First was Holland, between 1505 and 1595, followed by Sweden in the first half of the seventeenth century and England in the second half of 1600.
On the whole these growth episodes consolidated the leadership of Holland and established that of Great Britain by the end of the eighteenth century. Elsewhere on the continent, yearly GDP per capita fluctuated around 1000 dollars and no sustained growth took place.

4.6 Conclusion

This study addresses a gap in the existing literature concerning long run economic growth in pre-industrial France. While traditionally scholarly investigations devoted very little attention to the characterization of the aggregate dynamics of production, this research is an attempt to provide a comprehensive reconstruction of the main contours of economic growth in France from the phase of early state formation to the Revolution.

Using a new large dataset of prices and wages, this chapter provides the first continuous series of output per capita for France from 1280 to 1789. Overall, in the course of almost six centuries, the most significant gains in living standards were reached before the 1340s as a consequence of a single "efflorescence" of economic growth. Subsequently, our estimates do not exhibit any sustained trend improvement in the levels of output per capita. These results are consistent with the characterization of French economic growth put forward by Le Roy Ladurie (1966, 1977) arguing that the pre-industrial French economy was virtually a stagnating, growthless system.

Nevertheless, our estimates suggest that in the debate about the Little divergence, the evolution of the French economy can be suitably interpreted as an intermediate case between the successful example of the North Sea Area and the declining patterns of Italy and Spain.

Being neither a southern country nor a northern one, the growth experience of France seems to reflect this geographic heterogeneity.

4.7 Appendix

In this section we present some robustness checks to test the reliability of our series against alternative measures of output.
In the previous analysis, we assumed that income per head was approximated by real day wages.
This benchmark model can be extended allowing for more general specifications of income per head that consider the effect of both labour and non labour income as well as changes in the offer of labour. Real income per head can be defined as the sum of real labour (I_l) and non labour (I_{nl}) earnings net of taxes:

$$I = I_l + I_{nl} = \left(\frac{w}{P}\right) \cdot d + \left(\frac{R}{P}\right) \tag{4.12}$$

where w is the nominal day wage, d is the average number of days worked in a year by a general worker, R is net rent and P is the level of consumption prices. By looking at rates of variation one obtains that the growth rate of income per capita is equal to the sum of the growth rate in real wage rates, days of work (industriousness) and real net rent. Assuming that total income corresponds to (4.12) one obtains the following formula for total output:[31]

$$Y = \frac{Y_A}{S_A} = \frac{r \cdot \left(I^{\alpha} \cdot \ P_a{}^{\beta} \cdot P_m{}^{\gamma}\right) \cdot N}{S_A} = \frac{r \cdot \left[\left(\left(\frac{w}{P}\right) \cdot d + \left(\frac{R}{P}\right)\right)^{\alpha} \cdot \ P_a{}^{\beta} \cdot P_m{}^{\gamma}\right] \cdot N}{\left(\frac{W_{rA} \ \cdot L_A}{W_r \cdot L}\right)} \tag{4.13}$$

Finally, dividing (4.13) by total population and taking rates of variation one obtains an equation that links the growth rate of per capita output to growth rates of r (g_r), real wage rates (g_W), days of work (g_d), real net rent (g_R), agricultural $\left(g_{P_a}\right)$ and industrial $\left(g_{P_m}\right)$ prices as well as the share of agriculture in total GDP (g_{S_A}):

$$g_y = \left[g_r + \alpha \cdot (g_W + g_d + g_R) + \beta \cdot g_{P_a} + \gamma \cdot g_{P_m}\right] - g_{S_A} \tag{4.14}$$

[31] Notice that W_{rA} and W_r represent real wages in agriculture and in the overall economy respectively.

Following literature (Allen, 2000; Malanima, 2011), in the benchmark specification, we calibrated expression (4.14) assuming that real wage rates approximate changes in real disposable income. It is evident that the validity of this assumption rests on the hypothesis that the rates of variations of non labour earnings and labour supply balanced out. Yet, for example, during phases of sustained growth of the annual number of days worked per person and or increases in the contribution of non labour income to household earnings, our estimates provide a downward biased representation of actual trends in output per capita.[32] Put differently, changes in real wage earnings are a good proxy for variations in real disposable income per head when the share of labour in national income was roughly constant over time. Following Álvarez-Nogal and Prados de la Escosura (2011) we use trends in relative factor returns (land rent to wage rate ratio) to check the stability of the income distribution in pre-industrial France. Figure below shows that, in particular for early modern France, this was hardly the case.

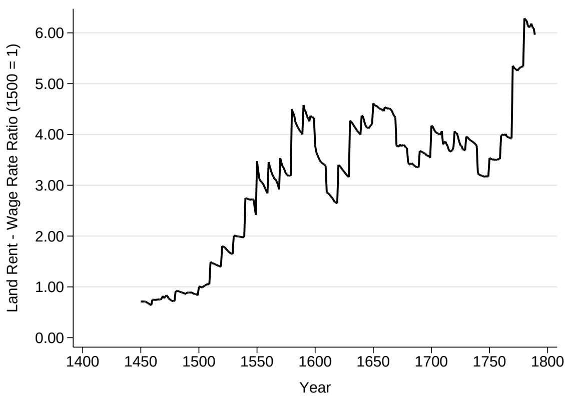

Figure 59: Land Rent - Wage Rate Ratio

[32]Similar considerations were put forward by Angeles (2008) and Broadberry et al. (2011) as regards the difference between direct output measure and real wages.

This means that "unless returns to property are included in our proxy for disposable income, in phases of rising (declining) inequality our estimates may suffer a downward (upward) bias and, hence, provide a lower (upper) bound of the actual agricultural output."[33]
To deal with these problems, we then check our benchmark model against different specifications of the consumption function.[34]
First, we assume that the consumption function does not depend on income at all and changes are driven by the relative price of agricultural products and manufactures (Model II: Prices). This amounts to state that the individual components of per capita income balanced out to assure stability in food consumption per head all along the way (Wrigley, 1985).
Second, (Model III: Days) we relax the assumption that labour supply was downward sloping. A downward-bent labour supply means that when day wages decreased workers toiled longer hours and vice versa. Nevertheless, there was probably some rigidity in the inverse relationship between real wage rates and working time. Sometimes real day wage's increases were not accompanied by reductions in the number of days worked. To test if and to what extent rigidity in the labour supply changes our estimates, we calibrate the consumption function by multiplying real day wages and the actual working year assuming that there was no source of non labour income. Trends in actual working days for France were obtained by collecting information on construction workers from several building sites in France between 1300 and 1800.[35]
We found that the working year of more assiduous workers raised from close to 250 days in the Middle Ages to about 300 days at the end of the eighteenth century. Even though it is uncertain that these figures are representative of average actual workloads, yet it is perfectly plausible that these reflected trends in actual working time, that are our main variables of interest.[36]

[33] Álvarez-Nogal and Prados de la Escosura (2011).

[34] See on this the extended analysis of Álvarez-Nogal and Prados de la Escosura (2011).

[35] See the previous Chapter.

[36] Notice that the available estimations of Sharp and Weisdorf (2012) imply a similar trend growth in the implicit working year between 1500 and 1800. Disposable evidence for England points to similar conclusions (Allen and Weisdorf, 2011).

Another possibility results from the inclusion of both labor and non-labor income in the definition of disposable income (Model IV: Rents). Our proxy of this more comprehensive measure of real disposable income was obtained as a weighted average of real wage rates and real land rents, using as weights the shares of labour and property in French national income during the 1850s. The series of land rents comes from Rouzet (2004), while the shares of labour and property in total income are taken from Piketty (2014).

In the last variant of our benchmark specification (Model V: Income) we calibrate the consumption of agricultural goods using the series of real day wages, actual working year, as well as real land rents as a measure of non labour income.

Figure below compares the series of output per capita constructed using the benchmark model (I) and the alternative specifications mentioned above (Models II to V).

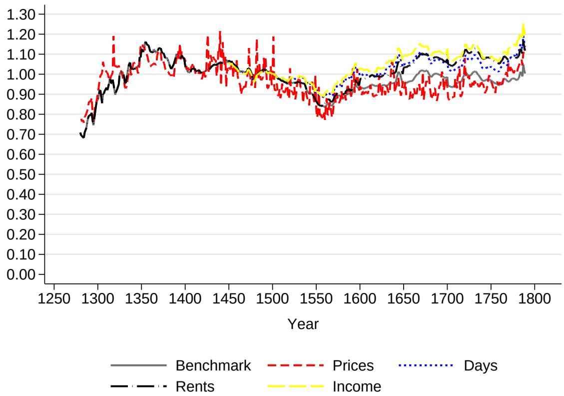

Figure 60: GDP per capita models

First, the close agreement between the benchmark specification (Model I) and Model II (Prices) suggests that the ratio between agricultural and industrial prices was the main factor determining variations in consumption per capita in agriculture while working time, labour and non labour incomes combined and compensated each other to assure some sort of stability in real earnings.[37]

Second, we found that allowing for better specifications of disposable income per head, the prediction of GDP per capita growth increases over time, especially at the end of the period considered. Indeed, Model I predicts the slower growth because it approximates movements in output per capita with the sole variations in real day wages. Provided that real day wages were stagnant or declining over 1700, estimating output growth from the benchmark model precludes the conclusion that output per capita was expanding. On the contrary, when one considers the contribution of industriousness (Model III), non labour income (Model IV) and their joint effect (Models V) on total earnings, output growth is more sustained in the last period. Between 1500 and 1789, Model I predicts that output per capita slightly decreased while Models III, IV and V imply output growth of by about 11, 13 and 19 per cent respectively. It is indeed interesting to note that non labour earnings and variations in labour offer compensated changes in real day wages. For example, by the second half of the eighteenth century, the decline in real day wages was made up for by the increase in the annual number of days worked per person and by the growth in real land rent.

Another aspect that is worth mentioning is the effect of the income and price elasticities on different models.

Table 32 summarizes the results showing the implied growth predicted by each of the six models using three different sets of parameters (set A, B and C).

On the whole we obtain 15 different combinations (Benchmark A, B, C; Prices A, B, C etc.). It is possible to distinguish two basic patterns.

First, for each model, set C of parameters usually implies the lowest trend growth for the period 1500-1789 while set B predicts the highest growth rates. On the contrary, the preferred set of parameters adopted in this study (A) predicts intermediate values.

[37] This finding is consistent with results presented in Malanima (2011) and Álvarez-Nogal and Prados de la Escosura (2011), where inclusion of more comprehensive measures of income hardly changes final results.

Second, models including more comprehensive specifications of income are less dependent on the changing structure of parameters. Indeed, while Model V's predictions are robust to alternative sets of income and price elasticities, estimates from the benchmark specification vary across different sets of parameters.

Table 32: GDP models: Absolute increments

	Elasticities		
Income	**0.3**	**0.4**	**0.5**
Own Price	**-0.4**	**-0.5**	**-0.6**
Cross Price	**0.1**	**0.1**	**0.1**
Models	**A**	**B**	**C**
I: Benchmark	-0.2	4.3	-4.5
II: Prices	6.1	9.2	6.1
III: Days	11.1	13.1	9.2
IV: Rents	13.4	14.8	12.0
V: Income	19.1	19.1	19.1

Sources: Increments are relative to the period 1500-1789.
See the text for the exact specification of the different models.

Table 33: Arable Index (1700 = 1)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1280	0.09	0.01	0.05	0.06	0.11			0.06
1281	0.10	0.01	0.07	0.06	0.12			0.07
1282	0.10	0.02	0.09	0.07	0.12			0.07
1283	0.10	0.02	0.10	0.07	0.12			0.08
1284	0.11	0.02	0.10	0.07	0.12			0.08
1285	0.11	0.02	0.07	0.07	0.12			0.07
1286	0.11	0.02	0.07	0.07	0.12			0.08
1287	0.10	0.02	0.07	0.08	0.12			0.07
1288	0.10	0.02	0.03	0.08	0.12			0.07
1289	0.09	0.02	0.03	0.08	0.12			0.06
1290	0.09	0.02	0.02	0.08	0.12			0.06
1291	0.09	0.02	0.02	0.08	0.12			0.06
1292	0.09	0.03	0.02	0.09	0.12			0.07
1293	0.10	0.03	0.02	0.09	0.12			0.07
1294	0.10	0.03	0.09	0.09	0.13			0.08
1295	0.09	0.03	0.17	0.09	0.13			0.10
1296	0.09	0.03	0.17	0.09	0.13			0.10
1297	0.10	0.03	0.17	0.09	0.13			0.10
1298	0.09	0.03	0.15	0.09	0.14			0.09
1299	0.08	0.03	0.14	0.09	0.14		0.07	0.09
1300	0.08	0.03	0.13	0.09	0.14		0.07	0.09
1301	0.06	0.03	0.11	0.09	0.19		0.07	0.08
1302	0.05	0.03	0.10	0.09	0.19		0.07	0.08
1303	0.04	0.04	0.10	0.09	0.19		0.07	0.07
1304	0.04	0.04	0.10	0.09	0.19		0.07	0.08
1305	0.04	0.04	0.10	0.09	0.19		0.07	0.08
1306	0.04	0.04	0.10	0.08	0.13		0.06	0.07
1307	0.04	0.04	0.10	0.08	0.17		0.06	0.07
1308	0.04	0.04	0.09	0.07	0.17		0.06	0.07
1309	0.04	0.04	0.09	0.07	0.19		0.06	0.07
1310	0.04	0.04	0.10	0.07	0.17		0.06	0.07
1311	0.04	0.04	0.10	0.08	0.20		0.07	0.07
1312	0.04	0.04	0.11	0.08	0.14		0.07	0.07
1313	0.04	0.04	0.12	0.09	0.14		0.07	0.08
1314	0.05	0.05	0.12	0.09	0.14		0.07	0.08
1315	0.05	0.05	0.11	0.09	0.23		0.07	0.08
1316	0.05	0.05	0.11	0.09	0.23		0.07	0.08
1317	0.05	0.05	0.10	0.09	0.23		0.07	0.08
1318	0.05	0.05	0.10	0.09	0.23		0.06	0.08
1319	0.05	0.06	0.10	0.09	0.23		0.06	0.08
1320	0.05	0.06	0.11	0.09	0.38	0.06	0.06	0.09
1321	0.05	0.06	0.11	0.10	0.38	0.06	0.06	0.09
1322	0.05	0.06	0.12	0.09	0.33	0.06	0.06	0.09
1323	0.05	0.06	0.12	0.09	0.30	0.06	0.06	0.09
1324	0.05	0.06	0.11	0.09	0.30	0.06	0.06	0.09
1325	0.05	0.07	0.11	0.10	0.19	0.07	0.05	0.08
1326	0.05	0.07	0.12	0.09	0.17	0.08	0.06	0.09
1327	0.06	0.07	0.11	0.10	0.15	0.08	0.06	0.09
1328	0.06	0.07	0.11	0.10	0.14	0.08	0.05	0.09
1329	0.07	0.07	0.11	0.10	0.14	0.08	0.05	0.09
1330	0.07	0.07	0.11	0.09	0.14	0.08	0.05	0.09
1331	0.08	0.08	0.11	0.10	0.15	0.08	0.05	0.09
1332	0.08	0.08	0.11	0.09	0.15	0.08	0.04	0.09
1333	0.08	0.08	0.11	0.09	0.14	0.08	0.04	0.09
1334	0.08	0.08	0.11	0.09	0.14	0.08	0.04	0.09
1335	0.08	0.08	0.10	0.09	0.16	0.08	0.04	0.09

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1336	0.08	0.09	0.10	0.09	0.17	0.08	0.04	0.09
1337	0.08	0.09	0.10	0.09	0.17	0.08	0.04	0.09
1338	0.07	0.09	0.11	0.09	0.19	0.08	0.04	0.09
1339	0.07	0.09	0.12	0.09	0.19	0.08	0.04	0.09
1340	0.07	0.09	0.13	0.09	0.19	0.07	0.04	0.10
1341	0.07	0.09	0.13	0.10	0.19	0.07	0.04	0.10
1342	0.07	0.10	0.13	0.10	0.19	0.07	0.04	0.10
1343	0.07	0.10	0.13	0.10	0.19	0.07	0.04	0.10
1344	0.07	0.10	0.12	0.10	0.19	0.07	0.04	0.10
1345	0.07	0.10	0.12	0.10	0.19	0.07	0.04	0.10
1346	0.07	0.10	0.11	0.10	0.19	0.07	0.04	0.09
1347	0.07	0.09	0.11	0.09	0.19	0.07	0.04	0.09
1348	0.08	0.09	0.11	0.09	0.19	0.07	0.03	0.09
1349	0.08	0.09	0.11	0.10	0.29	0.07	0.04	0.10
1350	0.09	0.08	0.11	0.11	0.24	0.07	0.04	0.10
1351	0.09	0.08	0.11	0.12	0.21	0.07	0.04	0.10
1352	0.09	0.07	0.11	0.13	0.21	0.07	0.05	0.10
1353	0.09	0.07	0.11	0.14	0.22	0.07	0.05	0.10
1354	0.10	0.07	0.11	0.14	0.13	0.07	0.05	0.10
1355	0.10	0.07	0.11	0.14	0.13	0.07	0.05	0.10
1356	0.11	0.07	0.11	0.14	0.24	0.07	0.05	0.11
1357	0.11	0.07	0.11	0.13	0.21	0.07	0.05	0.11
1358	0.11	0.07	0.11	0.13	0.21	0.07	0.05	0.11
1359	0.11	0.08	0.11	0.13	0.22	0.07	0.05	0.11
1360	0.11	0.08	0.11	0.13	0.22	0.07	0.05	0.11
1361	0.11	0.09	0.11	0.13	0.23	0.07	0.05	0.11
1362	0.11	0.09	0.11	0.13	0.25	0.08	0.05	0.11
1363	0.11	0.09	0.11	0.13	0.28	0.08	0.05	0.12
1364	0.11	0.09	0.11	0.14	0.24	0.08	0.05	0.11
1365	0.11	0.09	0.11	0.14	0.25	0.08	0.05	0.12
1366	0.11	0.09	0.11	0.15	0.24	0.08	0.05	0.12
1367	0.11	0.08	0.11	0.15	0.23	0.07	0.05	0.12
1368	0.11	0.08	0.11	0.16	0.21	0.07	0.05	0.12
1369	0.11	0.08	0.11	0.16	0.22	0.07	0.05	0.12
1370	0.11	0.08	0.11	0.16	0.22	0.07	0.05	0.12
1371	0.12	0.08	0.11	0.16	0.22	0.07	0.05	0.12
1372	0.12	0.09	0.11	0.16	0.22	0.07	0.05	0.12
1373	0.13	0.08	0.11	0.16	0.25	0.07	0.05	0.12
1374	0.13	0.08	0.12	0.16	0.26	0.08	0.05	0.13
1375	0.13	0.08	0.12	0.17	0.25	0.08	0.05	0.13
1376	0.14	0.08	0.12	0.17	0.25	0.08	0.05	0.13
1377	0.14	0.08	0.12	0.17	0.26	0.08	0.05	0.13
1378	0.14	0.08	0.12	0.17	0.24	0.09	0.05	0.13
1379	0.14	0.08	0.11	0.18	0.25	0.08	0.05	0.13
1380	0.14	0.08	0.11	0.18	0.26	0.08	0.05	0.13
1381	0.14	0.08	0.11	0.18	0.25	0.08	0.05	0.13
1382	0.14	0.10	0.11	0.17	0.23	0.09	0.05	0.13
1383	0.14	0.10	0.11	0.18	0.24	0.08	0.05	0.13
1384	0.14	0.10	0.11	0.18	0.25	0.08	0.05	0.14
1385	0.14	0.10	0.11	0.18	0.25	0.08	0.05	0.14
1386	0.14	0.10	0.11	0.19	0.23	0.08	0.05	0.13
1387	0.14	0.08	0.11	0.19	0.23	0.07	0.05	0.13
1388	0.14	0.08	0.11	0.20	0.23	0.07	0.05	0.13
1389	0.14	0.08	0.11	0.20	0.24	0.07	0.05	0.13
1390	0.14	0.08	0.11	0.20	0.23	0.07	0.05	0.13
1391	0.14	0.07	0.11	0.20	0.26	0.07	0.05	0.13

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1392	0.14	0.08	0.11	0.20	0.28	0.07	0.05	0.13
1393	0.13	0.08	0.11	0.20	0.27	0.08	0.05	0.13
1394	0.13	0.08	0.11	0.20	0.26	0.08	0.05	0.13
1395	0.14	0.08	0.11	0.20	0.25	0.08	0.05	0.13
1396	0.13	0.08	0.11	0.20	0.25	0.08	0.05	0.13
1397	0.13	0.08	0.11	0.20	0.25	0.08	0.06	0.13
1398	0.13	0.08	0.11	0.20	0.26	0.08	0.07	0.13
1399	0.14	0.09	0.12	0.20	0.27	0.08	0.09	0.14
1400	0.14	0.09	0.13	0.20	0.29	0.08	0.11	0.14
1401	0.14	0.10	0.13	0.20	0.29	0.08	0.14	0.15
1402	0.14	0.11	0.14	0.20	0.30	0.08	0.15	0.15
1403	0.14	0.11	0.14	0.20	0.31	0.08	0.15	0.15
1404	0.14	0.11	0.14	0.20	0.31	0.08	0.15	0.15
1405	0.14	0.10	0.14	0.20	0.30	0.08	0.15	0.15
1406	0.14	0.10	0.14	0.20	0.30	0.08	0.15	0.15
1407	0.14	0.10	0.12	0.20	0.29	0.08	0.15	0.14
1408	0.14	0.10	0.11	0.20	0.30	0.08	0.14	0.14
1409	0.14	0.10	0.11	0.20	0.30	0.07	0.12	0.14
1410	0.14	0.10	0.11	0.20	0.30	0.08	0.11	0.14
1411	0.14	0.10	0.11	0.20	0.31	0.08	0.09	0.14
1412	0.14	0.10	0.12	0.20	0.31	0.08	0.08	0.15
1413	0.14	0.10	0.12	0.20	0.31	0.08	0.08	0.15
1414	0.14	0.10	0.12	0.20	0.31	0.09	0.09	0.15
1415	0.14	0.10	0.12	0.20	0.31	0.08	0.08	0.15
1416	0.15	0.10	0.13	0.19	0.31	0.09	0.09	0.15
1417	0.15	0.10	0.14	0.19	0.31	0.09	0.08	0.15
1418	0.15	0.10	0.14	0.19	0.31	0.09	0.08	0.15
1419	0.15	0.10	0.14	0.19	0.30	0.09	0.08	0.15
1420	0.15	0.10	0.14	0.19	0.29	0.09	0.09	0.15
1421	0.15	0.10	0.13	0.20	0.28	0.08	0.09	0.15
1422	0.15	0.10	0.12	0.20	0.28	0.08	0.09	0.15
1423	0.15	0.09	0.12	0.20	0.29	0.08	0.09	0.14
1424	0.15	0.10	0.11	0.20	0.30	0.08	0.10	0.14
1425	0.15	0.10	0.11	0.20	0.30	0.09	0.10	0.14
1426	0.14	0.10	0.11	0.20	0.31	0.09	0.10	0.14
1427	0.14	0.10	0.11	0.20	0.32	0.09	0.11	0.14
1428	0.14	0.10	0.11	0.20	0.31	0.09	0.10	0.15
1429	0.14	0.10	0.11	0.20	0.31	0.09	0.10	0.15
1430	0.14	0.10	0.11	0.20	0.30	0.09	0.10	0.14
1431	0.14	0.10	0.11	0.20	0.29	0.09	0.10	0.14
1432	0.14	0.10	0.11	0.20	0.29	0.09	0.11	0.14
1433	0.14	0.10	0.11	0.20	0.30	0.09	0.11	0.14
1434	0.14	0.10	0.11	0.20	0.31	0.09	0.11	0.15
1435	0.14	0.10	0.11	0.20	0.32	0.09	0.12	0.15
1436	0.14	0.10	0.11	0.21	0.31	0.09	0.12	0.15
1437	0.14	0.10	0.11	0.20	0.32	0.08	0.11	0.14
1438	0.14	0.10	0.11	0.20	0.32	0.08	0.11	0.14
1439	0.14	0.10	0.11	0.19	0.32	0.08	0.11	0.14
1440	0.15	0.10	0.11	0.19	0.33	0.08	0.11	0.14
1441	0.15	0.10	0.11	0.18	0.34	0.09	0.12	0.14
1442	0.15	0.10	0.12	0.18	0.34	0.09	0.12	0.15
1443	0.15	0.10	0.11	0.19	0.34	0.09	0.12	0.14
1444	0.15	0.09	0.11	0.19	0.34	0.09	0.12	0.14
1445	0.15	0.09	0.11	0.19	0.34	0.09	0.12	0.14
1446	0.15	0.09	0.10	0.19	0.34	0.09	0.12	0.14
1447	0.15	0.10	0.10	0.19	0.34	0.09	0.12	0.14

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1448	0.15	0.10	0.11	0.18	0.34	0.09	0.12	0.15
1449	0.15	0.11	0.11	0.18	0.34	0.09	0.12	0.15
1450	0.15	0.11	0.10	0.19	0.35	0.09	0.12	0.15
1451	0.15	0.12	0.10	0.19	0.37	0.09	0.12	0.15
1452	0.15	0.12	0.11	0.19	0.38	0.09	0.12	0.15
1453	0.15	0.12	0.10	0.19	0.38	0.08	0.12	0.15
1454	0.15	0.12	0.11	0.19	0.39	0.08	0.13	0.15
1455	0.15	0.12	0.11	0.19	0.39	0.09	0.13	0.15
1456	0.15	0.12	0.11	0.19	0.39	0.09	0.12	0.15
1457	0.15	0.12	0.11	0.19	0.39	0.09	0.13	0.15
1458	0.15	0.12	0.11	0.19	0.39	0.09	0.13	0.16
1459	0.15	0.12	0.11	0.19	0.39	0.10	0.13	0.16
1460	0.15	0.12	0.11	0.19	0.39	0.10	0.13	0.16
1461	0.15	0.12	0.11	0.19	0.40	0.10	0.14	0.16
1462	0.15	0.12	0.10	0.19	0.40	0.10	0.14	0.16
1463	0.15	0.12	0.11	0.19	0.39	0.09	0.14	0.15
1464	0.15	0.12	0.11	0.19	0.37	0.09	0.13	0.15
1465	0.15	0.12	0.11	0.19	0.37	0.09	0.13	0.15
1466	0.15	0.12	0.11	0.19	0.36	0.09	0.13	0.15
1467	0.15	0.12	0.12	0.19	0.36	0.09	0.14	0.15
1468	0.15	0.11	0.12	0.19	0.38	0.09	0.14	0.16
1469	0.15	0.11	0.12	0.19	0.38	0.09	0.15	0.16
1470	0.15	0.12	0.12	0.19	0.39	0.09	0.15	0.16
1471	0.15	0.12	0.13	0.19	0.39	0.09	0.15	0.16
1472	0.15	0.12	0.13	0.18	0.38	0.09	0.16	0.16
1473	0.15	0.12	0.14	0.18	0.38	0.09	0.16	0.16
1474	0.15	0.12	0.14	0.18	0.39	0.09	0.16	0.16
1475	0.15	0.12	0.15	0.18	0.40	0.09	0.16	0.16
1476	0.15	0.12	0.15	0.18	0.39	0.09	0.16	0.16
1477	0.15	0.12	0.15	0.18	0.40	0.10	0.16	0.16
1478	0.16	0.12	0.15	0.18	0.38	0.10	0.17	0.16
1479	0.16	0.13	0.15	0.18	0.37	0.10	0.17	0.17
1480	0.16	0.13	0.15	0.18	0.34	0.10	0.17	0.16
1481	0.16	0.13	0.15	0.18	0.35	0.10	0.18	0.16
1482	0.16	0.13	0.16	0.18	0.33	0.10	0.18	0.16
1483	0.16	0.13	0.16	0.18	0.34	0.10	0.18	0.17
1484	0.16	0.13	0.16	0.18	0.39	0.09	0.18	0.17
1485	0.16	0.13	0.17	0.18	0.40	0.09	0.18	0.17
1486	0.16	0.13	0.17	0.18	0.38	0.09	0.18	0.17
1487	0.16	0.13	0.17	0.18	0.37	0.09	0.19	0.17
1488	0.16	0.13	0.17	0.19	0.36	0.09	0.19	0.17
1489	0.16	0.13	0.17	0.19	0.30	0.09	0.19	0.16
1490	0.16	0.13	0.17	0.19	0.29	0.09	0.20	0.17
1491	0.16	0.13	0.18	0.19	0.31	0.09	0.20	0.17
1492	0.16	0.13	0.18	0.19	0.32	0.09	0.20	0.17
1493	0.16	0.13	0.19	0.19	0.32	0.09	0.20	0.17
1494	0.16	0.13	0.19	0.19	0.32	0.09	0.21	0.17
1495	0.16	0.13	0.19	0.19	0.35	0.08	0.21	0.17
1496	0.16	0.13	0.18	0.19	0.33	0.08	0.21	0.17
1497	0.16	0.13	0.19	0.19	0.33	0.09	0.21	0.17
1498	0.16	0.13	0.19	0.19	0.33	0.09	0.22	0.17
1499	0.16	0.12	0.19	0.18	0.33	0.10	0.22	0.17
1500	0.16	0.12	0.19	0.18	0.30	0.10	0.22	0.17
1501	0.15	0.12	0.19	0.18	0.31	0.11	0.22	0.17
1502	0.15	0.12	0.19	0.18	0.30	0.11	0.22	0.17
1503	0.16	0.12	0.18	0.17	0.30	0.11	0.22	0.17

