Real Wages of the Working Class in Italy: Building Workers' Wages (14th to 18th Century) *

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The research that has been done so far on nominal wages in pre-industrial times gives us — at least for some countries in Western Europe — firm ground to move on. Yet things get complicated when we want to go beyond nominal values and reach back to the progress of the worker's real income over the centuries. In this case, the problems of method — which prices, which wages, which types of consumer goods to choose, and how to organize such a heterogeneous mass of data — are added to the problems of interpretation — how far can data gathered in this way be representative, and what circumstances are responsible for modifications in real wages over a long period?

Much work has been done in this direction, from the pioneering research of Thorold Rogers and Viscount d'Avenel — not to mention Adam Smith and Thomas Malthus — to the much more sophisticated approach of E. H. Phelps Brown and Sheila V. Hopkins. However, there is still room for further research and discussion.

This article proposes (*a*) to examine some problems of methodology and point out the reasons for preferring some criteria to others; (*b*) to present some historical series of real wages received by building workers in some Italian towns; to indicate some lines of research, suggested by the Italian experience, which may modify or integrate interpretations based on demographic movements.

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I.

The difficulties involved in determining real income over a long period are well known. Once one knows the money wages, one would, ideally, want to find out the pattern of a typical working family's consumption so as to work out a cost-of-living index. The comparison between money wages and cost of living would give us a basic idea of the real-wage variations over a period. The objections to such an approach are obvious: we know very little about the pattern of a working family's consumption and its variations over the centuries. And, with rare exceptions,[1] we have very little information on the prices of consumer goods within range of the working-class pocket. So we can only work on the basis of hypotheses that are subject to a more or less wide margin of error depending on the time and place under consideration.[2]

To get round these difficulties, the International Scientific Committee on the History of Prices suggested translating all nominal values into quantities of silver so as to make all the different currency expression homogeneous. But this was merely an illusion. Marc Bloch and Luigi Einaudi in 1939 and 1940,[3] Réné Baehrel a few years later,[4] and, still more recently, Ruggiero Romano,[5] pointed out that, by translating currency prices into quantities of precious metal, the problem had not been solved at all, but simply transferred — the purchasing power of silver had now to be determined.[6]

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[1] I am thinking above all of works such as A. De Maddalena's, *Prezzi e aspetti di mercato in Milano durante il secolo XVII*, Milan 1949; and D. Zanetti's, *Problemi alimentari di una economia pre-industriale*, Turin 1964.

[2] Among the various attempts to determine the size and the variations of real wages, besides the classic study by E. H. Phelps Brown and S. V. Hopkins, *Seven Centuries of the Prices of Consumables, compared with Builders' Wage-rates*, in « Economica » XXIII (1956), reprinted in E. M. Carus-Wilson (ed.), *Essays in Economic History*, vol. 2, London 1966, pp. 179-196, one should also mention D. Sella's, *Salari e lavoro nell'edilizia lombarda durante il secolo XVII*, Pavia 1968, which analyses changes in the real wages of building workers, assuming that a typical working family's consumption consisted half of bread, a quarter of wine, and a quarter of « panno basso » (cheap cloth).

[3] M. Bloch, *L'histoire des prix: quelques remarques critiques*, in « Annales » I (1939), pp. 148-149; L. Einaudi, *Dei criteri informatori della storia dei prezzi. Questi devono essere espressi in peso d'argento e d'oro o negli idoli usati dagli uomini?*, in « Rivista di storia economica » V (1940), pp. 43-51.

[4] R. Baehrel, *Economie et histoire à propos des prix*, in « Eventail de l'Histoire vivante. Hommage à Lucien Febvre », Paris 1953, vol. I, pp. 287-310.

[5] R. Romano, *Storia dei salari e storia economica*, in « Rivista Storica Italiana » LXXVIII (1966), p. 313; and Introduction to *I prezzi in Europa dal XIII secolo a oggi*, Turin 1967, pp. XXII-XXIV.

[6] One might add that the translation of currency terms into quantities of silver is far from being a simple operation. The wear and tear of coins in circulation, the frequent devaluations, the multiplicity of types of coinage, etc. prevent us from finding out the amount of pure metal in the various coins at different times (cf. C. M. Cipolla, *La storia*

At this point, Adam Smith's considerations come to mind — on the fluctuations in the price of silver and on the fact that « equal quantities of labour will at distant times be purchased more nearly with equal quantities of corn, the subsistence of the labourer, than with equal quantities of gold and silver, or perhaps of any other commodity. Equal quantities of corn, therefore, will, at distant times, be more nearly of the same real value... They will do this, I say, more nearly than equal quantities of almost any other commodity; for even equal quantities of corn will not do it exactly ».[7]

Smith's invitation to give preference to corn since it is the « labourer's subsistence » is questionable for various reasons. At no time was the consumption of the wage-earning workforce represented solely by bread.[8] Moreover, the price of bread and the prices of other goods which one supposes were part of the workforce's consumption did not change synchronically. The former was particularly subject to sharp fluctuations depending on good or bad harvests; the latter, with a few exceptions, showed a more uniform movement.[9] Thus if we only take the price of corn and other cereals for bread-making, we run the risk of giving too much weight to the well-being of the working-class when prices were low, or to its poverty when prices were high. The risk is lessened if we use averages calculated over enough years to smooth out the more exceptional peaks. But it takes only a few years of famine or plenty to give a zig-zag effect to a curve based even on these criteria.

Once we have dismissed the possibility of constructing a cost-of-living index on the actual consumption of the working class, there is some justification for choosing wheat as a basis. There is no doubt that bread was the basic food of the poorer classes, and perhaps also of other groups that

dei prezzi in Italia, in « Moneta e civiltà mediterranea », Venice 1957, pp. 85-88. Cf. also C. M. Cipolla, *Currency Depreciation in Medieval Europe*, in « Economic History Review », s. 2, XV, 1963, pp. 413-422).

7 A. Smith, *The Wealth of Nations,* ed. E.R.A. Seligman, London 1970, vol. I, p. 31.

8 D. Sella quite rightly points out that « Considerations based... exclusively on the working-class family's consumption of bread are obviously over-simplified and it would be dangerous to draw conclusions about the progress of real wages... taking into account only variations in the price of bread » (*op. cit.*, p. 24).

