

## The Price of Fish: A Price Index for Cod, 1505-1892

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## The Price of Fish: A Price Index for Cod, 1505-1892

“SO WHAT’S IT GOT TO DO WITH THE PRICE OF FISH?” This saying, part of the Atlantic Canadian idiom, speaks to the fact that for centuries, along the whole North American coastline between Cape Cod and Labrador, few things mattered more. In commercial fishing communities prosperity is generally driven by the interaction between catches and prices. As long as catches were themselves largely a function of effort, and effort was driven principally by the market, prices were the core variable within the fishing economy. With the accelerated overfishing of modern times this logic no longer holds true, but for centuries, it was the common sense that drove the key staple export of Atlantic Canada.<sup>1</sup>

Historians of the east coast fisheries of North America have always understood this and have often used prices — assembled in series or quoted individually — to help explain the history of the industry. Although often convincing, much of this data covers relatively short spans of time. Thus, on occasion, what may seem like a significant rise over several years may actually be a temporary aberration in a longer-term pattern of decline — and *vice versa*. In his classic study of *The Cod Fisheries*, Harold Innis sometimes offered price data that was poorly contextualized or even wrong. His claim, for example, that the climb in cod prices during the Seven Years War was the continuation of a generally rising trend that had prevailed since 1720 simply belies the evidence.<sup>2</sup> Grant Head’s claim that the price of cod reached unprecedented heights during the War of 1812 ignores a similar peak during the late 1790s.<sup>3</sup> My own work on New England has come under criticism for using price data to identify 1675 as the starting point of a financial crisis within

- 1 Determining when overfishing began to make a serious impact on cod stocks in the North Atlantic is now a field of active research. See Jeffrey A. Hutchings and Ransom A. Myers, “The Biological Collapse of Atlantic Cod Off Newfoundland and Labrador”, in Ragnar Arnason and Lawrence Felt, eds., *The North Atlantic Fisheries: Successes, Failures and Challenges* (Charlottetown, P.E.I., 1995), pp. 37-93; Peter Pope, “Early Estimates of Catches in the Newfoundland Cod Fishery, 1660-1690”; Laurier Turgeon, “Fluctuations in Cod and Whale Stocks in the North Atlantic During the Eighteenth Century”; and Sean Cadigan, “Resource Exploitation and Development: Historical Antecedents in the Debate over Technology and Ecology in the Newfoundland Fishery, 1815-1855”, papers delivered to the Conference on “Marine Resources and Human Societies in the North Atlantic Since 1500”, sponsored by SSHRCC, ISER, and the Maritime Studies Research Unit of the Memorial University of Newfoundland, St. John’s, Nfld., 1995.
- 2 Harold A. Innis, *The Cod Fisheries: The History of an International Economy* (Toronto, 1940, rev. ed., 1954), p. 159.
- 3 C. Grant Head, *Eighteenth-Century Newfoundland: A Geographer’s Perspective* (Toronto, 1976), p. 236.

the fishery.<sup>4</sup>

To some extent we must be charitable; solid information on prices is often hard to find. The task of collecting commensurable data is enormously time-consuming, and for the period before the 19th century, North American evidence on fish prices is very scarce. A consistent price series that traced a single species over an extended period of modern history would be a useful resource, but such a series has never been constructed.

During the first half of this century, price history was in fashion. The violent succession of booms and busts that had begun to wrack the world economy during the later 19th century cried out for explanation. A generation of economic historians, institutionally organized by the International Scientific Committee on Price History, laboured in archives throughout the western world assembling price series in the hope that the structure of the business cycle could be charted and understood. None of them was particularly interested in fish, but many used fish prices in their studies and took the trouble to publish this data in tabular form that can still be used today. The present research note reconstructs a single 400-year index of codfish prices from two ambitious projects first published during the 1930s.

