

# **Meat consumption and nutritional transition in Barcelona, 1709-**

**1935**

Manuel Guàrdia (Polytechnic University of Catalonia, Barcelona, Spain)

José Luis Oyón (Polytechnic University of Catalonia, Barcelona, Spain)

Nadia Fava (Girona University, Girona, Spain)

Sergi Garriga (Polytechnic University of Catalonia, Barcelona, Spain)

## ABSTRACT

Studies on the so-called ‘nutritional transition’ have revealed a steady increase in meat consumption per capita since the nineteenth century. Documentary sources in Barcelona reflect how meat consumption levels dropped dramatically between 1740 and 1840 and didn’t recover until the closing decades of the nineteenth century. This paper examines the evolution of supply and distribution systems during the modernization process and changes in the amounts and types of meat consumed. Consumers’ spatial accessibility to meat gives clues as to why consumption is stratified.

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Dietary changes that occurred during the period of industrialization and their generalization across broad strata of society have led to the term ‘nutritional transition’.<sup>i</sup> The initial stage was characterized by improvements in food production and distribution, with an increase in real income leading to a greater consumption of cereals, root vegetables and legumes. This was followed by a second phase that was characterized by an increased consumption of fruit and vegetables and products with higher animal protein content, such as fresh fish, a wide range of dairy and poultry products and in particular meat.<sup>ii</sup> The increased consumption of meat can be used as a key indicator of this nutritional transition that evolves at different rates depending on the country and that is clearly tied to urban development and modernization processes.<sup>iii</sup> Urban populations became the clearest of these changes in diet and especially the growing intake of meat. Alongside other factors – such as increases in earnings, increased livestock farming, scientific progress, the shaping of a national meat market or the entrance of women into the workforce – urban development processes became key drivers of change in the growing consumption of meat.<sup>iv</sup>

The purpose of this article is to reconstruct the nutritional transition process in Barcelona using data on meat consumption over an extended period. We have produced a long-term graph illustrating the consumption of meat in Barcelona, based on primary sources, that improves and broadens the scope of previous estimates.<sup>v</sup> Municipal slaughterhouse bookkeeping data has allowed us to establish a framework for the evolution of supply and for the estimation of per capita meat consumption.<sup>vi</sup> The long-term results clearly confirm the existence of a nutritional transition, although they are neither as linear nor as simple as more concise explanations suggest. We highlight the dramatic drop in meat consumption levels between 1740 and 1840 and their subsequent recovery that passed through three distinct phases. Firstly, there was a marked increase in mutton consumption. This was followed by a phase in which pork consumption increased and lastly there was a rise in the consumption of young meats with higher protein content, in particular veal, as of the turn of the century. These changes were related to the impact of rail supply.

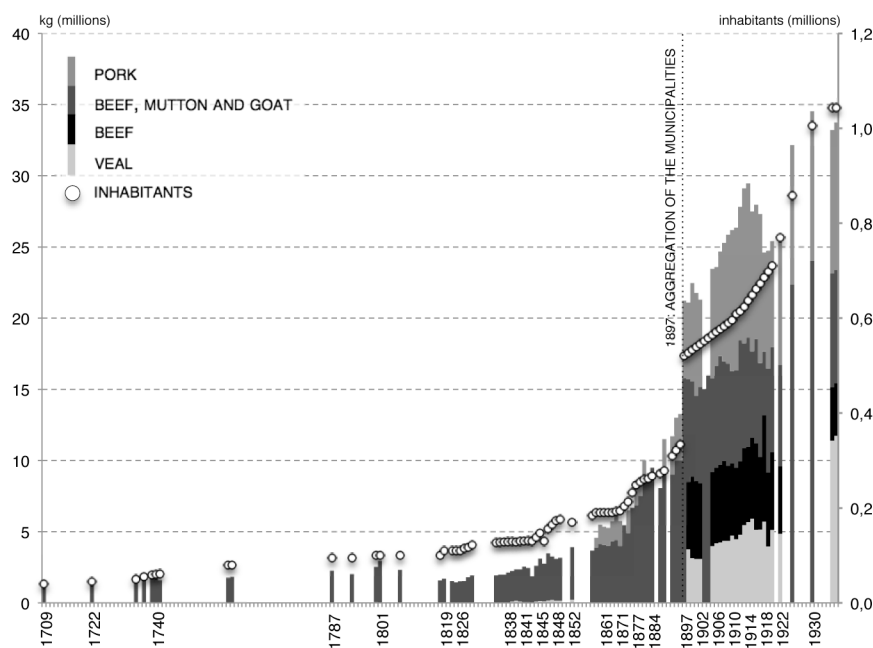
The article goes on to examine the role of meat distribution in the city. We discuss how the spatial accessibility of consumers to retail outlets contributed to meat consumption and how this factor can be used to analyse stratification and diversification. We cannot understand meat consumption by exclusively analysing urban supply. It is also important to pose questions about how meat reached the social geography of consumers through the structure of meat retail. Meat in nutritional transition and the spatial distribution of meat marketing facilities were two sides of the same coin.

### **Meat consumption: a good indicator of the early stages of the nutritional transition**

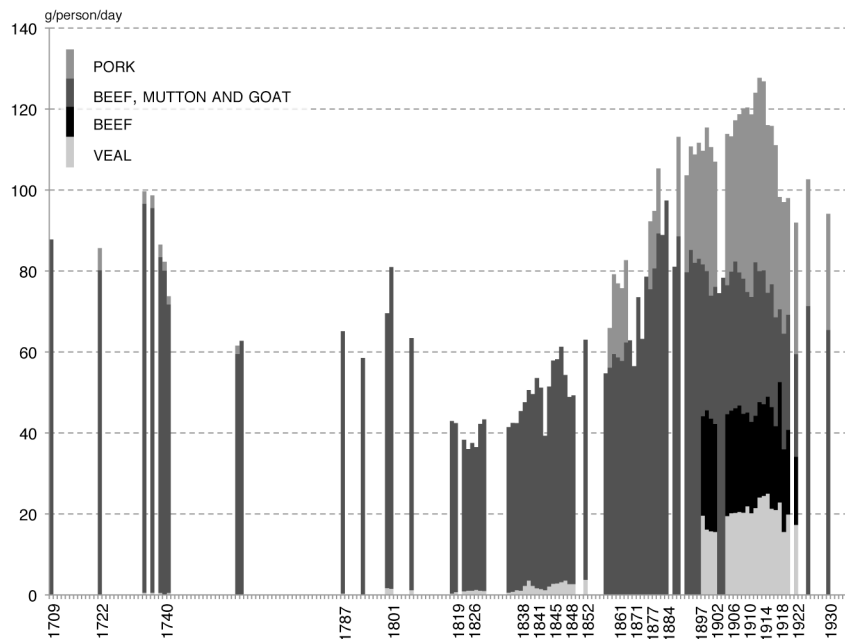
Bread and meat were considered the two key staples and maintaining their supply was the foremost municipal concern during the frequent subsistence crises of the nineteenth century. They were two foodstuffs that remained on 'top tables', *mesas de preferencia*, that regulated prices in order to contain the cost of living. As from the liberalizing decree of 1834, which provided freedom of commerce and sale of items for 'eating, drinking and burning', and the decree of 30 August 1836, which liberalized the sale of bread, the estimation of bread consumption becomes even more difficult to establish. Meat, in contrast, continued to be the most highly taxed food item, with a systematic centralized supervision at municipal

slaughterhouses, a fact that makes it easier to study the evolution of its consumption. Laureano Figuerola, who documented and studied consumption in the period between 1830 and 1849, considered meat to be the most appropriate food item for estimating the evolution of consumption. He considered it even better than bread for this purpose, 'not only as a more nutritional substance but also as a type of food indicator by which to judge the level of wealth and welfare being achieved by the people'.<sup>vii</sup>