9 We must turn to Adam Smith's limpid prose once again to illustrate the price formation mechanism in an economy that was still substantially pre-industrial: « That the price of linen and woollen cloth is liable neither to such frequent nor to such great variations as the price of corn, every man's experience will inform him. The price of the one species of commodities varies only with the variations in the demand: that of the other varies, not only with the variations in the demand, but with the much greater and more frequent variations in the quantity of what is brought to market in order to supply that demand » (*op. cit.*, p. 52). Among foods of large consumption, wine, too, for obvious reasons, is analogous to corn.

with their social position or their profession could have aspired to a more varied diet. In 1594, the « Vicario di Provvisione » and the « Decurioni » of the city of Milan stressed that « it has been only the dearness of corn that has brought on the workmen's claim which and for the same reason must again in time of abundance diminish, the expenses they have for clothing and other needs being in general of no or very little importance ».[10] It is true that, as the Syndics of the Principality of Pavia pointed out, « one should take into account the expense of house rent — since they (the workmen) have no house of their own — and the need of clothing, and the taxes that they pay »,[11] but, in the end, they could do no more than insist on maintaining the subsistence level of the worker.[12]

It has been reckoned that in the sixteenth century in Florence, 30% of the wages of a building worker were spent on bread alone; [13] in some towns and cities in Germany, Spain and England in the same century, the outlay

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[10] *Parere del Vicario et Decurioni della Città di Milano intorno alla tassa della mercede de gl'operarii*, published in C. M. CIPOLLA's, *Prezzi, salari e teoria dei salari in Lombardia alla fine del Cinquecento*, in « Quaderni di Storia ed Economia » I (1956). A few decades before, the Grand Council of Malines (6th Feb. 1561) had stated that the rise in wages was largely the consequence of the increase in the price of cereals in the years 1556-57 (C. VERLINDEN, J. CRAEYBECKX, E. SCHIOLLIERS, *Mouvements des prix et des salaires en Belgique au XVI^e siècle*, in « Annales E.S.C. » X, 1955, p. 191).

[11] *Risposta de Sindaci del Principato di Pavia alla pretensione che ha detta città di tassare la mercede de gl'operai*, in C. M. CIPOLLA's, *Prezzi e salari, etc., cit.* In the sixteenth century again, in Pavia, the stores of cereals in private hands consisted of wheat above all. Cf. D. ZANETTI, *op. cit.*, pp. 63-84 and *Contribution à l'étude des structures économiques: l'approvvisionement de Pavie au XVI^e siècle*, in « Annales E.S.C. » XVIII (1963), pp. 44-62.

[12] On food consumption in the sixteenth century, see also the comparative study by A. WYCZANSKI, *Structure sociale de la consommation alimentaire en Italie au XVI^e siècle*, in « Melanges en l'honneur de Fernand Braudel. Histoire économique du monde méditerranéen 1450-1650 », Toulouse 1973, pp. 673-681. The importance of bread in the pre-industrial diet is clearly shown by the fact that in the middle of the sixteenth century individual consumption of corn was about 20 kilos per month (cf. D. ZANETTI, *Problemi alimentary, cit.*, p. 57). This is a really substantial amount and it is confirmed by G. L. BASINI's calculations for the Modena area (*L'uomo e il pane. Risorse, consumi e carenze della popolazione modenese nel Cinque e Seicento*, Milan 1970, p. 32). The stability of wheat consumption in neighbouring areas seems obvious. One is still surprised to read, however, that the daily bread ration fixed by the General Council of Perugia in 1312 for the city's convicts involved the consumption of little less than 20 kilos of corn per month (cf. G. MIRA, *Un aspetto del rapporto fra città e campagna nel perugino nei secoli XIII e XIV: l'approvvigionamento dei generi di prima necessità*, in « Atti del sesto convegno di studi umbri. Gubbio 26-30 maggio 1968 », parte II, p. 319). The striking stability of bread consumption over two centuries confirms — if any confirmation were necessary — the documentary evidence of the fundamental importance of bread in the people's diet.

[13] A. FANFANI, *Storia del lavoro in Italia dalla fine del secolo XV agli inizi del secolo XVIII*, Milan 1959, p. 341.

on bread accounted for something like 20-30% of the wages.[14] From the end of the seventeenth century to the threshold of the nineteenth, the French worker, in normal years, spent over half his wages on bread.[15] In communities such as hospitals, where the food was probably more varied and more carefully planned than elsewhere, the expense for bread or cereals for breadmaking accounted for 40-50% of the total outlay on food.[16] While insisting on the high consumption of bread in Mediterranean countries, we must not forget that, on the whole, food consumption in pre-industrial Europe was pretty differentiated. But the evidence we can collect for this shows, even more clearly, the importance of bread for the inhabitants of Mediterranean Europe. Sailing from Candia in 1597, Fynes Moryson tells us that he did not trouble to take a supply of meat with him since he expected to find it on board as one did on English vessels. With some surprise, he realised that the Greek sailors made do with biscuits, garlic, onions and dried fish.[17] He was even more surprised in Venice, when he noticed that the nobles, like humblest porters, ate white bread with oil, herbs and lettuce, and hardly ever with meat.[18] In Milan, still in the early years of the seventeenth century, he found plenty of meat, eggs, and cheese, but remarked that the common people mostly ate herbs and root-crops with white bread.[19] In Tuscany, too, a traveller of Moryson's time found that things were not very different.[20] In contrast, the English, and more generally the northern Europeans, were big eaters of meat of all kinds.[21] In the course

14 E. H. Phelps Brown and S. V. Hopkins, *Wage-rates and prices: Evidence of Population Pressure in the Sixteenth Century*, in « Economica » n. s. XXIV (1957), p. 306.

15 M. Morineau, *Budgets populaires en France au XVIII^e siècle*, in « Revue d'histoire économique et sociale » L (1972), pp. 203-237; 449-481.

16 For Milan's main hospital in 1508 and 1593, see G. G. Gilino, *La relazione ai deputati dell'Ospedale Grande di Milano*, Milan 1937, chap. XXXVI; for the Genoa 'Ospedale degli Incurabili' in the early seventeenth century, see M. Novelli, *Bilanci alimentari in Liguria all'inizio del Seicento*, in « Rivista internazionale di scienze economiche e commerciali » (1955).

17 F. Moryson, *An Itinerary*, Glasgow 1907, vol. 2, p. 89.

18 *Ibid.*, vol. 4, p. 96.

19 During the 1630 plague, in the Milan lazzaretto, there was a plentiful ration of bread, wine, and rice, but meat is never mentioned (A. Tadino, *Raguaglio dell'origine et giornali successi della gran peste*, Milan 1648, p. 67).

20 R. Dallington, *Survey of Tuscany*, London 1605, p. 34. But, in contrast to the Milan lazzaretto, every patient in the Prato lazzaretto had an average 225 grams of meat per day (C. M. Cipolla, *Cristofano and the Plague. A Study in the history of Public Health in the Age of Galileo*, London 1973, p. 149).

21 F. Moryson, *op. cit.*, vol. 4, pp. 172-173. The same fact is repeated and stressed in *Six Dialogues about Sea Services* written in the first half of the seventeenth century. Captain Boteler complains about English sailors eating too much salted meat and hopes for a change in their diet to bring it closer if not to that of the Spaniards or Italians (who ate only honey, biscuit, figs, olives, and oil), at least to that of the thriftier Dutch

of time, at least, according to some evidence, starchy foods and cereals came to play a larger part in the English diet [22] but there is no doubt that as a diet it continued to be more balanced that the usual one in southern countries.[23]

If we consider countries along the Mediterranean litteral everything combines to give us the idea of a diet doggedly based on carbohydrates, and supplemented, in times of falling prices, by few other foods.[24]

Moreover, it should be noted that in difficult times, the poorer classes were forced to fall back on coarser cereals [25] or other substitutes.[26] But it was not always easy to get the consumers of wheat bread to accept a poorer diet. During the 1569-70 famine, the « popolo minuto », the plebs, of

(C. E. FAYLE, ed., *Voyages to the East Indies*, London - Toronto - Melbourne 1929). Similar remarks can be found in W. ABEL, *Spopolamento dei villaggi e caduta dei prezzi in Europa nel Basso Medioevo*, in R. ROMANO, *op. cit.*, pp. 109, 117-118).