The first of these is the work of Earl Hamilton on prices in Spain. Hamilton was interested in a wide variety of problems: the price revolution of the 16th and 17th centuries, the problem of Spanish economic decline in the 17th and 18th centuries, and the general theory of business oscillations in every century. His price data, drawn mainly from the records of hospitals, monasteries, convents and universities covers hundreds of commodities over 450 years from 1350-1800. Each of his volumes contains a set of appendices listing the annual average price for many of these commodities in several Spanish regions, and from 1500 onward these include regular quotations for codfish.<sup>5</sup>

The second source is the remarkable price history of Philadelphia, Pennsylvania, compiled by a team of economic historians led by Anne Bezanson.<sup>6</sup> This was one of several projects, coordinated by Edwin Gay and Arthur Cole of Harvard University during the 1920s and 1930s, that produced vast amounts of price history

4 Daniel Vickers, *Farmers and Fishermen: Two Centuries of Work in Essex County, Massachusetts, 1630-1850* (Chapel Hill, N.C., 1994). See the comment by Peter Pope as well as my reply in the Roundtable review of my book in the *International Journal of Maritime History*, VII (1995), pp. 210-11, 230-1.

5 Earl J. Hamilton, *Money, Prices, and Wages in Valencia, Aragon, and Navarre, 1351-1500* (Cambridge, Mass., 1936); *American Treasure and the Price Revolution in Spain, 1501-1650* (Cambridge, Mass., 1934); *War and Prices in Spain, 1651-1800* (Cambridge, Mass., 1947). Hamilton's methods are described in *American Treasure*, pp. 139-51; *War and Prices*, pp. 92-114.

6 Anne Bezanson, Robert D. Gray, and Miriam Hussey, *Prices in Colonial Pennsylvania* (Philadelphia, Pa., 1935); Bezanson, *Prices and Inflation During the American Revolution: Pennsylvania, 1770-1790* (Philadelphia, Pa., 1951); Bezanson, Gray, and Hussey, *Wholesale Prices in Philadelphia, 1784-1861*, 2 vols. (Philadelphia, Pa., 1936-1937); Bezanson, *Wholesale Prices in Philadelphia, 1852-1896: a Series of Relative Monthly Prices* (Philadelphia, Pa., 1954).

for different American cities, again in an effort to comprehend the business cycle.<sup>7</sup> Bezanson drew most of her data from newspapers and merchant records and reported it commodity by commodity in monthly averages. Fish was not a key element in the Philadelphia economy, but her team found regular quotations from 1784 onward and reported them in tabular form.

Why select only two series, why choose Spanish and American prices, and why combine them into one index? The process of melding different series into one must necessarily produce some distortion; no two markets are exactly the same. Consequently, it made sense to employ similar types of price series and to base the index on as few of them as possible. The Spanish and American series were chosen partly because both represent a common type of price — that paid for wholesale lots near the point of consumption — and partly because, between them, these two series covered the entire period. Clearly, market patterns on opposite shores of the Atlantic did not mirror each other in the short run. My own research comparing prices in Massachusetts with those in Spain demonstrates that in times of war, when transport into Spanish ports was impossible, fish prices collapsed in New England precisely as they soared in Spain.<sup>8</sup> Because cod was an internationally traded commodity, however, such price discrepancies rarely lasted more than a few years. There was too much money to be made by buying cod in markets that were glutted and shipping it to others where fish was scarce. Over the middle and longer term, the price cod fetched in different North Atlantic ports almost always moved in rough synchronization.<sup>9</sup> No single index is adequate to describe the price of fish in every market, and historians interested in precise regional data are referred to the regional price series listed in Appendix 2. The purpose of the present index is to help place such local and temporal fluctuations within the broadest possible context.

The process of constructing the index was relatively straightforward. First, the Spanish prices from 1505-1800 were converted from Castilian and Valencian money of account into their silver equivalents in order to discount the monetary devaluation peculiar to the Spanish economy, especially during the 17th century. Since this was a problem that Hamilton had to face in his own work, he provided tables that made such adjustments possible. After standardizing the units of measurement from quintals, arrobas and other units into pounds, again using tables that Hamilton provided, the cod prices were converted into index numbers

7 For a window on this project, see Walter Buckingham Smith and Arthur H. Cole, *Business Fluctuations in American Business, 1790-1860* (Cambridge, Mass., 1935).

8 This pattern is particularly evident in Figure One below that for the period of King William's and Queen Anne's Wars. See Daniel Vickers, "'A Knowen and Staple Commodity': Codfish Prices in Essex County, Massachusetts, 1640-1775", Essex Institute, *Historical Collections*, CXXIV (1988), pp. 190-2.