The graph illustrating meat consumption in absolute terms (Fig. 1) highlights the rapid increase in the city's scale as of 1870. If the graph showing meat consumption is merged with a graph showing population growth, one observes that only as of the 1870s – when the railway network was fully-functioning – was meat consumption growth higher than population growth. As of 1897, annual reports provide more precise information on the different types of meat. The graph shows the diversification process of the types of meat on offer and the clear increase in the amounts of pork and beef.



[Fig. 1. Total consumption of carcass meats in Barcelona, shown in kilograms, 1818-1935]

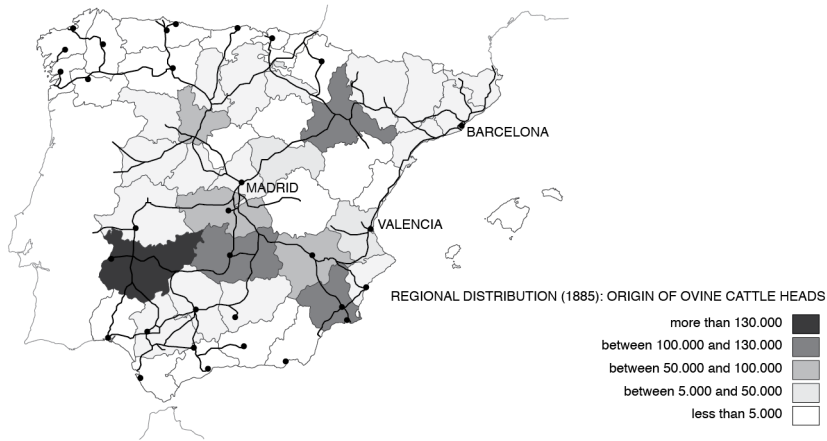


**[Fig. 2. Consumption of carcass meats in grams per person per day, 1710-1935]**

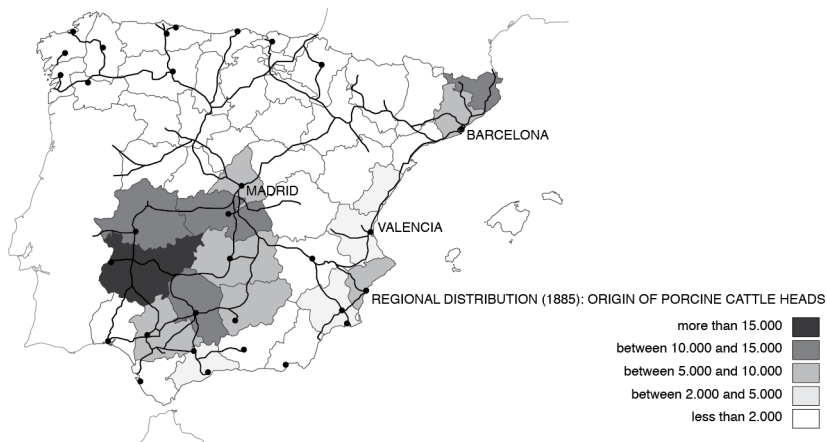
The graph showing the consumption of carcass meat per inhabitant (Fig. 2) is even more significant although a number of ranges need some explanation. The first surprising aspect is the high meat consumption per capita, in relative terms, in the first part of the eighteenth century. According to estimates for the fifteenth century, this figure would have remained unchanged since the Late Middle Ages. In 1462 the municipal government estimated a total consumption of around 75 grams per person per day.<sup>viii</sup> In these calculations, the low proportions of pork and veal are similar to those of the eighteenth century. It is also surprising to note, in the long-term graph from 1710 to 1835, the steep fall in meat consumption over the course of the eighteenth century, during a period of intense economic and population growth, with the number of inhabitants in the city essentially tripling between 1700 and 1800. Some explanatory factors can be suggested. In terms of supply, most authors agree that the rapid population growth of the eighteenth century was sustained thanks to crop rotation on new agricultural land and that, moreover, ‘the concentration of single-crop farming eliminated many pastures and restricted the number of animals that farmers could own.’ If we combine this reduction in livestock with Spain’s population growth – that increased from nine million in 1750, to over sixteen million in 1865 – the cause of the sudden fall in supply per inhabitant becomes clear. In terms of demand, urban areas were privileged and as of the Lower Middle Ages the municipal government had

the resources to ensure regular supply. Nonetheless, as has been observed in other periods of urban expansion, population growth as a result of an influx of rural migrants – with low purchasing power and unaccustomed to eating meat – led to a decline in meat consumption per capita rather than a rise.<sup>ix</sup> These conditions were aggravated by the Napoleonic occupation of 1808-1814 and the deep crisis of the opening decades of the 19th century. Consequently, between 1808 and 1837 the graph shows a continuous and steep downtrend. After 1837, the very moderate increase in per capita consumption could simply be attributed to the recovery of previous values. However, its sustained character over the long term indicates a decisive turning point, a structural change probably linked to the liberalizing process in the agrarian economy. This increase in per capita consumption was not the result of the deregulation of municipal policy, that was still highly interventionist to tackle fiscal problems and to manage the recurring provisioning crises. The protectionist principles that dominated Spanish politics from the opening decades of the century didn't advocate a radical liberalization either. Presumably, the most decisive measures were those related to the disentanglement of Church properties and the releasing of properties owned by nobility for other uses. Both led to the progressive incorporation of new lands into the market economy and to the increase of production capacity in the agrarian sector, two crucial factors to sustain population growth.

