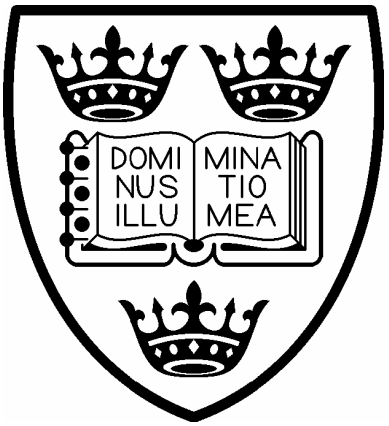


UNIVERSITY OF OXFORD

Discussion Papers in Economic and Social History

Number 55, May 2004

POPISH HABITS VS. NUTRITIONAL NEED: FASTING AND FISH CONSUMPTION IN IBERIA IN THE EARLY MODERN PERIOD

REGINA GRAFE

UNIVERSITY OF OXFORD

Discussion Papers in Economic and Social History

1 Hans-Joachim Voth and Tim Leunig, *Did Smallpox Reduce Height? Stature and the Standard of Living in London, 1770–1873* (Nov. 1995)

2 Liam Brunt, *Turning Water into Wine – New Methods of Calculating Farm Output and New Insights into Rising Crop Yields during the Agricultural Revolution* (Dec. 1995)

3 Avner Offer, *Between the Gift and the Market: the Economy of Regard* (Jan. 1996)

4 Philip Grover, *The Stroudwater Canal Company and its Role in the Mechanisation of the Gloucestershire Woollen Industry, 1779–1840* (March 1996)

5 Paul A. David, *Real Income and Economic Welfare Growth in the Early Republic or, Another Try at Getting the American Story Straight* (March 1996)

6 Hans-Joachim Voth, *How Long was the Working Day in London in the 1750s? Evidence from the Courtroom* (April 1996)

7 James Foreman-Peck, *'Technological Lock-in' and the Power Source for the Motor Car* (May 1996)

8 Hans-Joachim Voth, *Labour Supply Decisions and Consumer Durables During the Industrial Revolution* (June 1996)

9 Charles Feinstein, *Conjectures and Contrivances: Economic Growth and the Standard of Living in Britain During the Industrial Revolution* (July 1996)

10 Wayne Graham, *The Randlord's Bubble: South African Gold Mines and Stock Market Manipulation* (August 1996)

11 Avner Offer, *The American Automobile Frenzy of the 1950s* (Dec. 1996)

12 David M. Engstrom, *The Economic Determinants of Ethnic Segregation in Post-War Britain* (Jan. 1997)

13 Norbert Paddags, *The German Railways – The Economic and Political Feasibility of Fiscal Reforms During the Inflation of the Early 1920s* (Feb. 1997)

14 Cristiano A. Ristuccia, *1935 Sanctions against Italy: Would Coal and Crude Oil have made a Difference*? (March 1997)

15 Tom Nicholas, *Businessmen and Land Purchase in Late Nineteenth Century England* (April 1997)

16 Ed Butchart, *Unemployment and Non-Employment in Interwar Britain* (May 1997)

17 Ilana Krausman Ben-Amos, *Human Bonding: Parents and their Offspring in Early Modern England* (June 1997)

[Continued inside the back cover]

POPISH HABITS VS. NUTRITIONAL NEED: FASTING AND FISH CONSUMPTION IN IBERIA IN THE EARLY MODERN PERIOD

REGINA GRAFE

Nuffield College,
University of Oxford

Abstract

Studies of consumption in early modern Europe fall into two groups. Some have looked at the overall supply of nutritional components to the average consumer in an attempt to trace standards of living. Others have examined the changing demand for particular goods by specific consumers to understand the way in which new goods and cultural and taste changes impacted on the economy. Few have tried to look at the interactions between both. By combining the contradictory evidence coming from supply and demand sides, new interpretations of the evidence emerge. Data on the supply of dried salted codfish (*bacalao*) to the Iberian markets and data available on the consumption of this good by specific groups of consumers are used to explain how this fish became a staple foodstuff in the Iberian diet. The existing literature has invoked both religion and cheapness as explanatory variables. This paper argues that both played an important role but that the overall increase was ultimately driven by the slow but continuous integration of more consumers into the market between 1600 and 1800.

JEL classification: N33

I. Introduction

Over the past two decades consumption has again become an important focus of economic history. This is the result of two very different types of contribution. On the one hand, there is a continued interest in understanding consumption patterns as part of the discussion about standards of living over time. The large trends and cycles of aggregate measures of consumption are the main topic of this literature.[1] It uses anthropometric information or income and price data and general assumptions about elasticities of substitution between various foodstuffs; and it aims at generalising about patterns of consumption on a reasonable degree of disaggregation through indirect methods of measurement. Ultimately such an approach looks at the supply side by trying to estimate how many calories, proteins etc were available per capita over time, across social classes and between regions.

On the other hand, a new field of study focusing predominantly on consumption as the interface between cultural history and economics has developed largely independent from this literature. This historiography inverts the direction of causality: while the 'standard of living'-inspired approach focuses on the availability of consumption goods (whether foodstuffs, semi-durables or durables), this literature seeks to explain how changing consumption patterns impacted on the economy. The introduction of new colonial goods such as tea, coffee, tobacco, spices and dyes, many of which had addictive characteristics, is credited with changing early modern European forms of sociability and tastes. 'Commodity chain' studies also show how demand for these products transformed labour and exchange relations in far-flung parts of the world.[2] Many historians feel that the lure of new goods impacted strongly on Europeans' incentives to increase their monetary income in order to get some taste of that wonderful new conspicuous consumption.[3] The demand focus of these studies is reflected in the fact that they provide more direct measurement of changing con-

---

[1] R. H. Steckel, 'Stature and the standard of living', *Journal of Economic Literature* 33 (1995) and R. H. Steckel and R. Floud, eds., *Health and Welfare during Industrialisation* (Chicago, 1997).

[2] See e.g. W. G. Clarence-Smith, *Cocoa and Chocolate, 1765–1914* (London and New York, 2000).

[3] C. Shammas, *The Pre-Industrial Consumer in England and America* (Oxford, 1990); J. Brewer and R. Porter (eds.), *Consumption and the World of Goods* (London, New York, 1993); J. Walvin, *Fruits of Empire: Exotic Produce and British Taste, 1660–1800* (New York, 1997).

sumption. However, they usually do so at the expense of being able to provide more general assessments of the importance of these new goods to the utility of historical consumers. Whether changing attitudes had an impact on the demand elasticity of particular products is another question they leave unanswered.

The historical consumer ends up sitting uncomfortably between the two types of economic-historical approaches. Consumption decisions are obviously determined by the combination of supply and demand factors, which find their expression in price, purchasing power, supply and demand elasticities, cultural factors and taste. Thus, an analysis that can combine both sides seems warranted. One way to do so is to focus on a particular commodity. But single-commodity studies often ignore the embeddedness of a particular good in the wider economic and social context; the importance of nutmeg is easily exaggerated.[4]

Notwithstanding, this paper follows the path of looking at one particular good that became a mass commodity in southern Europe in the course of early modern period, namely dried and salted codfish, known as *bacalao*, *baccala*, or *bacalhao*. It argues that the pitfalls of single-commodity studies can be avoided if the commodity is examined in its socio-economic context and analysed as only one part of overall consumption, taking account of its substitutability. Like some of the more glamorous new foodstuffs that became an integral part of the European diet in the early modern period, *bacalao* had to be imported into southern Europe. It was a product of inshore and offshore fisheries in distant Atlantic areas. The lasting success it had in southern Europe is not easily explained and has attracted some attention.

Some authors have argued that religious motives explain its rapid introduction and increasing consumption in Spain. Catholic restrictions on meat eating on fast days were generally accepted and substitutes, preferably protein-rich ones, had to be found.[5] They point to seasonal patterns of consumption, with peaks during the Lenten fasting and high consumption among regular and lay clergy. Economically speaking such a pattern would have created a very low price elasticity

[4] Given the success of a number of academic monographs such as S. W. Mintz, *Sweetness and Power. The Place of Sugar in Modern History* (New York, 1985), single commodity studies have become a major topic of popular history in recent years. See e.g. M. Kurlansky, *Salt: A World History* (2003); M. Kurlansky, *Cod. A Biography of the Fish that changed the World* (London, 1998); and G. Milton, *Nathaniel's Nutmeg: How One Man's Courage Changed the Course of History* (2000).

[5] See e.g. P. Fernández Albadalejo, *La Crisis del Antiguo Régimen en Guipúzcoa 1766–1833. Cambio Económico e Historia* (Madrid, 1975).

of consumption. Others explain rising demand for this fish with changing patterns of income: *bacalao* is thus seen as a protein-rich food for the poor replacing more expensive meat. This view is largely based on contemporary accounts claiming that the poor ate more *bacalao* than the rich and on the continuous increase in imports. Economically speaking this should have had exactly the opposite effect with regard to the price elasticity of demand. As yet there have been few systematic attempts to distinguish between these two explanations or to investigate the extent to which they might be complementary.[6]

In the following sections this paper will offer such a systematic analysis of the origins of the Spanish preference for *bacalao*. A careful examination of both supply and demand goes a long way to explain the choices made by historical consumers. The cod story, despite Mark Kurlansky's best efforts to convince us otherwise, is not 'A Biography of the Fish That Changed the World'.[7] Instead it is the rather complex story of the introduction of a new staple foodstuff that made a limited but nonetheless significant contribution to altering southern European consumption patterns. The paper combines a discussion of the changing availability of cod – the supply-side story – with an attempt to assess the major economic and cultural factors that shaped demand, namely the role of fish as cheap food and part of religious everyday life. By doing so it helps our understanding of the interplay of economic transformations and hard-to-measure socio-cultural factors such as religion and taste. But it also illustrates that when supply and demand are combined all the previously offered explanations fall short of explaining the phenomenon; relative prices and cultural explanations alone are ultimately insufficient to explain the increase in imports and consumption. Instead increased market integration accounts for much of the long-term rise.

---

[6] The most extensive study of fish consumption in Spain in the eighteenth and nineteenth centuries is symptomatic in that it endorses both explanations without trying to distinguish their relative importance. See R. Cubillo de la Puente, *El pescado en la alimentación de Castilla y León durante los siglos XVIII y XIX* (1998), p. 115. 'The relatively cheap price of fish of popular consumption (sardines, *bacalao* and other dried and salted species), together with religious obligations introduced this foodstuff into the nutritional habits […].'

[7] Kurlansky, *Cod*.

II. Supply

Given Iberian geography, supplies of fresh fish to most Spanish and Portuguese consumers were limited up to the introduction of railways in the later nineteenth century.[8] Only consumers along the coastlines could rely on regular and reasonably priced supplies of fresh fish. In large parts of the Peninsula during almost nine months of the year high daytime temperatures restricted the market for a good that spoiled as easily as fresh fish. During the winter months low temperatures helped, but also made for worse roads. In the seventeenth century, the fastest carriers managed to deliver fresh fish from the northern ports to Madrid in six days, but often it took ten days or more.[9] Road transport was poor since the coasts in all directions are separated from the interior by mountain ranges. Not until the second half of the eighteenth century was a road suitable for coaches and carts opened which linked the Cantabrian coast, the main supplier of both fresh and dried and cured fish, with the central *Meseta*. Previously, muleteer traders dominated a painfully slow transport system with limited capacities.[10] River as well as inshore fishing was subject to restrictions in many parts of the Iberian Peninsula since the late Middle Ages due to over fishing. In Santander, for example, fish was taxed at a higher rate the closer to the shore it had been caught in order to discourage depletion of local stocks.[11] Thus, geography, ecology and climate made the Iberian market susceptible to the introduction of a new large supply of dried and salted fish that could be preserved and carried over long distances without great loss of quality.