9 Compare Massachusetts and Spanish prices for cod between 1768 and 1775 in Vickers, "'Knowen and staple commodity'", p. 194; and the various prices in different regional markets reported in Shannon Ryan, *Fish Out of Water: The Newfoundland Salfish Trade, 1814-1914* (St. John's, Nfld., 1986), pp. 264-5.

with the base period of 1784-1800 given the value of 100.<sup>10</sup>

Dealing with the American data was simpler, owing to the relative stability of the dollar and the uniformity of American measures. The Philadelphia prices for the period, 1784-1892, were harmonized with those from Spain simply by converting the former into index numbers with the same base period as the latter, 1784-1800, set at 100. Since the American dollar was a relatively stable currency, it was possible for the most part to ignore minor currency fluctuations in the conversion of these fish prices into index numbers. During and after the American Civil War, however, the printing of Greenback currency led to a temporary but serious depreciation of the dollar, and for about 15 years there existed a systematic discrepancy between American fish prices and the international prices of interest here. Accordingly, for the period 1862-1878, the Philadelphia values (reported in Greenback currency) were deflated to a standard gold price. For the rest of the period it was assumed that one could employ the Philadelphia prices without further manipulation.<sup>11</sup>

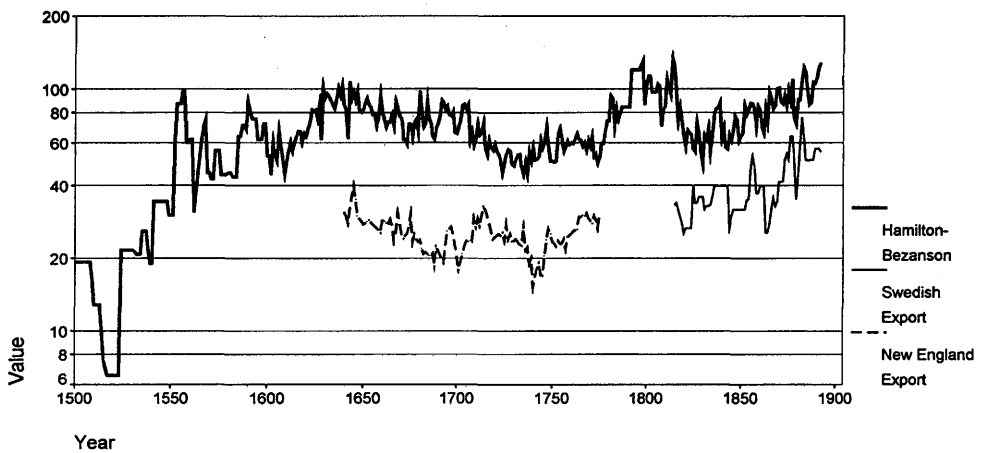
The results for the entire period, 1505-1892, with data for missing years interpolated, are presented using a semi-log format in Figure One. Remembering that the "noise" on the Hamilton-Bezanson line is mainly reflective of local conditions in Spain and the United States, the reader should focus only on the broadest trends. To furnish some assurance that these trends reflect cod prices around the North Atlantic, two other cod price indices (export values in Sweden and New England) have been superimposed on the same graph. In general terms, the price of cod rose very rapidly during the 16th and early 17th centuries to a peak that it sustained from 1630-1670. From there it dropped erratically to a trough extending from about 1715-1775. The period of the American Revolutionary, French Revolutionary and Napoleonic Wars framed another peak, followed, in turn, by a collapse to pre-revolutionary levels by 1820. Finally, around 1830, the curve resumed an upward course that it maintained until the end of the century.

Until the end of the 19th century, all of these hills and valleys mirrored general tendencies within the price history of the age. The price revolution of the long 16th century, caused (according to different interpretations) either by bullion imports from the New World or rising population and economic growth in the Old World, drove cod prices upwards, but at roughly the same rate as most other commodities. The ratio of cod prices to Hamilton's general commodity index for Spain (see Figure Two) might soar and plummet for short periods. Two dramatic peaks — one during the 1550s and the other between 1585-1600 — probably resulted from interruptions in supply caused by wars with France, England and Islam. But the long-term relationship of cod prices to those of other commodities over the whole period, 1505-1650, was close to unity.