22 See the food expenses of two households for the mid-fifteenth and the late eighteenth century published by E. H. PHELPS BROWN and S. V. HOPKINS, *Seven Centuries of the Prices of Consumables*, *cit.*, pp. 180-181. One might add in parenthesis that the substitution of starchy food for meat ran parallel to the erosion of the purchasing power of workers' wages.

23 J. C. DRUMMOND and A. WILBRAHAM, *The Englishman's Food*, London 1957.

24 This is the clear impression one gets from a careful examination of the latest research on diets in pre-industrial societies. After the second world war the « Annales E.S.C. » published a large number of studies on this subject; the results of these are undoubtedly taken into account in F. BRAUDEL's recent, *Civilisation matérielle et capitalisme (XV-XVIII siècle)*, t. 1, Paris 1967, in partic. pp. 97-100 but in general the whole of chap. 2.

25 D. SELLA, *op. cit.*, p. 21. Gino Barbieri has pointed out that « in the sixteenth century, spelt was one of the lesser cereals widely used among the population » (G. BARBIERI, *Un'azienda agricola parmense e i prezzi dei cereali intorno alla metà del secolo decimosesto, 1539-1563*, in « Saggi di storia economica italiana », Bari-Naples 1948, p. 137, n. 1). In Como in the second half of the sixteenth century, bread was made of wheat, rye and millet (G. MIRA, *Consumi, industrie e commerci a Como nel XVI secolo*, in « Aspetti dell'economia comasca », Milan 1939, p. 123). Similar remarks can be found in G. PARENTI (*Prezzi e mercato del grano a Siena, 1546-1765*, Florence 1942, pp. 101, 118) as regards the use of lesser cereals in the Siena district. Cf. also F. BRAUDEL, *op. cit.*, pp. 103-106. According to Giuseppe Ferrario, even towards the end of the eighteenth century, wheat bread « was little used among the middle and lower classes of the population, as a rule, ordinary families baked *little wheat bread and much of mixed cereals* at home » (G. FERRARIO, *Statistica medica di Milano dal secolo XV ai nostri giorni escluso il militare*, Milan 1840, vol. 2, p. 232).

26 It would be very useful to know something about the spread and the consumption of poorer foods like rice and potatoes, together with the movement of their prices in relation to that of the « finer » cereals. In any case, it should be borne in mind that the price of the lesser cereals moved in a very similar way to that of corn. In at least two cases — in Milan and Pavia in the 17th and 18th centuries — the price of breadmaking cereals moved with striking synchronism (cf. G. FERRARIO, *op. cit.*, vol. 2, pp. 227 *et seq.*). This is easy to explain. Natural calamities affecting harvests involved corn and the other cereals to the same extent, reducing the crop in each case. On the other hand, the classes that could not buy wheat fell back on other cereals, thus putting up their prices.

Venice preferred to buy themselves a small ration of white bread — the « pane di Lonigo », which was supposed to be the most delicate in Italy — rather than fall back on the minor cereals that the government of the Serenissima had brought onto the market in plenty.[27]

Food requirements and the population's deep-rooted customs gave unusual rigidity to the demand for corn.[28] Fernand Braudel has drawn attention to the unusual increase in the price of bread between the late 16th and early 17th centuries, due to the insistent demand for a good that for various reasons tended to grow scarce.[29] And, to make the situation even more dramatic, there were the frequent famines; in times of shortage, the prices of some foods moved in exactly the opposite way to those of others. In Belgium, « in 1531-32..., the contrast between corn — whose price rises — and various other products, which drop, is even more striking. In 1586-87, while cereals reach unprecedented prices, butter and cheese prices drop, probably because all the demand was concentrated on bread ».[30]

Another confirmation that it is legitimate to use corn to determine the movement of real wages is offered by the close analogy some authors have found between the development of cereal prices and those of other consumer goods.[31]

II.

At the moment, unfortunately, there are many gaps in our knowledge of prices and wages in Italy.[32] Research on the subject has mostly been

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27 B. Pullan, *Wage-Earners and the Venetian Economy, 1550-1630*, in « Crisis and Change in the Venetian Economy », edited by B. Pullan, London 1968, p. 164. Cf. also F. Moryson, *op. cit.*, vol. 4, pp. 96-97.

28 D. Zanetti (*Problemi alimentari*, *cit.*, pp. 113-115) points out a curious scissors movement between the price of corn and that of meat. The elasticity of demand (with respect to income) of the two goods shows a development that is exactly the opposite of what one would expect (cf. in particular, the graph on p. 114).

29 According to the complaints of the bakers of the time, the increase was 300% in 25 years. The writer considers this estimate exaggerated but, in any case, it clearly shows the importance of wheat bread on the Venice market and the rigidity of the demand (F. Braudel, *La vita economica di Venezia nel secolo XVI*, in « La civiltà veneziana del Rinascimento », Venice 1958, p. 94).

30 C. Verlinden, J. Craeybeckx, E. Schiolliers, *op. cit.*, p. 180. See also the remarks by D. Sella, *op. cit.*, pp. 24-25.

31 A. P. Usher points out that from 1600 to 1850, the centuries-long tendency of prices is in rough agreement with the price movement of consumer goods (*Prices of Wheat and Commodity Prices Index for England, 1259-1930*, in « Review of Economic Statistics » XIII, 1931).

32 On the history of prices and wages in Europe, and on the sources that have so far come to light, see the great summary by F. Braudel and F. Spooner, *Prices in Europe from 1450 to 1750*, in « Cambridge Economic History of Europe », vol. IV, Cambridge 1967.

concerned with the sixteenth century and the so-called price revolution. We do not, for example, have continuous series of data available like those used by E. H. Phelps Brown and S. V. Hopkins for England,[33] neither do we have more limited series like those of M. Baulant and J. Meuvret for France.[34] There are, moreover, frequent breaks in the Italian series and these gaps of many decades or even centuries do not always allow us to follow movements over long periods. We should also metion that the documentation on prices is much more substantial than that on wages so that the possibility of using them together becomes even more limited.

The bulk of the documentation used in this article concerns wages and prices paid by public bodies or by institutions (convents, colleges, churches, hospitals) which, because of their nature and continuity in time, are rather exceptional. One wonders whether these wages and prices are influenced too much by the privileged position of the institution, which, employing large groups of workmen sometimes over long periods and buying, or selling, substantial amounts of corn, without doubt enjoyed an oligopoly that distanced them from the norm.[35] This danger must be borne in mind. But there is no need to exaggerate it, since wages everywhere tended to adjust to subsistence level[36] while the sharp seasonal variations in prices shown by the book-keeping records suggest that these institutions, too, were subject to the inexorable law of the market.

Once the basic reliability of the documentation collected has been recognized, two problems pose themselves, i.e. the choice of the « typical » wage, and the processing of the price series.

The wage level's basic trend often remained unvaried for decades whereas there was a rather wide spread in the actual payments. There were differences

[33] I refer to the wages series for building workers in England from 1264 to 1954 given by E. H. Phelps Brown and S. V. Hopkins, in *Seven Centuries of Building Wages*, in « Economica » XXII (1955), reprinted in E. M. Carus-Wilson, ed., *Essays in Economic History*, vol. 2, London 1966, pp. 168-178.