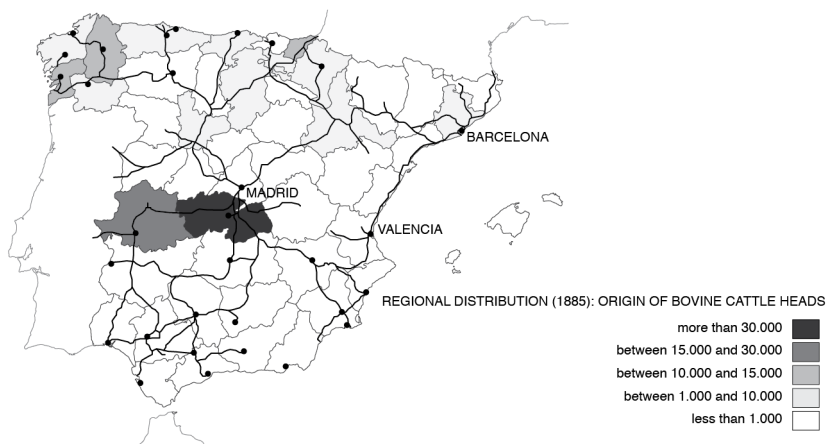
Between 1868 and 1885, we can observe a clear uptrend, with average amounts increasing from 62.9 grams per person per day to 97.4 grams per person per day. In the entire series, as of the eighteenth century, this represents the maximum increase in beef, mutton and goat consumption per inhabitant. After 1885, the increase in consumption per inhabitant is due mainly to the inclusion of pork. Between 1868 and 1880, the city also experienced a peak in population growth. In the thirty-three years between 1835 and 1868 the population increased by 65,000, at an overall yearly rate of 1.27%. Subsequently, between 1868 and 1885, the population increased by 74,000 inhabitants, at an overall rate of around 2%. The railway link completed in 1868 between Barcelona and Valencia – already connected to inland provinces – was the first major route for the transportation of livestock (Fig. 3). This railway line attained the highest volumes of livestock transportation in the 1870s and everything seems to indicate that as of this date, the rail traffic of livestock became rapidly consolidated. By comparing statistical data from 1885 and 1913 we can identify minor changes and we can assert that by 1885 the provisioning system had reached full maturity.<sup>x</sup>



**Fig. 3a. Provinces supplying sheep and rail system, 1885**



**Fig. 3b. Provinces supplying pigs and rail system, 1885**



**Fig. 3c. Provinces supplying beef cattle and rail system, 1885**

## Changing patterns of meat consumption

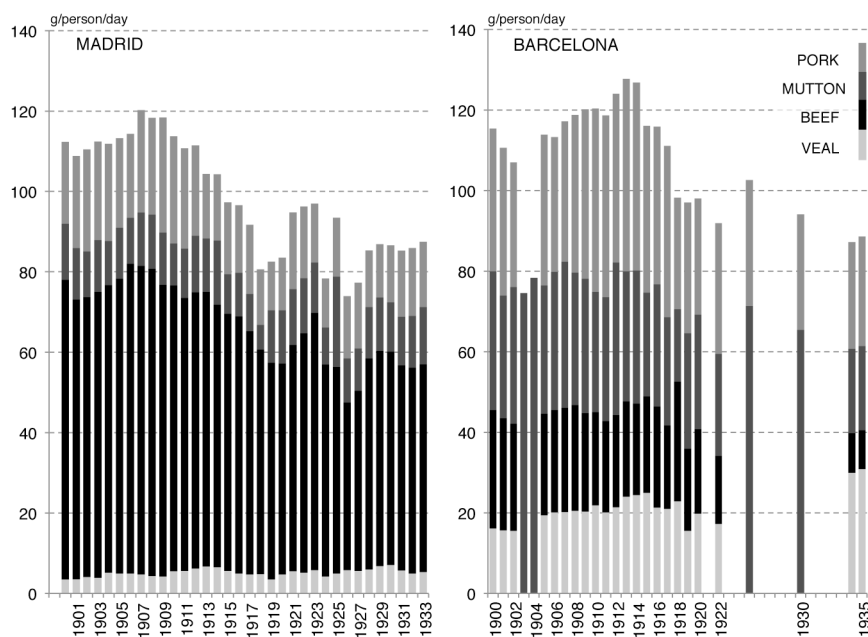
Although consumption in Spanish cities remained below that of major Western cities, the significant increase as of the latter half of the nineteenth century shows the gradual construction of a national market, the goal of the government's protectionist policies. In this new setting, high relative meat consumption will become an indicator of urban development and especially of modernization. Data from the city of Valencia for these years point to two aspects that should be underscored. Firstly, we should highlight the very low number of livestock imported via shipping as compared to the numbers imported by rail, and the greater consumption of meat in cities as opposed to in rural areas. If we compare the numbers of livestock unloaded from ships in the port, less than 1 per cent of those transported by rail, we can see the profoundly protectionist character of the Spanish economy, which was set on safeguarding its national industry and consolidating the national market.<sup>xi</sup> By the end of a century defined by severe agrarian crises, railways were the key component to achieve a new agriculture and livestock distribution system for the supply of large cities. The rigid and to a point autarchic nature of the agrarian economy, which was somewhat unproductive, led to severe limitations in the provisioning of cities and is in stark contrast to economies that were more open as a result of their capacity for territorial expansion, such as the United States, or countries that imported meat supplies from far-off markets, such as Britain.<sup>xii</sup>

Under these circumstances, the consumption of meat in cities such as Barcelona was very modest if we compare it to the United States, Australia or other European capitals. According to an article from 1881 criticizing meat provisioning in the city, meat consumption per person per day was 250 grams in London, 210 grams in Saint Petersburg and 142 grams in Paris. In Barcelona, however, the figure remained below 95 grams.<sup>xiii</sup> Nonetheless, it is important to highlight that this figure was clearly higher than that of most rural areas, where meat consumption was much lower. It is interesting to note the case of cities in the region of Valencia. In 1905 the total consumption of meat in the city of Valencia was 2.8 times higher than the rest of the province. In the case of Alicante this figure was 2.3 times higher, and in the case of Castellón it was 3.6 times higher.<sup>xiv</sup> In the case of Madrid, it is also estimated that in 1916 the consumption of meat among the urban population was virtually treble that of the rural population (96.7 g/pppd compared to 35.6 g/pppd).<sup>xv</sup> In 1930, Barcelona consumed

5.32 times more beef than the rest of Catalonia; 2.68 times more pork; and 1.82 times more mutton.<sup>xvi</sup> Again we observe that meat consumption depended on the modernization of transport and city provisioning systems, which can also serve as indicators of a country's level of urban development.

In the first stage of the nutritional transition, mutton and beef consumption dominated and grew, particularly between 1868 and 1885. After this, there was a significant increase in the consumption of pork. The second stage of nutritional transition was characterized by a growing diversification of types of meat, with a notable increase in veal and, to a lesser extent, lamb and kid goat that brought about a considerable reduction in the consumption of mutton and beef.

Between 1900 and 1935, although data is lacking for several years, a comparison can be made between the consumption of meat in Barcelona and Madrid (Fig. 4).<sup>xvii</sup> The overall meat consumption habits per person were similar but when we study the individual types of meat some notable differences can be found. In Madrid – where mutton had traditionally dominated – by the end of the nineteenth century, unlike other Spanish cities, beef consumption clearly prevailed and few calves were slaughtered in comparison to Barcelona. The consumption of pork was also clearly higher in Barcelona where the reduction of mutton consumption also occurred later and at a slower rate.