10 Hamilton, *American Treasure*, pp. 73, 93-6, 128-35, 310, 315; Hamilton, *War and Prices*, pp. 34, 53, 77.

11 During the 19th century, American prices often rose and fell dramatically, but only during the period 1862-1872 did they move at serious variance with British prices — owing to Greenback depreciation. See George F. Warren and Frank A. Pearson, *Prices* (New York, 1933), pp. 15, 70, 326-63. The gold prices used to deflate the Philadelphia prices are found in Bezanson et al., *Wholesale Prices in Philadelphia, 1852-1896*, pp. 406.

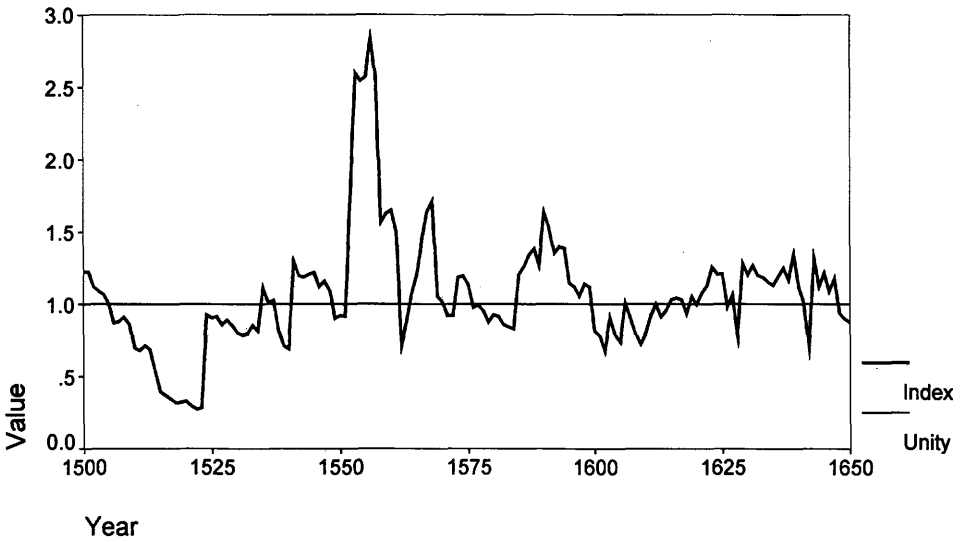
Figure One: Cod Price Index, 1505-1892



Sources: Hamilton, *American Treasure and the Price Revolution in Spain, 1501-1650*; Hamilton, *War and Prices in Spain, 1651-1800*; Bezanson et al., *Wholesale Prices in Philadelphia, 1784-1861*, vol. 2; Bezanson et al., *Wholesale Prices in Philadelphia, 1852-1896*; Vickers, "A known and staple commoditie", pp. 198-202; Lennart Jörberg, *A History of Prices in Sweden, 1732-1914*, 2 vols. (Lund, Sweden, 1972), pp. 387, 389, 391.

Notes: For the Hamilton Bezanson Index, 1784-1800 = 100. For the Swedish Export Index (Dried cod, Göteborg and Bohus County), 1861-70 = 33.4. For the New England Export Index (Spring merchantable fish, Boston and Salem, Massachusetts, 1751-60 = 23.5.

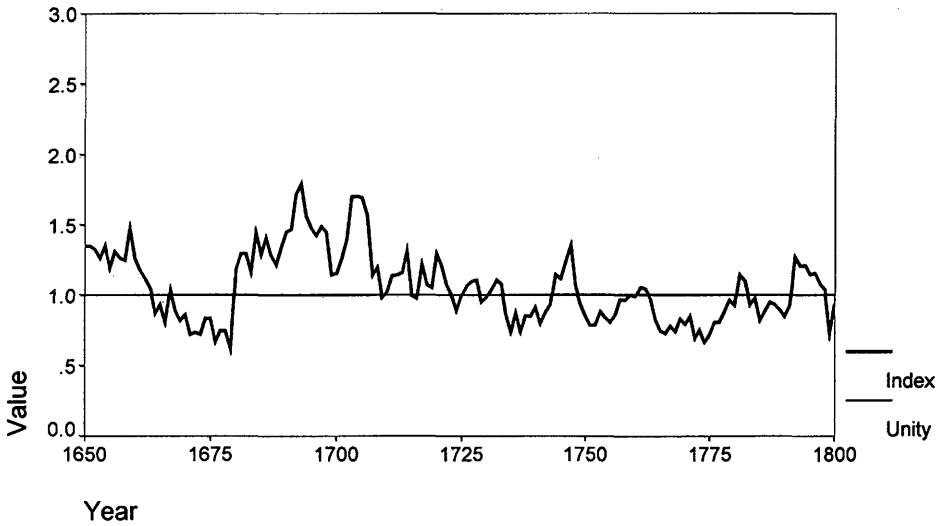
Figure Two: Ratio of Cod Index to General Price in Spain, 1505-1650



Source: Hamilton, *American Treasure and the Price Revolution in Spain, 1501-1650*, pp. 91-6, 128-35, 271, 278, 319, 354-7, 358-69.