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1504	0.16	0.12	0.18	0.17	0.30	0.11	0.22	0.17
1505	0.16	0.12	0.18	0.17	0.30	0.11	0.22	0.17
1506	0.17	0.12	0.19	0.17	0.30	0.11	0.22	0.17
1507	0.17	0.12	0.20	0.17	0.28	0.11	0.23	0.17
1508	0.17	0.12	0.20	0.17	0.28	0.11	0.23	0.17
1509	0.17	0.12	0.21	0.17	0.27	0.10	0.23	0.17
1510	0.18	0.12	0.21	0.17	0.27	0.10	0.23	0.17
1511	0.18	0.12	0.21	0.17	0.27	0.10	0.23	0.17
1512	0.19	0.12	0.21	0.18	0.27	0.09	0.24	0.18
1513	0.19	0.12	0.22	0.18	0.27	0.09	0.24	0.18
1514	0.19	0.12	0.22	0.18	0.28	0.09	0.24	0.18
1515	0.20	0.12	0.22	0.18	0.28	0.09	0.25	0.18
1516	0.20	0.12	0.23	0.18	0.29	0.10	0.25	0.18
1517	0.20	0.13	0.23	0.18	0.30	0.10	0.25	0.19
1518	0.21	0.13	0.24	0.18	0.29	0.10	0.26	0.19
1519	0.21	0.13	0.24	0.18	0.28	0.10	0.26	0.19
1520	0.21	0.13	0.24	0.18	0.27	0.10	0.26	0.19
1521	0.22	0.13	0.24	0.17	0.26	0.11	0.27	0.19
1522	0.22	0.13	0.25	0.17	0.27	0.11	0.27	0.19
1523	0.22	0.13	0.25	0.17	0.28	0.11	0.27	0.20
1524	0.22	0.13	0.26	0.16	0.28	0.11	0.28	0.20
1525	0.23	0.13	0.26	0.16	0.28	0.11	0.28	0.20
1526	0.23	0.13	0.27	0.16	0.28	0.11	0.28	0.20
1527	0.23	0.13	0.27	0.17	0.28	0.11	0.28	0.20
1528	0.23	0.13	0.28	0.17	0.28	0.11	0.29	0.20
1529	0.24	0.14	0.28	0.18	0.29	0.11	0.29	0.21
1530	0.24	0.14	0.28	0.19	0.29	0.11	0.29	0.21
1531	0.24	0.14	0.29	0.19	0.30	0.11	0.29	0.22
1532	0.24	0.14	0.29	0.20	0.30	0.11	0.30	0.22
1533	0.25	0.14	0.30	0.21	0.29	0.11	0.30	0.22
1534	0.25	0.13	0.31	0.22	0.29	0.11	0.31	0.22
1535	0.25	0.14	0.31	0.22	0.30	0.11	0.31	0.23
1536	0.26	0.14	0.32	0.23	0.29	0.12	0.32	0.23
1537	0.26	0.14	0.32	0.23	0.29	0.13	0.33	0.24
1538	0.26	0.14	0.32	0.24	0.30	0.14	0.33	0.24
1539	0.27	0.14	0.33	0.25	0.31	0.16	0.33	0.25
1540	0.27	0.14	0.33	0.25	0.31	0.16	0.34	0.25
1541	0.27	0.14	0.34	0.26	0.32	0.15	0.34	0.25
1542	0.28	0.14	0.34	0.26	0.33	0.14	0.34	0.25
1543	0.28	0.14	0.34	0.26	0.34	0.12	0.34	0.25
1544	0.28	0.14	0.35	0.27	0.36	0.09	0.35	0.26
1545	0.29	0.14	0.35	0.27	0.37	0.09	0.35	0.26
1546	0.29	0.14	0.36	0.28	0.38	0.10	0.35	0.26
1547	0.29	0.14	0.36	0.28	0.39	0.10	0.36	0.27
1548	0.30	0.15	0.37	0.29	0.38	0.11	0.36	0.27
1549	0.30	0.16	0.38	0.30	0.37	0.12	0.37	0.28
1550	0.31	0.17	0.38	0.30	0.38	0.10	0.37	0.28
1551	0.31	0.17	0.39	0.31	0.39	0.12	0.37	0.29
1552	0.31	0.18	0.39	0.32	0.38	0.14	0.38	0.29
1553	0.32	0.18	0.40	0.33	0.40	0.13	0.38	0.30
1554	0.32	0.18	0.41	0.33	0.41	0.14	0.37	0.30
1555	0.32	0.18	0.41	0.34	0.42	0.16	0.38	0.31
1556	0.33	0.18	0.42	0.35	0.42	0.16	0.38	0.31
1557	0.33	0.18	0.43	0.36	0.43	0.17	0.38	0.32
1558	0.35	0.18	0.44	0.37	0.45	0.19	0.39	0.33
1559	0.37	0.18	0.45	0.38	0.47	0.20	0.41	0.34

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1560	0.39	0.18	0.46	0.38	0.50	0.24	0.41	0.36
1561	0.42	0.19	0.46	0.39	0.53	0.26	0.42	0.37
1562	0.44	0.19	0.47	0.40	0.57	0.26	0.42	0.38
1563	0.46	0.19	0.48	0.41	0.57	0.27	0.42	0.39
1564	0.47	0.19	0.49	0.41	0.57	0.28	0.43	0.40
1565	0.49	0.19	0.49	0.42	0.57	0.27	0.43	0.41
1566	0.51	0.19	0.49	0.43	0.56	0.28	0.43	0.41
1567	0.53	0.19	0.50	0.43	0.55	0.29	0.44	0.42
1568	0.55	0.19	0.51	0.44	0.56	0.27	0.45	0.43
1569	0.57	0.19	0.52	0.45	0.57	0.29	0.47	0.44
1570	0.59	0.19	0.53	0.46	0.58	0.28	0.49	0.45
1571	0.61	0.19	0.54	0.48	0.60	0.28	0.50	0.46
1572	0.63	0.19	0.55	0.49	0.61	0.29	0.52	0.47
1573	0.64	0.19	0.56	0.50	0.61	0.32	0.53	0.48
1574	0.66	0.19	0.56	0.51	0.61	0.31	0.53	0.49
1575	0.67	0.19	0.56	0.51	0.63	0.30	0.53	0.49
1576	0.67	0.19	0.57	0.52	0.64	0.29	0.54	0.50
1577	0.68	0.19	0.58	0.53	0.66	0.28	0.54	0.50
1578	0.70	0.19	0.58	0.53	0.71	0.26	0.55	0.51
1579	0.71	0.19	0.59	0.54	0.79	0.28	0.55	0.52
1580	0.72	0.19	0.60	0.55	0.84	0.29	0.55	0.53
1581	0.73	0.19	0.60	0.55	0.85	0.30	0.56	0.54
1582	0.74	0.19	0.60	0.56	0.87	0.30	0.56	0.55
1583	0.75	0.20	0.61	0.56	0.87	0.33	0.57	0.55
1584	0.76	0.20	0.61	0.57	0.84	0.34	0.57	0.56
1585	0.78	0.20	0.61	0.57	0.83	0.37	0.58	0.56
1586	0.79	0.20	0.62	0.58	0.84	0.39	0.58	0.57
1587	0.80	0.20	0.63	0.58	0.84	0.41	0.58	0.58
1588	0.81	0.20	0.64	0.59	0.82	0.39	0.59	0.58
1589	0.82	0.20	0.66	0.60	0.81	0.40	0.59	0.59
1590	0.81	0.20	0.65	0.60	0.79	0.37	0.60	0.59
1591	0.82	0.21	0.66	0.61	0.80	0.37	0.60	0.59
1592	0.82	0.21	0.67	0.61	0.81	0.36	0.60	0.60
1593	0.83	0.21	0.68	0.62	0.82	0.38	0.61	0.60
1594	0.84	0.21	0.68	0.63	0.84	0.39	0.62	0.61
1595	0.86	0.21	0.70	0.64	0.86	0.41	0.62	0.62
1596	0.86	0.21	0.71	0.65	0.87	0.42	0.62	0.63
1597	0.86	0.24	0.72	0.66	0.91	0.41	0.63	0.64
1598	0.86	0.26	0.72	0.67	0.92	0.42	0.63	0.65
1599	0.86	0.29	0.74	0.67	0.93	0.43	0.64	0.66
1600	0.85	0.33	0.75	0.68	0.92	0.43	0.64	0.67
1601	0.85	0.36	0.75	0.69	0.89	0.44	0.65	0.67
1602	0.86	0.39	0.76	0.69	0.86	0.45	0.65	0.68
1603	0.86	0.40	0.77	0.69	0.85	0.45	0.65	0.69
1604	0.87	0.43	0.77	0.70	0.84	0.45	0.66	0.69
1605	0.88	0.44	0.78	0.71	0.83	0.46	0.66	0.70
1606	0.88	0.44	0.79	0.71	0.80	0.46	0.67	0.70
1607	0.89	0.45	0.80	0.72	0.79	0.47	0.68	0.71
1608	0.90	0.46	0.80	0.72	0.81	0.47	0.69	0.72
1609	0.90	0.46	0.81	0.73	0.81	0.47	0.69	0.72
1610	0.90	0.47	0.82	0.74	0.82	0.47	0.69	0.73
1611	0.91	0.48	0.83	0.74	0.85	0.47	0.70	0.74
1612	0.92	0.50	0.83	0.75	0.88	0.47	0.70	0.74
1613	0.92	0.49	0.84	0.75	0.85	0.48	0.70	0.74
1614	0.93	0.49	0.84	0.76	0.84	0.50	0.70	0.75
1615	0.94	0.50	0.86	0.77	0.84	0.53	0.71	0.76

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1616	0.95	0.51	0.86	0.78	0.84	0.55	0.71	0.77
1617	0.96	0.52	0.88	0.79	0.82	0.58	0.72	0.78
1618	0.97	0.54	0.88	0.81	0.83	0.61	0.73	0.80
1619	0.97	0.56	0.89	0.82	0.81	0.61	0.74	0.80
1620	0.97	0.56	0.89	0.83	0.81	0.60	0.74	0.80
1621	0.98	0.58	0.90	0.85	0.79	0.60	0.75	0.81
1622	0.99	0.58	0.91	0.86	0.78	0.61	0.76	0.82
1623	0.99	0.58	0.93	0.86	0.79	0.62	0.76	0.83
1624	1.00	0.59	0.93	0.87	0.80	0.62	0.77	0.83
1625	1.01	0.60	0.94	0.88	0.80	0.62	0.77	0.84
1626	1.01	0.61	0.96	0.89	0.81	0.63	0.77	0.85
1627	1.02	0.60	0.97	0.90	0.82	0.63	0.78	0.85
1628	1.02	0.61	0.97	0.90	0.85	0.62	0.79	0.86
1629	1.01	0.62	0.98	0.91	0.85	0.66	0.79	0.87
1630	1.01	0.63	0.99	0.92	0.87	0.67	0.80	0.87
1631	1.00	0.62	1.00	0.93	0.88	0.67	0.81	0.87
1632	1.00	0.63	1.01	0.94	0.88	0.66	0.82	0.88
1633	1.00	0.62	1.02	0.94	0.85	0.67	0.82	0.88
1634	1.01	0.63	1.02	0.95	0.85	0.64	0.83	0.88
1635	1.01	0.63	1.03	0.96	0.85	0.64	0.83	0.88
1636	1.01	0.65	1.04	0.96	0.84	0.65	0.84	0.89
1637	1.01	0.65	1.05	0.97	0.86	0.64	0.84	0.89
1638	1.00	0.67	1.06	0.97	0.88	0.64	0.84	0.90
1639	1.01	0.66	1.07	0.97	0.87	0.65	0.85	0.90
1640	1.00	0.65	1.08	0.98	0.85	0.67	0.85	0.90
1641	1.00	0.66	1.09	0.98	0.86	0.70	0.86	0.91
1642	1.00	0.67	1.09	0.98	0.84	0.71	0.87	0.91
1643	1.01	0.68	1.10	0.98	0.83	0.71	0.88	0.91
1644	1.01	0.70	1.10	0.98	0.84	0.70	0.88	0.92
1645	1.01	0.73	1.11	0.99	0.87	0.70	0.89	0.93
1646	1.02	0.74	1.12	0.99	0.87	0.67	0.89	0.93
1647	1.02	0.75	1.14	1.00	0.87	0.67	0.89	0.94
1648	1.02	0.76	1.14	1.01	0.87	0.69	0.93	0.95
1649	1.02	0.78	1.11	1.03	0.85	0.69	0.96	0.95
1650	1.02	0.77	1.09	1.03	0.84	0.67	0.98	0.94
1651	1.02	0.77	1.06	1.04	0.85	0.62	1.01	0.93
1652	1.02	0.76	1.03	1.04	0.85	0.61	1.02	0.93
1653	1.02	0.76	1.00	1.03	0.85	0.62	1.00	0.92
1654	1.02	0.77	1.00	1.01	0.86	0.61	0.98	0.92
1655	1.02	0.78	0.99	1.00	0.87	0.61	0.97	0.91
1656	1.02	0.78	0.98	0.99	0.86	0.65	0.95	0.91
1657	1.02	0.78	0.99	0.99	0.89	0.65	0.93	0.92
1658	1.02	0.79	1.00	0.98	0.90	0.66	0.91	0.92
1659	1.02	0.79	1.03	0.98	0.89	0.70	0.88	0.93
1660	1.01	0.79	1.04	0.98	0.90	0.70	0.87	0.93
1661	1.01	0.79	1.06	0.98	0.90	0.71	0.84	0.93
1662	1.01	0.79	1.05	0.97	0.89	0.71	0.82	0.93
1663	1.01	0.79	1.04	0.96	0.89	0.69	0.80	0.92
1664	1.00	0.80	1.04	0.96	0.90	0.67	0.79	0.92
1665	1.00	0.80	1.03	0.95	0.90	0.67	0.77	0.91
1666	0.99	0.81	1.02	0.94	0.91	0.68	0.76	0.91
1667	0.99	0.81	1.01	0.93	0.91	0.68	0.75	0.91
1668	0.98	0.81	1.00	0.93	0.89	0.71	0.74	0.90
1669	0.98	0.81	0.98	0.92	0.88	0.72	0.73	0.90
1670	0.98	0.81	0.97	0.91	0.87	0.76	0.72	0.90
1671	0.97	0.82	0.96	0.91	0.87	0.76	0.71	0.90

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1672	0.97	0.82	0.96	0.90	0.85	0.77	0.71	0.89
1673	0.97	0.83	0.96	0.90	0.85	0.73	0.70	0.89
1674	0.96	0.84	0.95	0.89	0.85	0.72	0.69	0.88
1675	0.95	0.84	0.95	0.89	0.86	0.69	0.69	0.88
1676	0.95	0.84	0.95	0.88	0.86	0.69	0.68	0.88
1677	0.94	0.84	0.95	0.87	0.87	0.71	0.68	0.88
1678	0.95	0.85	0.94	0.87	0.88	0.76	0.68	0.88
1679	0.96	0.85	0.94	0.86	0.89	0.87	0.68	0.90
1680	0.98	0.86	0.94	0.86	0.89	0.87	0.68	0.90
1681	0.99	0.87	0.93	0.86	0.90	0.89	0.68	0.91
1682	1.00	0.88	0.92	0.86	0.91	0.88	0.68	0.91
1683	1.00	0.88	0.93	0.86	0.92	0.87	0.68	0.91
1684	0.99	0.88	0.93	0.86	0.94	0.79	0.68	0.90
1685	0.99	0.88	0.93	0.86	0.96	0.81	0.69	0.91
1686	0.98	0.88	0.93	0.87	0.98	0.82	0.71	0.91
1687	0.98	0.87	0.94	0.87	0.98	0.83	0.72	0.91
1688	0.98	0.88	0.96	0.87	1.00	0.88	0.73	0.92
1689	0.98	0.88	0.97	0.88	0.99	0.90	0.75	0.93
1690	0.98	0.88	0.98	0.89	0.99	0.94	0.76	0.94
1691	0.98	0.89	0.99	0.90	0.98	0.95	0.80	0.94
1692	0.98	0.89	0.98	0.91	0.99	0.97	0.84	0.95
1693	0.98	0.90	0.96	0.93	0.99	0.93	0.86	0.95
1694	0.99	0.90	0.96	0.95	1.00	0.94	0.91	0.95
1695	0.99	0.90	0.96	0.96	1.01	0.92	0.96	0.96
1696	0.99	0.90	0.96	0.97	1.02	0.96	0.99	0.96
1697	0.99	0.93	0.97	0.97	1.02	0.96	1.02	0.97
1698	1.00	0.96	0.98	0.98	1.02	0.97	1.02	0.98
1699	1.00	0.98	0.99	0.99	1.01	0.98	1.01	0.99
1700	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1701	1.00	1.02	1.00	1.02	0.99	0.98	0.98	1.00
1702	1.01	1.01	1.02	1.04	0.96	1.03	0.95	1.01
1703	1.01	1.00	1.03	1.05	0.95	1.07	0.97	1.02
1704	1.01	0.99	1.05	1.07	0.94	1.11	0.98	1.02
1705	1.02	0.98	1.06	1.08	0.94	1.10	0.98	1.03
1706	1.02	0.97	1.09	1.09	0.93	1.11	0.98	1.03
1707	1.03	0.96	1.10	1.10	0.93	1.11	0.99	1.04
1708	1.04	0.96	1.12	1.10	0.94	1.08	0.99	1.04
1709	1.04	0.95	1.12	1.11	0.95	1.06	1.00	1.04
1710	1.04	0.94	1.13	1.12	0.97	1.07	1.00	1.04
1711	1.05	0.94	1.13	1.12	0.99	1.12	1.01	1.05
1712	1.04	0.94	1.13	1.14	1.00	1.19	1.01	1.06
1713	1.05	0.94	1.13	1.16	1.03	1.20	1.01	1.07
1714	1.06	0.94	1.14	1.18	1.04	1.21	1.02	1.08
1715	1.06	0.93	1.15	1.20	1.03	1.27	1.02	1.08
1716	1.07	0.92	1.15	1.23	1.04	1.27	1.03	1.09
1717	1.08	0.92	1.17	1.25	1.05	1.25	1.04	1.10
1718	1.08	0.90	1.18	1.27	1.05	1.26	1.06	1.10
1719	1.09	0.90	1.20	1.28	1.07	1.27	1.06	1.11
1720	1.10	0.89	1.23	1.27	1.07	1.23	1.06	1.12
1721	1.10	0.89	1.22	1.28	1.08	1.21	1.07	1.12
1722	1.11	0.89	1.21	1.28	1.08	1.17	1.07	1.11
1723	1.12	0.89	1.19	1.27	1.08	1.17	1.07	1.11
1724	1.12	0.88	1.17	1.27	1.08	1.18	1.07	1.10
1725	1.13	0.88	1.11	1.26	1.10	1.19	1.07	1.09
1726	1.13	0.88	1.09	1.26	1.11	1.20	1.07	1.09
1727	1.14	0.88	1.06	1.26	1.13	1.22	1.08	1.09

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1728	1.15	0.88	1.03	1.26	1.11	1.23	1.09	1.09
1729	1.15	0.87	1.01	1.27	1.09	1.23	1.10	1.08
1730	1.17	0.87	1.01	1.27	1.06	1.24	1.11	1.09
1731	1.18	0.87	1.01	1.27	1.04	1.24	1.12	1.09
1732	1.19	0.88	1.01	1.27	1.02	1.24	1.13	1.09
1733	1.20	0.87	1.03	1.26	1.06	1.29	1.13	1.10
1734	1.22	0.88	1.05	1.26	1.11	1.31	1.14	1.11
1735	1.23	0.89	1.05	1.26	1.16	1.36	1.14	1.13
1736	1.24	0.89	1.05	1.27	1.18	1.39	1.15	1.14
1737	1.26	0.91	1.05	1.28	1.21	1.45	1.15	1.15
1738	1.27	0.92	1.08	1.28	1.24	1.47	1.17	1.17
1739	1.29	0.93	1.15	1.30	1.23	1.49	1.18	1.19
1740	1.31	0.93	1.16	1.30	1.26	1.46	1.19	1.20
1741	1.33	0.93	1.19	1.28	1.31	1.46	1.20	1.21
1742	1.34	0.92	1.21	1.28	1.33	1.42	1.21	1.21
1743	1.36	0.92	1.21	1.28	1.32	1.38	1.23	1.22
1744	1.38	0.93	1.17	1.25	1.34	1.38	1.24	1.21
1745	1.39	0.93	1.19	1.25	1.32	1.40	1.25	1.22
1746	1.41	0.94	1.20	1.25	1.31	1.41	1.25	1.22
1747	1.44	0.94	1.21	1.25	1.32	1.41	1.26	1.23
1748	1.44	0.95	1.22	1.25	1.33	1.44	1.25	1.24
1749	1.47	0.96	1.23	1.26	1.35	1.45	1.25	1.26
1750	1.49	0.97	1.24	1.28	1.37	1.44	1.26	1.27
1751	1.52	0.98	1.23	1.29	1.39	1.44	1.26	1.28
1752	1.54	0.99	1.23	1.30	1.41	1.46	1.28	1.29
1753	1.56	1.00	1.24	1.31	1.43	1.47	1.27	1.31
1754	1.57	1.01	1.23	1.32	1.44	1.49	1.29	1.32
1755	1.58	1.02	1.24	1.34	1.45	1.54	1.30	1.33
1756	1.59	1.05	1.25	1.35	1.46	1.58	1.31	1.35
1757	1.60	1.08	1.26	1.37	1.46	1.59	1.33	1.36
1758	1.62	1.09	1.28	1.38	1.46	1.58	1.35	1.37
1759	1.63	1.11	1.28	1.40	1.47	1.58	1.36	1.39
1760	1.65	1.13	1.28	1.42	1.47	1.56	1.37	1.40
1761	1.67	1.13	1.29	1.43	1.47	1.57	1.38	1.40
1762	1.69	1.13	1.29	1.44	1.48	1.58	1.39	1.41
1763	1.71	1.15	1.29	1.46	1.48	1.60	1.41	1.43
1764	1.73	1.16	1.31	1.47	1.47	1.61	1.43	1.44
1765	1.75	1.17	1.32	1.48	1.47	1.62	1.44	1.45
1766	1.78	1.18	1.35	1.50	1.46	1.62	1.45	1.46
1767	1.80	1.20	1.38	1.52	1.46	1.63	1.47	1.48
1768	1.84	1.21	1.40	1.54	1.47	1.65	1.50	1.50
1769	1.86	1.22	1.42	1.56	1.47	1.67	1.51	1.51
1770	1.89	1.21	1.43	1.58	1.48	1.68	1.54	1.52
1771	1.90	1.21	1.43	1.60	1.48	1.72	1.56	1.53
1772	1.90	1.19	1.44	1.63	1.48	1.74	1.59	1.54
1773	1.90	1.18	1.45	1.65	1.49	1.81	1.59	1.55
1774	1.91	1.16	1.45	1.68	1.49	1.83	1.61	1.55
1775	1.90	1.15	1.45	1.74	1.49	1.84	1.62	1.56
1776	1.91	1.15	1.46	1.79	1.47	1.90	1.64	1.57
1777	1.93	1.14	1.46	1.85	1.47	1.94	1.65	1.59
1778	1.95	1.14	1.47	1.91	1.47	1.89	1.67	1.60
1779	1.97	1.12	1.50	1.97	1.48	1.96	1.69	1.62
1780	1.99	1.11	1.52	2.00	1.49	2.00	1.71	1.64
1781	2.01	1.09	1.53	2.04	1.50	1.97	1.73	1.65
1782	2.04	1.09	1.55	2.08	1.51	1.88	1.75	1.66
1783	2.06	1.09	1.58	2.11	1.50	1.91	1.78	1.68

Arable Index (cont.)