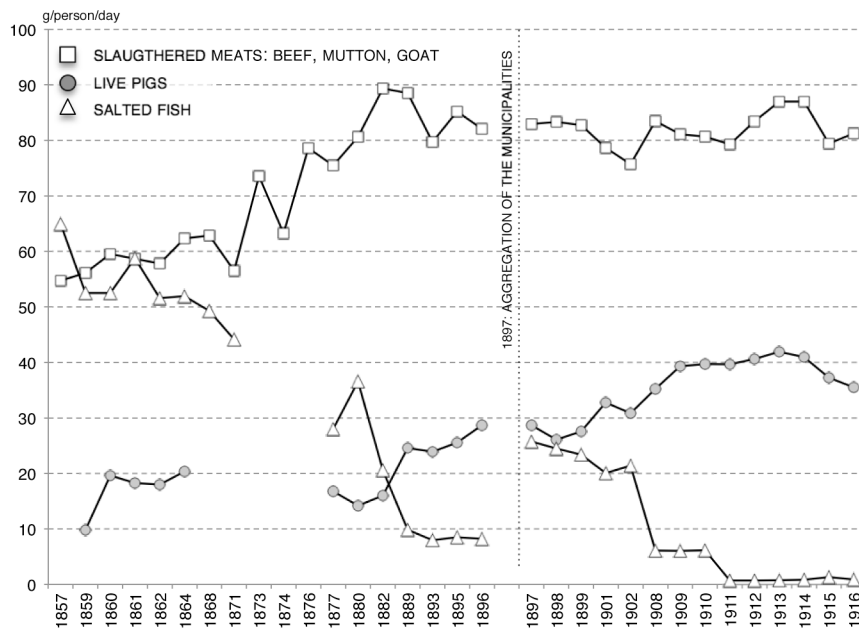


[Fig. 4. Consumption of meat in grams per person per day in Madrid and Barcelona, 1900-1935]<sup>xviii</sup>



From the marked difference between the types of meat consumed in Barcelona and Madrid we can draw a number of hypotheses. Both cities were supplied with the surpluses of an under-capitalized agricultural sector with traditional production methods and protected by tariffs. Madrid, however, was closer and better connected to its livestock farms than Barcelona. Figuerola pointed out that between 1842 and 1849 Madrid's consumption levels improved by 60 per cent whereas in Barcelona, for the same period, levels only increased by 46 per cent.<sup>xix</sup> The construction of the rail network placed Madrid in a central location that was even more favourable, and provided a much less costly supply (Fig. 3.). In Barcelona, in a more peripheral position, meat prices made pig and cow fattening farms an attractive option for the urban market. This factor coincided with the presence of an entrepreneurial farming network that, while not widespread, was proving to be considerably dynamic. Interestingly, in 1852 the Catalan Agricultural Institute of St Isidore began publishing a journal to promote the modernization of the sector. The farming crisis at the end of the century, the destruction of vineyards as a result of the great French wine blight, as well as a drop in exports, prompted a renewed direction towards the supply of Catalonia's large urban and industrial centres.

Besides these differences, there are also similarities that can be observed upon comparing the two sets of graphics. There is an initial upward trend, which in Madrid concluded in 1909 and in Barcelona lasted until 1914. This is followed by a downward trend that bottoms out in 1918, as a result of the war in Europe. The third phase is characterized by a very shy recovery of pre-war consumption levels. By 1925 levels drop again, possibly due to the large influx of migrants from other Spanish regions in the 1920s. According to Nicolau and Pujol, however, this drop cannot be explained by a decline in consumption levels alone, pointing instead to a diversification in diet.<sup>xx</sup> Everything seems to indicate that improvements in transport, distribution, conservation and storage, as well as increased market integration, allowed traditional foodstuffs, such as meat, to be replaced by other animal protein foods such as fresh fish, milk and eggs.<sup>xxi</sup>



**[Fig. 5. Comparative consumption of meat and salted fish, in grams per person per day, 1859-1916]**

Which social strata benefitted from the increase in meat consumption between 1868 and 1885? Figuerola stated:

Only 12,300 families (of a population of 127,693 inhabitants) included meat as an ingredient in their meals, but those fortunate enough to enjoy the privilege expressed by the figure for 1849 should remember that there are a further 16,000 families in Barcelona, 11,000 at the very least, who do not have the assurance of consuming this same portion of healthy food on a daily basis and thus restore the energies spent at work (...) and must take recourse to eating ‘poor man’s meat’, that is to say, codfish.<sup>xxii</sup>

The estimates that Cerdà made on the food of the working classes in 1856 confirm the scant presence of meat in the diet of this stratum of society.<sup>xxiii</sup> In around 1900, the economist Antonio Flores de Lemus asserted that ‘the greatest enemy of livestock farming in Spain was salt cod’, due to a tariff policy that meant, inexplicably, that salt cod was taxed less than the total taxes for the same quantity of meat.<sup>xxiv</sup>

Using data obtained from budgetary estimates of ‘consumptions’, it is interesting to contrast the upward trend in meat consumption with the downward trend in the consumption of salted fish. This shift can be viewed as an indicator of the progressive change in diet which

affected a large section of society (Fig. 5). Figures show a constant and pronounced drop in salted fish consumption; in 1859 consumption of this foodstuff stood at almost 65 grams per person per day, twice that of mutton and beef, but by 1910 salted fish consumption stood at just over 6 grams per person per day.<sup>xxv</sup> This is clear evidence of the progressive change in the diet of the working classes. We can also observe a sustained rise in the consumption of meat: beef, lamb and goat, as well as of pork. In fact, the consumption of pork tripled while that of mutton and beef stabilized. The data reveal a substitution process that would mark the first phase of the nutritional transition.

We can only postulate hypotheses on which sections of society benefited from this surge in meat consumption in Barcelona, during a phase in which meat consumption was very closely related to the economic cycle. Although it is true that the increase in meat consumption per inhabitant concurs with rises in real wages in the 1860s and, above all, in the years of the so called 'Gold Fever' cycle (1871-1882), it is no less true that these rises did not affect the wages of working women and that unskilled male workers were no closer to being able to afford meat on a regular basis, something they would not do until the turn of the century.<sup>xxvi</sup> The surprising increase in salted fish consumption as from the aggregation of the municipalities on the plain of Barcelona in 1897, mainly working-class areas, can only be explained by the disappearance of the many municipal boundaries extremely permeable to smuggling and by the improved control of illegal trafficking (Fig. 5).

In 1881 an article in *La Vanguardia* described meat as 'the food of the future', setting as an example the great consumption in the world's most advanced nations and, in particular, in leading Western cities.<sup>xxvii</sup> The issues involving the supply, quality and price of meat acquired growing prominence in public debate, reflected in the press and in the city council's minutes. The criticisms were voiced over decades and with two recurring accusations: 'In no other city of Europe is such poor meat eaten as in Barcelona' and 'meat in Barcelona has almost always been sold at high prices...'<sup>xxviii</sup> In Madrid there were also complaints regarding the quality of the meat.<sup>xxix</sup> It was around this time that the imperfections of the food market and the traditionally oligopolistic functioning of intermediaries became the focus of criticism. Once again, however, the city council failed to take the initiative.