Notes: For ratio index, 1571-1581 = 1.0.

Figure Three: Ratio of Cod Index to Agricultural Prices in Spain, 1651-1800

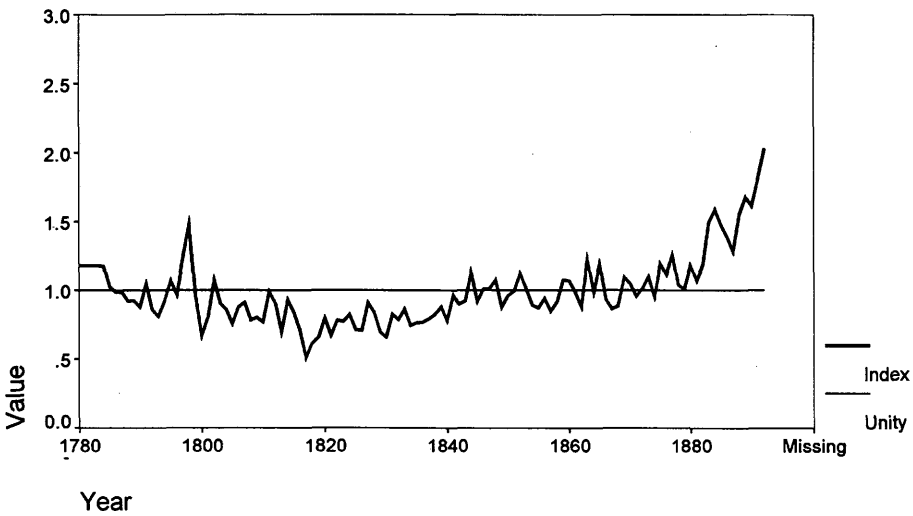


Source: Hamilton, *War and Prices in Spain, 1651-1800*, pp. 34, 53, 77, 234-7, 242-5, 250-3.

Notes: For ratio index, 1671-1687 = 1.0.



Figure Four: Ratio of Cod Index to U.S. Agricultural Prices, 1784-1892



Source: Bezanson et al., *Wholesale Prices in Philadelphia, 1784-1861*, II, p. 45; *Wholesale Prices in Philadelphia, 1852-1896*, p. 62; Warren and Pearson, *Prices*, pp. 25-6.

Notes: For ratio index, 1784-1800 = 1.0.

During the 17th-century depression (defined as extending through much of the 18th century as well) the same general pattern held. Indeed, the ratio of cod prices to Hamilton's index for agricultural commodities for the period, 1651-1800, (see Figure Three) suggests that over the long run cod prices swam even more closely with the tide than they had previously. Only during the wars between England, France and Spain around the turn of the 18th century did they climb noticeably higher, and again the adjustment was only temporary.

For most of the 19th century the cod price index, now based on American data, continued to follow the general price pattern. The data from Philadelphia demonstrates that until 1880 the peaks and troughs in the cod market were mainly reflections of movements within food markets as a whole (see Figure Four). Even the rapid climb between 1775 and 1815 amounted *in relative terms* chiefly to an imitation of a more precocious and dramatic surge in the prices of grains and other foodstuffs. Towards the end of the century, the price of codfish finally began to pull away from that of other foods. Part of this was probably due to the growth in demand as real wages rose in the industrial world and population climbed everywhere; part was rooted in the technological limitations of a fishery still driven primarily by sail; part may have resulted from centuries of heavy fishing and eventual diminishment of the cod's global biomass; and part reflected the relative drop in prices of grains and meat that came with the mechanization of agriculture and the spreading network of rail transport. The climb in codfish prices was real, however, persisting beyond 1892 into the 20th century. It represented a permanent break from the past.<sup>12</sup>

Historians of fisheries and fishing communities can make of this series what they wish. It is important to reemphasize that the short-term ripples in the curve reflect local conditions in Spain and the United States and offer no precise guide to the annual pattern of codfish prices elsewhere. Taken as intended to be an indicator of deeper trends, the index suggests that we should hesitate before offering explanations for the broadest developments within the cod fishery before 1880 that hang on market factors. Until that time the price of fish moved with the general current.