Year	Wheat	Rye	Barley	Oats	Wine	Firewood	Legumes	Arable Index
1784	2.09	1.09	1.61	2.16	1.49	1.90	1.80	1.69
1785	2.11	1.12	1.64	2.20	1.51	1.90	1.81	1.72
1786	2.14	1.14	1.67	2.24	1.51	1.91	1.83	1.74
1787	2.18	1.15	1.70	2.25	1.48	1.98	1.85	1.75
1788	2.19	1.20	1.71	2.27	1.52	2.08	1.86	1.78
1789	2.20	1.19	1.75	2.24	1.47	2.08	1.83	1.77

Table 34: Pasture Index (1700 = 1)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1280	0.09	0.14	0.06	0.06		0.13		0.11
1281	0.09	0.14	0.06	0.06		0.13		0.11
1282	0.09	0.14	0.07	0.06		0.13		0.11
1283	0.09	0.14	0.07	0.06		0.13		0.11
1284	0.09	0.14	0.07	0.06		0.13		0.11
1285	0.09	0.14	0.07	0.07		0.13		0.11
1286	0.08	0.14	0.06	0.07		0.13		0.11
1287	0.08	0.14	0.06	0.07		0.13		0.11
1288	0.08	0.14	0.06	0.07		0.13		0.11
1289	0.08	0.14	0.06	0.07		0.13		0.11
1290	0.08	0.14	0.06	0.06		0.13		0.11
1291	0.08	0.14	0.06	0.06		0.13		0.11
1292	0.08	0.14	0.06	0.06		0.12		0.10
1293	0.08	0.14	0.05	0.06		0.12		0.10
1294	0.08	0.14	0.06	0.06		0.11		0.10
1295	0.08	0.15	0.06	0.06		0.11		0.10
1296	0.08	0.15	0.06	0.06		0.11		0.10
1297	0.09	0.15	0.07	0.06		0.10		0.10
1298	0.09	0.16	0.08	0.06		0.10		0.10
1299	0.09	0.16	0.09	0.06		0.09		0.10
1300	0.10	0.15	0.09	0.06		0.09		0.10
1301	0.10	0.15	0.10	0.06		0.09		0.09
1302	0.10	0.15	0.10	0.06		0.08		0.09
1303	0.10	0.15	0.11	0.07		0.08		0.09
1304	0.10	0.15	0.10	0.07		0.08		0.09
1305	0.10	0.15	0.10	0.08		0.07		0.09
1306	0.10	0.15	0.09	0.12		0.07		0.09
1307	0.10	0.15	0.09	0.12		0.06		0.08
1308	0.10	0.14	0.09	0.11		0.06		0.08
1309	0.10	0.14	0.09	0.11		0.06	0.06	0.08
1310	0.10	0.15	0.09	0.11		0.05	0.06	0.08
1311	0.10	0.15	0.09	0.09		0.05	0.06	0.08
1312	0.10	0.16	0.09	0.09		0.05	0.06	0.08
1313	0.10	0.15	0.09	0.09		0.05	0.06	0.08
1314	0.10	0.15	0.09	0.08		0.05	0.06	0.08
1315	0.10	0.15	0.09	0.09		0.05	0.06	0.08
1316	0.09	0.15	0.10	0.09		0.04	0.06	0.07
1317	0.10	0.16	0.11	0.09		0.03	0.06	0.07
1318	0.10	0.16	0.11	0.08		0.03	0.05	0.07
1319	0.10	0.16	0.11	0.10		0.03	0.05	0.07
1320	0.10	0.16	0.11	0.13		0.06	0.05	0.08
1321	0.10	0.16	0.11	0.13		0.06	0.05	0.08
1322	0.10	0.16	0.10	0.11		0.07	0.05	0.08

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1323	0.10	0.16	0.10	0.11		0.07	0.05	0.08
1324	0.10	0.16	0.10	0.14		0.07	0.05	0.09
1325	0.11	0.16	0.10	0.12		0.05	0.05	0.08
1326	0.10	0.16	0.10	0.12		0.05	0.06	0.08
1327	0.10	0.16	0.10	0.14		0.06	0.06	0.09
1328	0.10	0.16	0.11	0.14		0.08	0.06	0.09
1329	0.10	0.16	0.11	0.10		0.09	0.06	0.09
1330	0.10	0.15	0.11	0.12		0.11	0.06	0.10
1331	0.10	0.15	0.11	0.08		0.12	0.07	0.10
1332	0.10	0.15	0.12	0.05		0.12	0.07	0.10
1333	0.10	0.16	0.12	0.06	0.06	0.10	0.07	0.09
1334	0.10	0.16	0.13	0.06	0.06	0.10	0.07	0.09
1335	0.11	0.16	0.14	0.06	0.06	0.08	0.07	0.09
1336	0.11	0.16	0.14	0.06	0.06	0.07	0.08	0.09
1337	0.11	0.16	0.15	0.07	0.06	0.07	0.08	0.09
1338	0.11	0.16	0.15	0.17	0.07	0.06	0.08	0.10
1339	0.11	0.17	0.15	0.17	0.07	0.06	0.08	0.10
1340	0.11	0.17	0.16	0.17	0.08	0.08	0.08	0.11
1341	0.12	0.18	0.16	0.17	0.08	0.08	0.09	0.11
1342	0.12	0.18	0.16	0.17	0.09	0.08	0.08	0.11
1343	0.12	0.18	0.16	0.19	0.09	0.08	0.10	0.12
1344	0.12	0.19	0.15	0.21	0.10	0.08	0.10	0.12
1345	0.12	0.19	0.15	0.24	0.10	0.08	0.10	0.12
1346	0.12	0.18	0.15	0.26	0.11	0.09	0.10	0.12
1347	0.12	0.19	0.16	0.28	0.11	0.10	0.12	0.14
1348	0.12	0.20	0.16	0.30	0.11	0.11	0.13	0.14
1349	0.12	0.19	0.16	0.30	0.12	0.11	0.14	0.15
1350	0.12	0.21	0.17	0.30	0.12	0.12	0.15	0.15
1351	0.12	0.22	0.17	0.33	0.13	0.11	0.16	0.15
1352	0.12	0.25	0.16	0.33	0.13	0.10	0.17	0.16
1353	0.13	0.29	0.17	0.37	0.14	0.12	0.17	0.17
1354	0.13	0.30	0.17	0.30	0.14	0.12	0.18	0.17
1355	0.13	0.31	0.18	0.30	0.15	0.12	0.19	0.18
1356	0.14	0.30	0.19	0.22	0.15	0.14	0.20	0.18
1357	0.14	0.28	0.19	0.22	0.16	0.14	0.21	0.18
1358	0.13	0.25	0.19	0.22	0.16	0.09	0.21	0.17
1359	0.14	0.24	0.20	0.21	0.17	0.09	0.21	0.17
1360	0.14	0.22	0.20	0.21	0.17	0.09	0.21	0.17
1361	0.14	0.21	0.20	0.22	0.18	0.09	0.21	0.17
1362	0.14	0.22	0.20	0.22	0.18	0.09	0.20	0.17
1363	0.14	0.22	0.21	0.22	0.19	0.10	0.20	0.17
1364	0.14	0.22	0.20	0.22	0.19	0.12	0.19	0.17
1365	0.13	0.22	0.20	0.30	0.20	0.13	0.18	0.18
1366	0.13	0.22	0.19	0.39	0.20	0.12	0.18	0.18
1367	0.13	0.22	0.19	0.39	0.21	0.12	0.17	0.18
1368	0.13	0.22	0.18	0.39	0.21	0.12	0.16	0.18
1369	0.13	0.22	0.18	0.31	0.21	0.11	0.16	0.17
1370	0.13	0.22	0.18	0.21	0.21	0.10	0.15	0.16
1371	0.13	0.22	0.19	0.21	0.21	0.10	0.14	0.16
1372	0.13	0.22	0.18	0.18	0.21	0.10	0.14	0.16
1373	0.13	0.22	0.19	0.18	0.21	0.10	0.13	0.16
1374	0.13	0.22	0.18	0.16	0.21	0.08	0.12	0.15
1375	0.13	0.22	0.18	0.12	0.22	0.08	0.12	0.15
1376	0.13	0.22	0.18	0.12	0.22	0.08	0.11	0.14
1377	0.12	0.21	0.17	0.16	0.22	0.08	0.10	0.14
1378	0.12	0.22	0.17	0.20	0.22	0.08	0.10	0.14

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1379	0.12	0.22	0.17	0.24	0.22	0.09	0.10	0.15
1380	0.12	0.22	0.17	0.24	0.22	0.11	0.10	0.15
1381	0.13	0.22	0.17	0.24	0.22	0.12	0.10	0.16
1382	0.12	0.22	0.17	0.24	0.22	0.13	0.16	0.17
1383	0.12	0.23	0.17	0.25	0.22	0.13	0.23	0.18
1384	0.12	0.22	0.17	0.24	0.22	0.13	0.23	0.18
1385	0.12	0.23	0.17	0.25	0.22	0.13	0.23	0.18
1386	0.12	0.22	0.18	0.25	0.22	0.13	0.23	0.18
1387	0.12	0.22	0.18	0.24	0.22	0.13	0.23	0.18
1388	0.12	0.22	0.18	0.24	0.22	0.14	0.20	0.18
1389	0.12	0.22	0.18	0.24	0.22	0.15	0.16	0.17
1390	0.12	0.22	0.16	0.24	0.22	0.17	0.13	0.17
1391	0.12	0.23	0.16	0.24	0.22	0.17	0.13	0.17
1392	0.12	0.23	0.16	0.24	0.22	0.17	0.18	0.18
1393	0.12	0.23	0.16	0.24	0.22	0.17	0.18	0.18
1394	0.12	0.23	0.16	0.24	0.22	0.17	0.18	0.18
1395	0.12	0.22	0.16	0.24	0.23	0.12	0.24	0.18
1396	0.12	0.22	0.16	0.25	0.24	0.08	0.24	0.18
1397	0.12	0.21	0.18	0.25	0.25	0.08	0.20	0.17
1398	0.12	0.21	0.19	0.25	0.27	0.06	0.16	0.17
1399	0.12	0.21	0.21	0.25	0.28	0.06	0.13	0.17
1400	0.12	0.22	0.22	0.25	0.29	0.06	0.17	0.18
1401	0.13	0.22	0.24	0.25	0.29	0.07	0.18	0.19
1402	0.12	0.22	0.25	0.25	0.29	0.08	0.20	0.19
1403	0.12	0.22	0.25	0.25	0.29	0.10	0.19	0.19
1404	0.12	0.21	0.25	0.25	0.28	0.10	0.21	0.19
1405	0.13	0.21	0.25	0.25	0.28	0.12	0.21	0.20
1406	0.13	0.21	0.25	0.24	0.28	0.11	0.21	0.19
1407	0.13	0.21	0.23	0.24	0.28	0.11	0.21	0.19
1408	0.13	0.21	0.21	0.24	0.27	0.10	0.22	0.19
1409	0.13	0.22	0.19	0.24	0.27	0.11	0.22	0.19
1410	0.12	0.22	0.17	0.24	0.27	0.11	0.22	0.18
1411	0.13	0.22	0.15	0.25	0.26	0.11	0.22	0.18
1412	0.12	0.22	0.15	0.25	0.26	0.12	0.22	0.18
1413	0.12	0.22	0.15	0.25	0.26	0.13	0.21	0.18
1414	0.12	0.22	0.15	0.24	0.25	0.13	0.21	0.18
1415	0.13	0.22	0.15	0.24	0.25	0.13	0.20	0.18
1416	0.12	0.22	0.16	0.25	0.25	0.13	0.20	0.18
1417	0.13	0.26	0.17	0.25	0.25	0.13	0.20	0.19
1418	0.14	0.28	0.18	0.25	0.24	0.13	0.23	0.20
1419	0.14	0.28	0.20	0.27	0.24	0.13	0.23	0.20
1420	0.14	0.28	0.21	0.27	0.24	0.14	0.23	0.20
1421	0.15	0.31	0.22	0.27	0.24	0.14	0.23	0.21
1422	0.16	0.27	0.24	0.26	0.23	0.14	0.23	0.21
1423	0.14	0.27	0.25	0.26	0.23	0.14	0.23	0.20
1424	0.15	0.27	0.26	0.26	0.23	0.13	0.21	0.20
1425	0.15	0.26	0.26	0.26	0.24	0.12	0.20	0.20
1426	0.15	0.26	0.20	0.26	0.24	0.12	0.20	0.19
1427	0.15	0.27	0.20	0.27	0.22	0.12	0.19	0.19
1428	0.14	0.27	0.21	0.27	0.21	0.12	0.17	0.18
1429	0.14	0.27	0.19	0.27	0.20	0.13	0.18	0.18
1430	0.13	0.22	0.19	0.27	0.17	0.13	0.18	0.17
1431	0.13	0.22	0.22	0.28	0.16	0.14	0.17	0.17
1432	0.13	0.22	0.22	0.27	0.17	0.13	0.16	0.17
1433	0.13	0.22	0.17	0.27	0.17	0.13	0.16	0.16
1434	0.12	0.22	0.17	0.27	0.17	0.13	0.16	0.16

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1435	0.13	0.23	0.17	0.26	0.16	0.13	0.16	0.16
1436	0.13	0.23	0.14	0.26	0.16	0.13	0.16	0.16
1437	0.13	0.23	0.14	0.27	0.15	0.14	0.18	0.16
1438	0.13	0.23	0.14	0.27	0.15	0.14	0.18	0.16
1439	0.14	0.23	0.14	0.28	0.15	0.14	0.18	0.16
1440	0.13	0.23	0.14	0.28	0.15	0.14	0.18	0.16
1441	0.13	0.24	0.13	0.29	0.14	0.14	0.18	0.16
1442	0.13	0.24	0.13	0.28	0.14	0.14	0.18	0.16
1443	0.14	0.24	0.13	0.28	0.14	0.14	0.18	0.16
1444	0.14	0.24	0.12	0.28	0.13	0.14	0.18	0.16
1445	0.16	0.24	0.12	0.28	0.13	0.14	0.17	0.16
1446	0.17	0.24	0.12	0.28	0.14	0.13	0.18	0.17
1447	0.17	0.23	0.11	0.28	0.14	0.13	0.18	0.16
1448	0.17	0.23	0.11	0.29	0.13	0.12	0.18	0.16
1449	0.17	0.23	0.11	0.29	0.13	0.12	0.17	0.16
1450	0.14	0.23	0.10	0.31	0.13	0.13	0.16	0.15
1451	0.13	0.23	0.10	0.33	0.12	0.13	0.16	0.15
1452	0.13	0.22	0.10	0.34	0.12	0.13	0.15	0.15
1453	0.13	0.22	0.10	0.37	0.12	0.14	0.15	0.15
1454	0.14	0.21	0.10	0.38	0.12	0.15	0.15	0.16
1455	0.14	0.21	0.10	0.38	0.12	0.15	0.15	0.16
1456	0.14	0.20	0.11	0.39	0.12	0.14	0.15	0.15
1457	0.14	0.20	0.12	0.38	0.12	0.13	0.15	0.15
1458	0.13	0.20	0.12	0.37	0.12	0.12	0.15	0.15
1459	0.14	0.19	0.13	0.37	0.12	0.12	0.15	0.16
1460	0.15	0.19	0.14	0.37	0.12	0.13	0.16	0.16
1461	0.14	0.18	0.14	0.37	0.12	0.13	0.16	0.16
1462	0.14	0.18	0.15	0.39	0.12	0.13	0.16	0.16
1463	0.13	0.18	0.16	0.40	0.12	0.13	0.16	0.16
1464	0.11	0.17	0.17	0.40	0.12	0.13	0.16	0.16
1465	0.11	0.17	0.17	0.40	0.12	0.13	0.16	0.15
1466	0.11	0.17	0.17	0.40	0.12	0.13	0.16	0.16
1467	0.12	0.17	0.17	0.40	0.12	0.14	0.16	0.16
1468	0.13	0.17	0.17	0.40	0.12	0.14	0.16	0.16
1469	0.13	0.17	0.17	0.40	0.12	0.14	0.17	0.16
1470	0.13	0.17	0.17	0.40	0.12	0.15	0.18	0.17
1471	0.13	0.18	0.17	0.40	0.13	0.15	0.18	0.17
1472	0.13	0.18	0.17	0.40	0.13	0.15	0.17	0.17
1473	0.13	0.18	0.17	0.40	0.13	0.15	0.18	0.17
1474	0.13	0.19	0.18	0.40	0.13	0.16	0.17	0.17
1475	0.13	0.19	0.18	0.38	0.13	0.16	0.17	0.17
1476	0.13	0.19	0.18	0.39	0.13	0.17	0.19	0.18
1477	0.13	0.20	0.18	0.39	0.13	0.18	0.19	0.18
1478	0.14	0.20	0.18	0.39	0.13	0.19	0.19	0.18
1479	0.14	0.20	0.18	0.40	0.13	0.19	0.20	0.18
1480	0.14	0.19	0.18	0.41	0.13	0.20	0.20	0.19
1481	0.14	0.18	0.18	0.41	0.13	0.20	0.20	0.19
1482	0.14	0.18	0.19	0.39	0.13	0.20	0.21	0.19
1483	0.14	0.17	0.19	0.40	0.13	0.20	0.21	0.19
1484	0.14	0.17	0.19	0.41	0.13	0.20	0.21	0.19
1485	0.14	0.17	0.20	0.41	0.14	0.21	0.21	0.19
1486	0.14	0.19	0.20	0.41	0.14	0.21	0.21	0.19
1487	0.14	0.21	0.20	0.43	0.14	0.21	0.22	0.20
1488	0.14	0.24	0.20	0.43	0.14	0.21	0.22	0.20
1489	0.13	0.26	0.20	0.43	0.14	0.21	0.22	0.20
1490	0.12	0.23	0.20	0.43	0.14	0.21	0.22	0.20

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1491	0.11	0.22	0.20	0.43	0.14	0.21	0.22	0.20
1492	0.10	0.22	0.21	0.43	0.14	0.21	0.22	0.20
1493	0.10	0.22	0.21	0.44	0.14	0.21	0.22	0.20
1494	0.10	0.20	0.21	0.44	0.15	0.21	0.22	0.20
1495	0.10	0.20	0.22	0.44	0.15	0.22	0.22	0.20
1496	0.10	0.21	0.22	0.43	0.15	0.21	0.22	0.20
1497	0.11	0.22	0.22	0.43	0.15	0.21	0.22	0.20
1498	0.12	0.22	0.22	0.43	0.15	0.20	0.22	0.20
1499	0.13	0.23	0.23	0.44	0.15	0.20	0.21	0.20
1500	0.14	0.23	0.23	0.44	0.15	0.20	0.20	0.20
1501	0.14	0.22	0.23	0.45	0.17	0.20	0.20	0.20
1502	0.14	0.22	0.23	0.45	0.18	0.21	0.20	0.21
1503	0.14	0.22	0.23	0.45	0.19	0.20	0.20	0.21
1504	0.14	0.21	0.23	0.45	0.21	0.20	0.19	0.21
1505	0.14	0.21	0.23	0.45	0.22	0.20	0.19	0.21
1506	0.14	0.22	0.23	0.45	0.22	0.21	0.19	0.21
1507	0.14	0.22	0.22	0.45	0.22	0.21	0.18	0.21
1508	0.14	0.22	0.22	0.46	0.22	0.22	0.18	0.21
1509	0.14	0.22	0.22	0.46	0.23	0.22	0.19	0.22
1510	0.13	0.22	0.22	0.46	0.23	0.23	0.19	0.22
1511	0.13	0.22	0.24	0.43	0.23	0.23	0.20	0.22
1512	0.13	0.23	0.25	0.44	0.23	0.23	0.20	0.22
1513	0.13	0.23	0.26	0.44	0.23	0.23	0.21	0.23
1514	0.13	0.23	0.26	0.44	0.23	0.23	0.21	0.23
1515	0.13	0.23	0.26	0.44	0.24	0.23	0.21	0.23
1516	0.14	0.23	0.27	0.47	0.24	0.23	0.21	0.23
1517	0.14	0.23	0.27	0.47	0.23	0.23	0.22	0.23
1518	0.15	0.23	0.27	0.47	0.23	0.24	0.22	0.23
1519	0.15	0.23	0.26	0.47	0.23	0.24	0.22	0.23
1520	0.24	0.23	0.25	0.47	0.23	0.24	0.22	0.25
1521	0.24	0.23	0.25	0.48	0.24	0.24	0.22	0.25
1522	0.24	0.23	0.24	0.48	0.26	0.24	0.22	0.26
1523	0.24	0.23	0.23	0.48	0.26	0.24	0.22	0.26
1524	0.24	0.23	0.22	0.48	0.26	0.24	0.22	0.26
1525	0.24	0.23	0.21	0.48	0.27	0.24	0.22	0.26
1526	0.27	0.23	0.21	0.48	0.27	0.24	0.22	0.26
1527	0.27	0.23	0.21	0.48	0.27	0.25	0.22	0.26
1528	0.26	0.23	0.21	0.48	0.28	0.25	0.21	0.26
1529	0.24	0.23	0.21	0.48	0.28	0.24	0.20	0.25
1530	0.24	0.25	0.21	0.47	0.29	0.23	0.19	0.25
1531	0.20	0.27	0.20	0.47	0.28	0.23	0.17	0.24
1532	0.19	0.29	0.20	0.45	0.29	0.23	0.17	0.24
1533	0.19	0.29	0.20	0.46	0.29	0.23	0.18	0.24
1534	0.18	0.27	0.19	0.46	0.29	0.25	0.19	0.24
1535	0.17	0.27	0.19	0.47	0.28	0.26	0.20	0.24
1536	0.17	0.26	0.19	0.47	0.28	0.26	0.21	0.24
1537	0.17	0.25	0.18	0.50	0.29	0.26	0.22	0.25
1538	0.18	0.25	0.18	0.50	0.29	0.26	0.24	0.25
1539	0.18	0.36	0.18	0.50	0.29	0.26	0.25	0.27
1540	0.19	0.33	0.18	0.50	0.29	0.26	0.27	0.27
1541	0.19	0.34	0.20	0.51	0.30	0.26	0.28	0.27
1542	0.20	0.32	0.20	0.51	0.30	0.26	0.26	0.27
1543	0.20	0.30	0.21	0.51	0.30	0.27	0.27	0.27
1544	0.21	0.22	0.23	0.51	0.31	0.27	0.28	0.27
1545	0.21	0.21	0.22	0.51	0.33	0.27	0.30	0.28
1546	0.21	0.19	0.21	0.51	0.34	0.27	0.32	0.28

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1547	0.23	0.19	0.21	0.52	0.35	0.27	0.36	0.30
1548	0.25	0.18	0.22	0.53	0.35	0.30	0.34	0.30
1549	0.28	0.17	0.23	0.55	0.35	0.34	0.35	0.32
1550	0.32	0.17	0.25	0.57	0.36	0.37	0.36	0.34
1551	0.36	0.17	0.25	0.59	0.36	0.40	0.37	0.36
1552	0.38	0.17	0.26	0.62	0.35	0.43	0.37	0.37
1553	0.38	0.19	0.27	0.63	0.35	0.43	0.40	0.38
1554	0.37	0.21	0.28	0.65	0.36	0.43	0.40	0.38
1555	0.35	0.22	0.27	0.64	0.36	0.43	0.40	0.38
1556	0.35	0.23	0.26	0.61	0.36	0.45	0.40	0.38
1557	0.35	0.23	0.26	0.63	0.36	0.47	0.41	0.39
1558	0.36	0.23	0.28	0.62	0.37	0.49	0.43	0.40
1559	0.36	0.23	0.28	0.63	0.38	0.51	0.44	0.41
1560	0.37	0.23	0.28	0.67	0.38	0.50	0.45	0.41
1561	0.36	0.24	0.30	0.69	0.39	0.50	0.47	0.42
1562	0.34	0.27	0.30	0.71	0.39	0.50	0.48	0.42
1563	0.32	0.28	0.30	0.75	0.40	0.49	0.50	0.42
1564	0.33	0.30	0.29	0.76	0.41	0.48	0.52	0.43
1565	0.33	0.31	0.35	0.78	0.42	0.48	0.52	0.44
1566	0.34	0.32	0.35	0.81	0.42	0.51	0.54	0.45
1567	0.35	0.33	0.35	0.82	0.44	0.53	0.55	0.47
1568	0.37	0.32	0.35	0.84	0.45	0.56	0.56	0.48
1569	0.36	0.30	0.37	0.85	0.45	0.58	0.57	0.49
1570	0.38	0.30	0.35	0.85	0.45	0.61	0.58	0.49
1571	0.39	0.31	0.34	0.87	0.45	0.62	0.58	0.50
1572	0.41	0.31	0.33	0.88	0.44	0.63	0.58	0.50
1573	0.40	0.33	0.33	0.89	0.45	0.64	0.59	0.51
1574	0.42	0.36	0.33	0.94	0.43	0.65	0.59	0.52
1575	0.42	0.39	0.34	0.96	0.43	0.66	0.59	0.52
1576	0.41	0.42	0.34	0.97	0.42	0.67	0.60	0.52
1577	0.42	0.45	0.35	0.98	0.42	0.67	0.60	0.53
1578	0.43	0.46	0.35	0.99	0.42	0.68	0.62	0.54
1579	0.43	0.49	0.36	0.96	0.43	0.69	0.63	0.55
1580	0.44	0.50	0.36	0.97	0.44	0.70	0.65	0.56
1581	0.44	0.51	0.42	0.96	0.45	0.71	0.67	0.57
1582	0.43	0.51	0.44	0.96	0.45	0.72	0.65	0.57
1583	0.43	0.53	0.44	0.97	0.46	0.72	0.65	0.58
1584	0.44	0.50	0.47	0.98	0.47	0.73	0.64	0.58
1585	0.44	0.47	0.51	0.99	0.49	0.74	0.65	0.59
1586	0.45	0.46	0.41	1.03	0.49	0.75	0.65	0.59
1587	0.47	0.45	0.41	1.01	0.50	0.76	0.69	0.60
1588	0.47	0.44	0.43	1.02	0.51	0.77	0.71	0.61
1589	0.45	0.43	0.59	1.02	0.52	0.78	0.74	0.63
1590	0.45	0.44	0.59	1.03	0.50	0.79	0.74	0.63
1591	0.44	0.46	0.74	1.07	0.51	0.79	0.73	0.65
1592	0.43	0.45	0.78	1.10	0.52	0.80	0.74	0.66
1593	0.43	0.45	0.88	1.07	0.54	0.82	0.77	0.68
1594	0.45	0.48	0.80	1.08	0.55	0.83	0.78	0.68
1595	0.46	0.54	0.80	1.08	0.57	0.84	0.80	0.70
1596	0.48	0.56	0.60	1.00	0.57	0.84	0.83	0.68
1597	0.48	0.55	0.65	1.01	0.57	0.85	0.83	0.69
1598	0.48	0.59	0.65	1.06	0.58	0.83	0.84	0.70
1599	0.49	0.61	0.68	1.03	0.59	0.84	0.82	0.70
1600	0.50	0.58	0.68	1.08	0.59	0.82	0.81	0.70
1601	0.51	0.61	0.70	1.16	0.59	0.82	0.80	0.71
1602	0.53	0.65	0.72	1.19	0.59	0.81	0.79	0.72

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1603	0.55	0.68	0.72	1.21	0.58	0.80	0.76	0.72
1604	0.57	0.64	0.87	1.27	0.58	0.79	0.78	0.74
1605	0.58	0.59	0.81	1.27	0.59	0.80	0.79	0.73
1606	0.59	0.58	0.86	1.30	0.59	0.81	0.80	0.75
1607	0.60	0.60	0.86	1.31	0.61	0.82	0.81	0.76
1608	0.60	0.58	0.85	1.29	0.62	0.83	0.83	0.76
1609	0.61	0.62	0.77	1.30	0.63	0.84	0.84	0.76
1610	0.61	0.67	0.77	1.31	0.63	0.85	0.85	0.77
1611	0.62	0.66	0.75	1.29	0.64	0.87	0.86	0.78
1612	0.62	0.69	0.74	1.28	0.65	0.90	0.86	0.79
1613	0.62	0.71	0.70	1.29	0.64	0.94	0.85	0.79
1614	0.61	0.74	0.69	1.27	0.64	0.95	0.86	0.79
1615	0.61	0.79	0.71	1.26	0.64	0.98	0.86	0.80
1616	0.60	0.83	0.72	1.26	0.64	0.99	0.87	0.81
1617	0.60	0.80	0.73	1.26	0.64	1.00	0.87	0.81
1618	0.61	0.81	0.76	1.27	0.65	1.01	0.87	0.82
1619	0.61	0.81	0.75	1.27	0.66	1.00	0.88	0.82
1620	0.61	0.80	0.77	1.31	0.69	1.05	0.89	0.84
1621	0.61	0.80	0.78	1.36	0.69	1.06	0.89	0.85
1622	0.62	0.80	0.80	1.42	0.70	1.07	0.90	0.86
1623	0.62	0.79	0.81	1.49	0.71	1.09	0.92	0.87
1624	0.63	0.78	0.80	1.53	0.71	1.13	0.91	0.88
1625	0.64	0.76	0.79	1.53	0.71	1.09	0.89	0.87
1626	0.65	0.73	0.76	1.50	0.71	1.10	0.89	0.87
1627	0.66	0.72	0.73	1.48	0.72	1.11	0.89	0.86
1628	0.65	0.73	0.68	1.46	0.73	1.12	0.90	0.86
1629	0.64	0.71	0.69	1.46	0.74	1.16	0.91	0.87
1630	0.64	0.73	0.69	1.47	0.75	1.17	0.93	0.88
1631	0.64	0.75	0.70	1.54	0.76	1.18	0.94	0.89
1632	0.62	0.75	0.71	1.51	0.77	1.19	0.95	0.89
1633	0.62	0.76	0.75	1.48	0.77	1.19	0.95	0.90
1634	0.63	0.81	0.74	1.39	0.78	1.18	0.96	0.90
1635	0.64	0.82	0.72	1.36	0.79	1.19	0.97	0.90
1636	0.66	0.88	0.70	1.29	0.80	1.20	0.98	0.91
1637	0.67	0.92	0.75	1.30	0.80	1.18	0.98	0.92
1638	0.69	0.97	0.75	1.33	0.81	1.19	0.98	0.93
1639	0.69	0.99	0.76	1.39	0.81	1.20	0.99	0.94
1640	0.70	1.01	0.76	1.39	0.82	1.21	1.00	0.95
1641	0.70	1.01	0.77	1.39	0.83	1.22	1.01	0.95
1642	0.70	1.04	0.75	1.39	0.84	1.25	1.01	0.96
1643	0.70	1.06	0.75	1.36	0.85	1.26	1.02	0.97
1644	0.71	1.09	0.76	1.36	0.87	1.27	1.03	0.98
1645	0.70	1.11	0.77	1.36	0.88	1.28	1.03	0.99
1646	0.71	1.13	0.77	1.37	0.89	1.29	1.04	1.00
1647	0.73	1.12	0.75	1.36	0.90	1.30	1.05	1.00
1648	0.74	1.11	0.79	1.36	0.90	1.36	1.06	1.02
1649	0.74	1.13	0.80	1.36	0.91	1.38	1.06	1.03
1650	0.75	1.15	0.80	1.36	0.92	1.43	1.06	1.04
1651	0.76	1.16	0.81	1.33	0.94	1.47	1.06	1.05
1652	0.75	1.21	0.82	1.35	0.95	1.52	1.07	1.07
1653	0.76	1.27	0.78	1.35	0.96	1.51	1.07	1.07
1654	0.78	1.29	0.78	1.33	0.97	1.51	1.08	1.08
1655	0.79	1.26	0.79	1.33	0.98	1.50	1.08	1.08
1656	0.79	1.27	0.82	1.41	0.99	1.50	1.10	1.10
1657	0.79	1.23	0.82	1.40	1.00	1.52	1.10	1.10
1658	0.80	1.16	0.86	1.39	1.02	1.52	1.10	1.10