Numerous articles published between the late 19th century and the 1920s criticized the poor quality of meat and the lack of control over its price and attributed the causes to tax calculation methods that favoured lean animals, to the price and duration of railway

transport and, above all, to the lack of a free market for livestock. During this same period, the Catalan Agricultural Institute of St Isidore also advocated, based on the same arguments, the establishment of a central wholesale market for fruit and vegetables. The purpose was to lower the prices of these articles to the benefit of consumers and producers, and to do away with the profit made by the established oligopoly of intermediaries. In both the provisioning of meat and fruit and vegetables, price increases were attributed above all to the oligopolistic interests of the intermediaries and, specifically in the case of meat, to the suppliers who had purchasing or commission agents in the production areas. An article from January 1896 stated categorically in this respect: 'the establishment of the livestock market (...) does not suffice (...) Above all, it is necessary to shatter the monopoly that the suppliers have been exercising and to completely release butchers from commitments, putting them into direct contact with livestock breeders. It appears that none of this has been done or even attempted.'<sup>xxx</sup> As in the case of fruit and vegetables, the municipal administration was accused of neglect or even connivance. Nevertheless, in 1921 Rossell suggested that the recurrent campaigns against suppliers, while always well received by the public, were not always fully justified. He held that what raised the prices of meat was not the suppliers, but rather the commercial system in which they acted, and he defended the regulatory function of the central or free market. Rossell doubted that suppliers would be eliminated, contrary to what some believed.<sup>xxxi</sup>

## **Public markets and butcher shops: retail outlets and the stratification of consumption**

It is not easy to establish a direct correlation between the opening of new municipal markets and the increase in per capita meat consumption in cities. In 1840, nearly a decade after the point of inflexion on the consumption curve, the first two semi-covered markets were opened. The same can be said, to an extent, of the wave of new iron-framed markets that opened as of 1876 – although they had been conceived during the six-year period following the Spanish Glorious Revolution (1868-1874). In all, 14 new markets opened between 1836 and World War I, including the central slaughterhouse that was inaugurated in 1891. It

seems logical to associate the principal phase of meat consumption increase – from 1870 to 1914 – with the launch of these new facilities.

The building of the new slaughterhouse and the different district markets should be viewed in a context of urban development and modernization that drew its inspiration from large European cities and that was accompanied by advances in supply infrastructures, health and nutrition which would induce and spread new dietary habits. The new facilities were in actual fact urban policing measures that encompassed security, health, convenience and aesthetics. In this respect, it is important to observe the changes in the retail commerce of meat inside and outside municipal markets. By doing so we can pinpoint how these habits were transformed and how they spread across the various social areas of the city.

The demographic and urban growth of Barcelona, with new building in dispersed places, involved an extension of the meat distribution network and the establishment of a retail fabric close to consumers. Physical accessibility to stable sales points located close to potential consumers became an indispensable condition for meat consumption. As in other cities, Barcelona's butcher shops included those located inside public markets and those dispersed along the streets in the built-up fabric of the city. According to Cerdà's data for 1852-1856 and the Industrial and Commercial Tax Register, the number of tax-paying butchers more than doubled between 1856 and 1884, lowering the number of inhabitants per butcher shop from about 1,000 to less than 600. The aggregation of the working-class municipalities on the plain of Barcelona would again increase the number to over 700, a ratio that would show a progressive and slight decline in the first third of the 20th century (Fig. 6).<sup>xxxii</sup>

According to data in Cerdà's *Monografía estadística de la clase obrera* (Statistical Monograph on the Working Class) of all the stalls selling meat at the five different municipal markets (none of which were in covered buildings except Santa Caterina and partially La Boqueria) almost half were at La Boqueria. This was the city's largest meat market and, together with El Born, it accounted for 80 percent of total meat sales.<sup>xxxiii</sup> The various butcher shops distributed throughout the city supplemented the meat retailing network.

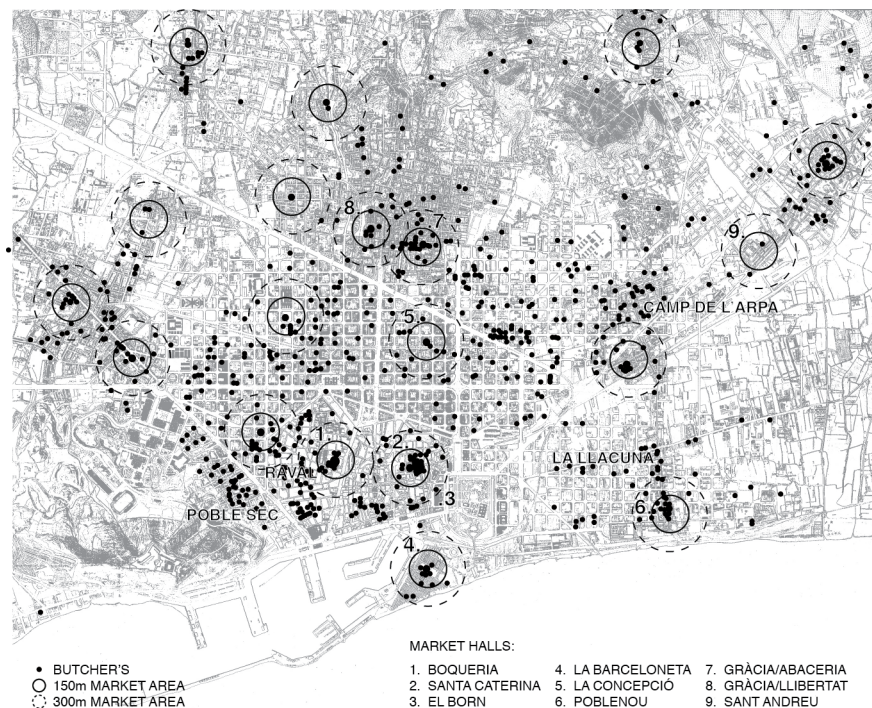
	A		B		A+B		
	Butcher shops Outside markets	% total sale points	meat stalls in markets	% total sale points	total sale points	Tax-paying butcher shops	inhabitants/ butcher shop
1852						164	1051
1856						184	989
1874						340	732
1884	155	21,10%	580	78,90%	735	469	566
1897	275					722	721
1902	284	21,60%	1.033	78,40%	1.317		
1912	359	24,20%	1.123	75,80%	1.482	923	666
1920	452	29,00%	1.105	71,00%	1.557	1.069	665
1932/33	878	42,20%	1.205	57,80%	2.083	1.682	620

Sources: ACA, Industrial and Commercial Tax Register, 1856-1932/33; Statistical Yearbook of Barcelona 1902, pp. 505-509, 1906, pp. 51-5207, 1911, p. 480; Municipal Gazette, 1921-II, pp. LXXXVII-CLX; Cerdà, I., 'Censo de profesiones e industrias diversas en el año de 1852', in Teoría General de la Urbanización, vol.2. p. 260; AMCB, Tax Commission Files, no. 8420, 7118, Development Commission, no. 1752. The figures in italics are estimates.