---

[8] E. López Losa, 'Una aproximación al sector pesquero tradicional vasco (c.1800–c.1880)', *Historia Agraria* 28 (2002): pp. 29ff.

[9] J. U. Bernardos Sanz, 'El abastecimiento y consumo de pescado en Madrid durante el Antiguo Régimen' (paper presented at the VII Congreso de la Asociación de Historia Económica, Zaragoza, 2001), p. 12.

[10] L. M. Rubio Pérez, *Arrieros maragatos. Poder, negocio, linaje y familia* (1995) for the specialised *arrieros* linking Galicia with Castilla-Leon, and R. Grafe, 'Northern Spain Between the Iberian and Atlantic Worlds: Trade and Regional Specialization, 1550–1650' (unpublished Ph.D. thesis, London School of Economics and Political Science, 2001), chapter 6.2 for those that carried out the trade between the Cantabrian Coast and Central Castile.

[11] See e.g. L. Coronas Tejada, 'El abastecimiento de pescado en el Jaen del siglo XVII', *Chronica Nova* 17 (1989): pp. 36–37 and M. J. Echevarria Alonso, *La actividad comercial del puerto de Santander en el siglo XVII*, vol. 4 (Santander, 1995).

Dried salted fish, mainly herring and pilchards, was a major intra-European traded foodstuff since the Middle Ages. However, the rise of cod fishing was a significant structural break in the provision of cured and salted fish. Initially French and Spanish Basques had developed the transatlantic cod fisheries in the sixteenth century, but English supplies increasingly dominated the Iberian cod market from the very early seventeenth century onwards. So far the story is well known.[12] Less known is the fact that from the earliest stages on two main supply routes of *bacalao* for the Iberian markets co-existed. Since the mid-sixteenth century Newfoundland provided increasing amounts of fish. From the second decade of the seventeenth century Newfoundland competed with alternative supplies from mainland North America, known in Spain at the outset as '*Bacalao de la Birginia*'.[13] English and New England merchants controlled both of these. Though French fishermen and merchants remained very actively involved in this trade they had next to no impact on the Iberian markets, since they produced predominantly for the French domestic market and exported only very small quantities. Finally, from the late eighteenth century onwards Norwegians made major inroads into the virtual (New) English monopoly. There is little doubt that the total catch at Newfoundland was always significantly larger than the output of the mainland fisheries. However, the fisheries in each region of origin were very differently organised and, at least to a certain extent, supplied different markets. Hence, the distinct characteristics of these two sources of *bacalao* shaped trade and consumption in the long run.

The initial success of English and New England traders in replacing the Spanish, French Basque and to a lesser extent Portuguese fishermen as the main suppliers of cod can at least in part be explained by their ability to link the cod-fish trade up with other traditional trades, such as wine and wool exports from Iberia.[14] This created triangular trades with key advantages over the traditional

---

[12] See e.g. H. A. Innis, *The Cod Fisheries. The History of an International Economy*, revised ed. (Toronto, Buffalo, and London, 1954); R. G. Lounsbury, *The British Fisheries at Newfoundland 1634–1763* (New Haven, 1934); M. M. Barkham, 'Shipowning, shipbuilding and Transatlantic fishing in Spanish Basque ports 1560–1630: Motrico and Zumaya' (unpubl. Ph.D. thesis, Cambridge University, 1991); and G. T. Cell, 'The English in Newfoundland 1577–1660' (unpubl. Ph.D. thesis, University of Liverpool, 1964).

[13] Grafe, 'Northern Spain between the Iberian and Atlantic Worlds', pp. 141ff.

[14] R. Grafe, 'The Globalisation of Codfish and Wool: Spanish-English-North American Triangular Trade in the Early Modern Period', *London School of Economics Working Papers in Economic History* 71/03 (2003), P. de Brito, *British Wine Merchants in Porto Prior to the Methuen Treaty* (Porto, 2000) and W. Stephens, 'English Wine Imports c.1603–40, with Special Reference

seasonal fishing. The triangular voyages were profitable on all legs of the trip, while fishing vessels had to go out empty except for victuals for the crew and salt.[15] In fact, English and New England traders both in Portugal and in Spain were initially probably less attracted by the demand for dried cod in the Iberian Peninsula than by the demand in England for their return cargoes of wool and wine return. It has been shown elsewhere that *bacalao* served in the early phases of this trade, i.e. up to the later seventeenth century mainly as a way of avoiding balance of payments and return cargo problems.[16]

Since the initial incentive for the expansion of this trade was mainly supply-side driven, supply-side characteristics shaped the market. English merchants in the northern Portuguese port of Porto imported mainly Newfoundland cod, which was readily available after the short and intense summer fishing season. It arrived in Europe during the late summer and autumn in great quantities while for the rest of the year fishing was impossible in Newfoundland waters because the fish migrated and because the weather was too harsh. Although this seasonality often led to low prices in October and November when the largest numbers of ships arrived, it suited English merchants in Porto because it coincided with the seasonality of the wine trade.[17]

In contrast English merchants in Bilbao on the Spanish northern coast imported most of their *bacalao* from the shores off the North American mainland from the 1620s onwards. The main fishing season there was in early spring, though fishing continued throughout the year, thus avoiding the glutting of the market that was typical of the Newfoundland supplies. Again English demand for the return good played a large role in determining the sources (and therefore timing) of the *bacalao* supplies. English merchants in Bilbao overwhelmingly

---

to the Devon Ports', in *Tudor and Stuart Devon. The Common Estate and Goverment. Essays presented to Joyce Youings*, ed. Todd Gray, Margery Rowe, and Audrey Erskine (Exeter, 1992).

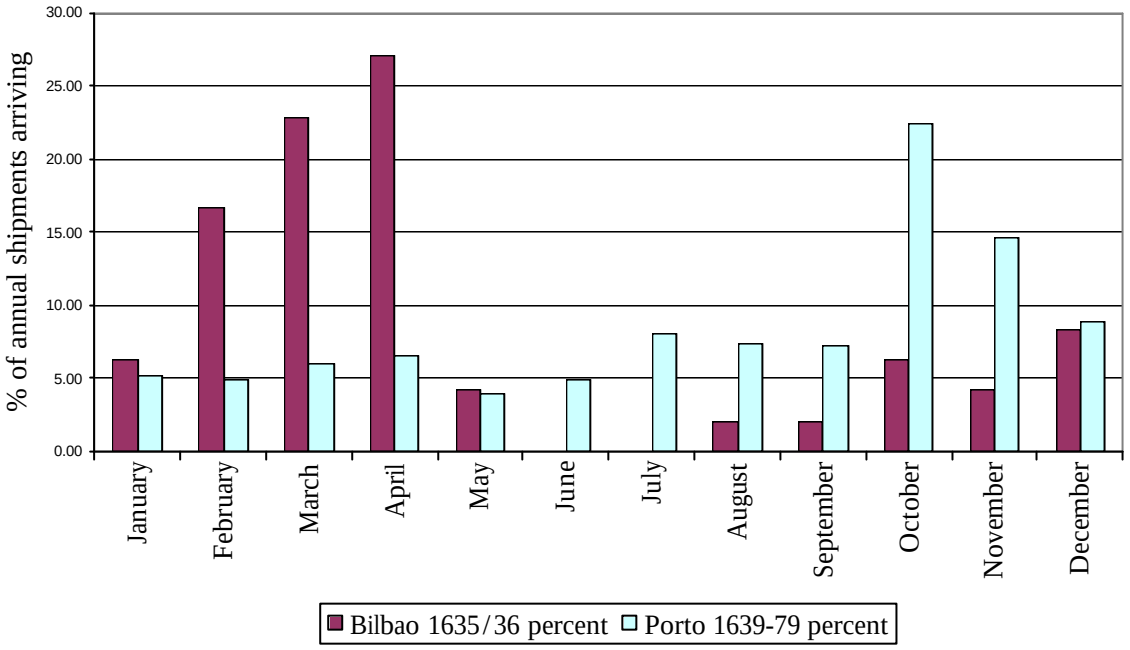
[15] For an in-depth description of the Newfoundland operations see Cell, 'English in Newfoundland'.

[16] Grafe, 'Codfish and Wool'.

[17] For the seasonality in the English wine trade see W. Stephens, 'English wine imports c.1603–40, with special reference to the Devon ports', in Todd Gray, Margery Rowe, and Audrey Erskine (eds.), *Tudor and Stuart Devon. The Common Estate and Goverment. Essays presented to Joyce Youings*, (Exeter, 1992), pp. 141–172, at pp. 151ff. Stephens also shows that Iberian wines overtook French wines with regard to overall English imports for the first time in the 1630s. This was presumably a result of the switch to joint production in the shipping of wine and fish, which increased profitability.

bought wool with the proceeds from the fish sales, a good that was mainly exported after the spring and early summer shearing season.[18]

Figure 1. Seasonality of Cod Import Shipments: Bilbao 1635/36 and Porto 1639–79



Source: Bilbao: Archivo Foral de Bizkaia (AFB)/Consulado de Bilbao (CB), Libro 212, No.36; Porto: (Abreu-Ferreira, 1995, Table 10).

The differing seasonality of the Porto and Bilbao imports shows that the initial introduction of cod into the Iberian markets depended to a large extent on characteristics of the supply regions. *Bacalao* thus emerged in the early seventeenth century as a major trading good. Its supply had increasingly little resemblance to the way in which Basque, French and Portuguese fishermen had provided cod for the southern European markets in the sixteenth century. *Bacalao's* transformation from the seasonal output of southern European fishermen into a mass food staple traded by organised English and New England interests was at the outset an almost unintended consequence of the inability of both English and New England merchants to find return cargoes that could be sold in the Spanish market and finance English imports of wine, wool and other Spanish products.

However, the subsequent expansion of the trade shows that the English had hit a gold mine when pushing their way into the cod market. It is impossible to

[18] For the timing of wool shearing see C. R. Phillips and W. D. Phillips, Jr., *Spain's Golden Fleece. Wool Production and the Wool Trade from the Middle Ages to the Nineteenth Century* (Baltimore and London, 1997), pp. 126ff.

determine the evolution of total imports of *bacalao* into the Iberian markets after the 1620s, when this trade came into its own. Some data are available for the port of Bilbao, which remained the most important inlet for codfish throughout the early modern and modern period. The main lacunae in the data are the late seventeenth and early eighteenth centuries for which we know next to nothing. The continued expansion of cod imports is evident nevertheless. Setbacks during wartime, such as the Spanish War of Succession 1700–14, the War of Jenkins's Ear 1739, the Seven Years' War 1755–63, the British colonial conflict of 1776 to 1783, or the 1793 English–French conflict led to severe but ultimately temporary interruptions.

Table 1. Total Bilbao imports of *bacalao* 1632–1798 (tons)

Years	Annual imports tons[19]	Annual imports qts
1632–1638	578	11,067
1640–1644	752	14,400
1686	574	11,000
1700	1305	25,000
1713	3133	60,000
1733–1739	3343	64,012
1740–1749	2500	47,874
1750–1759	4081	78,160
1760–1769	4276	81,895
1770–1779	4642	88,895
1780–1789	5347	102,410
1790–1798	5571	106,683

Source: (Grafe, 2003, p. 20).