[34] M. Baulant and J. Meuvret, *Prix des céréales de la mercuriale à Paris de 1431 à 1788*, in « Annales E.C.S. » 23 (1968), pp. 520-540; M. Baulant, *Le salaire des ouvriers du bâtiment à Paris de 1400 à 1726*, in « Annales E.S.C. » 26 (1971), pp. 463-483.

[35] « Are the prices agreed among representatives, directors of hospitals, governors of arsenals and their respective suppliers really the best guide to understanding market movements? Personally I would be ready to sacrifice some of these long series of prices... for something richer and more varied, even if this something makes us run the risk of confusion and error » (A. V. Judges, *Scopi e metodi della storia del prezzi*, in « Rivista Storica Italiana » LXIII, 1951, p. 170).

[36] This tendency — which, in the classical economist's analysis is assumed to be an irrefutable fact — has recently been questioned by J. F. Bergier, *Il secolo XVI segnò l'inizio di una nuova concezione dei salari? Suggerimenti per una impostazione del problema*, in « Rivista Storica Italiana » LXXVIII (1966), p. 431-438. Personally I believe that Bergier's arguments cannot be extended indiscriminately to the whole of western Europe, and, at least for Italy, there are substantial proofs to the contrary.

between winter and summer wages and even between the wage levels of workers who, as far as we know, belonged to the same category. Moreover, it was not rare for wages to be supplemented by rations of wine or bread which cannot always be easily translated into monetary terms. In any case, it is almost always possible to single out a large enough group of workers getting a uniform salary and use them as typical representatives of the category.[37]

The problem is much more complex for prices since the strong seasonal fluctuations and the sharp variations that may be recorded from year to year do not allow us to single out typical values. As our concern is with long-period oscillations we have no choice but to average out the prices paid by the consumer on different occasions. Of course I am well aware of the dangers inherent in this procedure and of the arguments it has led to. The debate has now been going on for some decades.[38] In 1937, Henri Hauser warned price historians to shun calculations of annual averages — or, even worse, of ten-year ones — since it is a procedure that reduces to uniformity what is by its very nature subject to market variations.[39] Two years later his warning was taken up by Marc Bloch, who pointed out that « historical statistics cannot pretend to absolute exactness any more than modern ones can... The only really important realities that statistics offer us are: the scale of the size and the direction of changes ».[40] Since then, the terms of the debate have not changed very much.[41]

Personally I think we must distinguish between short-period and long-period analysis. The methodology that is valid for one type of analysis is

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[37] At times it is possible to single out clearly two equally large groups who are getting two different wages. In such cases, the two modal wages are given in the tables. It should be remembered however, as E. H. Phelps Brown and S. V. Hopkins pointed out, that in a barely organized market, the choice of modal wages tends to stress the rigidity of the retributions. In reality, the wages actually received by the worker may show a more or less wide scatter around the typical values, in relation to the market conditions.

[38] This is not the place to summarize the terms of a discussion that has at times been sharp and polemic but has undoubtedly helped to clarify the limits and possibilities of the history of wages and prices. A recent survey of the various contributions to the discussion has been made by W. Kula, *Problemi e metodi di storia economica*, Milan 1972, chap. 12.

[39] H. Hauser, *Statistici e storici*, in « Rivista internazionale di scienze sociali » XLV (1937), pp. 874-882. A quite convincing reply to Hauser's remarks on the use of average values was given by A. Fanfani, *Statistici al servizio degli storici nello studio della storia dei prezzi*, ibid., pp. 883-890.

[40] M. Bloch, *op. cit.*

[41] Ruggiero Romano, for example, still criticizes the use of averages in the history of prices (*I prezzi in Europa, cit.*, pp. XX-XXI). One certainly shares the author's doubts; but I do not think that many historians are forgerful of the snares hidden in the simple arithmetical average. The fact is that we hardly ever have sure data for calculating the average in question, which, in many cases, gives a better approximation to reality.

not valid for the other. Averages should be seen for what they are. They mask the dramatic fluctuations of the real wages of the pre-industrial worker but they are indispensable when we want to get an idea of the trend of workers' wages over a long period.

III.

Our series represent the real wages of building workers expressed in kilos of bread that they could presumably buy with a day's work. The wages of building workers were chosen for two basic reasons. On the one hand, the building workers' wages are documented more substantially and with more continuity than those of any other workers. On the other, the building worker category can be considered representative of a wide spectrum of workers ranging from the general labourer to the skilled craftsman — in a sector where productivity remained substantially unchanged for centuries.[42] Variations in their wage level thus take on a significance that goes beyond the limited group under consideration since their wages do not reflect the movement in a particularly dynamic sector.[43] The documentation we have collected runs from the end of the 14th century to the last years of the 18th[44] and covers some of the leading towns and cities in Italy or their surrounding regions.

For the first century, the data deal almost exclusively with Lombardy. In Milan, in 1391, the daily wage of a mason was equivalent to 7 kilos of bread.[45] From the early years of the 15th century onwards, there is a rapid increase. A group of masons in Vigevano, a ducal residence little more than 30 kilometres from Milan, was employed in repairing public

[42] In the centuries from the Middle Ages to the nineteenth century, there were no appreciable changes in building technique. As a result, the type of work and the productivity of the workers remained very stable. The wages thus refer to a service that throughout this long period remained substantially homogeneous.

[43] E. H. Phelps and S. V. Hopkins, *Wage-rates and Prices: Evidence of Population Pressure, cit.*, p. 289; D. Sella, *op. cit.*, p. 9 comes to similar conclusions; A. L. Bowley (*Wages in the United Kingdom in the Nineteenth Century*, London 1960, p. 63) makes the same point when remarking that building workers' wages can be considered as generally representative. These conclusions are also accepted by E. Waterman Gilboy, *Wages in Eighteenth England*, in « Journal of Economic and Business History » II (1930), pp. 603-629.

[44] We stopped at the threshold of the 19th century because the 14th to 18th centuries in European history make up a unitary period. (Cf. F. Braudel, *Histoire et science sociale. La longue durée*, in « Ecrits sur l'histoire », Paris 1969, p. 54).

[45] For these and the following data, cf. the statistical appendix, where the sources and the procedures for obtaining these values are given.

buildings and in 1411-19 earned from 10 to 13 kg. per day; in 1423-39, from 11 to 13 kg.; in 1462-74, from 13 to 16 kg. For over half a century, their real wages kept at a level that was almost double that of the second half of the 14th century.[46]

The drop in the level recorded in the last years of the 15th century gives us a glimpse of the fact that the ' golden age ' of the wage-earning worker — as Thorold Rogers called it — was drawing inexorably to its close. The lack of data for the decades of the late 15th and early 16th centuries means that we cannot follow the descending parabola of real wages closely. One has, however, the impression of a sudden collapse which in the course of a few decades pulverized the purchasing power of the working class, whose situation was worsened by the « price revolution ». In 1518, a Milanese stone-dresser was earning about 9 kg. of bread per day; [47] twenty years later in Pavia, a mason's wages were still about 9 kg.; in 1569-71, the pay had dropped again to only 5-6 kg. daily. In the last decade but one of the 16th century mason working for the *Fabbrica del Duomo* (Milan cathedral) were getting the equivalent of 7-9 kg.