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The author would like to thank Glenn Brown for his assistance.

12 Ryan, *Fish Out of Water*, pp. 256, 262-3. The ratio of Newfoundland salt cod prices to the Canadian export price index climbed by 24% between the periods 1870-1899 and 1900-1949 (excluding war years during the latter). See David Alexander, "Newfoundland's Traditional Economy and Development to 1934", in James Hiller and Peter Neary, eds., *Newfoundland in the Nineteenth and Twentieth Centuries* (Toronto and Buffalo, 1980), p. 24.

Appendix 1  
Cod Price Index, 1505-1892

<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>
1501		1542	34	1583	43	1624	81
1502		1543		1584		1625	82
1503		1544		1585		1626	75
1504		1545		1586	64	1627	85
1505	19	1546		1587	71	1628	62
1506		1547		1588	71	1629	101
1507		1548	34	1589	68	1630	92
1508		1549	30	1590	88	1631	96
1509		1550		1591		1632	93
1510		1551		1592	75	1633	90
1511		1552		1593	75	1634	86
1512		1553		1594		1635	83
1513	13	1554		1595		1636	91
1514		1555	87	1596	62	1637	101
1515	8	1556	97	1597	62	1638	94
1516		1557	97	1598	72	1639	103
1517	7	1558	60	1599		1640	86
1518		1559		1600		1641	82
1519		1560		1601	53	1642	62
1520		1561	62	1602	44	1643	107
1521		1562	31	1603	60	1644	91
1522		1563	37	1604	53	1645	97
1523		1564		1605	50	1646	90
1524		1565	53	1606	67	1647	98
1525		1566	62	1607	58	1648	81
1526		1567	71	1608		1649	80
1527		1568	75	1609	45	1650	82
1528		1569	45	1610		1651	87
1529		1570		1611	56	1652	91
1530	22	1571		1612	60	1653	86
1531		1572	42	1613	56	1654	84
1532	21	1573	56	1614	61	1655	78
1533		1574		1615		1656	79
1534		1575		1616	67	1657	71
1535		1576		1617	67	1658	76
1536		1577		1618	60	1659	94
1537	26	1578	44	1619	66	1660	80
1538		1579		1620	64	1661	75
1539	19	1580	45	1621		1662	70
1540		1581		1622	73	1663	73
1541		1582		1623	82	1664	73

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<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>
1665	78	1709	58	1753	65	1797	160
1666	71	1710	62	1754	68	1798	150
1667	88	1711	71	1755	61	1799	99
1668		1712	65	1756	55	1800	103
1669	77	1713	66	1757	58	1801	93
1670	75	1714	72	1758	61	1802	113
1671	62	1715	57	1759	59	1803	97
1672	62	1716	54	1760	60	1804	97
1673	59	1717	61	1761	59	1805	97
1674	72	1718	57	1762		1806	105
1675	71	1719	56	1763	65	1807	103
1676	64	1720	59	1764	62	1808	70
1677	73	1721	55	1765	61	1809	82
1678	75	1722	54	1766	58	1810	85
1679	67	1723	51	1767	60	1811	110
1680	98	1724	45	1768	56	1812	102
1681	80	1725	50	1769	61	1813	95
1682	70	1726	54	1770	58	1814	134
1683	72	1727	56	1771	64	1815	125
1684	90	1728	55	1772	53	1816	97
1685	75	1729	49	1773	54	1817	74
1686	72	1730	48	1774	49	1818	84
1687	63	1731	51	1775	52	1819	73
1688	62	1732	53	1776	60	1820	64
1689	69	1733	54	1777		1821	58
1690	72	1734	48	1778		1822	68
1691	77	1735	45	1779		1823	66
1692	90	1736	50	1780	74	1824	65
1693	88	1737	45	1781	93	1825	56
1694	82	1738	55	1782	91	1826	55
1695	85	1739	51	1783	71	1827	72
1696	78	1740	57	1784	89	1828	66
1697	77	1741	51	1785	79	1829	55
1698	81	1742	51	1786	81	1830	49
1699	66	1743	52	1787	83	1831	64
1700	65	1744	61	1788	72	1832	62
1701	70	1745	57	1789	69	1833	69
1702	75	1746	60	1790	72	1834	55
1703	86	1747	70	1791	82	1835	65
1704	87	1748	59	1792	76	1836	78
1705	83	1749	50	1793	80	1837	83
1706	86	1750	50	1794	99	1838	84
1707	61	1751	50	1795	139	1839	88
1708	66	1752	50	1796	131	1840	63