Table 1 reflects this continuous rise of imports in Bilbao. Anecdotal evidence from before the 1630s suggests that imports were lower before the massive involvement of the English in the trade. Even data for the earlier period covered

[19] Conversion from quintals to metric tons are based on the assumption that the average quintal is 107lb. This is taken from Arriquibar (1779), who argues that a Bilbao quintal was 104–110 'good pounds' and is accepted by both A. Zabala Uriarte, *Mundo urbano y actividad mercantil. Bilbao 1700–1810*, vol. 9 (Bilbao, 1994) and R. Basurto Larrañaga, *Comercio y burguesia mercantil de Bilbao en la segunda mitad del siglo XVIII* (Bilbao, 1983). 'Good pounds' usually refers to Vizcaya pounds of 488g as opposed to Castilian pounds of 460g. Zabala Uriarte, *Mundo urbano*, p. 207, speculates that Bilbao quintals might even have been *quintales macho*, which were 55 per cent larger, but there is little evidence to support this claim.

here are scanty. Only from the 1750s decade onwards can means be reported, which reflect the impact of repeated warfare on imports. The 1740s are a case in point; as a consequence of international war not a single New England ship arrived in Bilbao between 1739 and 1748, depriving the market of the main supplier.[20] During the late 1780s imports reached up to 9700 tons *per annum*. Yet, no decade was free of supply shocks that kept average imports down. Still, by the late eighteenth century total imports had reached impressive levels.

Table 2. *Bacalao* imports by port ca. 1785

Year	*Port*	*Annual imports tons*	*Annual imports qts*
1785	Bilbao	7,987	152,963
1785	Galicia, Asturias, Santander	2,714	59,000
1785	Andalusia	2,323	50,500
	Cartagena	n.a.	n.a.
1751	Alicante	2,652	55,254
	Valencia	n.a.	n.a.
1789	Barcelona	4,894	106,385
Total		**20,570**	**424,102**

Note: calculations for Bilbao based on 1 quintal = 52.22kg (see fn 19), all others on 1 quintal = 46kg, assuming 100 Castilian lbs.

Source: own elaboration based on Alicante: (Figueras Pacheco, 1957, p. 30), Bilbao: (Zabala Uriarte, 1994, p. 406), Galicia, Asturias, Santander, Andalucía: (Meijide Pardo, 1980, pp. 29–35).

For this period we can also for the first time estimate the overall import of dried and salted cod into Spain. Table 2 above reports imports through the main ports around 1785. A number of caveats apply to these estimates. Fish exports from the newly independent United States had only just resumed and were reportedly still suffering from the devastation of the fishing fleet during the war. A report prepared by Thomas Jefferson for the 3rd Session of the first US Congress in 1791 claimed that the New England cod-fisheries were still only producing about two thirds of their pre-war catch.[21] Thus, supply conditions were not

[20] Zabala Uriarte, *Mundo urbano*, p. 203.

[21] First Congress of the United States, Third Session, *Fisheries. Communicated to the House of Representatives, February 4, 1791 by Th Jefferson*.

ideal. In addition, the data do not capture all important ports or uniform dates. There are no estimates for two relatively important ports, Cartagena and Valencia. The figure reported for Alicante is for the 1750s and Table 1 above illustrates that at least on the north coast imports rose strongly between the 1750s and 1780s. Furthermore, the port estimates are derived from tax data, which underestimate the true figures because of the relatively high levels of evasion.[22] The total reported, about 20,600 tons, are at best a lower bound estimate. Under the conservative assumption that Valencia and Cartagena imported about as much as Alicante (a port of lesser importance) and that imports in Alicante increased at about the same rate as in the north in the intervening three decades one arrives at a rough estimate of 32,000 tons of *bacalao* imported. Given the downward bias introduced at every step of the estimation this figure is probably still too conservative. Yet, the order of magnitude seems correct. Lydon maintained that by the 1770s Spain bought from English providers alone approximately 22,300 tons.[23] This figure would support a total import including French and Norwegian supplies around 32,000 tons in the 1780s.

Tracing the composition of the imported quantities according to their geographical origins is even more difficult and data for individual ports are almost certainly not representative for any other port especially in the earliest phase of this trade. Before the 1620s Newfoundland was practically the only source of *bacalao*. From the 1630s onwards New England dominated at least the Bilbao market for a long period.[24] Though most British and North American authors have claimed that the mainland colonies only became important because of their acute balance of trade crisis during the English Civil War, Spanish data show clearly that they had become predominant a decade earlier.[25] Only with the ex-

---

[22] The main problem with the use of tax data in Spain in this period is that both import and consumption taxes were often farmed and therefore presumably underestimate the real amounts. However, at least the Bilbao tax data are not derived from tax farms.

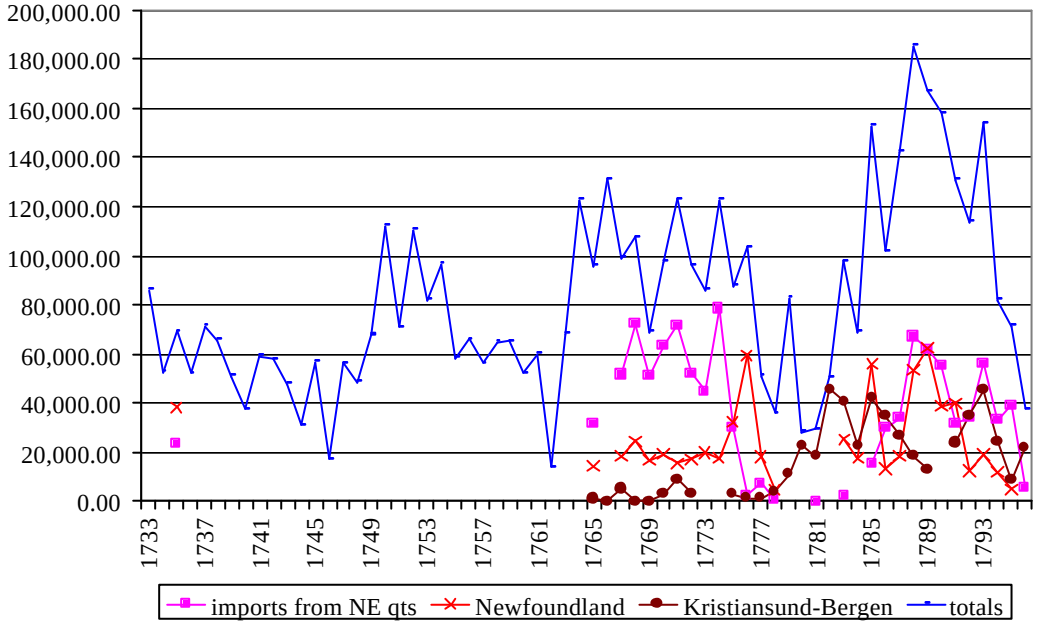
[23] J.G. Lydon, 'Fish for Gold: The Massachusetts Fish Trade with Iberia, 1700–1773', *The New England Quarterly* 54 (1981): p. 543. Lydon provides figures for individual Spanish ports which are substantially different from my numbers, although the totals are similar. However, his data are derived from English exports rather than Spanish imports (which included imprts from other sources) and he apparently uses estimates based on population figures. Thus he quotes a figure for Cadiz alone of 110,000 quintals, which looks too high.

[24] The pattern persisted at least until the late eighteenth century. Ibid.: p. 555.

[25] This view has been and is accepted by New England historians but contradicted by Spanish sources. See e.g. B. Bailyn, *The New England Merchants in the Seventeenth Century* (Cam-

traordinary expansion of the market in the eighteenth century did alternative sources gain again. Throughout the entire period Newfoundland cod rarely made up more than 20 per cent of the supply, except during wartime. Even when the American Revolution interrupted supplies from New England the biggest winners were Norwegians rather than Newfoundland supplies. The first cod cargo from Christiansund had arrived in Bilbao in 1762 during the most intense phase of the Seven Years' War. With the interruption of trade with New England from 1775, the Norwegian share rose from 2 per cent in 1777 to 90 per

Figure 2 Origin of Bilbao *bacalao* imports in the eighteenth century (quintals)



Note: smaller amounts from other destinations are included in the total imports.
Source: (Zabala Uriarte, 1994).

bridge MA, 1955), pp. 77–8, and D. Vickers, *Farmers & Fishermen. Two Centuries of Work in Essex County, Massachusetts, 1630–1850* (Chapel Hill and London, 1994), pp. 86ff.

cent of Bilbao imports in 1782. Yet, it fell again to between 10 and 30 per cent in the following years.[26]

John Richards argues that the English Newfoundland fishery in the 1770s produced about 28,000 tons of fish while New England produced approximately 15,000 tons. He accepts Lydon's view that New England sent in the 1770s about 6,300 tons a year to all Southern European markets together.[27] However, Bilbao alone imported about 5,000 tons New England *bacalao* (see Table 1 above). As argued above it was an important market for this variety but is unlikely to have dominated it to such an extent. The above-mentioned report to Congress based on similar US tax data argued that in 1789/90 3700 tons of cod were exported from the US to Spain. Bilbao alone imported 3240 tons making the official US figure highly improbable.[28] Since both the North American export and the Spanish import data are derived from taxes and customs it is more probable to assume tax-evasion in the North American case than systematic voluntary overpayment in the Spanish. In short, the North American tax data used by Lydon underestimate the size of exports.[29] By the late eighteenth century the codfish trade had moved a long way from its origins as a way to pay for English imports of wool and wine. In 1792 imports of dried and salted codfish accounted for about 5.2 per cent of the net value of Spain's foreign trade. Only grain imports had a higher value.[30] After the trade interruptions of the French Wars total im-

---

[26] Zabala Uriarte, *Mundo urbano*, p. 405. The Norwegian share of the cod trade increased substantially in the first half of the nineteenth century. Norwegian shipping history refers to this period as *Spansketiden* (the age of the Spaniards) in the fishing ports on the west and north-western coast of Norway. See F. Scheel, *Østersjøfart. 1825–1850. Den norske sjøfarts historie* (Oslo, 1935), p. 198.

[27] J. Richards, *The Unending Frontier: An Environmental History of the Early Modern World* (2003), chapter 15and Lydon, 'Fish for Gold', pp. 552–5.

[28] For the US see First Congress of the United States, 3rd Session, *Fisheries. Communicated to the House of Representatives, February 4, 1791 by Th Jefferson*, p. 14 and T. Pitkin, *A statistical view of the commerce of the United States of America: including also an account of banks, manufacturers and internal trade and improvements* (New Haven, 1835), p. 85. For Spain see Zabala Uriarte, *Mundo urbano*, pp. 406–7.

[29] The author actually acknowledges that early US trade statistics are subject to extreme underreporting, though he seems to suggest that this affected imports more than exports. Lydon, 'Fish for Gold', p. 587.

[30] L. Prados de la Escosura, *De imperio a nación. Crecimiento y atraso económico en España (1780–1930)* (Madrid, 1988), p. 90.

ports rebounded in the nineteenth century although Norwegian imports now augmented American supplies. Norway's traders increased their supply of *bacalao* throughout the nineteenth century from between 5,500 and 8,000 tons in the 1830s to between 16,000 and 24,000 tons in the 1860s.[31]

It is clear from this brief discussion that the supply of dried codfish to Iberian markets increased steadily over the pre-modern period but was subject to interruptions as a consequence of wars and several structural changes in terms of the origin and seasonality of fish imports. The rise in *bacalao* imports outpaced population growth greatly. If the Bilbao data for the eighteenth century displayed in Figure 1 serve as a proxy, *bacalao* imports increased on average by about 1.2 per cent annually.[32] Growth rates for the seventeenth century do not seem to have been very different though we can only guess from scattered data for the 1630s and 1640s, and we know even less about fluctuations. Spanish population growth was slow, at about 0.11 per cent in the seventeenth century; it did not exceed 0.38 per cent between 1700 and the 1800, and dropped close to zero for a few decades in the early nineteenth century after which it accelerated to about 0.9 per cent.[33] Hence, in the long run supplies of codfish *per capita* rose strongly.