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1659	0.81	1.09	0.89	1.40	1.03	1.55	1.09	1.11
1660	0.82	1.06	0.93	1.39	1.04	1.55	1.09	1.11
1661	0.84	1.05	0.94	1.31	1.04	1.55	1.07	1.11
1662	0.85	1.00	0.97	1.32	1.05	1.49	1.06	1.10
1663	0.85	0.94	0.97	1.32	1.04	1.45	1.07	1.09
1664	0.84	0.95	0.98	1.32	1.04	1.45	1.06	1.09
1665	0.84	0.92	0.98	1.32	1.04	1.45	1.06	1.08
1666	0.84	0.85	0.95	1.31	1.03	1.39	1.07	1.06
1667	0.87	0.86	0.93	1.31	1.03	1.42	1.06	1.07
1668	0.89	0.89	0.90	1.30	1.04	1.41	1.04	1.07
1669	0.91	0.83	0.88	1.30	1.03	1.41	1.04	1.07
1670	0.90	0.85	0.85	1.30	1.02	1.41	1.03	1.06
1671	0.90	0.88	0.86	1.30	1.00	1.42	1.02	1.06
1672	0.89	0.91	0.86	1.30	0.98	1.38	1.02	1.04
1673	0.87	0.90	0.92	1.30	0.96	1.38	1.01	1.04
1674	0.86	0.95	0.96	1.30	0.95	1.34	1.00	1.04
1675	0.85	0.97	0.99	1.29	0.95	1.28	1.00	1.03
1676	0.86	0.97	1.03	1.29	0.96	1.28	1.01	1.04
1677	0.86	0.95	1.06	1.29	0.97	1.27	1.00	1.04
1678	0.88	0.97	1.03	1.27	0.97	1.24	1.00	1.04
1679	0.90	0.99	0.98	1.26	0.97	1.21	1.00	1.03
1680	0.92	0.98	0.96	1.25	0.98	1.19	1.00	1.03
1681	0.92	0.97	0.96	1.28	0.98	1.17	0.99	1.02
1682	0.92	0.98	0.96	1.22	0.97	1.15	0.99	1.02
1683	0.90	0.95	0.97	1.18	0.95	1.17	0.99	1.01
1684	0.90	0.91	1.01	1.17	0.94	1.14	0.99	1.00
1685	0.89	0.90	1.04	1.13	0.93	1.12	0.99	0.99
1686	0.92	0.91	1.05	1.04	0.93	1.10	0.99	0.99
1687	0.93	0.89	1.02	1.04	0.94	1.07	0.99	0.98
1688	0.94	0.91	0.98	1.03	0.95	1.01	0.98	0.97
1689	0.95	0.91	0.99	1.01	0.96	1.03	0.99	0.98
1690	0.96	0.91	0.99	1.00	0.96	1.06	0.99	0.98
1691	0.93	0.91	1.00	1.00	0.95	1.05	0.99	0.98
1692	0.94	0.95	1.03	1.01	0.96	1.05	0.99	0.99
1693	0.97	0.96	1.05	1.02	0.97	1.06	1.00	1.00
1694	0.96	0.98	1.01	1.03	0.96	1.05	0.99	1.00
1695	0.98	0.98	0.99	1.07	0.97	1.01	1.00	0.99
1696	1.00	0.99	0.97	1.07	0.98	0.99	1.01	1.00
1697	1.00	0.98	0.97	1.06	0.98	0.99	1.00	1.00
1698	0.98	0.98	0.98	1.06	0.99	1.00	1.00	1.00
1699	1.00	0.98	0.99	1.05	1.00	1.00	1.00	1.00
1700	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1701	1.00	1.00	1.03	0.99	0.99	1.00	1.00	1.00
1702	1.04	0.99	1.04	0.99	0.99	1.00	1.00	1.01
1703	1.04	1.00	1.07	0.98	0.99	1.03	1.02	1.02
1704	1.04	1.05	1.10	0.98	0.99	1.06	1.03	1.04
1705	1.06	1.11	1.14	1.06	0.99	1.08	1.02	1.06
1706	1.07	1.20	1.16	1.05	1.01	1.11	1.04	1.08
1707	1.06	1.26	1.13	1.05	1.02	1.14	1.05	1.09
1708	1.06	1.28	1.14	1.06	1.03	1.15	1.05	1.09
1709	1.06	1.30	1.12	1.05	1.03	1.15	1.06	1.09
1710	1.08	1.27	1.07	0.96	1.06	1.15	1.07	1.09
1711	1.09	1.23	1.03	0.96	1.07	1.16	1.05	1.09
1712	1.08	1.21	1.01	0.95	1.06	1.15	1.04	1.08
1713	1.11	1.21	0.99	0.93	1.07	1.17	1.05	1.08
1714	1.12	1.20	0.97	0.92	1.08	1.17	1.05	1.08

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1715	1.11	1.23	1.00	0.94	1.08	1.17	1.05	1.09
1716	1.14	1.22	1.01	0.96	1.09	1.18	1.06	1.10
1717	1.14	1.23	1.07	0.98	1.11	1.16	1.07	1.11
1718	1.13	1.24	1.07	1.07	1.12	1.15	1.07	1.12
1719	1.17	1.21	1.10	1.15	1.12	1.14	1.08	1.13
1720	1.19	1.18	1.12	1.19	1.14	1.17	1.09	1.15
1721	1.17	1.17	1.12	1.25	1.15	1.17	1.09	1.15
1722	1.18	1.16	1.09	1.30	1.16	1.20	1.10	1.16
1723	1.20	1.17	1.11	1.29	1.17	1.21	1.11	1.17
1724	1.21	1.20	1.10	1.29	1.18	1.22	1.12	1.18
1725	1.20	1.28	1.09	1.30	1.21	1.20	1.12	1.19
1726	1.22	1.37	1.09	1.31	1.20	1.21	1.13	1.20
1727	1.22	1.44	1.09	1.30	1.22	1.21	1.13	1.21
1728	1.24	1.44	1.07	1.34	1.21	1.22	1.14	1.22
1729	1.23	1.42	1.07	1.37	1.23	1.23	1.15	1.22
1730	1.24	1.36	1.08	1.39	1.25	1.25	1.15	1.23
1731	1.26	1.27	1.08	1.41	1.28	1.25	1.18	1.24
1732	1.27	1.26	1.08	1.46	1.30	1.26	1.20	1.25
1733	1.27	1.31	1.09	1.50	1.34	1.26	1.20	1.27
1734	1.31	1.39	1.11	1.51	1.34	1.27	1.20	1.29
1735	1.33	1.46	1.11	1.52	1.34	1.26	1.22	1.30
1736	1.29	1.52	1.12	1.56	1.36	1.27	1.21	1.30
1737	1.30	1.54	1.13	1.56	1.35	1.28	1.22	1.31
1738	1.30	1.53	1.14	1.53	1.34	1.29	1.23	1.31
1739	1.32	1.48	1.15	1.53	1.34	1.30	1.24	1.31
1740	1.31	1.44	1.18	1.54	1.35	1.32	1.24	1.32
1741	1.34	1.42	1.18	1.52	1.35	1.32	1.25	1.32
1742	1.35	1.39	1.19	1.53	1.36	1.32	1.26	1.33
1743	1.34	1.40	1.20	1.58	1.38	1.33	1.28	1.34
1744	1.30	1.41	1.20	1.59	1.39	1.34	1.28	1.34
1745	1.30	1.41	1.20	1.62	1.39	1.36	1.30	1.35
1746	1.28	1.42	1.21	1.63	1.41	1.37	1.31	1.35
1747	1.28	1.43	1.22	1.65	1.43	1.38	1.32	1.36
1748	1.31	1.42	1.23	1.65	1.45	1.39	1.33	1.38
1749	1.31	1.41	1.23	1.64	1.48	1.39	1.34	1.38
1750	1.35	1.42	1.24	1.63	1.49	1.37	1.35	1.39
1751	1.40	1.40	1.28	1.62	1.51	1.40	1.38	1.42
1752	1.43	1.37	1.29	1.60	1.51	1.43	1.41	1.43
1753	1.47	1.35	1.30	1.57	1.50	1.46	1.43	1.44
1754	1.51	1.36	1.32	1.59	1.53	1.50	1.44	1.47
1755	1.48	1.38	1.32	1.59	1.54	1.53	1.44	1.47
1756	1.47	1.38	1.29	1.61	1.55	1.54	1.43	1.47
1757	1.49	1.42	1.30	1.64	1.58	1.54	1.43	1.49
1758	1.49	1.45	1.31	1.67	1.61	1.57	1.44	1.51
1759	1.50	1.52	1.32	1.69	1.64	1.57	1.46	1.53
1760	1.55	1.53	1.33	1.78	1.68	1.56	1.47	1.55
1761	1.56	1.54	1.34	1.80	1.71	1.58	1.49	1.57
1762	1.56	1.55	1.35	1.83	1.72	1.59	1.50	1.58
1763	1.49	1.55	1.36	1.85	1.74	1.59	1.50	1.57
1764	1.49	1.51	1.36	1.90	1.72	1.59	1.51	1.57
1765	1.49	1.49	1.37	1.90	1.72	1.62	1.51	1.58
1766	1.50	1.49	1.38	1.96	1.72	1.61	1.52	1.58
1767	1.52	1.47	1.40	2.04	1.75	1.62	1.54	1.60
1768	1.54	1.46	1.41	2.10	1.73	1.62	1.55	1.61
1769	1.55	1.46	1.42	2.13	1.74	1.64	1.57	1.63
1770	1.52	1.47	1.43	2.16	1.78	1.65	1.59	1.64

Pasture Index (cont.)

Year	Beef	Mutton	Pork	Chicken	Butter	Eggs	Cheese	Pasture Index
1771	1.54	1.45	1.44	2.20	1.81	1.64	1.61	1.65
1772	1.52	1.44	1.45	2.21	1.87	1.65	1.63	1.66
1773	1.51	1.43	1.46	2.23	1.96	1.68	1.67	1.69
1774	1.53	1.38	1.47	2.24	2.00	1.66	1.69	1.70
1775	1.55	1.35	1.48	2.26	2.04	1.67	1.73	1.72
1776	1.51	1.37	1.49	2.28	2.10	1.70	1.77	1.74
1777	1.50	1.37	1.51	2.30	2.16	1.71	1.80	1.76
1778	1.51	1.38	1.52	2.31	2.13	1.70	1.82	1.76
1779	1.51	1.46	1.53	2.34	2.21	1.74	1.85	1.80
1780	1.50	1.49	1.54	2.38	2.28	1.75	1.86	1.82
1781	1.51	1.51	1.56	2.42	2.26	1.76	1.86	1.83
1782	1.54	1.60	1.58	2.46	2.24	1.77	1.87	1.84
1783	1.56	1.65	1.59	2.52	2.27	1.77	1.92	1.87
1784	1.56	1.64	1.59	2.56	2.27	1.78	1.94	1.88
1785	1.58	1.70	1.60	2.57	2.29	1.77	1.99	1.90
1786	1.60	1.73	1.61	2.61	2.38	1.75	2.05	1.93
1787	1.59	1.71	1.61	2.67	2.45	1.78	2.09	1.96
1788	1.63	1.69	1.64	2.68	2.42	1.84	2.05	1.97
1789	1.64	1.74	1.70	2.77	2.57	1.88	2.08	2.03

Table 35: Agricultural Index (1700 = 1)

Year	Arable Index	Pasture Index	Agricultural Index
1280	0.06	0.11	0.07
1281	0.07	0.11	0.08
1282	0.07	0.11	0.08
1283	0.08	0.11	0.09
1284	0.08	0.11	0.09
1285	0.07	0.11	0.08
1286	0.08	0.11	0.08
1287	0.07	0.11	0.08
1288	0.07	0.11	0.08
1289	0.06	0.11	0.08
1290	0.06	0.11	0.07
1291	0.06	0.11	0.07
1292	0.07	0.10	0.07
1293	0.07	0.10	0.07
1294	0.08	0.10	0.09
1295	0.10	0.10	0.10
1296	0.10	0.10	0.10
1297	0.10	0.10	0.10
1298	0.09	0.10	0.09
1299	0.09	0.10	0.09
1300	0.09	0.10	0.09
1301	0.08	0.09	0.09
1302	0.08	0.09	0.08
1303	0.07	0.09	0.08
1304	0.08	0.09	0.08
1305	0.08	0.09	0.08
1306	0.07	0.09	0.07
1307	0.07	0.08	0.07
1308	0.07	0.08	0.07
1309	0.07	0.08	0.07

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1310	0.07	0.08	0.07
1311	0.07	0.08	0.08
1312	0.07	0.08	0.07
1313	0.08	0.08	0.08
1314	0.08	0.08	0.08
1315	0.08	0.08	0.08
1316	0.08	0.07	0.08
1317	0.08	0.07	0.08
1318	0.08	0.07	0.08
1319	0.08	0.07	0.08
1320	0.09	0.08	0.09
1321	0.09	0.08	0.09
1322	0.09	0.08	0.09
1323	0.09	0.08	0.09
1324	0.09	0.09	0.09
1325	0.08	0.08	0.08
1326	0.09	0.08	0.08
1327	0.09	0.09	0.09
1328	0.09	0.09	0.09
1329	0.09	0.09	0.09
1330	0.09	0.10	0.09
1331	0.09	0.10	0.09
1332	0.09	0.10	0.09
1333	0.09	0.09	0.09
1334	0.09	0.09	0.09
1335	0.09	0.09	0.09
1336	0.09	0.09	0.09
1337	0.09	0.09	0.09
1338	0.09	0.10	0.10
1339	0.09	0.10	0.10
1340	0.10	0.11	0.10
1341	0.10	0.11	0.10
1342	0.10	0.11	0.10
1343	0.10	0.12	0.10
1344	0.10	0.12	0.10
1345	0.10	0.12	0.10
1346	0.09	0.12	0.10
1347	0.09	0.14	0.10
1348	0.09	0.14	0.11
1349	0.10	0.15	0.11
1350	0.10	0.15	0.11
1351	0.10	0.15	0.11
1352	0.10	0.16	0.12
1353	0.10	0.17	0.12
1354	0.10	0.17	0.12
1355	0.10	0.18	0.12
1356	0.11	0.18	0.13
1357	0.11	0.18	0.13
1358	0.11	0.17	0.12
1359	0.11	0.17	0.12
1360	0.11	0.17	0.12
1361	0.11	0.17	0.13
1362	0.11	0.17	0.13
1363	0.12	0.17	0.13
1364	0.11	0.17	0.13
1365	0.12	0.18	0.13

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1366	0.12	0.18	0.13
1367	0.12	0.18	0.13
1368	0.12	0.18	0.13
1369	0.12	0.17	0.13
1370	0.12	0.16	0.13
1371	0.12	0.16	0.13
1372	0.12	0.16	0.13
1373	0.12	0.16	0.13
1374	0.13	0.15	0.13
1375	0.13	0.15	0.13
1376	0.13	0.14	0.13
1377	0.13	0.14	0.13
1378	0.13	0.14	0.13
1379	0.13	0.15	0.13
1380	0.13	0.15	0.14
1381	0.13	0.16	0.14
1382	0.13	0.17	0.14
1383	0.13	0.18	0.15
1384	0.14	0.18	0.15
1385	0.14	0.18	0.15
1386	0.13	0.18	0.15
1387	0.13	0.18	0.14
1388	0.13	0.18	0.14
1389	0.13	0.17	0.14
1390	0.13	0.17	0.14
1391	0.13	0.17	0.14
1392	0.13	0.18	0.14
1393	0.13	0.18	0.14
1394	0.13	0.18	0.14
1395	0.13	0.18	0.14
1396	0.13	0.18	0.14
1397	0.13	0.17	0.14
1398	0.13	0.17	0.14
1399	0.14	0.17	0.14
1400	0.14	0.18	0.15
1401	0.15	0.19	0.16
1402	0.15	0.19	0.16
1403	0.15	0.19	0.16
1404	0.15	0.19	0.16
1405	0.15	0.20	0.16
1406	0.15	0.19	0.16
1407	0.14	0.19	0.16
1408	0.14	0.19	0.16
1409	0.14	0.19	0.15
1410	0.14	0.18	0.15
1411	0.14	0.18	0.15
1412	0.15	0.18	0.16
1413	0.15	0.18	0.15
1414	0.15	0.18	0.16
1415	0.15	0.18	0.16
1416	0.15	0.18	0.16
1417	0.15	0.19	0.16
1418	0.15	0.20	0.16
1419	0.15	0.20	0.16
1420	0.15	0.20	0.16
1421	0.15	0.21	0.16

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1422	0.15	0.21	0.16
1423	0.14	0.20	0.16
1424	0.14	0.20	0.16
1425	0.14	0.20	0.16
1426	0.14	0.19	0.16
1427	0.14	0.19	0.16
1428	0.15	0.18	0.16
1429	0.15	0.18	0.15
1430	0.14	0.17	0.15
1431	0.14	0.17	0.15
1432	0.14	0.17	0.15
1433	0.14	0.16	0.15
1434	0.15	0.16	0.15
1435	0.15	0.16	0.15
1436	0.15	0.16	0.15
1437	0.14	0.16	0.15
1438	0.14	0.16	0.15
1439	0.14	0.16	0.15
1440	0.14	0.16	0.15
1441	0.14	0.16	0.15
1442	0.15	0.16	0.15
1443	0.14	0.16	0.15
1444	0.14	0.16	0.15
1445	0.14	0.16	0.15
1446	0.14	0.17	0.15
1447	0.14	0.16	0.15
1448	0.15	0.16	0.15
1449	0.15	0.16	0.15
1450	0.15	0.15	0.15
1451	0.15	0.15	0.15
1452	0.15	0.15	0.15
1453	0.15	0.15	0.15
1454	0.15	0.16	0.15
1455	0.15	0.16	0.15
1456	0.15	0.15	0.15
1457	0.15	0.15	0.15
1458	0.16	0.15	0.15
1459	0.16	0.16	0.16
1460	0.16	0.16	0.16
1461	0.16	0.16	0.16
1462	0.16	0.16	0.16
1463	0.15	0.16	0.16
1464	0.15	0.16	0.15
1465	0.15	0.15	0.15
1466	0.15	0.16	0.15
1467	0.15	0.16	0.16
1468	0.16	0.16	0.16
1469	0.16	0.16	0.16
1470	0.16	0.17	0.16
1471	0.16	0.17	0.16
1472	0.16	0.17	0.16
1473	0.16	0.17	0.16
1474	0.16	0.17	0.16
1475	0.16	0.17	0.16
1476	0.16	0.18	0.17
1477	0.16	0.18	0.17

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1478	0.16	0.18	0.17
1479	0.17	0.18	0.17
1480	0.16	0.19	0.17
1481	0.16	0.19	0.17
1482	0.16	0.19	0.17
1483	0.17	0.19	0.17
1484	0.17	0.19	0.17
1485	0.17	0.19	0.18
1486	0.17	0.19	0.18
1487	0.17	0.20	0.18
1488	0.17	0.20	0.18
1489	0.16	0.20	0.17
1490	0.17	0.20	0.17
1491	0.17	0.20	0.17
1492	0.17	0.20	0.18
1493	0.17	0.20	0.18
1494	0.17	0.20	0.18
1495	0.17	0.20	0.18
1496	0.17	0.20	0.18
1497	0.17	0.20	0.18
1498	0.17	0.20	0.18
1499	0.17	0.20	0.18
1500	0.17	0.20	0.18
1501	0.17	0.20	0.18
1502	0.17	0.21	0.18
1503	0.17	0.21	0.18
1504	0.17	0.21	0.18
1505	0.17	0.21	0.18
1506	0.17	0.21	0.18
1507	0.17	0.21	0.18
1508	0.17	0.21	0.18
1509	0.17	0.22	0.18
1510	0.17	0.22	0.18
1511	0.17	0.22	0.19
1512	0.18	0.22	0.19
1513	0.18	0.23	0.19
1514	0.18	0.23	0.19
1515	0.18	0.23	0.19
1516	0.18	0.23	0.20
1517	0.19	0.23	0.20
1518	0.19	0.23	0.20
1519	0.19	0.23	0.20
1520	0.19	0.25	0.21
1521	0.19	0.25	0.21
1522	0.19	0.26	0.21
1523	0.20	0.26	0.21
1524	0.20	0.26	0.21
1525	0.20	0.26	0.21
1526	0.20	0.26	0.22
1527	0.20	0.26	0.22
1528	0.20	0.26	0.22
1529	0.21	0.25	0.22
1530	0.21	0.25	0.22
1531	0.22	0.24	0.22
1532	0.22	0.24	0.22
1533	0.22	0.24	0.23

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1534	0.22	0.24	0.23
1535	0.23	0.24	0.23
1536	0.23	0.24	0.23
1537	0.24	0.25	0.24
1538	0.24	0.25	0.24
1539	0.25	0.27	0.25
1540	0.25	0.27	0.25
1541	0.25	0.27	0.26
1542	0.25	0.27	0.26
1543	0.25	0.27	0.26
1544	0.26	0.27	0.26
1545	0.26	0.28	0.26
1546	0.26	0.28	0.27
1547	0.27	0.30	0.27
1548	0.27	0.30	0.28
1549	0.28	0.32	0.29
1550	0.28	0.34	0.30
1551	0.29	0.36	0.30
1552	0.29	0.37	0.31
1553	0.30	0.38	0.31
1554	0.30	0.38	0.32
1555	0.31	0.38	0.32
1556	0.31	0.38	0.33
1557	0.32	0.39	0.33
1558	0.33	0.40	0.34
1559	0.34	0.41	0.35
1560	0.36	0.41	0.37
1561	0.37	0.42	0.38
1562	0.38	0.42	0.39
1563	0.39	0.42	0.40
1564	0.40	0.43	0.40
1565	0.41	0.44	0.41
1566	0.41	0.45	0.42
1567	0.42	0.47	0.43
1568	0.43	0.48	0.44
1569	0.44	0.49	0.45
1570	0.45	0.49	0.46
1571	0.46	0.50	0.47
1572	0.47	0.50	0.48
1573	0.48	0.51	0.49
1574	0.49	0.52	0.49
1575	0.49	0.52	0.50
1576	0.50	0.52	0.50
1577	0.50	0.53	0.51
1578	0.51	0.54	0.52
1579	0.52	0.55	0.53
1580	0.53	0.56	0.54
1581	0.54	0.57	0.55
1582	0.55	0.57	0.55
1583	0.55	0.58	0.56
1584	0.56	0.58	0.56
1585	0.56	0.59	0.57
1586	0.57	0.59	0.58
1587	0.58	0.60	0.59
1588	0.58	0.61	0.59
1589	0.59	0.63	0.60

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1590	0.59	0.63	0.59
1591	0.59	0.65	0.60
1592	0.60	0.66	0.61
1593	0.60	0.68	0.62
1594	0.61	0.68	0.62
1595	0.62	0.70	0.64
1596	0.63	0.68	0.64
1597	0.64	0.69	0.65
1598	0.65	0.70	0.66
1599	0.66	0.70	0.67
1600	0.67	0.70	0.67
1601	0.67	0.71	0.68
1602	0.68	0.72	0.69
1603	0.69	0.72	0.69
1604	0.69	0.74	0.70
1605	0.70	0.73	0.71
1606	0.70	0.75	0.71
1607	0.71	0.76	0.72
1608	0.72	0.76	0.72
1609	0.72	0.76	0.73
1610	0.73	0.77	0.73
1611	0.74	0.78	0.74
1612	0.74	0.79	0.75
1613	0.74	0.79	0.75
1614	0.75	0.79	0.76
1615	0.76	0.80	0.77
1616	0.77	0.81	0.78
1617	0.78	0.81	0.79
1618	0.80	0.82	0.80
1619	0.80	0.82	0.80
1620	0.80	0.84	0.81
1621	0.81	0.85	0.82
1622	0.82	0.86	0.83
1623	0.83	0.87	0.83
1624	0.83	0.88	0.84
1625	0.84	0.87	0.85
1626	0.85	0.87	0.85
1627	0.85	0.86	0.86
1628	0.86	0.86	0.86
1629	0.87	0.87	0.87
1630	0.87	0.88	0.87
1631	0.87	0.89	0.88
1632	0.88	0.89	0.88
1633	0.88	0.90	0.88
1634	0.88	0.90	0.88
1635	0.88	0.90	0.89
1636	0.89	0.91	0.89
1637	0.89	0.92	0.90
1638	0.90	0.93	0.90
1639	0.90	0.94	0.91
1640	0.90	0.95	0.91
1641	0.91	0.95	0.92
1642	0.91	0.96	0.92
1643	0.91	0.97	0.92
1644	0.92	0.98	0.93
1645	0.93	0.99	0.94

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1646	0.93	1.00	0.95
1647	0.94	1.00	0.95
1648	0.95	1.02	0.96
1649	0.95	1.03	0.96
1650	0.94	1.04	0.96
1651	0.93	1.05	0.96
1652	0.93	1.07	0.95
1653	0.92	1.07	0.95
1654	0.92	1.08	0.95
1655	0.91	1.08	0.95
1656	0.91	1.10	0.95
1657	0.92	1.10	0.95
1658	0.92	1.10	0.96
1659	0.93	1.11	0.96
1660	0.93	1.11	0.96
1661	0.93	1.11	0.97
1662	0.93	1.10	0.96
1663	0.92	1.09	0.95
1664	0.92	1.09	0.95
1665	0.91	1.08	0.95
1666	0.91	1.06	0.94
1667	0.91	1.07	0.94
1668	0.90	1.07	0.94
1669	0.90	1.07	0.93
1670	0.90	1.06	0.93
1671	0.90	1.06	0.93
1672	0.89	1.04	0.92
1673	0.89	1.04	0.92
1674	0.88	1.04	0.91
1675	0.88	1.03	0.91
1676	0.88	1.04	0.91
1677	0.88	1.04	0.91
1678	0.88	1.04	0.91
1679	0.90	1.03	0.92
1680	0.90	1.03	0.93
1681	0.91	1.02	0.93
1682	0.91	1.02	0.93
1683	0.91	1.01	0.93
1684	0.90	1.00	0.92
1685	0.91	0.99	0.92
1686	0.91	0.99	0.93
1687	0.91	0.98	0.93
1688	0.92	0.97	0.93
1689	0.93	0.98	0.94
1690	0.94	0.98	0.95
1691	0.94	0.98	0.95
1692	0.95	0.99	0.96
1693	0.95	1.00	0.96
1694	0.95	1.00	0.96
1695	0.96	0.99	0.96
1696	0.96	1.00	0.97
1697	0.97	1.00	0.98
1698	0.98	1.00	0.99
1699	0.99	1.00	0.99
1700	1.00	1.00	1.00
1701	1.00	1.00	1.00

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1702	1.01	1.01	1.01
1703	1.02	1.02	1.02
1704	1.02	1.04	1.02
1705	1.03	1.06	1.03
1706	1.03	1.08	1.04
1707	1.04	1.09	1.05
1708	1.04	1.09	1.05
1709	1.04	1.09	1.05
1710	1.04	1.09	1.05
1711	1.05	1.09	1.06
1712	1.06	1.08	1.06
1713	1.07	1.08	1.07
1714	1.08	1.08	1.08
1715	1.08	1.09	1.09
1716	1.09	1.10	1.09
1717	1.10	1.11	1.10
1718	1.10	1.12	1.11
1719	1.11	1.13	1.12
1720	1.12	1.15	1.12
1721	1.12	1.15	1.12
1722	1.11	1.16	1.12
1723	1.11	1.17	1.12
1724	1.10	1.18	1.12
1725	1.09	1.19	1.11
1726	1.09	1.20	1.11
1727	1.09	1.21	1.11
1728	1.09	1.22	1.11
1729	1.08	1.22	1.11
1730	1.09	1.23	1.11
1731	1.09	1.24	1.12
1732	1.09	1.25	1.12
1733	1.10	1.27	1.13
1734	1.11	1.29	1.15
1735	1.13	1.30	1.16
1736	1.14	1.30	1.17
1737	1.15	1.31	1.18
1738	1.17	1.31	1.19
1739	1.19	1.31	1.21
1740	1.20	1.32	1.22
1741	1.21	1.32	1.23
1742	1.21	1.33	1.23
1743	1.22	1.34	1.24
1744	1.21	1.34	1.23
1745	1.22	1.35	1.24
1746	1.22	1.35	1.25
1747	1.23	1.36	1.26
1748	1.24	1.38	1.27
1749	1.26	1.38	1.28
1750	1.27	1.39	1.29
1751	1.28	1.42	1.31
1752	1.29	1.43	1.32
1753	1.31	1.44	1.33
1754	1.32	1.47	1.34
1755	1.33	1.47	1.36
1756	1.35	1.47	1.37
1757	1.36	1.49	1.38

Agricultural Index (cont.)