**[Fig. 6. Evolution of butcher shops inside and outside public markets in Barcelona, 1852-1932/1933]**

Data in the Industrial and Commercial Tax Register and pertinent municipal documents for different years in the last third of the nineteenth century seem to indicate that the number of butcher shops outside public markets grew less than the number of meat stalls located inside them. Firstly, coinciding with the cycle of increasing meat consumption between 1868 and 1885, we find 'new clusters' forming at La Boqueria market with a total of 314 meat stalls in 1877, while at El Born market – with the opening of the covered market hall in 1876 – numbers rose from 56 to 124, to which 28 more stalls were added in 1885.<sup>xxxiv</sup> Between 1876 and 1889, the swift construction of a series of wrought-iron market halls significantly increased the number of butcher stalls for Barcelona's consumers. Lastly, as a result of the municipal aggregation process, new public markets were added to the network, forming a notable multi-centred system with a total of 16 municipal markets (the majority of the covered type), which went to confirm the definitive predominance of meat stalls inside municipal markets with respect to those dispersed throughout the city. By the advent of the 20th century, meat establishments at markets (excluding pork and poultry in all cases) numbered 1,033 stalls, representing 78 per cent of all the meat sales points in Barcelona. In stark comparison, only 284 butcher shops were located in scattered positions across the city. The predominance of butcher shops in public market halls was strengthened even more by the fact that markets also acted as poles of attraction for butcher shops that opened in nearby streets. In 1932, after a phase of de-concentration and scattering of butcher shops, between 18 per cent and 24 per cent of all the establishments selling meat and paying different taxes were still concentrated within a radius of 150 metres around the 18 market

halls distributed throughout the city. When we analyse a radius of up to 300 metres, the aforementioned percentage rises to between 34.8 per cent and 40.4 per cent. In some lower-middle class and working-class neighbourhoods, such as Gràcia, Montserrat Miller has found some evidence that market vendors and shopkeepers were populations that overlapped.<sup>xxxv</sup> The relationship between the social class of the neighbourhood and the polarizing power of butcher shops is quite clear: neighbourhoods with higher meat retail concentration around the market hall were usually lower-middle class and working-class neighbourhoods such as Barceloneta, Santa Caterina, Hortafrancs and Sants, Gràcia as well as Sant Andreu and Poblenou (Fig. 7).<sup>xxxvi</sup> Middle-class Eixample districts or middle-class suburban markets had instead a low polarizing power on their butcher retail. Butcher shops in wealthy districts were scattered across the entire area.



**[Fig. 7. Map of butcher shops, 1932-1933]**

The trend for butcher shops to establish themselves in locations outside the public markets progressed inexorably in the following years. Between 1920 and 1921, 29 per cent of butcher shops were located outside municipal markets. By 1932-1933, this figure had reached 43 per cent. In 1936 figures given by the association of butchers (Associació de Carnissers) stated that over half of the city's butcher shops were located outside of the markets. The association also stated how there were complaints about the existence of

numerous establishments being operated by rogue butchers.<sup>xxxvii</sup> The reason for the increase of butcher shops outside is clear: very few new markets had been erected since the beginning of World War I and almost all new butcher shops that opened during the period of urban population explosion, between the wars, were dispersed establishments (Fig. 7). Stricter rules on minimum distances between butcher shops and between butcher shops and the markets – introduced in 1927 and 1936 – may have also have encouraged this sprawl process. The spread of new butcher shops during the interwar years in working-class and lower-middle class neighbourhoods perhaps indicates how the rise in real wages as of the end of World War I and in the early 1920s and later, during the Spanish Republic, affected meat consumption among the working-classes. Mixed working-class and lower-middle class neighbourhoods like Raval Sud, Poble-sec, Camp de l'Arpa or La Llacuna were lacking markets and were supplied by these new butcher shops which opened along their streets. This was not often the case in the new proletarian and immigrant neighbourhoods that mushroomed on the outskirts of the city after the end of World War I. Barcelona's suburbs, which boomed in the interwar period, not only lacked covered markets but also a decent network of butcher shops. These 'second peripheries' were the city's most precarious meat retailing areas. While some of these new suburbs had one or several butcher shops, others had none at all, particularly those that were difficult to access and the shanty towns along the coast and on the mountain of Montjuïc.<sup>xxxviii</sup>

The graph of average meat consumption does not reflect the social differences and inequalities in consumption, but it does explain how salted fish ('poor man's meat') was replaced by meat. As of the end of the nineteenth century, however, this graph fails to reflect the expansion of the range of available high-protein foods, such as milk, eggs and fresh fish. It does reflect, however, the improvements in quality, such as the spread of young meats, such as veal, lamb and kid goat, which were more expensive than bull and cow meat and traditional mutton. The network of butcher shops located inside and outside the municipal markets actively contributed to the change in meat consumption in this second phase of the nutritional transition. This change, which significantly enriched the diet of Barcelona's inhabitants in terms of animal protein, may be verified by examining the data on the meat stalls at the municipal markets between 1902 and 1921. The number of stalls selling young meat versus the total number of meat stalls rose from 34 per cent in 1902 to 48 per cent in 1921.<sup>xxxix</sup> At the beginning of the 1920s, almost half of the meat supply to



Barcelona's market stalls was veal and, to a much lesser extent, lamb or kid goat. While the number of stalls selling mutton or beef meat decreased in absolute terms, the number of those selling meat from young animals grew by 215.

As Rossell suggested in *El problema de les carns* (The Meat Question) in 1921, the 'smallholding' structure of Barcelona's meat retail trade – involving a large number of very small butcher shops, practically all of them concentrated in the municipal markets – increased the demand for small cuts, which favoured the commercialization of young meat.<sup>xl</sup>

In the statistics for stalls at municipal markets, it is also interesting to note that the expansive phenomenon of the sale of meat from young animals was socially stratified, with highly significant changes across Barcelona's social space. Over the course of these twenty years, in the eight public markets in the city centre where the more prosperous classes lived, adult meat was gradually replaced by meat from young animals (young meat rose from 38 per cent of the total meat supply to 52 per cent) reaching 59 per cent at La Concepció market and 69 per cent at El Born market. The composition of meat supply on the stalls of new public markets in working-class and popular suburbs was different: in 1902, the supply of young meat represented only 23 per cent of the total meat supply. Although the supply of young meat on stalls did not equal that of adult meat at any of the markets, the number of stalls selling young meat had risen significantly to 40 per cent by 1921. This upward trend in the availability of young meat stalls in new markets in working-class and lower-middle class suburbs was of a different character: new stalls selling young meat opened without replacing the stalls that sold adult meat, as was the case with the public markets of Barcelona's wealthier districts.

The consolidation of these young meats in the diet as of the turn of the century acquired great impetus in the second decade of the 20th century and especially in the years of World War I. In 1920, 70 per cent of livestock at Barcelona's slaughterhouses were for veal, lamb or kid goat, and by the 1930s this figure had risen to over 80 per cent, with a spectacular drop in traditional mutton.<sup>xli</sup> By the beginning of the 1930s, with the highest real wages since World War I, young meats became more accessible to Barcelona's unskilled workers because their purchase now represented only half their daily wages. Nevertheless, a fair proportion of unskilled immigrant workers – recently arrived from regions outside Catalonia – could not spend their wages on meat because of the irregular nature of their employment. Similar to the workers of the 19th century, they still maintained their diet of mutton meat in

traditional *escudella* soup and salted fish. Consequently, it is fair to say that meat consumption was not only stratified in terms of the urban space but also from a social perspective.