How much did this new foodstuff contribute to the nutrition of Spaniards in this period? It is hard to assess the impact of cod on the total consumption possibilities of Iberian consumers in the period before the 1780s. Taking our 1780s estimate of about 32,000 tons as a rough point of reference the c.10 million Spaniards would have consumed approximately 3.2kg per head of *bacalao* a year.[34] While this amount does not sound much, it would have added about 32

---

[31] C. Brautaset, 'Norsk Eksport 1830–1865 i Perspectiv av Historiske Nasjonalregnskaper' (PhD, Norges Handelshoyskole, 2002), chapters 6 and 7. By the 1880s total *bacalao* imports reached about 45,000 tons, see Cubillo de la Puente, *El pescado*, p. 290.

[32] This calculation is based on the growth rates between average imports of 1732–1741 (60,239 quintals) and 1786–95 (130,550 quintals).

[33] F. Comín, M. Hernández, and E. Llopis Agelán, *Historia Económica de España. Siglos X–XX* (Barcelona, 2002), p. 123.

[34] The following calculation is based on total population ignoring that small infants' should have been excluded.

days of the necessary protein intake of an adult male.[35] Meat consumption, the main source of protein, had fallen consistently since the Middle Ages.[36] In Spain beef was the predominant meat, and consumption in the 1780s has been estimated at about 25kg per person per year.[37] However, beef contains less than half of the protein per weight that *bacalao* contains, so it could roughly supply the protein need of 125 days. Though the Mediterranean diet provided protein through grain and leguminous vegetables, dried fish was an important complement to the daily food intake, making up for about 25 per cent of the contribution of beef.[38]

Increasing supply then played a major role in shaping the consumption pattern of the Iberian population over time. The quantity of dried codfish available per consumer increased substantially between 1600 and 1850; and it made a significant contribution to the physical well-being of the population, which faced a reduction in the consumption of alternative animal foods. The Iberian market in the long run was able to absorb any additional quantity of cod that the regions of origin could produce, notwithstanding short-term glutting of the market in particularly good seasons. In areas that received most of the fish during the short Newfoundland season prices could drop in autumn but recovered quickly. As we have seen, not only total availability but also seasonality was at least in part a consequence of supply conditions. This is a point to be kept in mind when we consider demand factors below. However, the supply-side perspective reveals little regarding who consumed *bacalao*, when, why, and how much. It is time to move away from the average consumer and talk about the particular one.

---

[35] M. Livi-Bacci, *Population and Nutrition. An Essay on European Demographic History* (Cambridge, 1991), p. 29 reports a minimum protein intake of adult males of 56–69g. Thanks to John Richards and Rick Steckel for pointing me to **www.nal.usda.gov/fnic/foodcomp** for protein content of various foodstuffs.

[36] Ibid., pp. 94ff.

[37] R. Cubillo de la Puente, *Comer en León. Un siglo de historia 1700–1800* (León, 2000), p. 71.

[38] Livi-Bacci, *Population and Nutrition*, p. 30.

III. Demand

Ultimately the potential supply of dried and salted codfish was a function of fishing and transport capacities of American and (after the 1780s) Norwegian fishermen and traders, which were further affected by wartime trade interruptions. From the point of view of the consumer another set of factors was at play. The two main variables that might explain the individual propensity of early modern Iberians to consume dried codfish were outlined in the introduction, namely religion and cheapness. However, a number of other factors such as the proximity to urban markets and the coastlines also affected the distribution of consumption within this population.

The case for popish habits

The Catholic Church saw fasting as an important expression of religiosity throughout the pre-modern period. However, the importance attributed to fasting was not a constant factor over time nor should we assume *a priori* that the population's adherence to such rules was uniform over time and space. The very insistence of church authorities on fasting suggests otherwise. In fact, the number of fish days changed significantly over time and differed also between regions due to local festivities.

It has been argued that in the counter-reformation climate of the early seventeenth century, fasting was observed more strictly than either before or after. A Guipúzcoan source from 1631 stated that during 'half of the year less a seventh one fasts', i.e. around 130 days.[39] Estimates of 120 to 130 fast days a year are the highest found anywhere in Spain during the entire early modern period. Records of the Inquisition from the late sixteenth and seventeenth century confirm that not keeping fasting days was considered an important indicator of heterodoxy. This would suggest that social pressure exerting strict adherence to the rules was strong.[40] But it did not apply in the same way to all people. In the case of 'old Christians' the Church often looked the other way; in the case of 'New

[39] P. Fernández Albadalejo, *La crisis del Antiguo Régimen en Guipúzcoa 1766–1833. Cambio económico e historia*, (Madrid, 1975), p. 68, fn. 139. See also Cubillo de la Puente, *El pescado*, pp. 115–116 for similarly high estimates for Castile.

[40] See the discussion of reasons for the Inquisition to take action in W. Thomas, *In de klauwen van de Inquisitie. Europese protestanten in Spanje, 1517–1648* (Amsterdam, 2003).

Christians' (converted from Judaism or Islam) and non-Christian Spaniards, infractions were persecuted.[41] The number of fish days was also subject to regional differences, with Aragon often singled out as the one with the highest number.[42]

There is evidence suggesting that up to the late eighteenth century the number of fast days was reduced first slowly and then more abruptly. López Losa found that the Seminary of Bergara (Guipúzcoa) observed on average 89 days of abstinence in the period 1784–98. Yet, following Pope Pio's VI 'Meat Bull' a new indulgence was sold that allowed the consumption of meat during Lent and on other days of abstinence. As a consequence the seminary reduced the number of days of abstinence to 15 by 1822–31.[43] But it is not clear how the ability of the few to buy an indulgence impacted on the consumption habits of the many who had little money to spare.

Since days of abstinence were unequally distributed throughout the year most historians have argued that a simple analysis of seasonality patterns can prove (or disprove) the importance of religion for the consumption of fish.[44] Increased fish consumption during the Lenten period is interpreted as a clear sign that religion rather than price factors determined overall consumption. The strongest evidence for such a pattern of seasonality comes from a study of Bernardos Sanz on consumption patterns in late eighteenth-century Madrid.[45] He found that the seasonal variation of consumption of *bacalao* and beef was almost perfectly inverse. Cod demand rose strongly but briefly around Christmas and for the entire pre-Easter period, while beef consumption declined at the same times. He deduced from this that non-economic factors (for which read religious restrictions) were the only force driving fish demand. Interestingly, the inverse relation between cod and beef prices remains intact throughout the year. This begs a number of questions. While the Easter and Christmas highs do confirm the impact of the religious calendar, the complete synchronisation suggests that *bacalao* had developed into an almost perfect substitute for beef – the single most important

[41] Cubillo de la Puente, *El pescado*, p. 113.

[42] Ibid., p. 115.

[43] López Losa, 'Aproximación', pp. 26–27.

[44] See e.g. ibid.; also Bernardos Sanz, 'Abastecimiento'.

[45] Bernardos Sanz, 'Abastecimiento'.

animal foodstuff in Spain –, which allowed consumers to react immediately to price changes. We will return to this point below.

In addition, supply-side factors discussed above raise more general questions about seasonality as an indicator for religious consumption motives. The preference for Newfoundland or New England fish in the earliest phases of the trade was a result of decision-making by merchants who competed for Spanish exports, rather than consumers. Yet, this decision meant that in some towns, notably in Bilbao, most *bacalao* shipments arrived after the main New England fishing season, which happened to coincide with the Lenten fasting period (compare Figure 1 above). Increased supplies and the reduced prices that went along with them led naturally to increased spring consumption. Pronounced increases in cod sales in spring especially in the seventeenth century, could be a consequence of either religious restrictions or geographical origin of the catch, or both. In short, seasonality is not the clear-cut indicator for religious motives that it has been made out to be.

Yet there are still many reasons to insist that religious restrictions played a role. The comparison of the Bilbao and Porto data illustrates the point. Imports by English merchants in Bilbao rose much faster than those by their compatriots in Porto in the seventeenth century.[46] It is very likely – though impossible to prove – that the coincidence of high imports with a period of higher demand stimulated the Bilbao fish sector and its imports of '*bacalao de la Birginia*' more than the seasonality pattern observed in Porto.[47] Being able to supply large quantities of fish at low prices when demand peaked might have been what made Bilbao the *bacalao* port of Spain for centuries. There is other anecdotal evidence that religion mattered. Town councils worried about the steady supply of dried salted cod during the Lenten period, partially because at the same time the council-run slaughterhouses would be officially closed in many towns.[48] Before 1619 the municipal fish stalls of Jaén only opened during Lent and on Fridays and other days of abstinence; opening hours were then extended allegedly because 'many religions [sic: religious orders] eat fish on weekdays'. Those de-

[46] Grafe, 'Codfish and wool', p. 18.

[47] *Bacalao* was durable but its quality declined over time and it was usually assumed that it should not be stored for more than six months. See Bernardos Sanz, 'Abastecimiento', p. 15.

[48] For Madrid, see A. Fernández García, *El abastecimiento de Madrid en el reinado de Isabel II* (Madrid, 1971), p. 97.

voted to the Virgin of the Carmen were singled out as particularly inclined to fish.[49]

This points to another way to understand the relative importance of religion in fish consumption habits based on distinctions between consumers. As mentioned above, estimates derived from supply figures suggest a per capita consumption of bacalao of around 3.2kg annually by the late eighteenth century. Members of religious orders and lay clerics would be expected to have consumed more than average assuming that they took religiously motivated abstinence more seriously than their less devoted compatriots. The numbers shown in Table 3 illustrate that their consumption was several times the average.

Table 3 Average annual *per capita* consumption of *bacalao* in Spanish convents and monasteries in the eighteenth century

Year	*Place*	*No. of convents*	*Gender*	*Average consumption (gr)*
1752	Province Galicia	73	M	18,187
1752	Province Galicia	24	F	14,761
1752	Province León	34	M	17,966
1752	Province León	19	F	6,839
1784–98	Bergara	1	M	23,000

Source: Galicia: (Meijide Pardo, 1980, App. 2), León: (Miguel López, 2000, App. XIX and XX), Bergara: (López Losa, 2002, p. 26).

Monks and nuns had more than their fair share of *bacalao*, and some monasteries in Galicia consumed reportedly up to 34kg per person per year.[50] If this consumption pattern was religiously motivated, they were very serious about it. It is hard to assess what the size of an average portion of *bacalao* was. Modern day portions are in the order of 80–100g before the *remojado*, i.e. the watering of the dried fish, which would cover the daily protein need of an adult male. The seminarians of Bergara in the 1780s consumed 250g per fish day, presumably in

[49] Coronas Tejada, 'Abastecimiento de pescado', pp. 35–36.

[50] A. Meijide Pardo, *El comercio del bacalao en la Galicia del XVIII* (La Coruña, 1980).

two meals.[51] Given those portions 34kg of fish would guarantee two fish meals on about 120 days a year or 240 days if they had just one fish meal per day.