We do not know the wages of the mason in other cities before the 16th century, but there is no reason for believing that Lombardy was an execptional case. All the more so since, as we shall see, in the rest of Europe, too, the movement of wages shows unexpected analogies. One can in any case say that in the course of the 16th century, a mason's earning showed the same movement everywhere. In Florence, the daily wage, which was 10-12 kg. of bread in 1520-26, dived to 5-6 kg. in 1531-35 and 1552-59,[48] to pick up in the next three decades (8-12 kg.) and touch bottom again (5 kg.) in 1592-6. In Modena, the basic trend shows the same features even though the absolute values were lower. In 1540, a mason would have been able to buy only 5 kg. of bread a day; but his lot improved between

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46 We have preferred to use the Vigevano series because it is richer and less broken than other scattered data to be found in other sources. Its ' normality ' is easily checked by the fact that in 1450, a Pavia mason earned something like 16 kg. of bread per day (Pavia: Archivio Notarile, notary Lodovico Legge, VII, 265); in Stradella, a mason had a similar wage (*ibid.*, notary Agostino Baracchi, X, 174); the typical wage of Milanese masons in 1438 was equivalent to 14 kg. of bread (F. Fossati, *Lavori e lavoratori a Milano nel 1438*, in « Archivio storico lombardo », s. VI, 1929, p. 91) and the same wage was still in force in 1459 (*Annali della Fabbrica del Duomo di Milano dall'origine fino al presente*, vol. II, Milan 1877, p. 193).

47 A bricklayer's wage was undoubtedly higher. In the 17th century, there was a difference oscillating around 15% between stone-dresser and bricklayer. But even bearing this margin in mind, the bricklayer would earn little more than 10 kg. of bread, i. e. less than half his wage in the golden years of the 15th century.

48 In 1541-43, the daily wage had an anomalous peak of 16-22 kg. of bread because of a sudden drop in the average price of corn from 63.9 *soldi* per *staio* in 1531-35 to 22 *soldi* in 1541-43.

1560 and 1590 — as had already happened in Florence — when his pay rose to 7 kg., only to drop again to 4 kg. in the last decade of the century. In Naples, the curve of real wages is more irregular: 13 kg. of bread in 1540-49; 10-13 kg. in 1551-58; 3-5 kg. in 1564-69; 6-9 kg. in 1571-78 and 6 kg. in 1590. This was due partly to sharp variations in the price of corn and party to oscillations in nominal wages, which reached their lowest point in the middle decades of the century.

At the end of the 16th and the beginning of the 17th centuries, real wages held firm around a level that for over two centuries was not to undergo any serious change. If we except some abnormal points due to fluctuations in consumer good prices or to shortage of labour, produced by natural disasters, the margin between maximum and minimum wages is less marked than in previous centuries. In Milan, the average earnings of masons of the *Fabbrica del Duomo* swung between 8 and 10 kg. of bread for at least seven decades. In Pavia, the masons working on Borromeo College earned from 7 to 9 kg. of bread for most of the century. In Modena, the minimum wage — corresponding to 4-6 kg. of bread per day — was paid for the first half of the 17th century but between 1660 and 1690 the pay increased by a good 30%, reaching as much as 9 kg. in the best years. In Florence, for seventy years, the pay swings between 7 and 10 kg. of bread. The last decade of the 17th century records a new drop in the wage level. The data for Milan, Pavia, Modena and Florence, all agree in showing this falling-off, which can be estimated as about a 30% drop against the wages in the previous two decades. For the following century, pay remained firmly stuck at the paltry levels established at the end for the 17th century. In Milan, between 1700 and 1770, the daily wage of building labour oscillated between minimum and maximum values was even narrower (7-8 kg.). In Naples, the working class were apparently better off: between 1730 and 1790, a mason was earning something like 8-9 kg. of bread per day. In the last decade of the century, as had already happened at the end of the three previous centuries, there was a new cut in the wage, bringing it down to the same levels as those of 1590, when a sharp rise in farm prices pulverized nominal wages.

The basic trend that we have identified in real wages in some Italian towns, reflects — though with different nuances — a situation that has been found in other European countries, for which we possess parallel series. Transformed into kilos of bread, the wages of English, French, Flemish, Lombard, and Florentine masons — just to quote some of the more obvious examples — show the following trend:[49]

[49] For other significant comparisons, see E. H. PHELPS BROWN and S. V. HOPKINS, *op. cit.*, and *Builder's Wage-rates, Prices and Population: Some Further Evidence*, in « Economica », n. s., XXVI (1959), pp. 13-38.

	England	Paris	The Low Countries	Lombardy	Florence
1261-70	10				
1301-10	10				
1351-60	7-12			7 [a]	10-12 [e]
1401-10	14-17			10-13	5-6
1451-60	18	18	8	13-16 [b]	7-8
1501-10	18	9	8	13 [c]	10-12 [e]
1551-60	9-11	5-7	5-6	9 [d]	5-6
1601-10	6	6	5	8-10	7-8
1651-60	9	5-6		10	8
1701-10	10-11	5-6		6-7	7 [f]
1751-60	12				6-7

[a] 1391; [b] 1462-74; [c] 1490; [d] 1538; [e] 1520-26; [f] 1690-1700.

Sources:

England: E. H. Phelps Brown and S. V. Hopkins, *Seven Centuries, cit.*; J. E. Th. Rogers, *A History of Agriculture and Prices in England*, Oxford 1866-1902 (vols. I, IV, V); W. Beveridge et al., *Prices and Wages in England from the Twelfth to the Nineteenth Century*, vol. I, *Prices Tables: Mercantile Era*, London 1965.

Paris: M. Baulant, *Le salaire des ouvriers du bâtiment à Paris de 1400 à 1726*, in « Annales E. S.C. » 26 (1971) and *Les prix des grains à Paris de 1431 à 1788*, in « Annales E. S. C. » 23 (1968).

The Low Countries: H. Van der Wee, *The Growth of the Antwerp Market and of the European Economy (fourteenth-sixteenth centuries)*, The Hague 1963, vol. I.

Lombardy and Florence: cf. statistical appendix III.

The whole of the data examined have two characteristics that should be stressed straight away: the first concerns the difference in wage levels from town to town; the second regards the basic trend of real wages, which are characterized by a swift drop beginning between the end of the 15th century and the early years of the 16th, followed, in turn, by a period of comparative stability lasting more than two and a half centuries.