Year	Arable Index	Pasture Index	Agricultural Index
1758	1.37	1.51	1.40
1759	1.39	1.53	1.41
1760	1.40	1.55	1.43
1761	1.40	1.57	1.44
1762	1.41	1.58	1.45
1763	1.43	1.57	1.45
1764	1.44	1.57	1.46
1765	1.45	1.58	1.47
1766	1.46	1.58	1.49
1767	1.48	1.60	1.50
1768	1.50	1.61	1.52
1769	1.51	1.63	1.53
1770	1.52	1.64	1.54
1771	1.53	1.65	1.55
1772	1.54	1.66	1.56
1773	1.55	1.69	1.57
1774	1.55	1.70	1.58
1775	1.56	1.72	1.59
1776	1.57	1.74	1.61
1777	1.59	1.76	1.62
1778	1.60	1.76	1.63
1779	1.62	1.80	1.65
1780	1.64	1.82	1.67
1781	1.65	1.83	1.68
1782	1.66	1.84	1.70
1783	1.68	1.87	1.71
1784	1.69	1.88	1.73
1785	1.72	1.90	1.75
1786	1.74	1.93	1.78
1787	1.75	1.96	1.79
1788	1.78	1.97	1.82
1789	1.77	2.03	1.82

Table 36: Industrial Index (1700 = 1)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1280	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1281	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1282	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1283	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1284	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1285	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1286	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1287	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1288	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1289	0.06		0.07	0.18	0.27	0.09	0.12	0.02	0.05			0.10
1290	0.06		0.07	0.18	0.27	0.10	0.12	0.02	0.05			0.10
1291	0.06		0.07	0.18	0.27	0.10	0.12	0.02	0.05			0.10
1292	0.06		0.07	0.18	0.27	0.10	0.13	0.02	0.05			0.10
1293	0.06		0.08	0.18	0.27	0.10	0.13	0.02	0.05			0.10
1294	0.06		0.08	0.18	0.28	0.10	0.13	0.02	0.05			0.10
1295	0.06		0.08	0.18	0.28	0.10	0.13	0.02	0.05			0.10
1296	0.11		0.08	0.18	0.28	0.10	0.13	0.02	0.05			0.13

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1297	0.16		0.08	0.18	0.28	0.10	0.13	0.02	0.05			0.15
1298	0.15		0.08	0.18	0.27	0.10	0.13	0.02	0.05			0.15
1299	0.15		0.08	0.18	0.27	0.10	0.14	0.02	0.05			0.15
1300	0.15		0.08	0.18	0.28	0.09	0.14	0.03	0.05			0.15
1301	0.14		0.08	0.18	0.28	0.09	0.14	0.03	0.05			0.14
1302	0.14		0.08	0.18	0.28	0.09	0.14	0.04	0.05			0.14
1303	0.14		0.08	0.18	0.29	0.08	0.14	0.04	0.05			0.14
1304	0.13		0.08	0.18	0.30	0.08	0.14	0.05	0.05			0.14
1305	0.13		0.08	0.17	0.30	0.07	0.15	0.05	0.05			0.14
1306	0.15		0.08	0.17	0.30	0.07	0.15	0.05	0.05			0.15
1307	0.15		0.08	0.17	0.30	0.07	0.15	0.06	0.05			0.15
1308	0.13		0.08	0.17	0.30	0.07	0.15	0.06	0.05			0.14
1309	0.13		0.08	0.16	0.31	0.07	0.15	0.07	0.05			0.14
1310	0.12		0.08	0.14	0.31	0.12	0.15	0.07	0.05			0.13
1311	0.12		0.08	0.14	0.31	0.12	0.15	0.08	0.05			0.14
1312	0.12		0.08	0.14	0.31	0.12	0.15	0.08	0.06			0.14
1313	0.12		0.08	0.14	0.31	0.12	0.15	0.08	0.05			0.14
1314	0.12		0.08	0.15	0.32	0.12	0.15	0.09	0.04			0.14
1315	0.12		0.08	0.16	0.31	0.12	0.15	0.09	0.04			0.14
1316	0.12		0.09	0.16	0.30	0.13	0.15	0.10	0.04			0.14
1317	0.13		0.10	0.16	0.29	0.13	0.15	0.10	0.03			0.14
1318	0.13		0.10	0.16	0.27	0.13	0.15	0.11	0.03			0.14
1319	0.13		0.10	0.16	0.24	0.13	0.15	0.11	0.03			0.14
1320	0.15		0.10	0.15	0.25	0.13	0.15	0.11	0.03			0.15
1321	0.15		0.10	0.14	0.26	0.13	0.15	0.11	0.05			0.15
1322	0.15		0.10	0.14	0.25	0.13	0.16	0.11	0.06			0.15
1323	0.17		0.10	0.14	0.26	0.13	0.16	0.11	0.08			0.16
1324	0.16		0.10	0.14	0.28	0.13	0.16	0.11	0.09			0.16
1325	0.16		0.10	0.15	0.27	0.13	0.16	0.11	0.11			0.16
1326	0.18		0.10	0.15	0.27	0.13	0.16	0.11	0.11			0.17
1327	0.18		0.10	0.15	0.28	0.13	0.16	0.11	0.11			0.17
1328	0.18		0.09	0.15	0.28	0.13	0.16	0.11	0.11			0.17
1329	0.14		0.09	0.15	0.28	0.13	0.16	0.11	0.11			0.15
1330	0.14		0.09	0.15	0.29	0.13	0.16	0.10	0.12			0.16
1331	0.10		0.09	0.15	0.29	0.13	0.16	0.10	0.13			0.13
1332	0.10		0.09	0.15	0.29	0.13	0.16	0.10	0.13			0.13
1333	0.10		0.09	0.15	0.29	0.13	0.16	0.10	0.13			0.13
1334	0.10		0.09	0.14	0.29	0.13	0.16	0.10	0.13		0.90	0.18
1335	0.11		0.09	0.14	0.30	0.13	0.16	0.10	0.13		0.90	0.19
1336	0.12		0.09	0.14	0.30	0.13	0.16	0.09	0.13		0.90	0.19
1337	0.12		0.09	0.14	0.30	0.13	0.16	0.09	0.13		0.90	0.19
1338	0.13		0.09	0.14	0.31	0.14	0.09	0.09	0.12		0.90	0.19
1339	0.13		0.11	0.14	0.32	0.18	0.10	0.09	0.11		0.89	0.20
1340	0.16		0.11	0.14	0.33	0.18	0.10	0.09	0.10		0.89	0.21
1341	0.17		0.11	0.14	0.34	0.16	0.10	0.08	0.08		0.88	0.21
1342	0.15		0.11	0.14	0.34	0.16	0.11	0.08	0.08		0.88	0.21
1343	0.16		0.11	0.14	0.32	0.17	0.11	0.08	0.10		0.88	0.21
1344	0.16		0.09	0.14	0.30	0.14	0.11	0.08	0.11		0.87	0.21
1345	0.15		0.09	0.13	0.29	0.14	0.11	0.08	0.12		0.87	0.20
1346	0.14		0.10	0.13	0.29	0.15	0.11	0.08	0.13		0.86	0.19
1347	0.15		0.10	0.13	0.29	0.15	0.11	0.07	0.13		0.86	0.20
1348	0.15		0.10	0.13	0.30	0.14	0.12	0.07	0.13		0.86	0.20
1349	0.15		0.10	0.13	0.32	0.14	0.12	0.07	0.13		0.85	0.20
1350	0.15		0.10	0.13	0.32	0.14	0.12	0.07	0.13		0.85	0.20
1351	0.15		0.10	0.13	0.33	0.14	0.13	0.07	0.13		0.85	0.20
1352	0.15		0.10	0.13	0.33	0.14	0.13	0.06	0.13		0.84	0.20

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1353	0.15		0.10	0.13	0.32	0.14	0.12	0.06	0.13		0.84	0.20
1354	0.15		0.10	0.13	0.32	0.15	0.12	0.06	0.13		0.83	0.20
1355	0.15		0.10	0.13	0.33	0.15	0.13	0.06	0.13		0.83	0.20
1356	0.15		0.11	0.13	0.33	0.16	0.12	0.06	0.13		0.83	0.20
1357	0.16		0.11	0.13	0.33	0.17	0.13	0.07	0.14		0.79	0.21
1358	0.18		0.11	0.14	0.33	0.17	0.13	0.07	0.14		0.79	0.22
1359	0.18		0.11	0.14	0.33	0.17	0.13	0.07	0.14		0.79	0.22
1360	0.18		0.11	0.14	0.33	0.17	0.14	0.07	0.14		0.78	0.22
1361	0.18		0.11	0.13	0.33	0.16	0.14	0.08	0.14		0.78	0.22
1362	0.17		0.11	0.13	0.33	0.16	0.13	0.08	0.13		0.80	0.21
1363	0.16		0.11	0.12	0.34	0.16	0.13	0.08	0.13		0.80	0.21
1364	0.16		0.10	0.12	0.34	0.15	0.14	0.08	0.13		0.80	0.21
1365	0.16		0.10	0.12	0.34	0.14	0.13	0.08	0.14		0.79	0.21
1366	0.16		0.10	0.12	0.36	0.15	0.13	0.09	0.14		0.79	0.21
1367	0.16		0.10	0.12	0.36	0.14	0.13	0.09	0.14		0.79	0.21
1368	0.17		0.10	0.12	0.36	0.14	0.13	0.09	0.14		0.78	0.21
1369	0.17		0.10	0.11	0.36	0.14	0.13	0.09	0.14		0.78	0.21
1370	0.17		0.10	0.11	0.37	0.14	0.13	0.09	0.13		0.78	0.22
1371	0.18		0.10	0.12	0.35	0.14	0.13	0.10	0.13		0.77	0.22
1372	0.18		0.10	0.12	0.35	0.15	0.13	0.10	0.13		0.77	0.22
1373	0.17		0.10	0.12	0.36	0.15	0.14	0.10	0.12		0.71	0.21
1374	0.17		0.10	0.12	0.36	0.15	0.13	0.10	0.11		0.71	0.21
1375	0.17		0.10	0.12	0.36	0.15	0.13	0.11	0.12		0.70	0.21
1376	0.17		0.10	0.11	0.35	0.15	0.13	0.11	0.12		0.70	0.21
1377	0.17		0.10	0.11	0.35	0.15	0.13	0.11	0.12		0.70	0.21
1378	0.19		0.11	0.11	0.33	0.15	0.14	0.11	0.12		0.75	0.22
1379	0.20		0.11	0.10	0.33	0.15	0.14	0.11	0.13		0.74	0.22
1380	0.21		0.11	0.11	0.33	0.15	0.14	0.12	0.14		0.71	0.23
1381	0.22		0.11	0.12	0.34	0.16	0.14	0.12	0.15		0.66	0.24
1382	0.23		0.11	0.12	0.34	0.16	0.15	0.12	0.15		0.65	0.24
1383	0.23		0.12	0.13	0.36	0.17	0.15	0.07	0.16		0.65	0.24
1384	0.23		0.12	0.13	0.36	0.17	0.15	0.06	0.16		0.65	0.24
1385	0.24		0.12	0.12	0.36	0.17	0.15	0.06	0.15		0.67	0.25
1386	0.24		0.12	0.11	0.36	0.16	0.15	0.06	0.14		0.72	0.25
1387	0.24		0.12	0.12	0.35	0.16	0.15	0.03	0.14		0.65	0.25
1388	0.24		0.10	0.12	0.34	0.14	0.14	0.04	0.14		0.61	0.24
1389	0.24		0.10	0.13	0.33	0.14	0.14	0.03	0.15		0.59	0.24
1390	0.23		0.10	0.13	0.33	0.15	0.14	0.03	0.15		0.56	0.23
1391	0.23		0.10	0.13	0.33	0.15	0.14	0.08	0.15		0.52	0.23
1392	0.23		0.10	0.13	0.34	0.15	0.14	0.08	0.15		0.56	0.23
1393	0.23		0.11	0.12	0.35	0.16	0.14	0.12	0.15		0.57	0.23
1394	0.24		0.11	0.12	0.37	0.16	0.14	0.12	0.14		0.56	0.24
1395	0.24		0.11	0.11	0.36	0.17	0.15	0.10	0.14		0.55	0.24
1396	0.24		0.11	0.10	0.36	0.16	0.15	0.07	0.14		0.55	0.24
1397	0.24		0.11	0.11	0.36	0.17	0.15	0.07	0.14		0.55	0.24
1398	0.24		0.11	0.11	0.36	0.17	0.15	0.05	0.14		0.54	0.24
1399	0.24		0.11	0.11	0.35	0.16	0.16	0.05	0.15		0.54	0.24
1400	0.24		0.11	0.11	0.35	0.16	0.16	0.03	0.15		0.54	0.24
1401	0.24		0.10	0.12	0.35	0.15	0.17	0.03	0.15		0.53	0.24
1402	0.24		0.10	0.11	0.35	0.16	0.18	0.03	0.16		0.53	0.24
1403	0.23		0.10	0.11	0.34	0.15	0.18	0.05	0.15		0.55	0.23
1404	0.23		0.10	0.11	0.33	0.16	0.18	0.05	0.14		0.57	0.23
1405	0.23		0.11	0.11	0.31	0.17	0.18	0.05	0.14		0.59	0.24
1406	0.24		0.11	0.11	0.28	0.17	0.19	0.05	0.14		0.61	0.24
1407	0.24		0.11	0.11	0.27	0.17	0.19	0.07	0.14		0.63	0.24
1408	0.24		0.12	0.11	0.26	0.18	0.19	0.09	0.14		0.62	0.24

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1409	0.24		0.12	0.11	0.26	0.19	0.19	0.09	0.13		0.61	0.24
1410	0.24		0.12	0.11	0.26	0.19	0.19	0.09	0.13		0.60	0.24
1411	0.24		0.12	0.11	0.26	0.20	0.18	0.08	0.13		0.59	0.24
1412	0.25		0.12	0.11	0.26	0.20	0.18	0.12	0.14		0.58	0.24
1413	0.25		0.13	0.12	0.26	0.20	0.18	0.13	0.16	0.11	0.58	0.24
1414	0.26		0.13	0.12	0.26	0.21	0.18	0.14	0.17	0.11	0.56	0.25
1415	0.27		0.13	0.12	0.27	0.20	0.19	0.13	0.18	0.11	0.56	0.25
1416	0.27		0.13	0.12	0.28	0.21	0.20	0.18	0.18	0.10	0.55	0.26
1417	0.27		0.13	0.12	0.29	0.22	0.20	0.12	0.17	0.10	0.55	0.26
1418	0.28		0.13	0.12	0.29	0.21	0.21	0.12	0.17	0.09	0.55	0.26
1419	0.28		0.13	0.12	0.30	0.21	0.21	0.12	0.15	0.09	0.56	0.26
1420	0.28		0.13	0.12	0.29	0.22	0.21	0.12	0.14	0.09	0.56	0.26
1421	0.28		0.13	0.12	0.28	0.22	0.21	0.10	0.16	0.09	0.56	0.26
1422	0.28		0.13	0.11	0.28	0.22	0.21	0.10	0.17	0.09	0.55	0.26
1423	0.28		0.13	0.11	0.28	0.22	0.21	0.10	0.17	0.10	0.55	0.26
1424	0.28		0.13	0.11	0.27	0.21	0.21	0.10	0.19	0.09	0.55	0.26
1425	0.28		0.13	0.11	0.28	0.21	0.21	0.10	0.20	0.09	0.55	0.26
1426	0.27		0.12	0.11	0.28	0.20	0.21	0.10	0.19	0.09	0.55	0.26
1427	0.27		0.12	0.11	0.28	0.20	0.21	0.10	0.18	0.09	0.56	0.26
1428	0.27		0.13	0.11	0.27	0.21	0.21	0.10	0.18	0.09	0.56	0.26
1429	0.27		0.13	0.11	0.27	0.22	0.21	0.10	0.18	0.09	0.56	0.26
1430	0.27		0.13	0.11	0.27	0.23	0.21	0.10	0.18	0.09	0.56	0.25
1431	0.27		0.14	0.11	0.27	0.24	0.22	0.10	0.18	0.10	0.56	0.26
1432	0.27		0.14	0.12	0.27	0.23	0.21	0.10	0.18	0.10	0.56	0.26
1433	0.27		0.14	0.12	0.27	0.23	0.21	0.10	0.18	0.11	0.56	0.26
1434	0.27		0.13	0.12	0.27	0.22	0.21	0.10	0.19	0.11	0.55	0.26
1435	0.28		0.13	0.12	0.27	0.22	0.21	0.10	0.19	0.11	0.53	0.26
1436	0.27		0.13	0.12	0.28	0.22	0.21	0.10	0.20	0.11	0.53	0.26
1437	0.27		0.13	0.12	0.28	0.22	0.22	0.10	0.18	0.11	0.53	0.26
1438	0.28		0.13	0.12	0.28	0.22	0.22	0.10	0.19	0.11	0.53	0.26
1439	0.27		0.13	0.12	0.28	0.21	0.21	0.10	0.19	0.11	0.52	0.26
1440	0.28		0.13	0.12	0.28	0.21	0.21	0.10	0.19	0.11	0.53	0.26
1441	0.28		0.12	0.12	0.28	0.20	0.21	0.10	0.17	0.11	0.52	0.26
1442	0.28		0.12	0.12	0.28	0.19	0.20	0.10	0.18	0.11	0.51	0.26
1443	0.28		0.12	0.12	0.28	0.19	0.19	0.09	0.18	0.10	0.51	0.25
1444	0.28		0.12	0.12	0.29	0.20	0.20	0.09	0.16	0.10	0.51	0.26
1445	0.28		0.12	0.12	0.29	0.20	0.20	0.09	0.16	0.10	0.50	0.26
1446	0.28		0.13	0.11	0.29	0.21	0.20	0.09	0.17	0.10	0.51	0.26
1447	0.28		0.13	0.12	0.29	0.22	0.21	0.08	0.16	0.10	0.51	0.26
1448	0.27		0.13	0.12	0.30	0.21	0.21	0.09	0.14	0.11	0.49	0.25
1449	0.27		0.13	0.12	0.29	0.21	0.21	0.09	0.15	0.11	0.49	0.25
1450	0.27		0.13	0.12	0.30	0.21	0.21	0.09	0.15	0.11	0.49	0.25
1451	0.27		0.13	0.12	0.30	0.20	0.21	0.09	0.15	0.11	0.48	0.25
1452	0.26		0.12	0.12	0.30	0.20	0.21	0.09	0.16	0.12	0.48	0.25
1453	0.27		0.13	0.12	0.29	0.21	0.21	0.08	0.16	0.12	0.49	0.25
1454	0.27		0.13	0.12	0.29	0.21	0.21	0.08	0.17	0.12	0.48	0.25
1455	0.27		0.12	0.12	0.28	0.20	0.21	0.08	0.17	0.12	0.48	0.25
1456	0.27		0.13	0.12	0.28	0.21	0.21	0.08	0.17	0.12	0.48	0.25
1457	0.27		0.13	0.12	0.28	0.20	0.21	0.09	0.17	0.13	0.46	0.25
1458	0.27		0.12	0.12	0.28	0.20	0.22	0.09	0.18	0.13	0.45	0.25
1459	0.27		0.13	0.12	0.28	0.20	0.22	0.09	0.17	0.12	0.45	0.25
1460	0.28		0.13	0.13	0.28	0.20	0.22	0.09	0.17	0.12	0.45	0.25
1461	0.28		0.12	0.13	0.28	0.20	0.22	0.09	0.17	0.12	0.45	0.25
1462	0.28		0.12	0.13	0.29	0.20	0.21	0.09	0.17	0.12	0.45	0.26
1463	0.28		0.12	0.13	0.29	0.19	0.21	0.09	0.17	0.13	0.46	0.26
1464	0.27		0.12	0.13	0.29	0.18	0.21	0.09	0.17	0.13	0.43	0.25

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1465	0.27		0.12	0.13	0.29	0.19	0.21	0.09	0.17	0.14	0.43	0.25
1466	0.27		0.12	0.13	0.29	0.19	0.21	0.08	0.17	0.14	0.43	0.25
1467	0.27		0.12	0.13	0.28	0.19	0.21	0.09	0.16	0.14	0.43	0.25
1468	0.27		0.12	0.13	0.28	0.20	0.22	0.09	0.16	0.14	0.43	0.25
1469	0.26		0.13	0.13	0.28	0.21	0.22	0.09	0.16	0.14	0.44	0.25
1470	0.27		0.12	0.12	0.28	0.21	0.22	0.08	0.17	0.14	0.44	0.25
1471	0.26		0.12	0.12	0.28	0.21	0.22	0.08	0.17	0.14	0.45	0.24
1472	0.26		0.13	0.13	0.28	0.21	0.22	0.08	0.16	0.14	0.44	0.24
1473	0.25		0.13	0.12	0.28	0.21	0.22	0.08	0.17	0.14	0.44	0.24
1474	0.26		0.13	0.13	0.28	0.21	0.22	0.08	0.17	0.14	0.44	0.24
1475	0.25		0.13	0.13	0.29	0.22	0.22	0.08	0.16	0.14	0.44	0.24
1476	0.25		0.13	0.13	0.29	0.21	0.22	0.08	0.16	0.14	0.43	0.24
1477	0.25		0.13	0.13	0.28	0.21	0.22	0.08	0.16	0.14	0.42	0.24
1478	0.26		0.12	0.13	0.28	0.20	0.22	0.08	0.16	0.14	0.42	0.24
1479	0.26		0.13	0.13	0.28	0.21	0.22	0.08	0.17	0.14	0.41	0.25
1480	0.26		0.12	0.13	0.28	0.20	0.22	0.09	0.17	0.14	0.40	0.24
1481	0.26		0.13	0.13	0.28	0.21	0.22	0.09	0.17	0.14	0.40	0.24
1482	0.26		0.13	0.13	0.28	0.21	0.21	0.09	0.17	0.14	0.40	0.25
1483	0.26		0.13	0.13	0.28	0.22	0.21	0.09	0.17	0.14	0.39	0.25
1484	0.26		0.13	0.13	0.28	0.22	0.21	0.09	0.17	0.14	0.40	0.24
1485	0.26		0.13	0.13	0.27	0.20	0.21	0.09	0.17	0.14	0.41	0.24
1486	0.26		0.13	0.13	0.26	0.20	0.21	0.09	0.17	0.14	0.40	0.24
1487	0.26		0.12	0.13	0.25	0.20	0.21	0.09	0.17	0.14	0.40	0.24
1488	0.26		0.12	0.13	0.24	0.19	0.21	0.09	0.17	0.14	0.39	0.24
1489	0.25		0.12	0.13	0.24	0.19	0.21	0.09	0.17	0.14	0.38	0.23
1490	0.26		0.12	0.13	0.24	0.20	0.21	0.09	0.17	0.14	0.38	0.24
1491	0.25		0.12	0.13	0.24	0.20	0.21	0.09	0.16	0.14	0.37	0.24
1492	0.25		0.12	0.14	0.23	0.20	0.21	0.09	0.16	0.14	0.37	0.23
1493	0.25		0.12	0.14	0.23	0.20	0.21	0.09	0.16	0.14	0.38	0.23
1494	0.25		0.12	0.14	0.23	0.20	0.21	0.09	0.17	0.14	0.38	0.23
1495	0.25		0.12	0.14	0.24	0.20	0.21	0.09	0.16	0.14	0.38	0.23
1496	0.25		0.13	0.14	0.25	0.21	0.21	0.09	0.16	0.13	0.37	0.23
1497	0.25		0.13	0.14	0.26	0.21	0.21	0.09	0.16	0.13	0.37	0.23
1498	0.22		0.14	0.14	0.27	0.21	0.21	0.09	0.16	0.13	0.36	0.22
1499	0.19		0.14	0.15	0.28	0.21	0.20	0.09	0.16	0.13	0.36	0.21
1500	0.17		0.15	0.15	0.28	0.22	0.20	0.10	0.16	0.13	0.36	0.19
1501	0.14	0.29	0.16	0.15	0.28	0.21	0.20	0.10	0.15	0.13	0.35	0.21
1502	0.11	0.29	0.17	0.15	0.28	0.22	0.19	0.10	0.15	0.13	0.33	0.20
1503	0.11	0.29	0.16	0.15	0.28	0.21	0.19	0.10	0.15	0.13	0.32	0.20
1504	0.12	0.30	0.16	0.15	0.27	0.21	0.19	0.10	0.14	0.14	0.30	0.20
1505	0.12	0.30	0.16	0.15	0.27	0.21	0.19	0.09	0.14	0.14	0.30	0.21
1506	0.13	0.31	0.15	0.15	0.25	0.20	0.19	0.09	0.13	0.14	0.30	0.21
1507	0.13	0.31	0.15	0.15	0.25	0.20	0.19	0.10	0.13	0.14	0.31	0.21
1508	0.14	0.31	0.14	0.15	0.24	0.20	0.19	0.10	0.13	0.14	0.30	0.21
1509	0.15	0.32	0.14	0.14	0.23	0.20	0.20	0.11	0.13	0.13	0.31	0.21
1510	0.15	0.32	0.14	0.14	0.22	0.19	0.18	0.14	0.13	0.13	0.30	0.21
1511	0.16	0.33	0.14	0.14	0.22	0.19	0.19	0.14	0.14	0.13	0.30	0.22
1512	0.16	0.33	0.13	0.14	0.21	0.19	0.20	0.14	0.14	0.14	0.30	0.22
1513	0.16	0.34	0.13	0.14	0.21	0.19	0.20	0.14	0.15	0.14	0.30	0.22
1514	0.17	0.34	0.13	0.14	0.21	0.19	0.18	0.14	0.15	0.14	0.30	0.22
1515	0.18	0.35	0.13	0.14	0.21	0.19	0.21	0.11	0.15	0.14	0.30	0.23
1516	0.18	0.35	0.12	0.14	0.20	0.19	0.22	0.11	0.15	0.13	0.29	0.23
1517	0.19	0.36	0.12	0.14	0.20	0.19	0.23	0.11	0.14	0.13	0.29	0.23
1518	0.21	0.36	0.12	0.14	0.21	0.20	0.23	0.12	0.15	0.13	0.31	0.24
1519	0.22	0.37	0.12	0.15	0.22	0.20	0.27	0.11	0.16	0.13	0.33	0.26
1520	0.22	0.37	0.12	0.16	0.22	0.20	0.28	0.11	0.18	0.13	0.34	0.26