At least for those who lived permanently in religious communities, fish days and fasting remained important right until the end of the eighteenth century. But the number of monks and nuns was limited even in Spain, contrary to the claims of eighteenth-century enlightenment voices which protested loudly that the high number of monks and nuns was 'the real cancer of the Spanish Commonwealth'. The papal nuncio to Spain felt obliged to ask bishops to report on their numbers and income; the resulting 1764 survey showed regional differences with high numbers in Andalusia and Extremadura and very low ones in Galicia and Asturias.[52] A large share of monks, nuns and priests lived in the urban areas. In the small town of León they made up about 6 per cent of the population in 1757.[53] In Madrid 'church related professions' accounted allegedly for 11 per cent of the population at the same time.[54] However, overall nuns, monks and priests accounted for only 0.7 per cent of the Spanish population in 1591, 1 per cent in 1752 and 0.7 per cent in 1800.[55]

Despite their high average consumption, members of religious orders consumed less than 3 per cent of overall *bacalao* imports.[56] This was not a small number but clearly religious 'professionals' were not the main culprits for what eighteenth century pamphleteers saw as a disastrous habit of importing a staple foodstuff and thus ruining the balance of trade. Meijide Pardo quotes a document that claimed that the foul habit of fasting (and eating *bacalao* on fast days)

---

[51] López Losa, 'Aproximación', p. 26. A 1631 estimate from Guipúzcoa calculated 360g per person and day, although it is not clear whether dry or watered. In any case this seems an almost impossible quantity to consume. Fernández Albadalejo, *Crisis*, p. 68.

[52] M. Barrio Gozalo, 'El clero regular en la España del siglo XVIII a través de la 'encuesta de 1764'', *Hispania Sacra* 47 (1995): pp. 126–7.

[53] Cubillo de la Puente, *Comer*, p. 17.

[54] D.R. Ringrose, *Madrid and the Spanish Economy, 1560–1850* (Berkeley and Los Angeles, 1983), p. 68.

[55] Based on Barrio Gozalo, 'Clero regular', p. 124 and Comín, Hernández, and Llopis Agelán, *Historia Económica* .

[56] Estimate based on *per capita* consumption of 15kg (the maximum likely amount for the overall group consisting of men and women), 70,000 members and around 30,000 tons of cod.

created an import need of 64,000 tons of cod; a mercantilist's nightmare.[57] These estimates were vastly exaggerated and served a political point. The high consumption of fish by religious communities was not large enough to have an effect on the overall availability of cod for the population. More importantly, it cannot explain the pattern of imports observed in the long run. The overall share of Spaniards devoting their life to religion changed but little over time. Their high consumption illustrates the importance of the religious motive for fish consumption for some, but it does not explain the overall increase in consumption. Though there were fewer Church enforced fish days in the eighteenth century (and dramatically fewer ones in the nineteenth) than in the seventeenth century, overall per capita consumption had risen throughout.

Bacalao as food for the poor

Iberian historiography asserts that *bacalao* was an essential complement to the diet of the poor just as often as it claims that fasting was the main reason why consumers ate increasing quantities of it. Again there is no lack of anecdotal evidence. In 1661 a member of the Cabildo of Jaén (Andalusia) claimed that 'bacalao is the only food of the poor'.[58] Only anchovies and pilchards were considered less attractive because they were literally 'small fry'. In fact, during 1659 Jaén experienced one of the many food riots that Spain saw throughout the seventeenth century. But in the event the crowd did not target the granaries or bakeries – it went for the merchant in charge of supplying the town with cod.[59] This merchant had made an agreement with the town council to provide fish. He did so as part of the system known as *obligación* that was commonplace in Spain during the early modern period. Spanish towns regulated the supply of essential food relatively strongly using both direct contracts with merchants to supply foodstuffs (the *obligación*) and set prices.[60] The very fact that town councils up and down the country felt it necessary to guarantee a minimum supply and quality of dried salted cod at a price maximum via this system indicates the impor-

[57] Meijide Pardo, *Comercio*, p. 19.

[58] Quoted in Coronas Tejada, 'Abastecimiento de pescado', p. 40.

[59] Ibid., pp. 42ff.

[60] C. de Castro, *El pan de Madrid. El abasto de las ciudades españolas del Antiguo Régimen* (Madrid, 1987), chapters 2 and 4.

tance attributed to it. *Bacalao* became officially one of the basic ingredients of the diet of the masses, just like grain, meat, or ham. A lot had changed in towns like Jaén where before 1619 the fishmongers only opened on religious fish days.

But ultimately no amount of circumstantial evidence helps to distinguish between the religious and economic motive as driving forces for increasing consumption. Data for the food intake of the lower classes are notoriously difficult to find. The Hospice of León consumed about 6kg *per capita* in the late eighteenth century.[61] Consumption historians rely often on records from charitable institutions to gain insights into the food intake of the poor. However, there are doubts that the food coming out of their kitchens reflected what poor people up and down the country ate. Studies of consumption in various hospitals and asylums in Madrid in the early nineteenth century found a diet that was surprisingly rich in meat and contained very limited quantities of *bacalao*.[62] Given what we know about meat consumption generally they cannot have been representative. The problem with data from these sources is that they do not identify the reasons for such expenditure. Perhaps cod was no longer cheap, or maybe Spanish society was just very generous with its infirm. There are some indications that hospital patients were considerably better fed than they would have been outside hospital.

There is, however, one way to control for the impact of religion in consumption and test the hypothesis that economic reasons played a major role. Members of religious orders ate far more fish than the average person. Yet, the high averages mask remarkable differences between religious institutions. It seems reasonable to assume that monks and nuns generally observed religious fasting restrictions (if only because the kitchens of convents and monasteries made the decision for them). Since their religiously motivated behaviour was much more uniform than that of the overall population, they can help to clarify the economic motive. The data for the consumption of Galician monasteries in 1752 show interesting differences with regard to the main religious orders. Figure 3 below reveals a wide spread of *per capita* eating of cod between monasteries of the same order. The box graph plots all observations underneath the main box. The left and right borders of each box represent the 25^{th} and 75^{th} percentile value and the vertical line in the box the median. The smallest observation is 4.7kg per

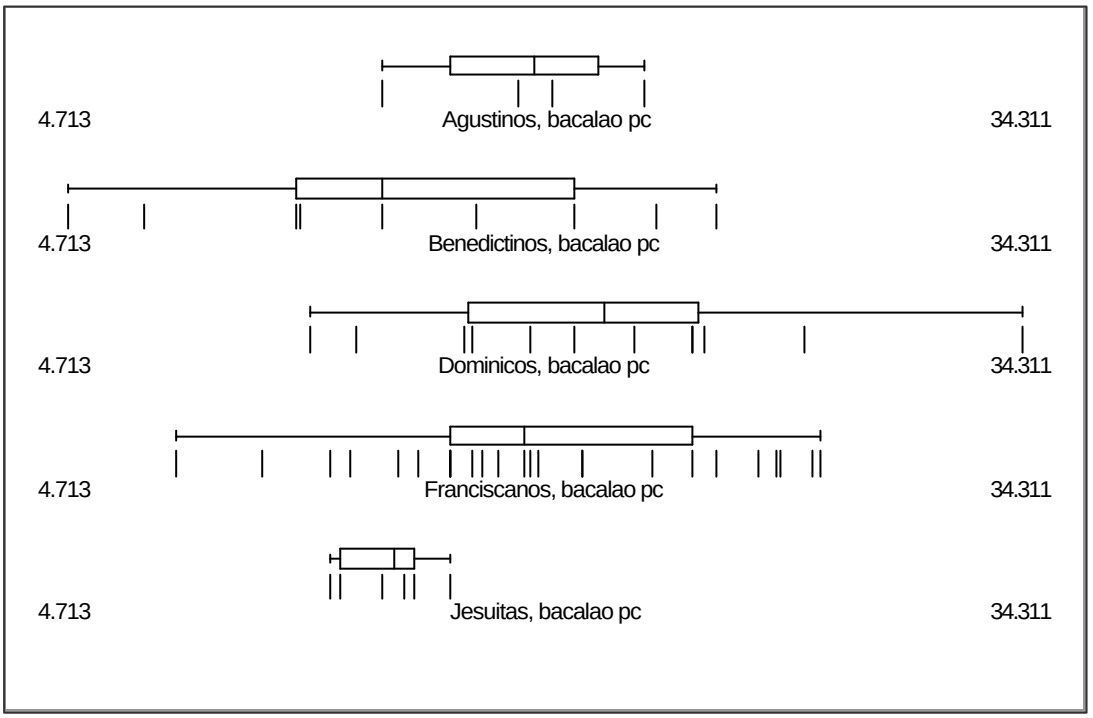
---

[61] I. Miguel López, *El mundo del comercio en Castilla y León al final del Antiguo Régimen* (Valladolid, 2000), p. 179.

[62] Fernández García, *Madrid*, pp. 179ff.

head for one of the Benedictine monasteries, the largest a Dominican monastery with 34.3kg. Notwithstanding the variation within orders, on the whole the mean consumption of Benedictines and Jesuits was lower than that of Augustines, Dominicans and Franciscans.

Figure 3. Annual consumption of bacalao in Galician monasteries1750s/60s (kg per capita)



Source: based on (Meijide Pardo, 1971).

Fortunately, the 1764 survey undertaken by the papal nuncio makes it possible to estimate, very broadly, the economic well-being of monasteries belonging to each of these orders. The survey contains data on only two of the Galician Dioceses, Lugo and Mondoñedo, reported in Table 4 below. In both, Benedictine men's convents were considered 'rich' as were the Jesuits of Lugo. Though the latter refers to only one Diocese, it is consistent with results from elsewhere in Spain, that indicate that Jesuit congregations were economically more successful than those of other orders. These results should be interpreted with caution, given their regional limitations and the reduced sample available for the assessment of economic status.

Table 4. Economic status of monasteries in the Galician Dioceses Lugo and Mondoñedo 1764 by order

Order	*Dioceses*	*Monasteries*	*Monks*	*Economic status*
Agustinos	Lugo	1	16	sufficient
Benedictinos	Lugo	2	75	rich
Benedictinos	Mondonedo	1	39	rich
Dominicos	Lugo	2	54	sufficient
Dominicos	Mondonedo	3	41	sufficient
Franciscanos	Lugo	2	73	sufficient
Franciscanos	Mondonedo	6	194	poor
Jesuitas	Lugo	1	18	rich

Source: based on (Meijide Pardo, 1971) and (Barrio Gozalo, 1995).

It is reassuring, however, that data for three monasteries and one convent that could be identified by name and location in both sets of data would strengthen the argument. Table 5 shows that both the rich Dominican nuns of Lugo and the even richer Benedictine monks of Villanueva ate far less *bacalao* than the average Galician nun/monk. Equally the poor monks of the Hospital de San Juan in Lugo consumed more than the average and the unfortunate Franciscans in Ribadeo seem to have seen few other foodstuffs on their plates. It is unlikely that

Table 5 Annual consumption of *bacalao* of individual Galician convents and monasteries 1750s/60s

Order	*F/M*	*Place*	*People*	*Bacalao kg/pc*	*Economic status*
Dominicans	Women	Lugo	64	11.309	Rich
All (average)	*Women*	*Galicia*		*14,761*	
Benedictinoes	Men	Villanueva Loren	41	7.061	Very rich
Hosp. S Juan de Dios	Men	Lugo	7	18.611	Poor
Franciscans	Men	Ribadeo	31	26.148	Very poor
All (average)	*Men*	*Galicia*		*18,187*	

Source: see Table 3 above.

regional differences in the number of fish days played a large role in these figures, since they are all derived from the same region. Assuming 125g portions and between 90 and 100 fish days in the mid-eighteenth century, 11kg or 12kg per head fulfilled the 'religious quota'. The obvious conclusion must be that economically affluent *Benedictinos* and *Dominicas* substituted fresh fish for *bacalao* on fish days. But poor monks ate *bacalao* on many days that were not religious fish days.