## **Conclusion**

The case of Barcelona confirms that the concept of 'nutritional transition' is useful for describing the evolution of diet in the long-term. At the same time, however, it shows how generalizations mask many specific and relevant aspects from each historical and geographical context. It allows us to state, firstly, how meat consumption from the Middle Ages until the eighteenth century was not as low as scholars from the nineteenth and twentieth centuries may have supposed, and that the high levels of relative consumption were probably common in part of the European urban world since the Late Middle Ages. Secondly, although the increase in meat consumption as of 1836 may initially be simply due to the recovery of previous levels, its sustained character confirms the existence of a structural change. It is difficult, however, to attribute it to the liberal changes of a municipal policy characterized essentially by the continuity of the 'moral economy', of controls and regulations. The disentanglement of Church properties and the releasing of properties owned by the nobility were of a far greater significance as they allowed for the expansion of agricultural production for the urban market. In the upward trend in consumption per capita, we should pay particular attention to the clear rise in consumption as of the 1870s when various rail links went into operation, allowing for the effective supply of Spain's major cities and the consolidation of an inland market during a period marked by protectionist policies. It is during the closing decades of the century when a policy is unfolded to construct public markets in urban areas so as to improve access and encourage an effective consumption of meat by an ever-broader stratum of the population. This is also when the new slaughterhouse is built and when meat consumption becomes an object of public debate. As of these dates, the data show a process of diversification in other types of meat and a growing preference for younger meats.

Furthermore, by studying the evolution of the consumption of various key staples we can reach two relevant conclusions. In an initial phase, during the latter half of the nineteenth century, we observe a process of salted fish substitution, especially salt cod ('poor man's meat'), replaced by meat, which confirms the improvement of the working-class diet that

had previously included only limited amounts of this foodstuff. In the last phase of the change, as of 1920, everything seems to indicate that the decrease in meat consumption per capita is due to the growth in consumption of other foods of animal origin that are high in protein, such as milk, eggs and fish.

It is more difficult to gain a clear understanding of the stratification of consumption. Although the fall in cod sales and the opening of butcher shops in working-class neighbourhoods confirm the extent of dietary improvements, all indicators suggest substantial differences between the various social strata. Documentary sources do not permit an exhaustive study of social differences in meat consumption. Some spatially-related evidence regarding the retail sale of meat does suggest, however, that the diet of the newly arrived immigrant population included only small amounts of this staple.

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<sup>i</sup> B. M. Popkin, 'Nutritional Patterns and Transitions', *Population and Development Review*, vol. 19, 1 (1993), 138-157; V. Smil, *Feeding the World: A Challenge for the Twenty-First Century* (Cambridge, Mass., 2000).

<sup>ii</sup> H. J. Teuteberg (ed.), *European Food History* (Leicester, 1992); K.F. Kiple, K. C. Ornelas (eds.), *The Cambridge History of Food* (Cambridge, 2000).

<sup>iii</sup> V. Smil, 'Eating Meat: Evolution, Patterns and Consequences', *Population and Development Review*, vol. 28, 4 (2004) 599-639.

<sup>iv</sup> R. Garrabou, X. Cussó, 'La transició nutricional a la Catalunya contemporània: una primera aproximació', *Recerques*, 47-48 (2003-2004), 51-80; R. Nicolau Nos, J. Pujol Andreu, 'Los factores condicionantes de la transición nutricional en la Europa occidental: Barcelona, 1890-1936', *Scripta Nova, Revista Electrónica de Geografía y Ciencias Sociales*, Barcelona: Universitat de Barcelona, 15th April 2008, vol XII, no. 261, <http://www.ub.edu/geocrit/sn/sn-265.htm>.

<sup>v</sup> R. Nicolau, J. Pujol, 'El consumo de proteínas animales en Barcelona entre las décadas de 1830 y 1930: evolución y factores condicionantes', *Investigaciones de Historia Económica*, no. 3 (2005), 101-134. See also R. Nicolau Nos, J. Pujol Andreu, 'Urbanization and Dietary Change in Mediterranean Europe: Barcelona, 1870-1935', in *Food and the City in Europe since 1800*, edited by P. J. Atkins, P. Lummel and D. J. Oddy (Aldershot, 2007).

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vi The documentary sources are not completely uniform. Basically, three main time brackets should be considered according to the sources. Between 1709 and 1852 all data has been gathered from the meat administration account books of the municipal slaughterhouse. The Meat Administration's disaggregate data do not resume until 1897, thanks to the statistical yearbooks (*Anuaris Estadístics*) that provide highly diverse and detailed documentation between the years 1897 and 1920. This is the most widely studied period and it may be supplemented with data from the municipal gazette (*Gasetta Municipal*) for 1934 and 1935. The lacuna between 1850 and 1897 can be filled with information from municipal budgets that provide two types of data that do not always suit our purposes: the annual estimates of consumption tax (i.e., the tariff levied on products entering towns) that, in the case of meat, provides the aggregate weight of beef, mutton and goat meat; and for some years, summaries of the livestock killed at the slaughterhouses, counted by head, as in previous periods. To obtain comparable figures for the whole period under study, these aggregate data have been adopted until 1897, and we have added pork consumption when data were available. After this date, we can also differentiate beef and veal from mutton and goat. To make a more useful and significant approximation, however, a graph should be prepared of consumption in grams per person per day, which poses the additional problem of the heterogeneity of the population data, especially for the 18th century and first half of the 19th century. Despite some difficulties in homogenizing meat consumption and population data, we consider that the graph shows considerable consistency, revealing the most incongruent figures and permitting an explanation for their deviations.

vii L. Figuerola, *Estadística de Barcelona en 1849* (Madrid, 1968) 147-57.

viii S. Sobrequés, J. Sobrequés, *La guerra civil catalana*, vol.1, (Barcelona, 1973) 283.

ix E. Clar Moliner, 'La soberanía del productor. Industrias alimentarias y modelo de consumo fordista en España: 1960-1975', *XI Congreso de Historia Agraria* (Monasterio de Santa María la Real. Aguilar de Campoo, 2005) ([http://seha.info/pdfs/iii\\_economia/III-clar.pdf](http://seha.info/pdfs/iii_economia/III-clar.pdf)); A. Gómez Mendoza, J. Simpson, 'El consumo de carne en Madrid durante el primer tercio del siglo XX', *Moneda y Crédito*, 186 (1988) 57-91.

x J. Vidal Olivares, 'El transporte de ganados a través del ferrocarril: un indicador de la modernización agraria en el País Valenciano, 1850-1914', *Áreas. Revista Internacional de Ciencias*

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*Sociales* (Murcia, 1990) 216-222; M. Muñoz Rubio, 'Una aproximación al transporte ferroviario de ganado entre 1848-1913', *V Congreso de Historia Ferroviaria* (Palma, 14-19 October 2009).

<sup>xi</sup> Vidal Olivares, 'El transporte de ganados a través del ferrocarril', 216-222.

<sup>xii</sup> R. Horowitz, J. M. Pilcher, S. Watts, 'Meat for the multitudes: Market Culture in Paris, New York, and Mexico City over the Long Nineteenth Century', *The American Historical Review*, 109-4 (2004), 1055-1083.

<sup>xiii</sup> *La Vanguardia*, Tuesday, 11 October 1881, 5; G. Baics, 'Appetite for Beef: How Much Meat Did Early New Yorkers Consume?', *EUI Working Papers*, 2010, <http://hdl.handle.net/1814/14194>.