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1521	0.23	0.38	0.12	0.17	0.23	0.21	0.29	0.11	0.19	0.14	0.37	0.27
1522	0.23	0.38	0.13	0.17	0.24	0.22	0.29	0.14	0.20	0.15	0.39	0.27
1523	0.23	0.39	0.13	0.18	0.26	0.22	0.30	0.15	0.21	0.15	0.39	0.28
1524	0.23	0.39	0.13	0.18	0.26	0.22	0.31	0.17	0.22	0.14	0.40	0.28
1525	0.25	0.40	0.13	0.18	0.26	0.22	0.31	0.16	0.22	0.15	0.40	0.29
1526	0.25	0.40	0.13	0.18	0.26	0.21	0.32	0.16	0.22	0.15	0.41	0.29
1527	0.26	0.41	0.12	0.18	0.27	0.20	0.30	0.13	0.24	0.15	0.42	0.29
1528	0.27	0.41	0.12	0.18	0.26	0.20	0.31	0.13	0.25	0.15	0.43	0.30
1529	0.28	0.42	0.12	0.18	0.25	0.20	0.32	0.10	0.23	0.16	0.44	0.30
1530	0.27	0.42	0.13	0.19	0.25	0.20	0.32	0.10	0.23	0.15	0.46	0.30
1531	0.27	0.42	0.13	0.19	0.25	0.20	0.33	0.13	0.22	0.15	0.46	0.31
1532	0.28	0.43	0.13	0.19	0.26	0.20	0.37	0.13	0.22	0.15	0.47	0.32
1533	0.28	0.43	0.13	0.20	0.26	0.21	0.37	0.12	0.23	0.15	0.48	0.32
1534	0.28	0.44	0.12	0.20	0.26	0.21	0.38	0.12	0.24	0.16	0.50	0.32
1535	0.29	0.44	0.12	0.20	0.27	0.22	0.39	0.12	0.27	0.17	0.50	0.33
1536	0.30	0.45	0.12	0.20	0.27	0.23	0.40	0.11	0.28	0.18	0.54	0.34
1537	0.30	0.45	0.12	0.20	0.26	0.23	0.41	0.13	0.27	0.18	0.57	0.34
1538	0.31	0.46	0.12	0.20	0.26	0.24	0.39	0.14	0.27	0.18	0.60	0.35
1539	0.32	0.46	0.12	0.20	0.25	0.24	0.41	0.14	0.27	0.18	0.64	0.35
1540	0.32	0.47	0.12	0.20	0.25	0.26	0.39	0.15	0.27	0.19	0.66	0.36
1541	0.32	0.47	0.13	0.20	0.26	0.26	0.42	0.15	0.29	0.19	0.64	0.36
1542	0.33	0.44	0.13	0.20	0.25	0.26	0.45	0.13	0.27	0.19	0.63	0.36
1543	0.33	0.45	0.13	0.21	0.24	0.26	0.45	0.13	0.26	0.17	0.61	0.36
1544	0.34	0.45	0.14	0.21	0.24	0.26	0.44	0.13	0.25	0.18	0.59	0.36
1545	0.34	0.46	0.14	0.20	0.24	0.26	0.48	0.13	0.24	0.17	0.58	0.36
1546	0.34	0.46	0.14	0.21	0.23	0.26	0.46	0.12	0.22	0.17	0.58	0.36
1547	0.35	0.50	0.15	0.21	0.22	0.27	0.45	0.12	0.21	0.17	0.59	0.37
1548	0.35	0.51	0.14	0.21	0.27	0.27	0.47	0.14	0.20	0.19	0.60	0.38
1549	0.35	0.48	0.15	0.21	0.31	0.28	0.48	0.16	0.20	0.19	0.62	0.38
1550	0.36	0.48	0.15	0.21	0.36	0.29	0.49	0.18	0.20	0.21	0.64	0.39
1551	0.35	0.43	0.16	0.21	0.42	0.30	0.49	0.19	0.20	0.21	0.66	0.39
1552	0.35	0.39	0.16	0.21	0.47	0.31	0.50	0.20	0.21	0.22	0.66	0.38
1553	0.35	0.40	0.17	0.22	0.51	0.31	0.49	0.19	0.22	0.22	0.68	0.39
1554	0.35	0.44	0.17	0.22	0.52	0.32	0.49	0.21	0.22	0.23	0.67	0.40
1555	0.35	0.44	0.17	0.23	0.53	0.32	0.50	0.23	0.23	0.23	0.66	0.40
1556	0.36	0.50	0.17	0.24	0.55	0.33	0.50	0.26	0.23	0.23	0.66	0.42
1557	0.37	0.53	0.18	0.24	0.56	0.33	0.50	0.29	0.23	0.24	0.66	0.43
1558	0.38	0.50	0.18	0.24	0.59	0.34	0.52	0.31	0.24	0.23	0.67	0.44
1559	0.39	0.50	0.19	0.24	0.64	0.35	0.54	0.31	0.26	0.23	0.70	0.45
1560	0.40	0.51	0.19	0.24	0.70	0.35	0.55	0.29	0.28	0.24	0.75	0.46
1561	0.42	0.51	0.19	0.24	0.71	0.36	0.57	0.28	0.30	0.24	0.80	0.48
1562	0.44	0.50	0.20	0.23	0.75	0.37	0.58	0.27	0.33	0.24	0.83	0.49
1563	0.46	0.51	0.20	0.23	0.78	0.38	0.59	0.27	0.34	0.26	0.87	0.50
1564	0.47	0.51	0.21	0.24	0.79	0.38	0.59	0.27	0.34	0.26	0.85	0.51
1565	0.48	0.52	0.22	0.24	0.81	0.39	0.57	0.28	0.33	0.26	0.81	0.51
1566	0.48	0.49	0.22	0.24	0.83	0.40	0.55	0.29	0.32	0.30	0.79	0.50
1567	0.49	0.53	0.23	0.26	0.85	0.40	0.56	0.31	0.31	0.31	0.77	0.52
1568	0.50	0.54	0.23	0.26	0.84	0.40	0.57	0.32	0.30	0.31	0.74	0.52
1569	0.50	0.51	0.24	0.26	0.86	0.42	0.58	0.32	0.32	0.31	0.77	0.52
1570	0.50	0.49	0.25	0.26	0.82	0.43	0.60	0.33	0.32	0.32	0.80	0.52
1571	0.50	0.50	0.25	0.27	0.81	0.45	0.62	0.34	0.31	0.29	0.82	0.53
1572	0.51	0.48	0.27	0.27	0.82	0.46	0.62	0.34	0.32	0.28	0.85	0.53
1573	0.51	0.48	0.27	0.27	0.82	0.48	0.62	0.35	0.32	0.27	0.88	0.53
1574	0.52	0.49	0.28	0.27	0.80	0.49	0.63	0.36	0.32	0.27	0.87	0.53
1575	0.51	0.48	0.29	0.27	0.79	0.49	0.65	0.38	0.33	0.27	0.86	0.53
1576	0.50	0.48	0.29	0.26	0.80	0.50	0.66	0.38	0.34	0.28	0.85	0.53

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1577	0.49	0.49	0.30	0.26	0.80	0.50	0.66	0.38	0.34	0.30	0.81	0.53
1578	0.48	0.49	0.30	0.27	0.78	0.50	0.69	0.37	0.37	0.32	0.80	0.53
1579	0.48	0.50	0.31	0.24	0.77	0.51	0.69	0.38	0.35	0.32	0.81	0.52
1580	0.48	0.49	0.32	0.22	0.84	0.52	0.70	0.38	0.38	0.33	0.82	0.53
1581	0.49	0.48	0.32	0.21	0.87	0.53	0.72	0.39	0.38	0.33	0.83	0.53
1582	0.49	0.47	0.32	0.22	0.88	0.53	0.73	0.40	0.38	0.33	0.86	0.54
1583	0.50	0.47	0.33	0.22	0.88	0.55	0.75	0.42	0.37	0.34	0.89	0.54
1584	0.51	0.47	0.34	0.25	0.89	0.56	0.76	0.43	0.37	0.35	0.91	0.56
1585	0.51	0.49	0.35	0.28	0.92	0.57	0.77	0.43	0.38	0.35	0.94	0.57
1586	0.52	0.51	0.36	0.29	0.98	0.58	0.78	0.41	0.41	0.36	0.97	0.59
1587	0.52	0.52	0.37	0.28	0.98	0.60	0.80	0.41	0.41	0.35	0.99	0.60
1588	0.52	0.57	0.38	0.28	1.05	0.63	0.80	0.41	0.43	0.35	0.98	0.62
1589	0.53	0.57	0.38	0.32	1.12	0.66	0.81	0.40	0.46	0.34	0.97	0.63
1590	0.53	0.58	0.39	0.33	1.06	0.69	0.82	0.41	0.44	0.34	0.96	0.63
1591	0.53	0.58	0.40	0.32	1.03	0.75	0.82	0.42	0.45	0.34	1.02	0.63
1592	0.54	0.59	0.40	0.33	1.08	0.78	0.83	0.43	0.46	0.34	1.04	0.65
1593	0.54	0.57	0.42	0.34	1.10	0.79	0.84	0.42	0.48	0.36	1.08	0.65
1594	0.55	0.57	0.43	0.32	1.10	0.80	0.85	0.41	0.48	0.38	1.12	0.66
1595	0.56	0.57	0.45	0.33	1.13	0.81	0.86	0.42	0.49	0.38	1.16	0.67
1596	0.56	0.58	0.45	0.35	1.20	0.79	0.88	0.43	0.50	0.40	1.14	0.68
1597	0.56	0.58	0.46	0.38	1.21	0.79	0.90	0.43	0.51	0.41	1.11	0.69
1598	0.58	0.59	0.48	0.39	1.21	0.79	0.90	0.44	0.52	0.42	1.09	0.69
1599	0.59	0.59	0.49	0.37	1.22	0.78	0.88	0.47	0.52	0.43	1.06	0.69
1600	0.60	0.60	0.50	0.36	1.24	0.77	0.86	0.48	0.54	0.43	1.04	0.69
1601	0.61	0.61	0.53	0.36	1.16	0.76	0.85	0.47	0.51	0.44	1.01	0.69
1602	0.63	0.62	0.54	0.35	1.14	0.75	0.82	0.48	0.50	0.44	1.02	0.69
1603	0.63	0.61	0.56	0.33	1.08	0.74	0.81	0.48	0.48	0.44	1.03	0.68
1604	0.63	0.61	0.57	0.34	1.04	0.75	0.82	0.45	0.46	0.45	1.04	0.68
1605	0.64	0.62	0.58	0.35	1.05	0.74	0.81	0.46	0.49	0.45	1.03	0.68
1606	0.64	0.64	0.59	0.38	1.06	0.74	0.80	0.46	0.49	0.46	1.02	0.69
1607	0.65	0.63	0.60	0.41	1.03	0.74	0.80	0.47	0.47	0.47	1.01	0.69
1608	0.66	0.63	0.62	0.42	1.03	0.74	0.77	0.47	0.47	0.48	1.00	0.69
1609	0.67	0.64	0.66	0.43	1.03	0.73	0.75	0.48	0.47	0.49	1.01	0.70
1610	0.69	0.63	0.68	0.43	1.00	0.73	0.75	0.48	0.43	0.49	1.02	0.70
1611	0.70	0.63	0.71	0.42	0.99	0.73	0.75	0.49	0.44	0.50	1.03	0.70
1612	0.72	0.63	0.73	0.40	1.00	0.73	0.75	0.50	0.46	0.50	1.03	0.71
1613	0.72	0.65	0.74	0.41	1.02	0.74	0.77	0.50	0.47	0.51	1.04	0.72
1614	0.73	0.67	0.73	0.41	1.02	0.73	0.78	0.51	0.47	0.52	1.01	0.73
1615	0.73	0.67	0.73	0.42	1.06	0.73	0.77	0.52	0.50	0.52	0.99	0.73
1616	0.74	0.68	0.73	0.43	1.07	0.72	0.77	0.53	0.50	0.53	0.99	0.73
1617	0.74	0.68	0.73	0.43	1.07	0.72	0.76	0.53	0.48	0.54	0.99	0.74
1618	0.75	0.68	0.72	0.44	1.08	0.72	0.75	0.53	0.49	0.54	1.00	0.74
1619	0.75	0.69	0.73	0.45	1.08	0.73	0.76	0.54	0.49	0.55	1.01	0.75
1620	0.75	0.69	0.72	0.49	1.05	0.73	0.77	0.55	0.47	0.56	1.04	0.75
1621	0.76	0.70	0.72	0.53	1.06	0.74	0.77	0.56	0.47	0.56	1.05	0.76
1622	0.76	0.71	0.72	0.57	1.06	0.73	0.77	0.57	0.47	0.57	1.06	0.77
1623	0.76	0.71	0.72	0.61	1.06	0.73	0.78	0.58	0.47	0.58	1.07	0.77
1624	0.77	0.72	0.72	0.62	1.07	0.73	0.77	0.58	0.48	0.59	1.10	0.78
1625	0.77	0.73	0.72	0.63	1.07	0.73	0.78	0.58	0.48	0.59	1.12	0.78
1626	0.77	0.73	0.72	0.64	1.13	0.73	0.78	0.59	0.51	0.60	1.13	0.79
1627	0.77	0.74	0.72	0.65	1.13	0.73	0.77	0.60	0.52	0.61	1.13	0.80
1628	0.77	0.74	0.72	0.66	1.14	0.73	0.75	0.63	0.52	0.61	1.09	0.80
1629	0.78	0.75	0.72	0.70	1.14	0.73	0.75	0.63	0.53	0.62	1.10	0.80
1630	0.78	0.75	0.72	0.71	1.14	0.73	0.74	0.63	0.54	0.63	1.11	0.80
1631	0.79	0.75	0.72	0.71	1.09	0.74	0.75	0.64	0.53	0.64	1.11	0.80
1632	0.79	0.75	0.73	0.72	1.10	0.75	0.76	0.64	0.53	0.64	1.12	0.81

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1633	0.79	0.74	0.73	0.72	1.10	0.75	0.77	0.64	0.54	0.65	1.18	0.81
1634	0.80	0.74	0.73	0.71	1.10	0.75	0.77	0.66	0.54	0.66	1.18	0.81
1635	0.81	0.74	0.73	0.72	1.09	0.75	0.77	0.68	0.54	0.67	1.17	0.81
1636	0.81	0.75	0.74	0.73	1.11	0.76	0.76	0.68	0.54	0.67	1.18	0.82
1637	0.81	0.75	0.75	0.74	1.11	0.77	0.75	0.68	0.55	0.68	1.19	0.82
1638	0.82	0.76	0.75	0.74	1.11	0.77	0.75	0.66	0.55	0.69	1.20	0.82
1639	0.83	0.76	0.75	0.75	1.11	0.78	0.77	0.68	0.56	0.66	1.20	0.83
1640	0.83	0.77	0.76	0.74	1.13	0.78	0.78	0.69	0.61	0.67	1.23	0.84
1641	0.83	0.76	0.76	0.75	1.12	0.78	0.77	0.69	0.62	0.68	1.22	0.84
1642	0.83	0.77	0.75	0.76	1.12	0.77	0.77	0.70	0.62	0.67	1.22	0.84
1643	0.84	0.78	0.75	0.74	1.12	0.77	0.77	0.72	0.63	0.68	1.20	0.84
1644	0.84	0.80	0.75	0.75	1.12	0.78	0.77	0.71	0.64	0.73	1.22	0.85
1645	0.84	0.81	0.74	0.76	1.12	0.78	0.76	0.72	0.60	0.74	1.20	0.85
1646	0.85	0.84	0.75	0.75	1.13	0.78	0.76	0.72	0.60	0.74	1.19	0.86
1647	0.85	0.86	0.75	0.75	1.13	0.78	0.75	0.73	0.63	0.76	1.18	0.87
1648	0.85	0.88	0.76	0.76	1.14	0.80	0.75	0.74	0.65	0.77	1.16	0.87
1649	0.87	0.89	0.76	0.75	1.14	0.80	0.74	0.74	0.65	0.78	1.13	0.88
1650	0.87	0.91	0.77	0.74	1.15	0.79	0.75	0.75	0.65	0.79	1.11	0.88
1651	0.88	0.92	0.76	0.75	1.15	0.81	0.77	0.76	0.66	0.80	1.10	0.89
1652	0.88	0.92	0.76	0.76	1.15	0.81	0.77	0.77	0.64	0.81	1.09	0.89
1653	0.88	0.93	0.76	0.76	1.13	0.80	0.78	0.77	0.63	0.81	1.08	0.89
1654	0.87	0.93	0.77	0.76	1.13	0.80	0.79	0.77	0.64	0.82	1.07	0.89
1655	0.88	0.93	0.77	0.75	1.13	0.80	0.79	0.76	0.65	0.83	1.06	0.89
1656	0.88	0.94	0.78	0.75	1.13	0.81	0.79	0.76	0.65	0.84	1.06	0.89
1657	0.88	0.94	0.79	0.75	1.13	0.83	0.79	0.75	0.66	0.85	1.07	0.90
1658	0.89	0.95	0.79	0.76	1.13	0.83	0.79	0.75	0.66	0.86	1.06	0.90
1659	0.88	0.95	0.79	0.78	1.17	0.83	0.80	0.75	0.69	0.87	1.05	0.91
1660	0.88	0.96	0.79	0.80	1.17	0.83	0.80	0.73	0.69	0.88	1.06	0.91
1661	0.87	0.97	0.79	0.81	1.17	0.82	0.80	0.71	0.70	0.89	1.04	0.91
1662	0.86	0.97	0.78	0.82	1.17	0.81	0.79	0.68	0.70	0.89	1.02	0.91
1663	0.85	0.98	0.78	0.82	1.17	0.81	0.80	0.66	0.72	0.90	1.01	0.91
1664	0.86	0.98	0.79	0.83	1.20	0.82	0.81	0.68	0.74	0.91	1.00	0.91
1665	0.86	0.98	0.79	0.83	1.20	0.82	0.82	0.69	0.74	0.92	0.99	0.92
1666	0.86	0.99	0.79	0.82	1.21	0.83	0.82	0.69	0.75	0.92	0.98	0.92
1667	0.87	1.00	0.80	0.83	1.21	0.84	0.83	0.70	0.75	0.93	0.98	0.92
1668	0.90	1.00	0.80	0.83	1.21	0.84	0.84	0.73	0.74	0.89	0.97	0.93
1669	0.90	1.00	0.80	0.84	1.13	0.84	0.84	0.69	0.69	0.86	0.97	0.93
1670	0.90	1.02	0.81	0.84	1.13	0.84	0.83	0.70	0.70	0.79	0.96	0.93
1671	0.93	1.02	0.81	0.87	1.11	0.85	0.84	0.71	0.70	0.75	0.96	0.94
1672	0.94	1.02	0.82	0.87	1.11	0.85	0.85	0.72	0.71	0.72	0.96	0.95
1673	0.92	1.03	0.82	0.88	1.11	0.86	0.85	0.70	0.74	0.73	0.95	0.94
1674	0.92	1.03	0.82	0.88	1.11	0.86	0.84	0.70	0.76	0.75	0.95	0.94
1675	0.92	1.03	0.82	0.89	1.10	0.86	0.85	0.71	0.77	0.80	0.95	0.94
1676	0.89	1.03	0.82	0.89	1.10	0.86	0.86	0.72	0.77	0.82	0.95	0.94
1677	0.89	1.04	0.83	0.90	1.12	0.87	0.85	0.76	0.80	0.84	0.95	0.94
1678	0.90	1.04	0.83	0.90	1.12	0.88	0.85	0.76	0.80	0.85	0.94	0.95
1679	0.90	1.05	0.84	0.91	1.11	0.88	0.87	0.77	0.81	0.86	0.94	0.95
1680	0.91	1.05	0.84	0.92	1.11	0.89	0.87	0.78	0.82	0.88	0.94	0.96
1681	0.91	1.05	0.85	0.92	1.11	0.89	0.87	0.79	0.82	0.89	0.94	0.96
1682	0.92	1.03	0.84	0.93	1.08	0.89	0.88	0.75	0.81	0.89	0.94	0.95
1683	0.90	1.03	0.84	0.91	1.08	0.89	0.89	0.76	0.81	0.90	0.95	0.95
1684	0.91	1.02	0.85	0.91	1.09	0.89	0.89	0.77	0.81	0.91	0.95	0.95
1685	0.91	1.02	0.85	0.92	1.07	0.90	0.90	0.78	0.82	0.92	0.95	0.95
1686	0.91	1.02	0.86	0.92	1.08	0.91	0.90	0.82	0.83	0.93	0.95	0.95
1687	0.91	1.04	0.86	0.92	1.08	0.92	0.92	0.83	0.83	0.95	0.95	0.96
1688	0.92	1.04	0.87	0.95	1.13	0.92	0.94	0.84	0.86	0.96	0.95	0.97

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1689	0.92	1.05	0.87	0.95	1.13	0.93	0.95	0.85	0.87	0.98	0.96	0.98
1690	0.92	1.05	0.87	0.94	1.12	0.93	0.95	0.90	0.88	0.99	0.96	0.98
1691	0.93	1.06	0.87	0.95	1.11	0.93	0.97	0.86	0.88	1.00	0.96	0.98
1692	0.93	1.06	0.88	0.95	1.10	0.94	0.96	0.87	0.89	0.99	1.05	0.99
1693	0.94	1.07	0.89	0.95	1.07	0.94	0.95	0.88	0.89	0.99	1.05	0.99
1694	0.95	1.07	0.90	0.95	1.06	0.95	0.96	0.94	0.90	1.01	1.06	1.00
1695	0.95	1.08	0.92	0.97	1.06	0.98	0.98	0.90	0.90	1.02	1.06	1.00
1696	0.98	1.08	0.94	0.97	1.05	0.99	0.97	0.91	0.91	1.03	1.07	1.01
1697	1.00	1.09	0.94	0.98	1.05	1.00	0.96	0.92	0.91	1.01	1.00	1.02
1698	0.99	1.07	0.98	0.99	1.01	1.00	0.99	0.95	0.94	1.02	1.00	1.01
1699	1.00	1.03	0.99	0.99	1.01	1.01	1.00	0.95	0.97	0.99	0.99	1.01
1700	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1701	0.98	0.97	1.01	1.00	0.99	1.00	1.01	1.05	1.03	1.01	1.01	0.99
1702	0.98	0.94	1.02	0.96	0.99	1.01	1.03	1.10	1.06	1.06	1.02	0.98
1703	0.99	0.94	1.01	0.97	0.98	1.01	1.02	1.12	1.07	1.07	1.02	0.98
1704	1.01	0.94	1.00	0.97	0.98	1.01	1.02	1.12	1.07	1.12	1.05	0.99
1705	1.02	0.95	0.99	0.97	0.98	1.01	1.02	1.13	1.08	1.13	1.06	1.00
1706	1.03	0.95	0.99	0.98	1.01	1.02	1.03	1.14	1.10	1.15	1.07	1.01
1707	1.02	0.96	0.98	0.99	1.06	1.02	1.04	1.17	1.12	1.18	1.08	1.02
1708	1.03	0.96	0.98	1.01	1.09	1.02	1.05	1.16	1.13	1.21	1.05	1.02
1709	1.03	0.97	0.98	1.03	1.08	1.03	1.06	1.19	1.12	1.22	1.03	1.02
1710	1.03	0.97	0.98	1.04	1.10	1.03	1.06	1.19	1.14	1.24	1.02	1.03
1711	1.03	0.98	0.98	1.06	1.12	1.02	1.07	1.20	1.15	1.25	0.99	1.03
1712	1.03	0.98	0.98	1.11	1.07	1.03	1.07	1.19	1.14	1.24	1.01	1.04
1713	1.03	0.99	0.98	1.06	1.04	1.03	1.08	1.22	1.14	1.24	1.02	1.03
1714	1.03	0.99	0.98	1.02	1.03	1.02	1.10	1.21	1.17	1.24	1.04	1.03
1715	1.02	1.08	0.98	0.97	1.00	1.03	1.12	1.22	1.17	1.24	1.03	1.04
1716	1.02	1.16	0.98	0.92	0.92	1.03	1.12	1.23	1.14	1.23	1.04	1.05
1717	1.02	1.25	0.99	0.92	0.95	1.03	1.13	1.27	1.15	1.25	1.07	1.08
1718	1.02	1.67	0.99	1.08	1.05	1.05	1.16	1.25	1.15	1.27	1.08	1.21
1719	1.07	1.80	1.00	1.23	1.21	1.06	1.17	1.26	1.15	1.29	1.09	1.29
1720	1.13	1.85	1.01	1.42	1.36	1.07	1.19	1.26	1.17	1.32	1.11	1.36
1721	1.19	1.90	1.02	1.56	1.44	1.08	1.20	1.27	1.18	1.33	1.12	1.41
1722	1.26	1.94	1.01	1.66	1.47	1.09	1.21	1.22	1.18	1.33	1.07	1.45
1723	1.31	1.64	1.01	1.66	1.45	1.09	1.21	1.21	1.20	1.32	1.15	1.39
1724	1.31	1.63	1.01	1.65	1.38	1.09	1.20	1.22	1.22	1.32	1.16	1.38
1725	1.31	1.63	1.01	1.57	1.35	1.10	1.19	1.23	1.22	1.31	1.17	1.38
1726	1.31	1.63	1.02	1.56	1.41	1.10	1.19	1.24	1.27	1.26	1.21	1.38
1727	1.31	1.63	1.03	1.56	1.45	1.11	1.17	1.27	1.30	1.28	1.26	1.39
1728	1.32	1.66	1.04	1.56	1.50	1.11	1.17	1.32	1.31	1.30	1.25	1.40
1729	1.33	1.68	1.04	1.55	1.56	1.12	1.16	1.33	1.31	1.32	1.31	1.42
1730	1.34	1.70	1.05	1.59	1.54	1.14	1.14	1.34	1.31	1.32	1.36	1.43
1731	1.36	1.73	1.05	1.58	1.51	1.14	1.13	1.35	1.27	1.33	1.38	1.44
1732	1.36	1.75	1.05	1.58	1.49	1.15	1.12	1.34	1.27	1.32	1.39	1.44
1733	1.36	1.75	1.06	1.55	1.48	1.17	1.10	1.31	1.27	1.32	1.40	1.44
1734	1.37	1.76	1.06	1.55	1.47	1.18	1.09	1.31	1.29	1.32	1.42	1.44
1735	1.37	1.76	1.06	1.60	1.49	1.19	1.08	1.30	1.30	1.32	1.43	1.45
1736	1.37	1.77	1.07	1.63	1.57	1.21	1.07	1.28	1.34	1.40	1.46	1.47
1737	1.37	1.78	1.08	1.58	1.59	1.22	1.10	1.28	1.35	1.41	1.48	1.47
1738	1.36	1.79	1.08	1.61	1.56	1.23	1.10	1.28	1.35	1.33	1.49	1.47
1739	1.36	1.80	1.08	1.61	1.50	1.23	1.10	1.29	1.34	1.30	1.56	1.47
1740	1.36	1.81	1.09	1.56	1.47	1.24	1.10	1.31	1.34	1.27	1.62	1.47
1741	1.36	1.82	1.10	1.50	1.37	1.25	1.10	1.35	1.33	1.21	1.63	1.46
1742	1.37	1.83	1.10	1.52	1.34	1.25	1.07	1.35	1.32	1.18	1.65	1.46
1743	1.37	1.84	1.11	1.52	1.36	1.26	1.06	1.35	1.33	1.23	1.66	1.47
1744	1.38	1.85	1.13	1.52	1.38	1.27	1.06	1.36	1.34	1.24	1.63	1.47

Industrial Index (cont.)