As regards the differences in wage levels — and limiting ourselves to Italian towns — it must be remembered that, at least in part, they are only apparent. Local customs or special clauses in contracts established that the monetary wage was supplemented by a ration of wine, bread, or soup and this represented a good 15-20% of the pay.[50] Another reason for the differences is perhaps to be found in the varying cost of living: the margin between

[50] D. Sella, *op. cit.*, appendix, *passim*. This practice was common everywhere. At Portogruaro in 1498, a carpenter's daily wage was 20 *soldi* as well as his board, or 28 *soldi* « at his expense » (D. Bartolini, *Notizie storico-statistiche sui prezzi e salari. Prezzi e salari nel comune di Portogruaro durante il secolo XVI*, in « Annali di statistica », s. 2, I, 1878). In Pavia, in 1569 and 1571, Bernardo Sacco employed some *maestri da muro* and paid them from 16 to 20 *soldi* plus « soup and drink » (*Libro delle spese di Bernardo Sacco, in Pavia Biblioteca Universitaria*, Mss. Ticinensia, n. 218). Similar contracts can be found for workmen of the Milan *Fabbrica del Duomo* from the early 15th to the late 18th centuries. Cf., for example, the contract stipulated in 1407 with Paolino da Orsenigo, *maestro da legno e da muro* (*Annali della Fabbrica del Duomo di Milano dall'origine fino al presente*, vol. I, Milan 1877, p .277; for the following period, cf. Archivio della Veneranda Fabbrica del Duomo di Milano, Mandati, *ad annos*). In the province of Bari, bet-

the wages of Pavia and Milan masons which was to the advantage of the latter,[51] probably reflects the higher costs the Milan worker had to meet for his upkeep.[52] And, finally, we must consider the labour market. The recruitment of labour was not strictly local. A mass of masons from the Biella valleys (Piedmont) flocked to Milan.[53] Venice was a centre of attraction for underemployed labour on the mainland.[54] The plentiful supply of manpower, in practice, brought a return to the foreman fixing the wages. The foremen were thus able to exert a much more searching and efficient control on the labour market than the guilds themselves.[55] For their part, the workmen had no chance of escaping from this form of monopoly since, in view of the mostly seasonal nature of the migration, they preferred to sacrifice a few *soldi* in wages rather than face a long and risky journey, all the more so as « the wage income was no more than complementary, insufficient through it was for this, to the wages earned in the villages the workers came from, by other members of their family nucleus ».[56]

The labour market thus tended to dissolve into fragments, creating wage areas in which the real wages of the less lucky workmen might even drop to two-thirds of those of the better paid.[57]

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ween 1547 and 1700, a group of bricklayers, stone-cutters and stone-dressers were paid as follows: in coin, 33 workers; in coin plus something in kind, 14 workers; only in kind 5 workers (C. Massa, *I salari di mestieri in Terra di Bari dal 1449 al 1732*, in « Giornale degli economisti e rivista di statistica » XLII, 1911). Other examples can be found in A. Fanfani, *Storia del lavoro in Italia*, cit., chap. VII.

[51] Cf. statistical appendix. Similar differences are apparent in the wages recorded in Florence and Sansepolcro. The phenomenon had already attracted Adam Smith's attention (see his subtle analysis of relative wages in the first book of *The Wealth of Nations*) as well as the attention of that acute observer, Arthur Young. J. H. Von Thünen considered the wage differences between cities and the minor centres around them as a concrete example of his well-known theory.

[52] The margin is not limited to the monetary wage. It also exists in terms of bread. This does not invalidate our conclusions. It simply means that the worker had to sacrifice a larger share of bread to obtain the same benefits and services that he could get elsewhere with less sacrifice.

[53] D. Sella, *op. cit.*, in particular, chap. II.

[54] B. Pullan, *op. cit.*, p. 159. The greater pressure exerted on the labour market in Milan or Venice seems to contradict what was said before about the better pay for workmen in the larger towns. But this is only apparent as a contradiction: wages could not stay below the cost of living level for long and this level was normally higher in the towns. The fact that workers flocked on to the labour market in Milan, Florence or Venice meant that wages were squeezed to a subsistence margin but not reduced — unless in exceptional cases — to an even lower level.

[55] We must turn once again to D. Sella, *op. cit.*, chap. II, and particularly the document quoted on p. 34. As regards the inability of the guilds to make people respect the wage tariffs, there is much evidence both inside and outside Italy (cf. J. M. Kulischer, *Storia economica del medioevo e dell'epoca moderna*, Florence 1955).

[56] D. Sella, *op. cit.*, pp. 58-59.

[57] This does not mean that we must completely exlude a labour market that was comparatively integrated in regional areas. It simply means that the point of balance

As regards the trend over centuries, historians, starting with Malthus, tend to see the regulating principle of the wage dynamic in the fluctuations of population. According to this explanation, the real wage is very high when the food resources — demand for which is considered to be essentially rigid — are shared out among a small population; the real wage approaches the subsistence minimum when population pressure is strong. Between the two extremes, the amount of the wage is regulated by variations in the population.[58] There is without doubt much truth in this interpretation, but the reality is much more complex. One cannot ignore, for example, important institutional factors, such as the persistence of custom, the intervention of the authorities, or action taken by the guilds,[59] even though, as we have just seen, it is no easy matter to ascertain the guild's real power of intervention in wage-fixing. On the other hand, factors such as the force of custom, or the intervention of the authorities could operate only in the presence of a labour market that, in normal times, had a structural imbalance to the advantage of demand.[60]

It is also worth remarking on the suggestion that an increase in population brings about an increase in food demand and therefore a rise in the price level. This reasoning is valid in so far as it assumes that: (a) the increase in population is not accompanied by a proportional decrease in monetary income per head; (b) food supply is comparatively inelastic. Hypothesis (a) is not unreasonable — even though it should be proved rather than taken for

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was decided not only by monetary pay but by the sum of monetary and non-monetary advantages. Moreover, J. R. Hicks has pointed out that « even in a position of equilibrium, some local differences indeed would probably persist. Some are due to differences in the cost of living, some to the indirect attractions of living in certain localities, some are simply due to differences in efficiency ». In any case, « it is extraordinarily difficult... to disentangle the effect of differences in « other advantages » from the effects of immobility » (*The Theory of Wages*, New York 1968, pp. 74-75).

[58] This means that both the trend and the wage level are determined by fluctuations in the population.

[59] E. H. Phelps Brown and S. V. Hopkins (*Seven Centuries of Building Wages*, *op. cit.*, pp. 174-75) thought they saw the wage stability factor in custom; M. J. Elsas (*op. cit.*, pp. 195-196), instead, thought the stability factor lies in the monopolistic control exerted by the employers on the labour market. These are without doubt wellfounded hypotheses even though, in the way their authors express them, they are interesting lines of research rather than solidly documented affirmations.

[60] The labour supply was not always greater than the demand. Cases of labour shortage after the plague are well known. However, in normal periods, unemployment was a structural datum. Evidence of this lies in the large number of the poor — the unemployed of pre-industrial society — who found refuge and relief from their wretchedness in the urban communities. Between 1610 and 1780, in four Italian towns (Cremona, Modena, Siena, and Venice) the total proportion of poor in the population was from 11 to 15% (C. M. Cipolla, *Storia economica dell'Europa pre-industriale, 1000-1800*, Bologna 1974, p. 35).

granted. Hypothesis (b) may be valid for some periods but not for others.[61] For example, though it is true that in Lombardy, as elsewhere, the population increase in the 16th century considerably raised the price of farm products, it is also the case that in the 17th century, the prices for corn — the bread-making cereal par excellence — continued to fall even when the population had grown enough to fill the gaps left by the 1630 plague. It is also true that in the following century, between 1700 and 1770, in Lombardy, the prices of all cereals remained stable (or even underwent a prolonged low level in the mid-century decades), while there is not the slightest doubt that the population went on growing. It should not be forgotten, however, that a series of technological innovations and the introduction of new crops make the 17th and 18th centuries in Lombardy rather exceptional. This example, however, may help us to be on our guard against accepting, without reservation, the idea that in pre-industrial society the supply of foods was always and everywhere inelastic.[62]