Once controls for the religious consumption pattern are introduced it becomes clear that dried salted codfish was, at least in the mid eighteenth century, an inferior good. Poor monks ate *bacalao*; rich ones bought indulgences or fresh fish. From this analysis it is still impossible to judge when exactly cod had become a staple source of protein for the poor. But it is clear that its demand by the poorer groups in society must have depended strongly on its relative price. For a relatively small group of religious professionals the price elasticity of demand was very low, at least for purchases needed to cover fish days. Yet paradoxically that was only the case for poorer orders, since richer ones could choose more appetising varieties of fish. For the large majority of Spaniards price was an important consideration in their *bacalao* consumption decision.

Town and country

One noticeable characteristic that differentiated some Spanish consumers from others has hardly received any attention: were there any systematic differences between urban and rural demand? The main problem in analysing this question is that there are very few studies of food consumption outside towns.[63] One way around this problem is to compare the existing figures for urban demand with our estimates for overall per capita supply. The only possible conclusion from such an exercise is that rural Spaniards got little fish. Tax data, which systematically underestimate consumption, indicate that *Madrileños* had a minimum of 3.5kg in 1629, 3.7kg in 1789 and 2.5kg in 1848.[64] Thus the absolute lower-bound estimates are about the same as our estimates for per capita supply

[63] Again the very extensive study by Cubillo de la Puente is a case in point hardly mentioning differences between urban and rural consumption, see e.g. Cubillo de la Puente, *El pescado*, p. 302. Most of the papers cited on consumption focus on the supply to towns.

[64] Bernardos Sanz, 'Abastecimiento', pp. 10ff. Figures for 1629 are based on the assumption that the share of *bacalao* in overall fish consumption did not change until the late eighteenth century.

(namely a minimum of 3.2kg in the late eighteenth century). Coronas Tejada argues that in Jaén in the second half of the seventeenth century per capita consumption was as high as 10.5kg per capita, a figure that seems large.[65] Cubillo de la Puente reports that during the entire eighteenth century the inhabitants of León got a minimum of 2.3kg which was provided only through the town's system of *obligación*. Since this took care of supply mainly during the Lenten fasting period, while outside that season private muleteer traders and fish merchants supplied the urban market, the total consumption must have been about twice that amount.[66] In the 1830s a simple average of nine towns in Castilla-León indicates a per capita consumption of 4.4kg per inhabitant.[67]

Table 6 Average per capita consumption of *bacalao* in small localities in Castilla-León 1780s/90s

Place	*Year*	*Bacalao kg*	*Inhabitants*	*Bacalaokg/pc*
Pancorbo	1785	2185	1194	1.830
Agreda	1786	4841.5	3212	1.507
Valencia de Don Juan	1791	2300	1047	2.197
Villamañan	1791	5290	1373	3.853
Toral de los Guzmanes	1791	690	883	0.781
Alba de Tormes	1793	4337.8	2468	1.758
San Felices de los Gallegos		1357	1869	0.726
Piedrahita	1796	4720.75	1699	2.779
Average (excl.Villamañan)				**1.654**

Source: Miguel López (2000), p. 179.

[65] Coronas Tejada, 'Abastecimiento de pescado', p. 44. 5250g during Lenten fasting and about the same amount over the rest of the year.

[66] R. Cubillo de la Puente, 'Carne y pescado. Su importancia en la alimentación de una ciudad del interior español. León – siglo XVIII' (paper presented at the VII Congreso de la Asociación de Historia Económica, Zaragoza, 2001).

[67] Cubillo de la Puente, *El pescado*, pp. 293–294. The towns are Avila, Burgos, Leon, Palencia, Salamanca, Segovia, Soria, Valladolid and Zamora.

The system of set rates, regulated supplies and tax farming in the largest towns make estimating per capita figures difficult. But a few figures available for very small localities indicate that they consumed less than their fellow Spaniards in larger towns. Table 6 shows relatively reliable consumption figures for a number of places in Castilla-León in the late eighteenth century with 900–3000 inhabitants. Average consumption was only about 1.7kg, clearly below the national average. The exception was Villamañan with almost 4kg. The reason for this was that the village's weekly market provided *bacalao* for the entire region. Something similar happened to the 2800 inhabitants of Astorga, another small place in Castilla-León, which happened to be located on the main route from Galicia to the fish fair in Benavente.[68] Relatively lower rural consumption thus seems to have resulted from an insufficient integration into the supply networks; villages close to these networks had consumption patterns that were much closer to those observed in towns.[69]

Since dried salted cod was over-represented in the urban diet, increasing rates of urbanisation would explain the overall increase of imports. Yet, this is clearly not the case. Iberia was one of the most urbanised parts of Europe by the sixteenth century, but urbanisation stalled thereafter and until the nineteenth century as shown in Table 7 below.

Table 7. Urbanisation rate estimates in Iberia, 1500–1850

Year	*Spain*	*Portugal*
1500	18.4	15
1600	21.3	16.7
1700	20.3	18.5
1750	21.4	17.5
1850	19.5	15.2

Source: (Bairoch, 1988) p. 259.
Note: Urbanization rates are measured as the share of population in towns of over 5000 inhabitants.

[68] Miguel López, *Mundo del comercio*, pp. 179ff.

[69] It is possible that urban consumption was also encouraged by the difficulty of ensuring fresh meat supply in towns. However the relatively higher consumption of *bacalao* in small villages that were integrated into the trading networks suggests that access to markets rather than problems of meat supply in large towns explain *bacalao* consumption.

IV. Supply meets demand: prices

So far this paper has deliberately chosen to look at the variables influencing supply and demand rather than at prices. How did they play out in the marketplace in the form of absolute and relative prices? Unfortunately, no longer run series of weekly or monthly prices is available. Hence, seasonality cannot be traced. Interestingly, there is anecdotal evidence for unusually high prices during Lent in some places; but for others unusually low prices are reported for the same time of the year.[70] This lack of a clear seasonality pattern illustrates the importance of a variety of supply and demand factors. In parts of the peninsula that were supplied predominantly by New England cod Lent was the arrival time of most shipments and supply might have increased more than demand. Also town councils used the system of '*obligación´* in particular during Lent. The market interventions of Spanish towns aimed at reducing the price of basic foodstuffs by organising purchase at wholesale prices and bundling quantities for transport. Though regulation in the long run restricted the development of the domestic market, in the short run it did provide cheaper victuals to urban populations. This is true even in the case of *bacalao*, which was imported and where towns could not exercise any power over the producers to sell cheap as they often did in the case of grain.[71]

Dried salted cod was precisely different from all other food staples because all of it was imported. This raises the question of the extent to which international integration determined prices and the extent to which supply and demand conditions in the domestic market mattered. Transatlantic prices were reasonably integrated extremely early on. Figure 4 below plots the logarithms of prices in Essex County, Massachusetts, against those of prices in Catalonia for 1660 to 1775.[72] The spread is quite wide as would be expected for one of the earliest transatlantic commodity trades in an early modern market. Still a pattern of association is clearly discernible. Massachusetts production and Catalonian con-

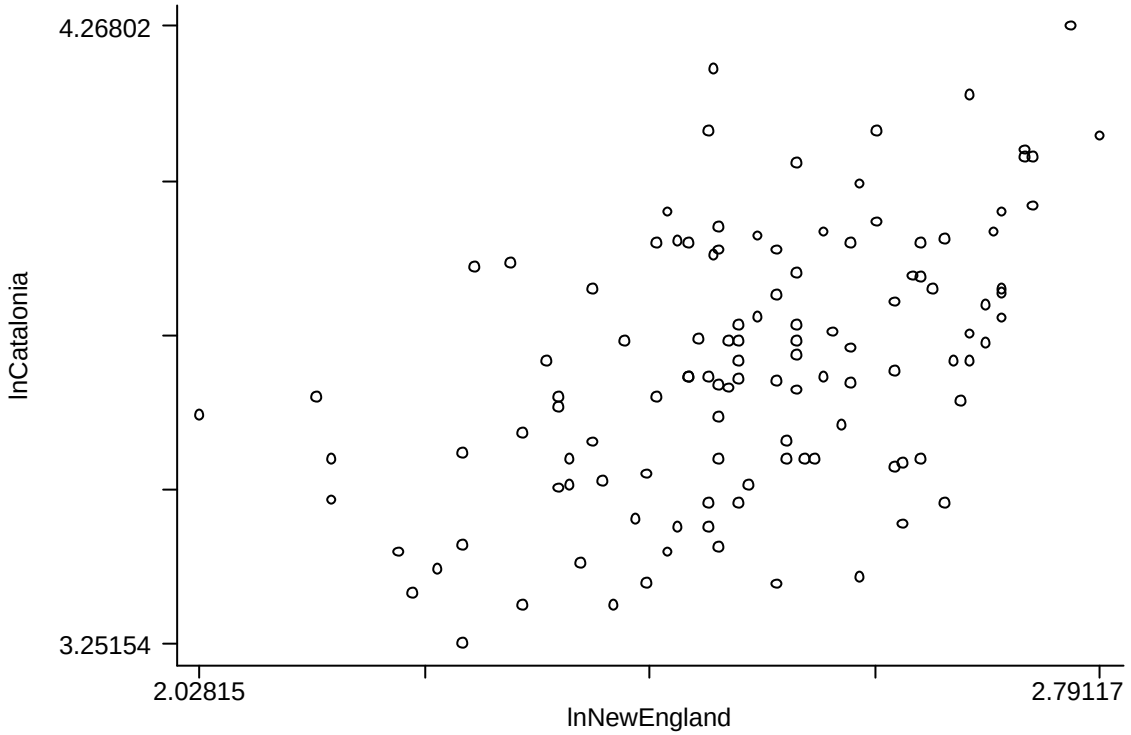
[70] Coronas Tejada, 'Abastecimiento de pescado', pp. 38ff.

[71] For grain see Ringrose, *Madrid and the Spanish Economy*, Part 2, and de Castro, *El pan de Madrid*, chapter 4.

[72] Catalonian prices are lagged by one year to account for the long time span between catch and sale.

sumption showed a noticeable degree of correlation after the supply had turned into a regular merchant-controlled trade in the 1640s.[73]

Figure 4. *Bacalao* prices in Essex County and Catalonia 1660–1775



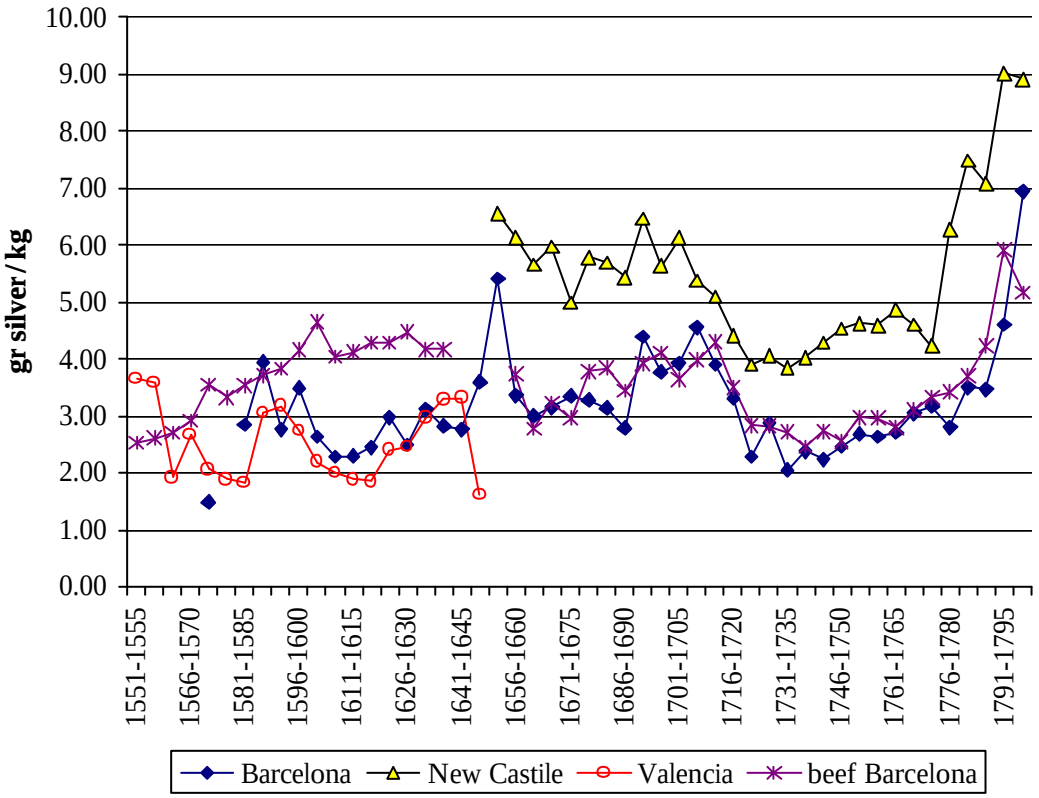
Source: based on Feliu (1991) and Vickers (1988).