Year	Linen	Wool	Soap	Lime	Tiles	Candles	Oillight	Coal	Lead	Copper	Iron	Industrial Index
1745	1.39	1.87	1.14	1.52	1.40	1.28	1.08	1.35	1.35	1.24	1.60	1.49
1746	1.41	1.88	1.15	1.56	1.42	1.29	1.08	1.34	1.33	1.20	1.61	1.50
1747	1.41	1.90	1.15	1.59	1.45	1.29	1.07	1.37	1.34	1.21	1.63	1.51
1748	1.38	1.91	1.16	1.54	1.47	1.29	1.08	1.43	1.35	1.21	1.65	1.51
1749	1.39	1.93	1.16	1.54	1.45	1.31	1.09	1.44	1.33	1.22	1.70	1.51
1750	1.40	1.95	1.16	1.55	1.44	1.32	1.10	1.47	1.34	1.22	1.74	1.52
1751	1.41	1.96	1.18	1.55	1.42	1.33	1.12	1.41	1.37	1.29	1.78	1.54
1752	1.42	2.00	1.20	1.56	1.40	1.35	1.15	1.35	1.38	1.29	1.82	1.56
1753	1.47	2.01	1.21	1.62	1.39	1.37	1.17	1.33	1.39	1.29	1.85	1.58
1754	1.49	2.03	1.22	1.63	1.42	1.37	1.18	1.40	1.43	1.29	1.87	1.60
1755	1.49	2.05	1.23	1.64	1.44	1.38	1.19	1.37	1.44	1.29	1.88	1.61
1756	1.48	2.07	1.23	1.65	1.47	1.40	1.20	1.50	1.45	1.30	1.92	1.62
1757	1.47	2.08	1.24	1.65	1.50	1.40	1.21	1.62	1.46	1.30	1.94	1.63
1758	1.46	2.10	1.25	1.66	1.54	1.41	1.22	1.67	1.47	1.32	1.95	1.63
1759	1.44	2.12	1.26	1.67	1.57	1.42	1.21	1.68	1.48	1.32	1.97	1.64
1760	1.45	2.15	1.27	1.68	1.60	1.43	1.21	1.76	1.49	1.32	1.99	1.65
1761	1.41	2.17	1.28	1.69	1.67	1.44	1.21	1.77	1.49	1.33	2.05	1.66
1762	1.42	2.19	1.29	1.70	1.70	1.45	1.21	1.78	1.50	1.33	2.07	1.68
1763	1.43	2.22	1.30	1.71	1.72	1.47	1.22	1.67	1.51	1.33	2.09	1.69
1764	1.45	2.25	1.32	1.69	1.75	1.47	1.23	1.67	1.52	1.34	2.11	1.70
1765	1.45	2.27	1.33	1.70	1.78	1.49	1.24	1.54	1.53	1.34	2.13	1.72
1766	1.52	2.30	1.34	1.71	1.73	1.49	1.25	1.55	1.54	1.33	2.06	1.74
1767	1.52	2.33	1.35	1.77	1.76	1.50	1.27	1.56	1.55	1.33	2.08	1.76
1768	1.54	2.36	1.36	1.78	1.80	1.50	1.28	1.68	1.56	1.34	2.09	1.78
1769	1.55	2.38	1.36	1.86	1.83	1.49	1.28	1.71	1.57	1.34	2.09	1.80
1770	1.56	2.41	1.35	1.92	1.86	1.48	1.29	1.85	1.58	1.34	2.14	1.82
1771	1.57	2.44	1.37	1.97	1.96	1.49	1.31	1.88	1.59	1.35	2.18	1.85
1772	1.59	2.48	1.38	1.99	2.00	1.50	1.33	1.86	1.60	1.36	2.21	1.87
1773	1.62	2.51	1.39	2.04	2.03	1.51	1.36	1.87	1.61	1.34	2.24	1.90
1774	1.64	2.54	1.42	2.00	2.06	1.54	1.38	1.86	1.62	1.35	2.25	1.93
1775	1.65	2.57	1.44	1.94	2.06	1.56	1.40	1.87	1.65	1.35	2.22	1.93
1776	1.66	2.61	1.46	1.87	2.06	1.57	1.44	1.84	1.66	1.35	2.21	1.94
1777	1.67	2.64	1.47	1.88	2.06	1.58	1.49	1.86	1.67	1.35	2.19	1.96
1778	1.66	2.68	1.49	1.94	2.05	1.59	1.52	1.79	1.67	1.37	2.18	1.97
1779	1.65	2.72	1.50	2.01	2.06	1.59	1.56	1.68	1.68	1.37	2.20	1.99
1780	1.68	2.75	1.51	2.10	2.10	1.60	1.57	1.51	1.68	1.37	2.23	2.03
1781	1.70	2.79	1.53	2.21	2.11	1.61	1.56	1.50	1.69	1.37	2.25	2.05
1782	1.73	2.82	1.54	2.23	2.24	1.62	1.57	1.49	1.70	1.37	2.24	2.09
1783	1.79	2.86	1.55	2.21	2.30	1.63	1.57	1.51	1.71	1.37	2.24	2.12
1784	1.80	2.90	1.57	2.23	2.34	1.64	1.58	1.65	1.72	1.37	2.28	2.14
1785	1.85	2.82	1.58	2.22	2.38	1.65	1.61	1.81	1.74	1.37	2.29	2.15
1786	1.91	2.68	1.59	2.24	2.42	1.65	1.64	1.80	1.75	1.37	2.28	2.14
1787	2.01	2.55	1.62	2.17	2.37	1.68	1.66	1.73	1.70	1.30	2.34	2.13
1788	1.98	2.54	1.61	2.18	2.39	1.67	1.68	1.92	1.77	1.30	2.25	2.12
1789	2.04	2.46	1.62	2.20	2.44	1.68	1.70	1.93	1.77	1.28	2.12	2.12

Table 37: Agricultural output per capita: different models (1500 = 1)

year	Model I	Model II	Model III	Model IV	Model V
1280	0.91	0.86	0.81	0.77	0.73
1281	0.90	0.85	0.80	0.75	0.71
1282	0.89	0.84	0.79	0.74	0.70
1283	0.89	0.83	0.78	0.73	0.69

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1284	0.88	0.83	0.78	0.73	0.69
1285	0.90	0.85	0.81	0.77	0.73
1286	0.90	0.86	0.81	0.77	0.73
1287	0.91	0.87	0.83	0.79	0.75
1288	0.94	0.90	0.86	0.83	0.80
1289	0.95	0.92	0.88	0.85	0.82
1290	0.95	0.92	0.89	0.86	0.83
1291	0.95	0.92	0.89	0.86	0.83
1292	0.95	0.92	0.89	0.86	0.83
1293	0.96	0.93	0.90	0.87	0.84
1294	0.93	0.89	0.85	0.82	0.79
1295	0.91	0.87	0.83	0.79	0.75
1296	0.94	0.90	0.86	0.83	0.80
1297	0.96	0.93	0.89	0.86	0.83
1298	0.98	0.96	0.93	0.90	0.88
1299	1.00	0.98	0.96	0.93	0.91
1300	1.00	0.98	0.96	0.94	0.92
1301	1.01	0.99	0.97	0.95	0.94
1302	1.03	1.01	1.00	0.99	0.98
1303	1.03	1.02	1.00	0.99	0.98
1304	1.01	0.98	0.96	0.94	0.92
1305	0.99	0.96	0.93	0.90	0.88
1306	1.02	1.00	0.97	0.95	0.93
1307	1.02	1.00	0.98	0.95	0.93
1308	1.03	1.01	0.99	0.98	0.96
1309	1.03	1.01	1.00	0.98	0.97
1310	1.03	1.01	1.00	0.99	0.97
1311	1.02	1.00	0.99	0.97	0.95
1312	1.03	1.02	1.00	0.99	0.98
1313	1.04	1.03	1.02	1.02	1.01
1314	1.05	1.05	1.05	1.06	1.06
1315	1.03	1.02	1.01	1.00	1.00
1316	1.03	1.02	1.01	1.01	1.00
1317	1.04	1.04	1.03	1.03	1.02
1318	1.03	1.02	1.01	1.00	0.99
1319	1.01	0.99	0.97	0.95	0.93
1320	0.99	0.97	0.94	0.92	0.90
1321	1.00	0.98	0.96	0.94	0.92
1322	1.01	0.99	0.97	0.95	0.93
1323	1.02	1.00	0.98	0.97	0.95
1324	1.02	1.00	0.99	0.97	0.96
1325	1.05	1.04	1.04	1.03	1.03
1326	1.06	1.05	1.05	1.05	1.04
1327	1.06	1.05	1.05	1.05	1.05
1328	1.06	1.06	1.05	1.05	1.05
1329	1.04	1.04	1.04	1.04	1.04
1330	1.03	1.03	1.02	1.01	1.01
1331	1.00	0.99	0.99	0.98	0.97
1332	1.00	0.99	0.98	0.97	0.96
1333	1.02	1.01	1.01	1.00	1.00
1334	1.05	1.04	1.04	1.03	1.03
1335	1.06	1.06	1.06	1.06	1.05
1336	1.07	1.07	1.07	1.07	1.08
1337	1.07	1.08	1.08	1.08	1.09
1338	1.05	1.05	1.05	1.04	1.04
1339	1.06	1.05	1.05	1.05	1.04

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1340	1.06	1.05	1.04	1.04	1.03
1341	1.05	1.05	1.04	1.03	1.02
1342	1.05	1.04	1.04	1.03	1.02
1343	1.05	1.05	1.04	1.04	1.03
1344	1.05	1.05	1.05	1.04	1.04
1345	1.05	1.05	1.04	1.04	1.04
1346	1.05	1.05	1.05	1.05	1.04
1347	1.06	1.06	1.06	1.06	1.06
1348	1.06	1.06	1.06	1.06	1.06
1349	1.04	1.04	1.04	1.03	1.03
1350	1.06	1.06	1.07	1.07	1.07
1351	1.06	1.07	1.07	1.08	1.08
1352	1.06	1.06	1.07	1.07	1.08
1353	1.05	1.06	1.06	1.07	1.08
1354	1.07	1.08	1.09	1.10	1.11
1355	1.07	1.09	1.10	1.12	1.13
1356	1.07	1.09	1.10	1.12	1.14
1357	1.09	1.11	1.13	1.15	1.18
1358	1.10	1.12	1.15	1.18	1.20
1359	1.10	1.13	1.16	1.18	1.21
1360	1.09	1.12	1.14	1.16	1.19
1361	1.09	1.11	1.12	1.14	1.17
1362	1.07	1.09	1.10	1.11	1.13
1363	1.06	1.07	1.09	1.10	1.11
1364	1.06	1.08	1.09	1.10	1.11
1365	1.06	1.06	1.07	1.08	1.09
1366	1.05	1.06	1.06	1.07	1.07
1367	1.05	1.06	1.06	1.07	1.07
1368	1.05	1.05	1.06	1.06	1.06
1369	1.05	1.05	1.06	1.06	1.06
1370	1.06	1.06	1.07	1.07	1.08
1371	1.06	1.06	1.07	1.08	1.09
1372	1.06	1.06	1.07	1.08	1.08
1373	1.05	1.06	1.07	1.07	1.08
1374	1.05	1.06	1.06	1.07	1.08
1375	1.05	1.05	1.06	1.06	1.07
1376	1.04	1.05	1.05	1.06	1.06
1377	1.04	1.04	1.04	1.04	1.04
1378	1.05	1.05	1.05	1.05	1.05
1379	1.05	1.05	1.05	1.05	1.05
1380	1.04	1.04	1.05	1.05	1.05
1381	1.04	1.04	1.04	1.04	1.04
1382	1.04	1.03	1.03	1.02	1.02
1383	1.03	1.02	1.01	1.00	1.00
1384	1.02	1.01	1.01	1.00	0.99
1385	1.03	1.02	1.01	1.00	0.99
1386	1.03	1.02	1.01	1.00	1.00
1387	1.03	1.03	1.02	1.02	1.01
1388	1.03	1.03	1.02	1.01	1.01
1389	1.03	1.02	1.01	1.01	1.00
1390	1.03	1.02	1.01	1.00	0.99
1391	1.02	1.01	1.00	0.99	0.99
1392	1.01	1.00	0.99	0.98	0.96
1393	1.01	1.00	0.99	0.97	0.96
1394	1.02	1.00	0.99	0.98	0.97
1395	1.02	1.00	0.99	0.98	0.96

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1396	1.02	1.00	0.99	0.98	0.97
1397	1.02	1.00	0.99	0.98	0.96
1398	1.02	1.01	1.00	0.98	0.97
1399	1.02	1.00	0.99	0.98	0.96
1400	1.01	0.99	0.98	0.96	0.95
1401	1.00	0.98	0.97	0.95	0.94
1402	1.00	0.98	0.96	0.95	0.93
1403	1.00	0.98	0.96	0.95	0.93
1404	1.00	0.98	0.97	0.95	0.93
1405	1.00	0.98	0.96	0.95	0.93
1406	1.00	0.98	0.97	0.95	0.93
1407	1.01	0.99	0.98	0.97	0.95
1408	1.00	0.99	0.97	0.96	0.94
1409	1.01	0.99	0.98	0.96	0.95
1410	1.01	0.99	0.98	0.96	0.95
1411	1.01	1.00	0.98	0.97	0.96
1412	1.01	1.00	0.99	0.97	0.96
1413	1.01	1.00	0.99	0.98	0.97
1414	1.02	1.00	0.99	0.98	0.97
1415	1.02	1.01	1.00	0.99	0.98
1416	1.02	1.01	1.00	0.99	0.98
1417	1.02	1.00	0.99	0.98	0.97
1418	1.01	1.00	0.99	0.97	0.96
1419	1.01	1.00	0.99	0.98	0.96
1420	1.01	1.00	0.99	0.97	0.96
1421	1.01	1.00	0.99	0.97	0.96
1422	1.01	1.00	0.99	0.97	0.96
1423	1.02	1.00	0.99	0.98	0.97
1424	1.02	1.01	0.99	0.98	0.97
1425	1.02	1.01	1.00	0.98	0.97
1426	1.02	1.01	1.00	0.99	0.98
1427	1.02	1.01	1.00	1.00	0.99
1428	1.02	1.01	1.01	1.00	0.99
1429	1.03	1.02	1.01	1.00	0.99
1430	1.03	1.02	1.02	1.01	1.01
1431	1.03	1.03	1.02	1.02	1.01
1432	1.03	1.03	1.02	1.02	1.01
1433	1.04	1.03	1.03	1.02	1.02
1434	1.03	1.03	1.02	1.02	1.01
1435	1.03	1.03	1.02	1.02	1.01
1436	1.04	1.03	1.02	1.02	1.01
1437	1.04	1.03	1.03	1.02	1.02
1438	1.04	1.03	1.03	1.02	1.02
1439	1.04	1.03	1.03	1.02	1.02
1440	1.04	1.03	1.03	1.02	1.02
1441	1.04	1.03	1.03	1.02	1.02
1442	1.04	1.03	1.02	1.02	1.01
1443	1.04	1.03	1.03	1.02	1.02
1444	1.04	1.03	1.03	1.02	1.02
1445	1.04	1.03	1.02	1.02	1.01
1446	1.04	1.03	1.03	1.02	1.02
1447	1.04	1.03	1.03	1.02	1.02
1448	1.03	1.03	1.02	1.02	1.01
1449	1.03	1.03	1.02	1.02	1.01
1450	1.04	1.03	1.03	1.03	1.02
1451	1.03	1.03	1.02	1.02	1.01

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1452	1.03	1.03	1.02	1.02	1.01
1453	1.03	1.03	1.02	1.02	1.01
1454	1.03	1.02	1.01	1.01	1.00
1455	1.03	1.02	1.02	1.01	1.01
1456	1.04	1.03	1.03	1.03	1.02
1457	1.04	1.04	1.03	1.03	1.03
1458	1.04	1.04	1.04	1.05	1.05
1459	1.05	1.05	1.05	1.06	1.06
1460	1.05	1.05	1.05	1.06	1.06
1461	1.05	1.05	1.05	1.05	1.06
1462	1.05	1.05	1.06	1.06	1.06
1463	1.05	1.05	1.05	1.06	1.06
1464	1.05	1.05	1.06	1.06	1.07
1465	1.05	1.05	1.06	1.06	1.07
1466	1.05	1.05	1.06	1.06	1.06
1467	1.05	1.05	1.05	1.05	1.06
1468	1.04	1.04	1.04	1.04	1.03
1469	1.02	1.01	1.01	1.00	0.99
1470	1.01	1.00	0.99	0.98	0.97
1471	1.00	0.99	0.97	0.96	0.95
1472	1.00	0.98	0.96	0.94	0.92
1473	1.00	0.98	0.97	0.95	0.93
1474	1.01	0.99	0.98	0.97	0.96
1475	1.01	1.00	0.99	0.97	0.96
1476	1.01	1.00	0.99	0.98	0.97
1477	1.01	1.00	0.99	0.99	0.98
1478	1.01	1.00	0.99	0.98	0.98
1479	1.01	1.00	0.99	0.98	0.97
1480	1.01	1.00	0.99	0.98	0.97
1481	1.01	1.00	0.99	0.98	0.97
1482	1.01	1.00	0.99	0.98	0.97
1483	1.01	1.00	0.99	0.98	0.97
1484	1.00	0.99	0.98	0.97	0.96
1485	1.00	0.99	0.98	0.97	0.96
1486	1.00	1.00	0.99	0.98	0.97
1487	1.00	1.00	0.99	0.98	0.97
1488	1.01	1.00	0.99	0.98	0.98
1489	1.01	1.00	1.00	0.99	0.99
1490	1.01	1.00	1.00	0.99	0.99
1491	1.01	1.00	0.99	0.99	0.98
1492	1.01	1.00	0.99	0.99	0.98
1493	1.00	1.00	0.99	0.98	0.97
1494	1.00	1.00	0.99	0.98	0.97
1495	1.00	1.00	0.99	0.98	0.98
1496	1.01	1.01	1.00	1.00	0.99
1497	1.01	1.00	1.00	0.99	0.99
1498	1.00	1.00	0.99	0.99	0.98
1499	1.00	1.00	1.00	1.00	0.99
1500	1.00	1.00	1.00	1.00	1.00
1501	1.01	1.01	1.00	1.00	1.00
1502	1.01	1.01	1.01	1.01	1.01
1503	1.01	1.01	1.01	1.01	1.01
1504	1.00	1.00	1.00	1.00	1.00
1505	1.00	0.99	0.99	0.98	0.98
1506	0.99	0.99	0.98	0.98	0.97
1507	0.99	0.98	0.98	0.97	0.96

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1508	0.99	0.98	0.97	0.96	0.96
1509	0.99	0.98	0.97	0.96	0.95
1510	0.99	0.98	0.97	0.96	0.95
1511	0.99	0.98	0.97	0.96	0.96
1512	0.99	0.98	0.97	0.96	0.96
1513	0.99	0.98	0.97	0.96	0.95
1514	0.99	0.98	0.97	0.96	0.95
1515	0.99	0.98	0.97	0.96	0.95
1516	0.99	0.97	0.96	0.95	0.94
1517	0.99	0.97	0.96	0.95	0.94
1518	0.99	0.98	0.97	0.96	0.95
1519	0.99	0.98	0.97	0.96	0.95
1520	0.99	0.98	0.96	0.95	0.94
1521	0.99	0.98	0.97	0.96	0.94
1522	0.99	0.98	0.97	0.95	0.94
1523	0.99	0.98	0.97	0.96	0.95
1524	1.00	0.99	0.97	0.96	0.95
1525	1.00	0.99	0.98	0.97	0.96
1526	1.00	0.99	0.98	0.97	0.96
1527	1.00	0.99	0.98	0.97	0.96
1528	1.00	0.99	0.98	0.97	0.96
1529	1.00	0.99	0.98	0.97	0.96
1530	1.00	0.99	0.98	0.97	0.96
1531	1.00	0.99	0.98	0.97	0.96
1532	1.00	0.99	0.98	0.97	0.96
1533	1.00	0.99	0.98	0.96	0.95
1534	1.00	0.99	0.97	0.96	0.95
1535	1.00	0.98	0.97	0.95	0.94
1536	1.00	0.98	0.97	0.95	0.94
1537	0.99	0.98	0.96	0.95	0.93
1538	0.99	0.97	0.95	0.94	0.92
1539	0.98	0.96	0.94	0.92	0.90
1540	0.98	0.96	0.94	0.92	0.90
1541	0.98	0.96	0.93	0.91	0.89
1542	0.98	0.95	0.93	0.91	0.89
1543	0.98	0.96	0.93	0.91	0.89
1544	0.98	0.95	0.93	0.91	0.89
1545	0.97	0.95	0.92	0.90	0.88
1546	0.97	0.94	0.92	0.89	0.87
1547	0.97	0.94	0.91	0.89	0.86
1548	0.97	0.95	0.92	0.90	0.88
1549	0.98	0.95	0.93	0.91	0.89
1550	0.98	0.96	0.94	0.92	0.91
1551	0.98	0.97	0.95	0.94	0.92
1552	0.99	0.97	0.96	0.95	0.94
1553	0.98	0.97	0.96	0.94	0.93
1554	0.99	0.97	0.96	0.95	0.93
1555	0.98	0.97	0.96	0.94	0.93
1556	0.99	0.97	0.96	0.95	0.93
1557	0.99	0.98	0.96	0.95	0.94
1558	0.98	0.97	0.95	0.94	0.92
1559	0.98	0.96	0.95	0.93	0.91
1560	0.98	0.96	0.94	0.92	0.91
1561	0.98	0.96	0.94	0.92	0.90
1562	0.97	0.95	0.93	0.92	0.90
1563	0.98	0.96	0.94	0.92	0.90

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1564	0.97	0.95	0.94	0.92	0.90
1565	0.97	0.95	0.93	0.91	0.90
1566	0.97	0.94	0.92	0.90	0.88
1567	0.97	0.94	0.92	0.90	0.88
1568	0.96	0.94	0.92	0.90	0.88
1569	0.96	0.94	0.92	0.90	0.88
1570	0.96	0.94	0.92	0.90	0.88
1571	0.96	0.94	0.92	0.90	0.88
1572	0.96	0.94	0.92	0.90	0.88
1573	0.96	0.94	0.91	0.89	0.87
1574	0.96	0.94	0.92	0.90	0.88
1575	0.96	0.94	0.92	0.90	0.88
1576	0.96	0.94	0.92	0.90	0.88
1577	0.95	0.93	0.91	0.89	0.88
1578	0.95	0.92	0.90	0.88	0.86
1579	0.94	0.92	0.89	0.87	0.85
1580	0.94	0.92	0.89	0.87	0.85
1581	0.94	0.92	0.89	0.87	0.85
1582	0.94	0.92	0.89	0.87	0.85
1583	0.94	0.92	0.90	0.88	0.86
1584	0.95	0.92	0.90	0.88	0.86
1585	0.95	0.92	0.90	0.88	0.86
1586	0.95	0.92	0.90	0.88	0.86
1587	0.95	0.92	0.90	0.88	0.86
1588	0.95	0.92	0.90	0.88	0.86
1589	0.95	0.92	0.90	0.88	0.86
1590	0.95	0.93	0.90	0.88	0.86
1591	0.95	0.93	0.91	0.89	0.87
1592	0.95	0.93	0.91	0.89	0.87
1593	0.95	0.93	0.91	0.89	0.87
1594	0.95	0.93	0.91	0.89	0.87
1595	0.95	0.93	0.91	0.88	0.86
1596	0.94	0.92	0.90	0.87	0.85
1597	0.94	0.92	0.89	0.87	0.84
1598	0.94	0.91	0.89	0.86	0.84
1599	0.94	0.91	0.88	0.86	0.83
1600	0.94	0.91	0.88	0.86	0.83
1601	0.94	0.91	0.89	0.87	0.84
1602	0.94	0.91	0.89	0.87	0.84
1603	0.94	0.92	0.89	0.87	0.85
1604	0.94	0.91	0.89	0.87	0.85
1605	0.94	0.91	0.89	0.87	0.85
1606	0.94	0.91	0.89	0.87	0.85
1607	0.94	0.91	0.89	0.87	0.84
1608	0.94	0.91	0.89	0.86	0.84
1609	0.94	0.91	0.89	0.86	0.84
1610	0.94	0.91	0.89	0.86	0.84
1611	0.93	0.91	0.88	0.86	0.84
1612	0.93	0.91	0.88	0.86	0.83
1613	0.94	0.91	0.89	0.86	0.84
1614	0.94	0.91	0.89	0.86	0.84
1615	0.93	0.91	0.88	0.86	0.84
1616	0.93	0.91	0.89	0.86	0.84
1617	0.93	0.91	0.89	0.86	0.84
1618	0.93	0.90	0.88	0.86	0.83
1619	0.93	0.90	0.88	0.86	0.83

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1620	0.93	0.90	0.88	0.85	0.83
1621	0.93	0.90	0.88	0.85	0.83
1622	0.93	0.90	0.88	0.85	0.83
1623	0.93	0.90	0.88	0.85	0.83
1624	0.93	0.90	0.88	0.85	0.83
1625	0.93	0.90	0.88	0.85	0.83
1626	0.93	0.90	0.88	0.86	0.83
1627	0.93	0.91	0.88	0.86	0.83
1628	0.93	0.91	0.88	0.86	0.84
1629	0.93	0.91	0.88	0.86	0.83
1630	0.93	0.91	0.88	0.86	0.83
1631	0.93	0.90	0.88	0.86	0.83
1632	0.93	0.91	0.88	0.86	0.84
1633	0.93	0.91	0.88	0.86	0.84
1634	0.93	0.91	0.89	0.86	0.84
1635	0.93	0.91	0.89	0.87	0.84
1636	0.93	0.91	0.89	0.87	0.85
1637	0.93	0.91	0.89	0.87	0.85
1638	0.93	0.91	0.89	0.87	0.84
1639	0.94	0.91	0.89	0.87	0.85
1640	0.94	0.91	0.89	0.87	0.85
1641	0.94	0.91	0.89	0.87	0.85
1642	0.94	0.92	0.89	0.87	0.85
1643	0.94	0.92	0.90	0.88	0.86
1644	0.94	0.92	0.90	0.88	0.86
1645	0.94	0.92	0.90	0.88	0.86
1646	0.94	0.92	0.90	0.88	0.86
1647	0.94	0.91	0.89	0.87	0.85
1648	0.93	0.91	0.89	0.87	0.84
1649	0.93	0.91	0.89	0.86	0.84
1650	0.93	0.91	0.89	0.87	0.84
1651	0.94	0.91	0.89	0.87	0.85
1652	0.94	0.92	0.90	0.87	0.85
1653	0.94	0.92	0.90	0.88	0.86
1654	0.94	0.92	0.90	0.88	0.86
1655	0.94	0.92	0.90	0.88	0.86
1656	0.94	0.92	0.90	0.88	0.86
1657	0.94	0.92	0.90	0.88	0.86
1658	0.94	0.92	0.90	0.88	0.86
1659	0.94	0.92	0.90	0.88	0.86
1660	0.94	0.92	0.90	0.88	0.86
1661	0.94	0.92	0.90	0.88	0.87
1662	0.94	0.92	0.90	0.89	0.87
1663	0.95	0.93	0.91	0.89	0.87
1664	0.95	0.93	0.91	0.89	0.88
1665	0.95	0.93	0.92	0.90	0.88
1666	0.95	0.94	0.92	0.90	0.89
1667	0.96	0.94	0.93	0.91	0.90
1668	0.96	0.95	0.93	0.92	0.90
1669	0.96	0.95	0.94	0.92	0.91
1670	0.97	0.95	0.94	0.93	0.92
1671	0.97	0.96	0.94	0.93	0.92
1672	0.97	0.96	0.95	0.93	0.92
1673	0.97	0.96	0.94	0.93	0.92
1674	0.97	0.96	0.95	0.94	0.93
1675	0.97	0.96	0.95	0.94	0.93

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1676	0.97	0.96	0.95	0.94	0.93
1677	0.97	0.96	0.95	0.94	0.93
1678	0.97	0.96	0.95	0.94	0.93
1679	0.97	0.96	0.95	0.94	0.93
1680	0.97	0.96	0.95	0.94	0.93
1681	0.97	0.96	0.95	0.94	0.93
1682	0.97	0.96	0.95	0.94	0.93
1683	0.97	0.96	0.95	0.94	0.93
1684	0.97	0.96	0.95	0.95	0.94
1685	0.98	0.97	0.96	0.95	0.94
1686	0.98	0.97	0.96	0.95	0.94
1687	0.98	0.97	0.96	0.95	0.94
1688	0.98	0.97	0.96	0.95	0.94
1689	0.98	0.97	0.96	0.95	0.94
1690	0.97	0.96	0.95	0.94	0.94
1691	0.97	0.96	0.95	0.94	0.93
1692	0.97	0.96	0.95	0.94	0.93
1693	0.97	0.96	0.95	0.94	0.93
1694	0.97	0.96	0.95	0.94	0.93
1695	0.97	0.96	0.95	0.94	0.93
1696	0.98	0.97	0.96	0.95	0.94
1697	0.97	0.96	0.95	0.94	0.93
1698	0.97	0.96	0.95	0.94	0.93
1699	0.97	0.96	0.95	0.94	0.93
1700	0.97	0.96	0.95	0.94	0.93
1701	0.92	0.91	0.90	0.89	0.88
1702	0.92	0.91	0.90	0.89	0.88
1703	0.92	0.91	0.90	0.89	0.88
1704	0.92	0.91	0.90	0.89	0.88
1705	0.92	0.91	0.90	0.89	0.88
1706	0.92	0.91	0.90	0.89	0.88
1707	0.92	0.91	0.90	0.89	0.88
1708	0.92	0.91	0.90	0.88	0.87
1709	0.91	0.90	0.89	0.88	0.87
1710	0.91	0.90	0.88	0.87	0.86
1711	0.91	0.89	0.88	0.86	0.85
1712	0.91	0.89	0.87	0.86	0.84
1713	0.91	0.89	0.88	0.86	0.84
1714	0.91	0.89	0.88	0.86	0.85
1715	0.91	0.89	0.88	0.87	0.85
1716	0.91	0.90	0.88	0.87	0.86
1717	0.91	0.89	0.88	0.86	0.85
1718	0.92	0.90	0.89	0.87	0.86
1719	0.92	0.90	0.88	0.87	0.85
1720	0.92	0.90	0.88	0.86	0.84
1721	0.93	0.91	0.89	0.87	0.85
1722	0.93	0.91	0.89	0.87	0.86
1723	0.93	0.91	0.90	0.88	0.86
1724	0.93	0.92	0.90	0.89	0.88
1725	0.94	0.92	0.91	0.90	0.89
1726	0.94	0.93	0.91	0.90	0.89
1727	0.94	0.93	0.92	0.91	0.90
1728	0.94	0.93	0.92	0.91	0.90
1729	0.95	0.94	0.93	0.92	0.91
1730	0.95	0.94	0.93	0.92	0.91
1731	0.95	0.94	0.93	0.92	0.91