The assertion by Wilhem Abel that in studying causal relationships concerning real wage movement « economists must not split so many hairs

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61 This thesis is in general seconded by E. H. Phelps Brown and S. V. Hopkins, by F. J. Fisher, *Inflation and Influenza in Tudor England*, in « Economic History Review » XVII (1965) and, more recently, by R. G. Wilkinson, *Poverty and Progress*, London 1973, pp. 70-72. Modification of the terms of trade in favour of agricultural products in the course of the 16th century proves, according to E. H. Phelps Brown and S. V. Hopkins, that growing demand was bringing pressure to bear on primary goods as a result of an increase in population. This argument may have some truth in it. But other aspects must also be borne in mind. The « price scissors » began to open swiftly towards 1520 to close again in the last decades of the century. This movement in relative prices suggests that the authors' calculations have been upset by the « price revolution » which certainly affected primary goods — demand for which was rigid — more heavily than manufactured goods. The ratios calculated by Phelps Brown and Hopkins are thus changed by the rapid increase in prices as well as by the population growth and prove, if anything, that in a period of inflation those who live on a fixed income are forced to reduce their consumption of manufactured goods in order to obtain the goods necessary for survival. A situation of this kind may arise even in the absence of population growth.

62 E. H. Phelps Brown and S. V. Hopkins admit some flexibility in pre-industrial economies. They are inclined, however, to suggest that the margins within which the product could fluctuate were rather narrow, and in any case, narrower than the fluctuating margins of the population. « In some district — they point out — and by various methods the outputs of food and wood were increased, but we should not expect agriculture to have the capacity for expansion, extensively or intensively, that could raise either its labour force or its product proportionately to the rise in population » (*Wage-rates and Prices: Evidence of Population Pressure, cit.*, p. 26). In fact, in the first centuries of the modern era, the crops of cereals for breadmaking have shown considerable variations. For instance, according to Aldo De Maddalena's latest estimates, between 1540-49 and 1740-49, the production of rye, barley, and oats in the Mediterranean area increased respectively by 74%, 46%, and 34% (A. De Maddalena, *Rural Europe, 1500-1700*, London-Glasgow 1970, p. 74).

when it is demonstrated that the population was really decreasing »[63] represents an indispensable point of departure if we are to avoid losing sight of trends over centuries but it cannot represent a point of arrival for a type of historical enquiry intending to reconstruct as far as possible all the aspects of a reality that is extremely complex and heterogeneous.*

APPENDIXES

I. Measures.

The measures of capacity for dry commodities to which the corn prices in various cities and towns refer, are as follows:

1 *sacco* (Pavia) = 122.2663 l.
1 *moggio* (Milan) = 146.2343 l.
1 *staio* (Portogruaro) = 78.547 l.
1 *staro* (Modena) = 63.2502 l.
1 *staio* (Sansepolcro) = 68 l.
1 *staio* (Florence) = 24.3629 l.
1 *mina* (Genoa) = 116.62 l.
1 *tomolo* (Naples) = 55.2340 l.
1 *W. Quarter* = 281.9 l.
1 *setier* = 156 l.
1 *viert* = 86.606 l.

Sources:

Italian measures: *La metrologia italiana ne' suoi scambievoli rapporti desunto dal confronto col sistema metrico*, Modena 1892; D. Bartolini, *Notizie storico-statistiche sui prezzi e salari. Prezzi e salari nel Comune di Portogruaro durante il secolo XVI*, in « Annali di Statistica » s. 2, I (1878) (for the Portogruaro *staio*); A. Fanfani, *Indagine sulla « rivoluzione dei prezzi »*, Milan 1940.

Other measures: W. Beveridge, *Prices and Wages in England from the Twelfth to the Nineteenth Century*, vol. I, *Prices Tables: The Mercantile Era*, London 1965; M. Tarbe des Sablons, *Manuel Pratique et élémentaire des poids et mesures, des monnaies et du calcul décimale*, Paris 1835; H. Van Der Wee, *The Growth of the Antwerp Market and the European Economy (fourteenth-sixteenth century)*, The Hague 1963, vol. I.

It is worth mentioning here that old measures, whether of length, weight, or capacity, are not comparable in precision with modern ones. Deliberate fraud and the inaccuracy of the measuring instruments made the measures extremely approximate. This has to be borne in mind in interpreting the data.

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63 W. Abel, *Spopolamento dei villagi e caduta dei prezzi in Europa nel Basso Medioevo*, in R. Romano, *op. cit.*, p. 125.

* Unfortunately this article had already been completed when A. De Maddalena, *Prezzi e mercedi a Milano dal 1701 al 1860*, Milan 1974, appeared.

II. Conversion of corn into bread.

The corn prices quoted on the various markets refer to measures of capacity that have been transformed into litres on the basis of the comparative table given in appendix I.

The conversion of litres of corn into bread has been made while bearing in mind that the apparent specific weight of the type of corn grown at the moment in Italy varies from 74 to 82 kg. per hectolitre [64] and the yield of corn into bread may vary from 87% to 93%.[65] Considering the averages of the values quoted, the coefficient for transforming wheat into bread proves equal to about 0.70 (100 litres of wheat = 70 kg. of bread). We have used this value in our calculations.

III. Real wages.

The first problem to solve concerns the choice of a typical money wage. As we have seen, in past centuries wages were never quite uniform because the same nominal job probably corresponded to very different duties. However, when we are faced with isolated workers or very small groups, it is always possible to single out a modal wage (or a pair of modal values corresponding, usually, to the summer and winter salaries) and this is what we have chosen to do since such wages refer, in all likelihood, to typical representatives of the category. In a few cases — such as Vigevano in 1490, Pavia in 1569-71, Milan in 1581-88, and Venice in the decade 1280-90 — we have had to make do with the small number of wage-figures available. It should also be pointed out that these isolated wages have a significance that goes beyond the limited group of workers they refer to — because of the homogeneity of the labour market.

For the corn prices, we have had recourse, in general, to ten-year averages. When the wages refer to isolated years, the decade has been defined by considering the year (or years) for which we have wage-figures, as the central year of the period. In cases where the price series are incomplete, we have used only the annual prices regarding the decade in question.

In transforming the nominal wages into real wages, we did not take into account the cost of the breadmaking or the baker's profit-margin. Our

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64 V. Villavecchia, *Dizionario di merceologia e di chimica applicata*, Milan 1930, vol. II, p. 312. Right up to the end of the 18th century, the types of wheat cultivated were different from the modern ones. Their nutritional content and density were lower. One is perhaps exaggerating in adopting an average of 78 kg. per hectolitre. But given the approximate nature of the data offered by the documentary sources, and the inaccuracy of the measuring instruments, adopting any other value would not change the margin of error inherent in our calculations.