<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>	<u>Year</u>	<u>Index</u>
1841	69	1854	83	1867	83	1880	90
1842	57	1855	87	1868	86	1881	90
1843	56	1856	87	1869	100	1882	107
1844	65	1857	83	1870	101	1883	122
1845	61	1858	71	1871	88	1884	117
1846	67	1859	85	1872	87	1885	99
1847	77	1860	81	1873	94	1886	86
1848	74	1861	70	1874	86	1887	88
1849	61	1862	66	1875	99	1888	106
1850	64	1863	83	1876	90	1889	105
1851	66	1864	73	1877	109	1890	110
1852	85	1865	97	1878	76	1891	122
1853	79	1866	91	1879	72	1892	127

Sources: Hamilton, *American Treasure and the Price Revolution in Spain, 1501-1650*; *War and Prices in Spain, 1651-1800*; Anne Bezanson et al., *Wholesale Prices in Philadelphia, 1784-1861*; Bezanson et al., *Wholesale Prices in Philadelphia, 1852-1896*.

## Appendix 2

### Cod Price Series for Different North Atlantic Regions, 1500-1900

The following is a list of several different secondary studies that contain cod price series for different local regions around the North Atlantic.

#### Newfoundland

- Peter Edward Pope, "The South Avalon Planters, 1630-1700: Labour, Demand and Exchange in Seventeenth-Century Newfoundland", Ph.D. dissertation, Memorial University of Newfoundland, 1992, p. 24. Export prices for cod, 1602-1702.
- Shannon Ryan, *Fish Out of Water: The Newfoundland Saltfish Trade, 1814-1914* (St. John's, Nfld., 1986), pp. 261-5. Contains export prices for different grades of fish in Newfoundland, 1801-1914, and market prices for fish in Spain, Portugal, Italy, Brazil and the West Indies, 1856-1900.

#### United States

- Anne Bezanson, Robert D. Gray and Miriam Hussey, *Wholesale Prices in Philadelphia, 1784-1861*, 2 vols. (Philadelphia, Pa., 1936-1937), II, p. 45; Bezanson, *Wholesale Prices in Philadelphia, 1852-1896: a Series of Relative*

- Monthly Prices* (Philadelphia, Pa., 1954), p. 62. Wholesale prices for cod, 1784-1896.
- Ruth Crandall, "Wholesale Commodity Prices in Boston During the Eighteenth Century", *Review of Economic Statistics*, XVI (1934), pp. 125, 182. Export prices for Jamaica codfish (a middling grade), 1750-1795.
  - Harold Innis, *The Cod Fisheries: The History of an International Economy* (Toronto, 1940, rev. ed., 1954), p. 285. Price ranges for American markets, 1797-1833.
  - Daniel Vickers, "'A Knowen and Staple Commodity': Codfish Prices in Essex County, Massachusetts, 1640-1775", Essex Institute, *Historical Collections*, CXXIV (1988), pp. 186-203. Contains export prices for different grades of fish in Massachusetts and import prices for Spain, 1640-1775.

### **Europe**

- Earl J. Hamilton, *American Treasure and the Price Revolution in Spain, 1501-1650* (Cambridge, Mass., 1934), pp. 319, 354-69, 384-9; *War and Prices in Spain, 1651-1800* (Cambridge, Mass., 1947), pp. 234-7, 242-5, 250-3. Import prices for cod in Andalusia, 1501-1550, 1601-1650; Valencia, 1551-1650; New Castile, 1651-1800.
- Lennart Jörberg, *A History of Prices in Sweden, 1732-1914*, 2 vols. (Lund, Sweden, 1972), I, pp. 366-71. Export prices, 1732-1914.