Figure 5 below reinforces this point by looking at inter-regional patterns in Spain. Before the 1640s cod prices in Valencia and Barcelona seem to be correlated though they exhibit some notable differences. Unfortunately, for the following period we can only compare Barcelona and New Castile, but we see that they move almost exactly together. Both trends and fluctuations of prices of *bacalao* were similar throughout the peninsula especially after the 1640s. The most interesting feature is, however, that cod and beef prices in Barcelona start moving together after the 1650s. In this case the 1640s is clearly a critical period – the decade in which cod imports into Spain was transformed from a seasonal fishing activity into a year round commercial activity. Before the 1640s/1650s *bacalao* prices bear little resemblance to beef prices; afterwards they move in

[73] A simple regression including the two variables and a dummy for war years renders an adjusted R^2 of 0.28.

unison. This confirms a point made above that around the mid-seventeenth century cod had become a real substitute for beef. Consumers adjusted their beef and *bacalao* intake according to the relatively small changes in relative prices of both goods, keeping the ratio unchanged over long periods of time. Furthermore, before the 1640/50s beef prices also reflect the overall indices of Spanish prices while cod prices do not.[74] From the mid-seventeenth century onwards prices of both cod and beef shadow broadly the development of overall prices in Spain: rising prices in the late seventeenth century, a pronounced fall in the early eighteenth century, and another phase of price rises culminating in the very strong increase in the turbulent last decades of the eighteenth and early decades of the nineteenth century.

Figure 5. Prices of *bacalao* in Barcelona, New Castile and Valencia and of beef in Barcelona, 1650–1800 (gr silver/kg)

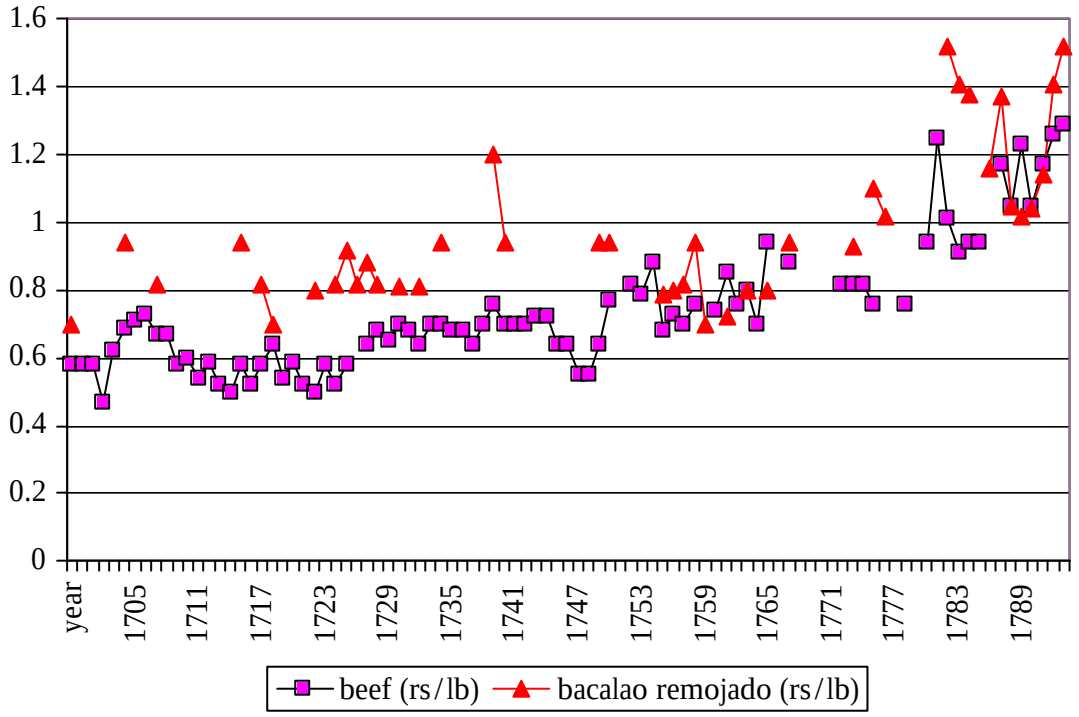


Source: based on (Feliu, 1991) and (Hamilton, 1947).

[74] D. S. Reher and E. Ballesteros, 'Precios y salarios en Castilla la Nueva: La construcción de un indice de salarios reales, 1501–1991', *Revista de Historia Económica* 11 (1993); P. Martín Aceña, 'Los precios en Europa durante los siglos XVI y XVII: estudio comparativo', *Revista de Historia Económica* (1992).

Figure 5 also illustrates the mark-up that overland transport from the coast added to the goods. Prices in Barcelona were consistently between 30 and 40 per cent lower than in New Castile. The price differential did decrease only very slowly over time, which shows that there was little improvement in Spanish overland transport before the end of the eighteenth century.

Figure 6. Beef and *bacalao* (watered) prices in León 1700–1794



Source: (Cubillo de la Puente, 2000, pp.82–84 and 153–154).

Overall these data show that the main determinant for differences among regions and between town and country in the consumption of *bacalao* after 1650, although not before, was its price relative to alternative sources of protein such as beef. However, given the choice, consumers seem to have valued beef higher than cod, at least up to the end of the eighteenth century. Cod was certainly cheap compared to beef in Barcelona before the 1640/1650s. Yet, even after consumers had got used to regular supplies cod remained cheaper than beef throughout the rest of the period covered in Figure 5, since it had a higher nutritional value per weight than beef. It really was cheap protein. For consumers in the interior the cod/beef ratio was obviously less tilted towards cod. Figure 6

above shows wholesale prices for beef and watered cod in León over the eighteenth century in *reales* per pound. Watered cod was obviously heavier than dry, and the latter sold at prices that were 70 per cent higher than those for *remojado.* Still, cod was only slightly more expensive than beef and even watered cod has a higher protein content than beef. The data are too scattered to assess conclusively; but if the price differential decreased over the eighteenth century, it seems likely. This would also coincide with the supply data quoted above, which suggested that shipments of cod in the third and fourth decades of the eighteenth century were subject to particularly severe war interruptions.

V. Preliminary Conclusions

The origins and consequences of *bacalao* consumption patterns can only be explained in the context of the larger economic, social and cultural changes within and without Iberia. The pattern is far from clear but a number of preliminary conclusions can be offered. Consumption per average consumer increased throughout the entire period, but was subject to large fluctuations. Before the 1610s the impact of this fish on overall consumption possibilities of Iberians was limited and depended on seasonal fisheries. From about the 1610s to the 1640s/1650s the transformation into year-round regular commerce took place at the hands of English and New England merchants. The mass introduction of *bacalao* was a consequence of their attempts to cope with balance of payment and return cargo problems rather than the result of a deliberate targeting of Spanish demand for fish. Counter-reformation ideology increased the number of fish days and their enforcement. However, this religious revival of fasting was only possible because of increased supplies of *bacalao* that made fish an accessible foodstuff for the majority of Iberians on the coast as well as in the interior. This was the contribution that puritan New England merchants made to the counter-reformation revival of Catholic traditions.

Data from Spanish towns show that *bacalao* had become a staple foodstuff for the urban masses at some time between the mid-seventeenth and the mid-eighteenth century. Over the same period the amounts consumed for religious motives did not change significantly, if anything they decreased thanks to fewer fish days. eighteenth century reformers were quite wrong when they blamed religion for the insatiable demand for this imported foodstuff which had such a disastrous effect on the balance of trade. Nor did consumption in the larger towns change; the price relation between beef and cod was almost stable. Cod was relatively cheap and supplied about 15 per cent of the urban consumption of animal-based protein. Yet, the increase in overall imports cannot be explained by the appetite of increasing numbers of poor town dwellers. Since per capita consumption in larger towns remained stable and urbanisation rates were flat, the explanation for increasing total per capita consumption is that consumers in smaller towns, villages and in rural areas were increasingly supplied with cod.

This implies two conclusions. The culinary differences between urban and rural Spain decreased and they decreased presumably because of a slow but constant increase in market integration at the local and regional level. Overall then two long term trends are observed: First, an increase in the availability of fish based protein intake that made up for some of the shortfall in meat consumption

over time. Thus Iberian consumers were probably better off than most studies of consumption have argued. Secondly, the slow but continuous expansion of the share of population consuming *bacalao* indicates the increasing integration of the Spanish rural population into the larger commercial networks throughout this period. This in turn challenges the accepted view that Spanish coastal regions – the entry points of this product – became increasingly disintegrated from the interior regions.[75] However, there is one aspect that still remains to be discussed. By the late eighteenth century at the latest, Spaniards and Portuguese had clearly developed a taste for dried and salted cod. But why did they prefer this variety, while the French preferred wet (green) fish and Italians dried but unsalted stockfish? It appears that an acquired taste can become a historical constant.

[75] See e.g. Ringrose, *Madrid and the Spanish Economy.*

References

D. Abreu-Ferreira, 'The cod trade in early-modern Portugal: Deregulation, English domination and the decline of female cod merchants' Unpublished Ph.D. thesis, Memorial University Newfoundland, 1995

B. Bailyn, *The New England Merchants in the Seventeenth Century* (Cambridge Mass., 1955)

M. M. Barkham, 'Shipowning, shipbuilding and transatlantic fishing in Spanish Basque ports 1560–1630: Motrico and Zumaya' Unpublished Ph.D. thesis, Cambridge University, 1991

M. Barrio Gozalo, 'El clero regular en la España del siglo XVIII a través de la "encuesta de 1764" ', *Hispania Sacra* 47 (1995): 121–69.