65 The yield of corn in terms of bread has been reckoned by D. Zanetti, *Problemi alimentari, cit.*, pp. 61-62, who makes use of, inter alia, the well-known works by Giuseppe Mira on the Como economy and Enrico Fiumi on the Florence of Giovanni Villani.

values are therefore higher than the actual quantity of bread that the wage-earner could have bought on the market. The total of breadmaking expenses and profits varied from town to town, depending above all on the official food-office's policy. As an example of this, according to a Pavia document of 1691, the margin between the price of a sack of corn and that of the bread made from it was slightly less than 20% (D. ZANETTI, *Problemi alimentari*, *cit.*, pp. 139).

TABLE 1

REAL WAGES OF BUILDING WORKERS IN LOMBARDY
(*in kg. of bread*) *

	Milan	Pavia	Vigevano
1391	7		
1411-19			10-13
1432-39			11-13
1442-49			10-13
1452-57			12
1462-74			13-16
1490 **			13
1516-18	9		
1538		9	
1569-71		5-6	
1581-88	7-9		
1601-10	8-10	5-6	
1611-20	8-10	7-8	
1621-30	9	5-6	
1631-40	11	7-8	
1641-50	9-11	6-7	
1651-60	10	8-9	
1661-70	12	10-12	
1671-80	9-10	7-9	
1681-90	9-11	7-9	
1691-1700	7	5-6	
1705	6-7		
1715	7-9		
1725	10-11		
1735	7-8		
1745	6-7		
1755	6-7		
1765	6-8		
1785	4-5		
1795	4		

* Building workers in this, and the following tables, refers specifically to « maestri da muro » (masons, bricklayers).

** A carpenter's wage. In previous years bricklayers' and carpenters' wages were roughly identical.

Sources:

Wages: 1391, *Annali della Fabbrica del Duomo dall'origine fino al presente*, Appendici, vol. I, Milan 1883, pp. 206-207; 1411-90 ,F. FOSSATI, *Appunti e note per la storia economica di Vigevano (prima metà del secolo XV)*, Vigevano 1911, pp. 71-75, and *Appunti per la storia economica di Vigevano (seconda metà del secolo XV)*, in « Viglevanum » IX (1915), f. 1; 1516-18, AVFD (Archivio della Veneranda Fabbrica del Duomo di Milano), Mandati, *ad annos*; 1538, Archivio Civico di Pavia, c. 568; 1569-71, Biblioteca Universitaria di Pavia, mss. Ticinensia, n. 218, Libro delle spese di Bernardo Sacco; 1581-88, AVFD, Mandati, *ad annos*; 1601-1700, D. SELLA, *op. cit.*; 1705-1795, AVFD, Mandati, *ad annos*.

Prices: 1391-1700, D. ZANETTI, *Problemi alimentari*, *cit.*; 1701-1800, G. FERRARIO, *op. cit.*

TABLE 2

REAL WAGES OF BUILDING WORKERS IN THE VENICE REGION
(in kg. of bread)

	Venice	Portogruaro	Cles
1280-90	4-10		
1494		16-19	
1507		20-21	
1567		7-9	
1665-68			6

Sources:

Venice: G. LUZZATTO, *Prezzi e salari nel secolo XIII*, in « Le Marché » VII (1907).

Portogruaro: D. BARTOLINI, *op. cit.*

Cles: G. FELLONI, *Finanze e prezzi in un comune trentino alla metà del Seicento*, in « Nuova Rivista Storica » XXXVII (1953).

TABLE 3

REAL WAGES OF BUILDING WORKERS IN GENOA
(in kg. of bread)

1700-09	6	1750-59	7
1710-19	6	1760-69	6
1720-29	7	1770-79	6
1730-39	7	1780-89	5
1740-49	7	1790-99	5

Sources:

Wages: G. C. MORI, *Contributo alla storia dei salari nel secolo XVIII*, thesis presented in the Economics Faculty of Genoa University. Academic year 1964-65.

Prices: M. CARRARA CAGNI, *I prezzi a Genova nel secolo XVIII*, thesis presented in the Economics Faculty of Genoa University. Academic year 1957-58.

TABLE 4

REAL WAGES OF BUILDING WORKERS IN MODENA
(in kg. of bread)

1539-40	5	1620-29	4
1555-59	4-5	1630-39	6
1560-69	6	1640-49	5-6
1570-79	6-7	1650-59	6
1580-89	6-7	1660-69	8
1590-99	4	1670-79	7
1600-09	4	1680-89	9
1610-19	5	1690-98	6

Source: G. L. BASINI, *L'uomo e il pane. Risorse, consumi e carenze alimentari della popolazione modenese nel Cinque e Seicento*, Milan 1970.

TABLE 5

REAL WAGES OF BUILDING WORKERS IN TUSCANY

(in kg. of bread)

	Florence	Sansepolcro
1520-26	10-12	
1531-35	5-6	
1541-43	16-22	
1552-59	5-6	
1561-64	8-9	
1570-74	9-11	
1580-87	9-12	
1592-96	5	3-5
1600-08	7-8	
1610-19	11-12	8-10
1620-29	6-7	
1630-39	6-7	6-7
1640-49	10	
1650-59	8	
1660-69	9-10	
1670-79	8-9	
1680-89	11	
1690-1700	7	

Sources:

Florence: G. PARENTI, *Prime ricerche sulla rivoluzione dei prezzi a Firenze*, Florence 1939; for the 17th century we used documentation on prices and wages in the Tuscan building industry, collected by B. MAIZELS, under the direction of Carlo M. Cipolla, as yet unpublished.

Sansepolcro: A. FANFANI, *Indagini sulla « rivoluzione dei prezzi »*, Milan 1940.

TABLE 6

REAL WAGES OF BUILDING WORKERS IN NAPLES

(in kg. of bread)

1488	16-22	1640-41	13
1514	31	1734-39	9
1540-49	13	1740-49	10
1551-58	10-13	1750-59	9
1564-69	3-5	1760-69	8
1571-78	6-9	1770-79	9
1590	6	1780-89	8
1605	7	1790-99	6
1616-21	10-11		

Sources:

1488: N. F. FARAGLIA, *Storia dei prezzi in Napoli dal 1131 al 1860*, Naples 1878.

1514-1641: G. CONIGLIO, *La rivoluzione dei prezzi nella città di Napoli nei secoli XVI e XVII*, in « Atti della IX Riunione Scientifica », Rome 7-8 Jan. 1950, Spoleto 1952.

1734-1799: R. ROMANO, *Prezzi, salari e servizi a Napoli nel secolo XVIII (1734-1806)*, Milan 1965.

TABLE 7

REAL WAGES OF BUILDING WORKERS IN APULIA

(*in kg. of bread*)

1563	7
1634	5-13
1664-69	7-17
1670-74	5-7
1693-1700	3-6

Note: These wages refer to a group of 41 bricklayers, 8 stone-cutters, and stone-dresser. The lowest values probably apply to the stone-cutters.

Sources:

Wages: C. MASSA, *I salari di mestieri in Terra di Bari dal 1449 al 1732*, in « Giornale degli economisti e rivista di statistica » XLII (1911), pp. 553-576.

Prices: C. MASSA, *Il prezzo del grano e dell'orzo in Terra di Bari (1419-1727)*, in « Atti dell'Accademia Pontoniana » XXXVIII (1908). The prices refer to 24 boroughs and were taken from the Bari *Archivio Notarile* and the *Repertorio delle pergamene dell'Università o Comune di Barletta (1234-1638)*, Naples 1904.