<sup>xiv</sup> Vidal Olivares, 'El transporte de ganados a través del ferrocarril', 216-222. In 1905 the total consumption of meat in the city of Valencia (215,687 inhab.: 72.8 g/pppd); the province (590,840 inhab.: 26.0 g/pppd). Alicante city (50,495 inhab.: 41.8 g/pppd); province (424,228 inhab.: 17.8 g/pppd). Castellón city (29,966 inhab.: 44.6 g/pppd); province (298,294 inhab.: 12.3 g/pppd).

<sup>xv</sup> A. Gómez Mendoza, J. Simpson, 'El consumo de carne en Madrid durante el primer tercio del siglo XX', *Moneda y Crédito*, 186(1988), pp. 57-91.

<sup>xvi</sup> *Butlletí Mensual d'Estadística de la Generalitat de Catalunya*, 5, 1934.

<sup>xvii</sup> Gómez Mendoza, Simpson, 'El consumo de carne en Madrid...', 89.

<sup>xviii</sup> Gómez Mendoza, Simpson, 'El consumo de carne en Madrid...', 89; *Anuario Estadístico de Barcelona*, 1902, 515; *Anuario Estadístico de Barcelona*, 1906, 523-525; *Anuario Estadístico de Barcelona*, 1911, 486; *Anuario Estadístico de Barcelona*, 1917-1920, p. 564; *Gaseta Municipal*, 1934, 185; *Gaseta Municipal*, 1935, 131.

<sup>xix</sup> Figuerola, *Estadística de Barcelona en 1849* (Madrid, 1968), 154.

<sup>xx</sup> Nicolau Nos, Pujol Andreu, 'El consumo de proteínas animales en Barcelona entre las décadas de 1830 y 1930...', 101-134.

<sup>xxi</sup> Gómez Mendoza, J. Simpson, 'El consumo de carne en Madrid...', 77-78.

<sup>xxii</sup> Figuerola, *Estadística...*, 152-5.

<sup>xxiii</sup> Ildelfons Cerdà, 'Monografía estadística de la clase obrera de Barcelona en 1856', *La teoría general de la urbanización*, 2 (Madrid, 1968), 658-660.

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xxiv Grupo de Estudios de Historia Rural, 'Contribución al análisis histórico de la ganadería española, 1865-1929', *Agricultura y Sociedad*, 8 (1978), 118; Antonio Flores de Lemus, 'Algunos datos estadísticos sobre el estado actual de la economía española', in Antonio García de Blas, *Hacienda Pública Española*, Madrid, 42-43, 1976, 429.

xxv According to Cerdà's 'Monografía estadística de la clase obrera en 1856', the price of meat doubled that of salt cod. In the *Anuario Estadístico de Barcelona* of 1911, although the best cuts were still double the price of salt cod, some cuts, such as ribs, skirt, arm shoulder, tail and neck were priced the same as salt cod.

xxvi Although the parallel between the trend of real wages at companies such as *La España Industrial* and the evolution of per capita meat consumption between the 1860s and the 1880s is remarkable, it should be kept in mind, as pointed out by Simpson and Cussó, that an average consumption curve conceals 30% to 50% of consumers who actually never come to enjoy this status. The real wage increase curves of these decades refer, in all cases, to male workers. The respective real wage curves of female workers remain immobile. See: Enriqueta Camps, *La formación del mercado de trabajo industrial en la Cataluña del siglo XIX*, Madrid, Ministerio de Trabajo, 1995; Enriqueta Camps, 'Labour Market Formation Patterns in Nineteenth Century Catalonia' (UPF Economics and Business Working Paper No. 718), 2003; Ramon Garrabou, Josep Pujol, Josep Colomé, 'Salaris, ús i explotació de la força de treball agrícola (Catalunya, 1818-1936)', *Recerques*, 24, 1991, 53-74; Carles Enrech, *Indústria i ofici. Conflicte social i jerarquies obreres en la Catalunya tèxtil (1881-1923)*, Servei de Publicacions de la Universitat Autònoma de Barcelona, Bellaterra, 2005; Montserrat Llonch Casanovas, 'Jornada, salarios y costes labores en el sector textil catalán (1891-1936)', *Revista de Historia Industrial*, 26, 2004. Our thanks to Cristina Borderies for her reflections and bibliographic advice on these matters.

xxvii *La Vanguardia*, Tuesday, 11 October 1881, 5.

xxviii P. M. Rossell, *El problema de les carns* (Barcelona, 1921) <http://ddd.uab.cat/record/60153>

xxix Gómez Mendoza, J. Simpson, 'El consumo de carne en Madrid...', 71.

xxx *La Vanguardia*, 19 January 1896, 4.

xxxi Rossell, *El problema...*, 53.

xxxii See the sources cited in Table 5.

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- xxxiii Cerdà, *La teoría general...*, 622.
- xxxiv Files – maps of La Boqueria and project of new stalls at El Born market.
- xxxv M. Miller, *Feeding Barcelona 1714-1975. Public Market Halls, Social Networks and Consumer Culture* (Baton Rouge, 2015) 142.
- xxxvi On placing butcher shops on the city map, it becomes apparent that, for example, in 1912 more than 40 butcher shops were located within a radius of influence of less than 150 metres from a public market, thus raising the markets' concentrating capacity to 80% of the total meat retail offering. On the basis of the Industrial and Commercial Tax Register, location maps have been plotted for all butcher shops, marking radii of 150 and 300 metres around the public markets according to their location in 1897, 1912 and 1932/3. See also N. Fava, M. Guàrdia, J.L. Oyón, 'Barcelona food retailing and public markets, 1876-1936', *Urban History*, vol. 43, Part 3, August 2016, 454-475.
- xxxvii M. Miller, *Feeding Barcelona...*, 142, 147-148, 289 note.
- xxxviii The Industrial and Commercial Tax Register is the source of the map here too. With respect to the urban growth process of working-class and peripheral neighbourhoods, see: J. L. Oyón, *La quiebra de la ciudad popular. Espacio urbano, inmigración y anarquismo en la Barcelona de entreguerras (1914-1936)*, Barcelona, 2007; 'The split of a working-class city: urban space, immigration and anarchism in interwar Barcelona, 1914-1936', *Urban History* (2009), vol. 36, Part 1, 86-112.
- xxxix As mentioned by Nicolau and Pujol, and as may be verified in the statistical yearbooks and the *Gasetta Municipal*, the consumption of veal and, in particular, of lamb and kid goat, became predominant in the city's public markets at the cost of mutton, the consumption levels of which dropped dramatically: *Anuario Estadístico de Barcelona 1902*; *Gasetta Municipal, 1935*, 131; R. Nicolau and J. Pujol, 'El consumo de proteínas animales en Barcelona entre las décadas de 1830 y 1930: evolución y factores determinantes', *Investigaciones de Historia Económica* (2005) 3, 101-134.
- xl Rossell, *El problema...*, 53.
- xli *Anuario Estadístico de Barcelona 1917-1920*, p. 564; *Gasetta Municipal, 1934*, 185; *Gasetta Municipal, 1935*, 131.