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1732	0.95	0.94	0.93	0.92	0.91
1733	0.94	0.93	0.93	0.92	0.91
1734	0.94	0.93	0.92	0.91	0.90
1735	0.94	0.93	0.92	0.91	0.90
1736	0.94	0.93	0.92	0.91	0.90
1737	0.94	0.93	0.91	0.90	0.89
1738	0.94	0.92	0.91	0.90	0.89
1739	0.93	0.92	0.91	0.89	0.88
1740	0.93	0.92	0.91	0.89	0.88
1741	0.93	0.92	0.90	0.89	0.88
1742	0.93	0.92	0.90	0.89	0.88
1743	0.93	0.92	0.90	0.89	0.88
1744	0.93	0.92	0.91	0.89	0.88
1745	0.93	0.92	0.91	0.89	0.88
1746	0.93	0.92	0.90	0.89	0.88
1747	0.93	0.91	0.90	0.89	0.87
1748	0.93	0.91	0.90	0.88	0.87
1749	0.93	0.91	0.89	0.88	0.86
1750	0.92	0.91	0.89	0.87	0.86
1751	0.92	0.90	0.89	0.87	0.85
1752	0.92	0.90	0.88	0.87	0.85
1753	0.92	0.90	0.88	0.86	0.85
1754	0.92	0.90	0.88	0.86	0.84
1755	0.92	0.90	0.88	0.86	0.84
1756	0.91	0.89	0.87	0.85	0.83
1757	0.91	0.89	0.87	0.85	0.83
1758	0.91	0.88	0.86	0.84	0.82
1759	0.91	0.88	0.86	0.84	0.81
1760	0.90	0.88	0.85	0.83	0.80
1761	0.90	0.87	0.85	0.82	0.80
1762	0.90	0.87	0.85	0.82	0.80
1763	0.90	0.87	0.85	0.82	0.80
1764	0.90	0.87	0.84	0.81	0.79
1765	0.90	0.87	0.84	0.82	0.79
1766	0.90	0.87	0.84	0.82	0.79
1767	0.90	0.87	0.84	0.81	0.78
1768	0.89	0.86	0.84	0.81	0.78
1769	0.89	0.86	0.83	0.80	0.78
1770	0.89	0.86	0.83	0.80	0.78
1771	0.89	0.86	0.83	0.80	0.78
1772	0.89	0.86	0.83	0.81	0.78
1773	0.89	0.86	0.83	0.80	0.77
1774	0.89	0.86	0.83	0.80	0.78
1775	0.89	0.86	0.83	0.80	0.77
1776	0.89	0.86	0.82	0.79	0.76
1777	0.89	0.85	0.82	0.79	0.76
1778	0.89	0.85	0.82	0.78	0.75
1779	0.88	0.85	0.81	0.78	0.75
1780	0.88	0.85	0.81	0.78	0.74
1781	0.88	0.85	0.81	0.78	0.74
1782	0.88	0.85	0.81	0.78	0.74
1783	0.88	0.85	0.81	0.78	0.75
1784	0.88	0.85	0.81	0.78	0.74
1785	0.88	0.84	0.80	0.77	0.74
1786	0.87	0.83	0.80	0.76	0.72
1787	0.87	0.83	0.80	0.76	0.73

Agricultural output per capita: different models (cont.)

year	Model I	Model II	Model III	Model IV	Model V
1788	0.87	0.83	0.79	0.75	0.72
1789	0.87	0.83	0.80	0.76	0.73

Table 38: GDP per capita Models (Index 1500 = 1)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1280	0.78	0.83		0.78	
1281	0.76	0.83		0.76	
1282	0.74	0.80		0.74	
1283	0.73	0.80		0.73	
1284	0.72	0.78		0.72	
1285	0.74	0.80		0.74	
1286	0.74	0.80		0.74	
1287	0.75	0.80		0.75	
1288	0.77	0.81		0.77	
1289	0.78	0.82		0.78	
1290	0.78	0.83		0.78	
1291	0.78	0.84		0.78	
1292	0.79	0.84		0.79	
1293	0.80	0.85		0.80	
1294	0.75	0.78		0.75	
1295	0.72	0.74		0.72	
1296	0.74	0.75		0.74	
1297	0.76	0.79		0.76	
1298	0.79	0.79		0.79	
1299	0.82	0.83		0.82	
1300	0.84	0.87		0.84	
1301	0.86	0.90		0.86	
1302	0.89	0.93		0.89	
1303	0.91	0.96		0.91	
1304	0.92	1.00		0.92	
1305	0.95	1.07		0.95	
1306	1.01	1.14		1.01	
1307	1.03	1.14		1.03	
1308	1.05	1.14		1.05	
1309	1.06	1.14		1.06	
1310	1.07	1.14		1.07	
1311	1.06	1.14		1.06	
1312	1.08	1.13		1.08	
1313	1.04	1.05		1.04	
1314	1.03	1.02		1.03	
1315	1.00	1.03		1.00	
1316	0.99	1.03		0.99	
1317	1.00	1.03		1.00	
1318	1.01	1.20		1.01	
1319	1.01	1.09		1.01	
1320	0.95	1.07		0.95	
1321	0.95	1.05		0.95	
1322	0.95	1.04		0.95	
1323	0.97	1.05		0.97	
1324	0.98	1.05		0.98	
1325	1.02	1.04		1.02	

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1326	1.02	1.04		1.02	
1327	1.00	1.00		1.00	
1328	0.99	0.98		0.99	
1329	0.97	0.95		0.97	
1330	0.95	0.94		0.95	
1331	0.93	0.91		0.93	
1332	0.93	0.91		0.93	
1333	0.94	0.91		0.94	
1334	0.99	0.96		0.99	
1335	1.00	0.97		1.00	
1336	1.01	0.98		1.01	
1337	1.03	1.00		1.03	
1338	1.01	0.98		1.01	
1339	1.00	0.98		1.00	
1340	0.99	1.00		0.99	
1341	0.99	1.01		0.99	
1342	0.98	1.00		0.98	
1343	0.99	1.00		0.99	
1344	0.99	1.00		0.99	
1345	0.99	0.99		0.99	
1346	1.02	0.99		1.02	
1347	1.06	1.04		1.06	
1348	1.09	1.08		1.09	
1349	1.09	1.13		1.09	
1350	1.12	1.14		1.12	
1351	1.12	1.14		1.12	
1352	1.11	1.12		1.11	
1353	1.11	1.13		1.11	
1354	1.15	1.12		1.15	
1355	1.15	1.10		1.15	
1356	1.13	1.10		1.13	
1357	1.12	1.08		1.12	
1358	1.12	1.06		1.12	
1359	1.10	1.05		1.10	
1360	1.09	1.04		1.09	
1361	1.09	1.04		1.09	
1362	1.10	1.05		1.10	
1363	1.10	1.05		1.10	
1364	1.11	1.06		1.11	
1365	1.11	1.06		1.11	
1366	1.10	1.06		1.10	
1367	1.10	1.06		1.10	
1368	1.11	1.09		1.11	
1369	1.12	1.11		1.12	
1370	1.13	1.11		1.13	
1371	1.12	1.11		1.12	
1372	1.12	1.11		1.12	
1373	1.11	1.07		1.11	
1374	1.10	1.06		1.10	
1375	1.10	1.07		1.10	
1376	1.09	1.06		1.09	
1377	1.08	1.04		1.08	
1378	1.08	1.03		1.08	
1379	1.08	1.04		1.08	
1380	1.07	1.03		1.07	

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1381	1.06	1.02		1.06	
1382	1.05	1.01		1.05	
1383	1.04	1.02		1.04	
1384	1.04	1.01		1.04	
1385	1.04	1.02		1.04	
1386	1.05	1.01		1.05	
1387	1.06	1.00		1.06	
1388	1.07	1.05		1.07	
1389	1.09	1.07		1.09	
1390	1.11	1.09		1.11	
1391	1.11	1.10		1.11	
1392	1.11	1.12		1.11	
1393	1.10	1.09		1.10	
1394	1.10	1.15		1.10	
1395	1.09	1.09		1.09	
1396	1.11	1.12		1.11	
1397	1.10	1.09		1.10	
1398	1.10	1.09		1.10	
1399	1.09	1.09		1.09	
1400	1.06	1.08		1.06	
1401	1.05	1.07		1.05	
1402	1.04	1.04		1.04	
1403	1.03	1.05		1.03	
1404	1.02	1.04		1.02	
1405	1.03	1.02		1.03	
1406	1.03	1.03		1.03	
1407	1.04	1.05		1.04	
1408	1.04	1.05		1.04	
1409	1.04	1.07		1.04	
1410	1.04	1.04		1.04	
1411	1.04	1.04		1.04	
1412	1.03	1.02		1.03	
1413	1.03	1.01		1.03	
1414	1.03	1.01		1.03	
1415	1.03	1.01		1.03	
1416	1.03	1.03		1.03	
1417	1.02	1.02		1.02	
1418	1.02	1.01		1.02	
1419	1.02	1.00		1.02	
1420	1.02	1.01		1.02	
1421	1.02	1.03		1.02	
1422	1.03	1.02		1.03	
1423	1.03	1.00		1.03	
1424	1.03	1.02		1.03	
1425	1.03	1.12		1.03	
1426	1.04	1.16		1.04	
1427	1.03	1.02		1.03	
1428	1.04	1.03		1.04	
1429	1.04	1.09		1.04	
1430	1.04	1.07		1.04	
1431	1.05	1.06		1.05	
1432	1.05	1.08		1.05	
1433	1.05	1.08		1.05	
1434	1.05	1.07		1.05	
1435	1.05	1.07		1.05	

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1436	1.05	1.01		1.05	
1437	1.06	1.04		1.06	
1438	1.06	1.11		1.06	
1439	1.06	1.10		1.06	
1440	1.06	1.18		1.06	
1441	1.06	0.98		1.06	
1442	1.06	1.07		1.06	
1443	1.07	1.14		1.07	
1444	1.07	1.07		1.07	
1445	1.07	1.06		1.07	
1446	1.07	1.09		1.07	
1447	1.08	0.97		1.08	
1448	1.07	1.04		1.07	
1449	1.07	1.03		1.07	
1450	1.07	1.05	1.07	1.07	1.07
1451	1.07	1.04	1.06	1.07	1.06
1452	1.06	1.04	1.06	1.06	1.06
1453	1.07	1.06	1.06	1.07	1.06
1454	1.06	1.06	1.06	1.06	1.06
1455	1.06	1.01	1.05	1.06	1.05
1456	1.05	1.05	1.05	1.05	1.05
1457	1.05	1.04	1.04	1.05	1.04
1458	1.04	1.02	1.03	1.04	1.03
1459	1.04	1.06	1.03	1.04	1.03
1460	1.03	1.00	1.02	1.03	1.02
1461	1.02	0.98	1.01	1.02	1.01
1462	1.02	0.97	1.01	1.02	1.01
1463	1.01	0.96	1.00	1.01	1.00
1464	1.01	0.92	1.00	1.01	1.00
1465	1.01	0.94	1.01	1.01	1.01
1466	1.01	0.95	1.01	1.01	1.01
1467	1.01	0.95	1.00	1.01	1.00
1468	1.01	0.97	1.01	1.01	1.01
1469	1.02	0.96	1.01	1.02	1.01
1470	1.02	0.99	1.02	1.02	1.01
1471	1.03	1.01	1.03	1.03	1.03
1472	1.05	1.04	1.05	1.05	1.05
1473	1.05	1.12	1.04	1.05	1.04
1474	1.04	1.04	1.03	1.04	1.03
1475	1.03	0.99	1.02	1.03	1.02
1476	1.01	0.97	1.01	1.01	1.01
1477	0.99	0.99	0.98	0.99	0.98
1478	0.99	1.00	0.98	0.99	0.98
1479	0.98	0.99	0.97	0.98	0.97
1480	0.99	0.95	0.98	0.99	0.98
1481	0.99	1.03	0.99	0.99	0.99
1482	1.01	1.14	1.01	1.01	1.01
1483	1.01	1.01	1.01	1.01	1.01
1484	1.02	1.00	1.01	1.02	1.01
1485	1.02	1.05	1.02	1.02	1.02
1486	1.02	1.00	1.02	1.02	1.02
1487	1.03	0.99	1.02	1.03	1.02
1488	1.03	0.99	1.02	1.03	1.02
1489	1.03	1.00	1.03	1.03	1.03
1490	1.03	1.07	1.03	1.03	1.03

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1491	1.03	1.03	1.03	1.03	1.03
1492	1.03	1.07	1.03	1.03	1.03
1493	1.03	1.01	1.02	1.03	1.02
1494	1.02	0.96	1.01	1.02	1.01
1495	1.02	0.96	1.01	1.02	1.01
1496	1.02	0.97	1.02	1.02	1.02
1497	1.02	0.98	1.01	1.02	1.01
1498	1.02	1.04	1.01	1.02	1.01
1499	1.01	0.96	1.01	1.01	1.01
1500	1.00	1.00	1.00	1.00	1.00
1501	1.01	1.14	1.01	1.01	1.01
1502	1.00	0.95	1.00	1.00	1.00
1503	0.99	0.94	0.99	0.99	0.99
1504	0.99	0.94	0.99	0.99	0.99
1505	0.99	0.97	0.99	0.99	0.99
1506	0.98	0.92	0.98	0.98	0.98
1507	0.98	0.92	0.98	0.98	0.98
1508	0.99	0.95	0.99	0.99	0.99
1509	0.98	0.91	0.98	0.98	0.98
1510	0.98	0.93	0.99	0.98	0.99
1511	0.98	0.96	0.99	0.98	0.99
1512	0.98	0.94	0.99	0.98	0.99
1513	0.97	0.93	0.98	0.97	0.98
1514	0.97	0.93	0.98	0.97	0.98
1515	0.97	0.94	0.98	0.97	0.98
1516	0.97	0.95	0.97	0.97	0.98
1517	0.96	0.96	0.97	0.96	0.97
1518	0.97	0.91	0.97	0.97	0.97
1519	0.97	0.91	0.98	0.97	0.98
1520	0.97	1.02	0.98	0.97	0.98
1521	0.97	0.94	0.99	0.97	0.99
1522	0.97	0.94	0.99	0.97	0.99
1523	0.97	0.93	0.99	0.97	0.99
1524	0.97	0.92	0.98	0.97	0.98
1525	0.97	0.95	0.98	0.97	0.99
1526	0.97	0.90	0.98	0.97	0.98
1527	0.97	0.92	0.98	0.97	0.98
1528	0.97	0.96	0.98	0.97	0.99
1529	0.97	0.98	0.99	0.97	0.99
1530	0.97	0.98	0.99	0.97	0.99
1531	0.97	0.99	0.99	0.97	0.99
1532	0.97	0.95	0.99	0.97	0.99
1533	0.97	0.95	0.99	0.97	0.99
1534	0.97	0.94	0.99	0.97	0.99
1535	0.97	0.89	0.99	0.97	0.99
1536	0.97	0.93	0.99	0.97	0.99
1537	0.97	0.93	0.99	0.97	0.99
1538	0.95	0.94	0.97	0.95	0.98
1539	0.94	0.92	0.96	0.94	0.96
1540	0.94	0.91	0.97	0.94	0.98
1541	0.93	0.90	0.96	0.93	0.97
1542	0.93	0.88	0.96	0.93	0.96
1543	0.93	0.96	0.96	0.93	0.97
1544	0.93	0.96	0.96	0.93	0.97
1545	0.92	0.97	0.96	0.92	0.96

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1546	0.92	0.96	0.96	0.92	0.96
1547	0.92	0.91	0.95	0.92	0.96
1548	0.91	0.89	0.94	0.91	0.94
1549	0.89	0.98	0.92	0.89	0.92
1550	0.88	0.85	0.93	0.88	0.93
1551	0.87	0.81	0.92	0.87	0.92
1552	0.86	0.83	0.90	0.86	0.91
1553	0.86	0.93	0.90	0.86	0.90
1554	0.86	0.82	0.89	0.86	0.90
1555	0.85	0.83	0.89	0.85	0.90
1556	0.85	0.81	0.89	0.85	0.90
1557	0.85	0.81	0.89	0.85	0.89
1558	0.85	0.81	0.89	0.85	0.89
1559	0.85	0.84	0.89	0.85	0.89
1560	0.85	0.80	0.90	0.87	0.91
1561	0.86	0.86	0.90	0.87	0.91
1562	0.86	0.89	0.91	0.88	0.92
1563	0.87	0.83	0.91	0.88	0.92
1564	0.87	0.83	0.91	0.89	0.92
1565	0.87	0.87	0.91	0.89	0.92
1566	0.87	0.87	0.90	0.88	0.91
1567	0.86	0.84	0.90	0.88	0.91
1568	0.86	0.82	0.90	0.88	0.91
1569	0.87	0.83	0.90	0.88	0.91
1570	0.88	0.87	0.92	0.89	0.93
1571	0.89	0.92	0.93	0.90	0.94
1572	0.90	0.88	0.94	0.91	0.95
1573	0.89	0.92	0.94	0.91	0.95
1574	0.91	0.91	0.95	0.92	0.96
1575	0.91	0.90	0.96	0.93	0.97
1576	0.91	0.88	0.95	0.93	0.97
1577	0.91	0.89	0.95	0.93	0.97
1578	0.91	0.91	0.96	0.93	0.97
1579	0.90	0.93	0.94	0.92	0.95
1580	0.90	0.90	0.96	0.91	0.98
1581	0.90	0.91	0.97	0.92	0.98
1582	0.91	0.91	0.97	0.92	0.98
1583	0.90	0.91	0.96	0.92	0.98
1584	0.92	0.90	0.98	0.93	0.99
1585	0.92	0.93	0.98	0.94	0.99
1586	0.92	0.96	0.98	0.94	1.00
1587	0.92	0.94	0.98	0.94	0.99
1588	0.93	0.93	0.99	0.95	1.00
1589	0.92	0.94	0.98	0.94	0.99
1590	0.92	0.91	0.98	0.93	1.00
1591	0.93	0.98	0.99	0.94	1.01
1592	0.93	1.02	1.00	0.95	1.01
1593	0.94	1.01	1.01	0.96	1.02
1594	0.96	0.94	1.03	0.98	1.04
1595	0.97	0.99	1.04	0.99	1.05
1596	0.96	0.99	1.03	0.98	1.04
1597	0.96	1.03	1.03	0.98	1.04
1598	0.96	0.96	1.03	0.98	1.04
1599	0.95	0.95	1.01	0.97	1.03
1600	0.95	0.96	1.01	0.99	1.03

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1601	0.96	0.96	1.01	0.99	1.03
1602	0.96	0.93	1.01	0.99	1.03
1603	0.96	0.94	1.01	0.99	1.03
1604	0.95	0.94	1.00	0.99	1.02
1605	0.95	0.92	1.00	0.99	1.02
1606	0.96	0.94	1.00	0.99	1.02
1607	0.96	0.94	1.01	0.99	1.03
1608	0.96	0.94	1.01	0.99	1.03
1609	0.96	0.94	1.01	1.00	1.03
1610	0.96	0.95	1.00	1.00	1.02
1611	0.97	0.95	1.00	1.00	1.02
1612	0.97	0.97	1.01	1.01	1.03
1613	0.97	0.95	1.01	1.01	1.03
1614	0.97	0.95	1.01	1.01	1.03
1615	0.97	0.93	1.01	1.01	1.03
1616	0.97	0.93	1.00	1.01	1.02
1617	0.97	0.93	1.00	1.00	1.02
1618	0.97	0.93	1.00	1.00	1.02
1619	0.97	0.93	1.00	1.00	1.02
1620	0.97	0.93	1.02	1.01	1.04
1621	0.97	0.94	1.02	1.00	1.04
1622	0.97	1.01	1.02	1.00	1.04
1623	0.97	0.97	1.01	1.00	1.03
1624	0.97	0.95	1.01	1.00	1.03
1625	0.97	0.93	1.01	1.00	1.03
1626	0.97	0.97	1.02	1.01	1.04
1627	0.97	0.95	1.02	1.01	1.04
1628	0.97	0.95	1.02	1.01	1.04
1629	0.97	0.93	1.01	1.01	1.03
1630	0.97	0.97	1.03	1.01	1.06
1631	0.97	0.96	1.03	1.01	1.06
1632	0.97	0.95	1.04	1.01	1.06
1633	0.98	0.94	1.04	1.01	1.06
1634	0.98	0.94	1.04	1.02	1.07
1635	0.98	0.99	1.04	1.02	1.07
1636	0.98	1.05	1.04	1.02	1.06
1637	0.98	1.06	1.04	1.02	1.06
1638	0.98	1.03	1.04	1.02	1.06
1639	0.98	1.01	1.04	1.02	1.06
1640	0.98	0.94	1.05	1.02	1.07
1641	0.98	0.97	1.05	1.02	1.07
1642	1.00	0.97	1.07	1.04	1.09
1643	1.02	1.00	1.09	1.06	1.11
1644	1.03	1.01	1.10	1.07	1.12
1645	1.03	0.97	1.10	1.07	1.12
1646	1.03	0.96	1.09	1.06	1.11
1647	1.01	0.94	1.07	1.04	1.09
1648	0.99	0.95	1.06	1.03	1.08
1649	0.98	0.99	1.04	1.01	1.06
1650	0.98	0.96	1.05	1.04	1.08
1651	0.98	0.96	1.05	1.04	1.08
1652	0.98	0.98	1.05	1.04	1.08
1653	0.98	0.93	1.05	1.04	1.08
1654	0.98	0.93	1.05	1.04	1.08
1655	0.98	0.92	1.05	1.04	1.08

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1656	0.99	0.92	1.06	1.05	1.09
1657	0.99	0.92	1.06	1.05	1.09
1658	0.99	0.95	1.06	1.05	1.09
1659	0.99	0.94	1.06	1.05	1.09
1660	0.99	0.92	1.06	1.05	1.09
1661	0.99	0.94	1.06	1.05	1.09
1662	1.00	0.96	1.07	1.06	1.10
1663	1.01	0.94	1.08	1.07	1.11
1664	1.01	0.96	1.09	1.07	1.12
1665	1.02	0.94	1.09	1.08	1.12
1666	1.02	0.97	1.09	1.08	1.12
1667	1.02	0.97	1.09	1.08	1.12
1668	1.03	0.98	1.10	1.09	1.13
1669	1.03	0.95	1.10	1.09	1.13
1670	1.03	0.94	1.09	1.09	1.12
1671	1.03	0.94	1.09	1.10	1.12
1672	1.03	1.02	1.09	1.10	1.12
1673	1.03	0.92	1.09	1.09	1.12
1674	1.03	0.95	1.08	1.09	1.12
1675	1.03	0.97	1.09	1.09	1.12
1676	1.03	0.99	1.09	1.09	1.12
1677	1.03	0.99	1.09	1.09	1.12
1678	1.02	1.00	1.08	1.08	1.11
1679	1.01	1.00	1.07	1.07	1.10
1680	1.00	0.96	1.06	1.07	1.09
1681	1.00	0.93	1.05	1.06	1.08
1682	1.00	0.91	1.05	1.06	1.08
1683	1.00	0.93	1.06	1.07	1.09
1684	1.01	0.93	1.06	1.07	1.09
1685	1.01	0.96	1.06	1.07	1.09
1686	1.01	0.96	1.06	1.07	1.09
1687	1.01	0.92	1.06	1.07	1.09
1688	1.01	0.91	1.06	1.07	1.09
1689	1.01	0.92	1.06	1.07	1.09
1690	1.01	0.94	1.07	1.07	1.10
1691	1.01	0.97	1.06	1.07	1.10
1692	1.01	0.97	1.06	1.07	1.09
1693	1.01	1.00	1.06	1.07	1.09
1694	1.00	1.02	1.06	1.06	1.09
1695	1.00	1.00	1.05	1.06	1.09
1696	1.00	0.94	1.05	1.06	1.08
1697	0.99	0.96	1.05	1.05	1.08
1698	0.99	0.99	1.05	1.05	1.08
1699	0.99	0.98	1.05	1.05	1.08
1700	1.00	0.96	1.06	1.08	1.10
1701	0.95	0.90	1.01	1.03	1.05
1702	0.95	0.90	1.01	1.03	1.05
1703	0.95	0.89	1.01	1.03	1.05
1704	0.95	0.90	1.01	1.03	1.05
1705	0.94	0.91	1.00	1.02	1.04
1706	0.95	0.91	1.01	1.03	1.04
1707	0.95	0.91	1.01	1.03	1.05
1708	0.95	0.91	1.01	1.03	1.05
1709	0.96	0.98	1.02	1.04	1.06
1710	0.97	0.97	1.02	1.05	1.06

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1711	0.97	0.95	1.03	1.05	1.07
1712	0.98	1.00	1.03	1.06	1.07
1713	0.98	1.00	1.03	1.06	1.07
1714	0.98	1.03	1.04	1.06	1.07
1715	0.98	0.92	1.03	1.06	1.07
1716	0.98	0.92	1.03	1.06	1.07
1717	0.99	0.93	1.04	1.07	1.08
1718	1.00	0.96	1.06	1.09	1.10
1719	1.01	1.00	1.07	1.10	1.11
1720	1.02	1.08	1.09	1.11	1.13
1721	1.03	1.02	1.10	1.12	1.14
1722	1.03	1.02	1.09	1.11	1.13
1723	1.02	1.02	1.08	1.10	1.12
1724	1.01	1.00	1.07	1.09	1.11
1725	1.01	1.01	1.06	1.09	1.11
1726	1.01	0.97	1.06	1.09	1.10
1727	1.01	0.96	1.06	1.09	1.10
1728	1.01	0.97	1.07	1.10	1.11
1729	1.02	0.98	1.08	1.10	1.12
1730	1.02	0.97	1.08	1.11	1.13
1731	1.02	0.99	1.09	1.11	1.13
1732	1.02	0.98	1.09	1.11	1.13
1733	1.02	0.98	1.08	1.11	1.12
1734	1.02	0.98	1.08	1.10	1.12
1735	1.01	0.97	1.07	1.09	1.11
1736	1.01	0.96	1.07	1.09	1.11
1737	1.00	0.96	1.06	1.08	1.10
1738	0.99	0.97	1.05	1.08	1.09
1739	0.99	0.98	1.04	1.07	1.08
1740	0.98	0.97	1.03	1.07	1.07
1741	0.98	0.97	1.03	1.06	1.07
1742	0.98	0.96	1.03	1.06	1.07
1743	0.98	0.93	1.03	1.06	1.07
1744	0.98	0.94	1.03	1.07	1.07
1745	0.99	0.95	1.03	1.07	1.07
1746	0.99	0.97	1.03	1.07	1.07
1747	0.99	0.99	1.03	1.07	1.07
1748	0.99	1.01	1.03	1.07	1.07
1749	0.99	1.00	1.03	1.07	1.07
1750	0.99	0.98	1.04	1.07	1.08
1751	0.98	0.98	1.04	1.07	1.08
1752	0.98	0.96	1.03	1.07	1.07
1753	0.98	0.96	1.03	1.06	1.07
1754	0.98	0.96	1.03	1.06	1.07
1755	0.98	0.94	1.03	1.06	1.07
1756	0.98	0.97	1.03	1.06	1.07
1757	0.97	0.98	1.02	1.06	1.06
1758	0.97	0.98	1.02	1.06	1.06
1759	0.97	0.97	1.02	1.05	1.06
1760	0.97	0.99	1.03	1.05	1.07
1761	0.98	0.97	1.04	1.06	1.08
1762	0.99	0.98	1.05	1.07	1.09
1763	0.99	0.98	1.05	1.07	1.09
1764	1.00	1.00	1.07	1.09	1.11
1765	1.01	1.02	1.07	1.10	1.11

GDP per capita Models (cont.)

year	Model I Benchmark	Model II Prices	Model III Days	Model IV Rents	Model V Income
1766	1.01	1.02	1.07	1.09	1.11
1767	1.01	1.03	1.07	1.09	1.11
1768	1.00	1.04	1.06	1.09	1.10
1769	1.00	1.02	1.06	1.08	1.10
1770	1.00	1.07	1.08	1.08	1.13
1771	1.00	1.07	1.08	1.08	1.13
1772	1.00	1.04	1.09	1.09	1.13
1773	1.01	1.06	1.10	1.09	1.14
1774	1.01	1.05	1.10	1.10	1.14
1775	1.01	1.05	1.10	1.10	1.14
1776	1.02	1.04	1.10	1.10	1.15
1777	1.02	1.05	1.11	1.10	1.15
1778	1.01	1.05	1.10	1.10	1.14
1779	1.01	1.05	1.10	1.10	1.14
1780	1.01	1.05	1.12	1.10	1.16
1781	1.02	1.06	1.13	1.11	1.17
1782	1.02	1.07	1.13	1.11	1.17
1783	1.05	1.09	1.15	1.13	1.20
1784	1.06	1.10	1.16	1.15	1.21
1785	1.05	1.10	1.15	1.13	1.19
1786	1.04	1.08	1.14	1.12	1.19
1787	1.10	1.15	1.21	1.19	1.25
1788	1.07	1.13	1.18	1.16	1.22
1789	1.05	1.13	1.15	1.14	1.20

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