R. Basurto Larrañaga, *Comercio y burguesia mercantil de Bilbao en la segunda mitad del siglo XVIII* (Bilbao, 1983)

J. U. Bernardos Sanz, 'El abastecimiento y consumo de pescado en Madrid durante el Antiguo Régimen'. Paper presented at the VII Congreso de la Asociación de Historia Económica, Zaragoza, 2001

C. Brautaset, 'Norsk Eksport 1830–1865 i Perspectiv av Historiske Nasjonalregnskaper'. Ph.D. thesis, Norges Handelshoyskole, 2002

J. Brewer, and R. Porter (eds.), *Consumption and the World of Goods* (London and New York, 1993)

G. T. Cell, 'The English in Newfoundland 1577–1660'. Unpublished Ph.D. thesis, University of Liverpool, 1964

W. G. Clarence-Smith, *Cocoa and Chocolate, 1765–1914* (London and New York, 2000)

F. Comín, M. Hernández, and E. Llopis Agelán, *Historia Económica de España. Siglos X–XX* (Barcelona, 2002)

L. Coronas Tejada, 'El abastecimiento de pescado en el Jaen del siglo XVII', *Chronica Nova* 17 (1989): 33–45

R. Cubillo de la Puente, 'Carne y pescado. Su importancia en la alimentación de una ciudad del interior español. León – siglo XVIII'. Paper presented at the VII Congreso de la Asociación de Historia Económica, Zaragoza 2001

———, *Comer en León. Un siglo de historia 1700–1800* (León, 2000)

———, *El pescado en la alimentación de Castilla y León durante los siglos XVIII y XIX* (1998)

P. de Brito, *British Wine Merchants in Porto Prior to the Methuen Treaty* (Porto, 2000)

C. de Castro, *El pan de Madrid. El abasto de las ciudades españolas del Antiguo Régimen* (Madrid, 1987)

M. J. Echevarria Alonso, *La actividad comercial del puerto de Santander en el siglo XVII*. Vol. 4 (Santander, 1995)

G. Feliu, *Precios y salarios en la Cataluña moderna. Vol.I: Alimentos* (1991)

P. Fernández Albadalejo, *La crisis del Antiguo Régimen en Guipúzcoa 1766–1833. Cambio económico e historia* (Madrid, 1975)

A. Fernández García, *El abastecimiento de Madrid en el reinado de Isabel II* (Madrid, 1971)

F. Figueras Pacheco, *El Consulado Marítimo y Terrestre de Alicante y Pueblos del Obispado de Orihuela* (Alicante, 1957)

R. Grafe, 'The Globalisation of Codfish and Wool: Spanish-English-North American Triangular Trade in the Early Modern Period', *London School of Economics Working Papers in Economic History* 71/03 (2003)

———, 'Northern Spain between the Iberian and Atlantic worlds: Trade and regional specialization, 1550–1650'. Unpublished Ph.D. thesis, London School of Economics and Political Science, 2001.

E. J. Hamilton, *War and Prices in Spain, 1651–1800* (Cambridge, MA, 1947; reprinted by Russell and Russell, New York, 1969)

H. A. Innis, *The Cod Fisheries. The History of an International Economy* revised edn (Toronto, Buffalo and London, 1954)

M. Kurlansky, *Cod. A Biography of the Fish that changed the World* (London, 1998)

———, *Salt: A World History* (2003)

M. Livi-Bacci, *Population and Nutrition. An Essay on European Demographic History* (Cambridge, 1991)

E. López Losa, 'Una aproximación al sector pesquero tradicional vasco (c.1800–c.1880)', *Historia Agraria* 28 (2002): 13–44

R.G. Lounsbury, *The British Fisheries at Newfoundland 1634–1763* (New Haven, 1934)

J. G. Lydon, 'Fish for gold: The Massachusetts fish trade with Iberia, 1700–1773', *The New England Quarterly* 54, no. 4 (1981): 539–82

P. Martín Aceña, 'Los precios en Europa durante los siglos XVI y XVII: estudio comparativo', *Revista de Historia Económica* (1992): 359–95

A. Meijide Pardo, *Economia marítima de la Galicia cantabrica en el siglo XVIII* (Valladolid, 1971)

———, *El comercio del bacalao en la Galicia del XVIII* (La Coruña, 1980)

I. Miguel López, *El mundo del comercio en Castilla y León al final del Antiguo Régimen* (Valladolid, 2000)

G. Milton, *Nathaniel's nutmeg: How One Man's Courage Changed the Course of History* (2000)

S. W. Mintz, *Sweetness and Power. The Place of Sugar in Modern History* (New York, 1985)

C. R. Phillips, and W. D. Phillips, Jr., *Spain's Golden Fleece. Wool Production and the Wool Trade from the Middle Ages to the Nineteenth Century* (Baltimore and London, 1997)

L. Prados de la Escosura, *De imperio a nación. Crecimiento y atraso económico en España (1780–1930)* (Madrid, 1988)

D. S. Reher, and E. Ballesteros, 'Precios y salarios en Castilla la Nueva: La construcción de un indice de salarios reales, 1501–1991', *Revista de Historia Económica* 11, no. 1 (1993): 101–151.

J. Richards, *The Unending Frontier: An Environmental History of the Early Modern World* (2003)

D. R. Ringrose, *Madrid and the Spanish Economy, 1560–1850* (Berkeley and Los Angeles, 1983)

L.M. Rubio Pérez, *Arrieros maragatos. Poder, negocio, linaje y familia* (1995)

F. Scheel, *Østersjøfart. 1825–1850. Den norske sjøfarts historie* (Oslo, 1935)

C. Shammas, *The Pre-Industrial Consumer in England and America* (Oxford, 1990)

R. H. Steckel, 'Stature and the Standard of Living', *Journal of Economic Literature* 33 (1995): 1903–40

R. H. Steckel, and R. Floud (eds.), *Health and Welfare during Industrialisation* (Chicago, 1997)

W. Stephens, 'English Wine Imports c.1603–40, with Special Reference to the Devon ports', in Todd Gray, Margery Rowe and Audrey Erskine (eds.), *Tudor and Stuart Devon. The Common Estate and Goverment. Essays presented to Joyce Youings* (Exeter, 1992), pp. 141–72

W. Thomas, *In de klauwen van de Inquisitie. Europese protestanten in Spanje, 1517–1648* (Amsterdam, 2003)

D. Vickers, *Farmers & Fishermen. Two Centuries of Work in Essex County, Massachusetts, 1630–1850* (Chapel Hill and London, 1994)

———, ' "A Knowen and Staple Commoditie": Codfish prices in Essex County, Massachusetts, 1640–1775' in *Essex Institute Historical Collections* (1988), 186–203

J. Walvin, *Fruits of Empire: Exotic Produce and British Taste, 1660–1800* (New York, 1997)

A. Zabala Uriarte, *Mundo urbano y actividad mercantil. Bilbao 1700–1810*. Vol. 9 (Bilbao, 1994)

[Continued from inside front cover]

18 Dan H. Andersen and Hans-Joachim Voth, *The Grapes of War: Neutrality and Mediterranean Shipping under the Danish Flag, 1750–1802* (Sept. 1997)

19 Liam Brunt, *Nature or Nurture? Explaining English Wheat Yields in the Agricultural Revolution* (Oct. 1997)

20 Paul A. David, *Path Dependence and the Quest for Historical Economics: One More Chorus of the Ballad of QWERTY* (Nov. 1997)

21 Hans-Joachim Voth, *Time and Work in Eighteenth-Century London* (Dec. 1997)

22 Tim Leunig, *New Answers to Old Questions: Transport Costs and The Slow Adoption of Ring Spinning in Lancashire* (Feb. 1998)

23 Paul A. David, *From Keeping 'Nature's Secrets' to the Institutionalization of 'Open Science'* (July 2001)

24 Federico Varese and Meir Yaish, *Altruism: The Importance of Being Asked. The Rescue of Jews in Nazi Europe* (May 1998)

25 Avner Offer, *Epidemics of Abundance: Overeating and Slimming in the USA and Britain since the 1950s* (Nov. 1998)

26 David Stead, *An Arduous and Unprofitable Undertaking: The Enclosure of Stanton Harcourt, Oxfordshire* (November 1998)

27 Oliver Grant, *The Diffusion of the Herringbone Parlour: A Case Study in the History of Agricultural Technology* (December 1998)

28 Antonia Taddei, *London Clubs in the Late Nineteenth Century* (April 1999)

29 Liam Brunt, *Estimating English Wheat Production in the Industrial Revolution* (June 1999)

30 Matthew Braham, *Volunteers for Development: A Test of the Post-Materialism Hypothesis in Britain, c.1965–1987* (June 1999)

31 Paul A. David and Gavin Wright, *General Purpose Technologies and Surges in Productivity: Historical Reflections on the Future of the ICT Revolution* (September 1999)

32 Liam Brunt, *An Arbitrage Model of Crop Rotation* (September 1999)

33 Paul A. David and Gavin Wright, *Early Twentieth Century Productivity Growth Dynamics: An Inquiry into the Economic History of 'Our Ignorance'* (October 1999)

34 Avner Offer, *Economic Welfare Measurements and Human Well-Being* (January 2000). Rev. version, March 2000.

35 Liam Brunt, *'Where there's Muck, There's Brass'. The Market for Manure in the Industrial Revolution* (February 2000).

36 Alasdair Crockett, *Variations in Churchgoing Rates in England in 1851: Supply-Side Deficiency or Demand-Led Decline?* (August 2000).

37 Martin West, *State Intervention in English Education, 1833–1891: A Public Goods and Agency Approach* (October 2000).

38 George Speight, *Who Bought the Inter-War Semi? The Socio-Economic Characteristics of New-House Buyers in the 1930s* (December 2000)

39 Peter Temin, *A Market Economy in the Early Roman Empire* (March 2001)

40 Michael Biggs, *Positive Feedback in Collective Mobilization: The American Strike Wave of 1886* (April 2001)

41 Charles H. Feinstein and Mark Thomas, *A Plea for Errors* (July 2001)

42 Walter Eltis, *Lord Overstone and the Establishment of British Nineteenth-Century Monetary Orthodoxy* (December 2001)

43 A. B. Atkinson, *Top Incomes in the United Kingdom over the Twentieth Century* (February 2002)

44 Avner Offer, *Why has the Public Sector Grown so Large in Market Societies? The Political Economy of Prudence in the UK, c.1870–2000* (March 2002)

45 Natàlia Mora Sitjà, *Labour and Wages in Pre-Industrial Catalonia* (May 2002)

46 Elaine S. Tan, *'The Bull is Half the Herd': Property Rights and Enclosures in England, 1750–1850* (June 2002)

47 Oliver Wavell Grant, *Productivity in German Agriculture: Estimates of Agricultural Productivity from Regional Accounts for 21 German Regions: 1880/4, 1893/7 and 1905/9* (August 2002)

48 Oliver Wavell Grant, *Does Industrialization Push up Inequality? New Evidence on the Kuznets Cure from Nineteenth-Century Prussian Tax Statistics* (September 2002)

49 Alexandre Debs, *The Source of Walras's Idealist Bias: A review of Koppl's Solution to the Walras Paradox* (January 2003)

50 Robert Dryburgh, *'Individual,Iillegal, and Unjust Purposes': Overseers, Incentives, and the Old Poor Law in Bolton, 1820–1837* (March 2003)

51 David R. Stead, *Risk and Risk Management in English Agriculture, c.1750–1850* (October 2003)

52 Pablo Astorga, Ame R. Bergés, and Valpy FitzGerald, *Productivity Growth in Latin America during the Twentieth Century* (December 2003)

53 Teresa da Silva Lopes, *Evolution of Corporate Governance in Global Industries: The Case of Multinationals in Alcoholic Beverages* (February 2004)

54 Pablo Astorga, Ame R. Bergés, and Valpy FitzGerald, *The Standard of Living in Latin America during the Twentieth Century* (March 2004)

55 Regina Grafe, *Popish Habits vs. Nutritional Need: Fasting and Fish Consumption in Iberia in the Early Modern Period* (May 2004)

University of Oxford
Discussion Papers in
Economic and Social History

are edited by:

Robert Allen
Nuffield College, Oxford, OX1 1NF

Jane Humphries
All Souls College, Oxford, OX1 4AL

Siobhan McAndrew
Nuffield College, Oxford, OX1 1NF

Avner Offer
All Souls College, Oxford, OX1 4AL

Papers may be downloaded from
http://www.nuff.ox.ac.uk/Economics/History/