Inflation

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Inflation is a long-term, sustained rise in the general level of prices, as measured by a consumer price index. For early modern European history, the best known of these are the "basket of consumables" indexes devised by Earl Hamilton for Spain (for the period 1501–1650), by Henry Phelps Brown and Sheila Hopkins for southern England (1264–1954), and by Herman van der Wee for the Antwerp-Lier-Brussels region of Brabant (1401–1700). In European economic history, undoubtedly one of the longest and certainly the best-known era of inflation was the so-called price revolution of circa 1515–1650 (See Table 1). If we take the decade 1501–1510 as the base, for which the average price index in all three regions equals 100, and then calculate five-year means of these price indexes, we would find, by the final quinquennium 1646–1650, that the Spanish index had risen to 457.09; the English index to 697.54; and the Brabantine index to 845.07 (i.e., an 8.45-fold increase). Thus, one may observe that, during this 135-year period, inflation was a Europewide phenomenon, but that its intensity and impact varied by region, according to local circumstances. Thereafter, prices fell in most of western Europe, as, by 1656–1660, to an index of 614.45 in Brabant and to 569.56 in England.

Real (Demographic) and Monetary Factors in Inflation: the Equation of Exchange

In the literature of early modern economic history, the predominant though quite misleading explanation for this inflation has been population growth. To be sure, population growth, acting upon relatively fixed (inelastic) land and other natural resources, resulting in diminishing returns and rising marginal costs, may well explain the rise in the relative prices of some specific commodities, such as grain and timber (whose English prices did rise the most over this 130-year period). But demographic factors alone cannot explain a rise in the price level; for inflation is fundamentally though not uniquely monetary in origin and character. Indeed, since England's population in the early 1520s was only

Composite Price Indexes for Brabant, Southern England, and Spain (Castile)

In quinquennial means: 1501–05 to 1646–50

Index: mean of 1501–10 = 100

Years	**Brabant, 1501-10 = 100**	**England, 1501-10 = 100**	**Spain, 1501-10 = 100 Silver based**	**Spain, 1501-10 = 100 Vellon based from 1597***
1501–05	104.43	101.43	92.43	92.43

Years	**Brabant, 1501-10 = 100**	**England, 1501-10 = 100**	**Spain, 1501-10 = 100 Silver based**	**Spain, 1501-10 = 100 Vellon based from 1597***
1506–10	95.57	98.57	107.57	107.57
1511–15	114.80	103.08	98.98	98.98
1516–20	125.09	114.40	104.28	104.28
1521–25	149.79	138.72	122.14	122.14
1526–30	148.61	149.45	131.57	131.57
1531–35	144.85	147.83	132.44	132.44
1536–40	154.54	144.69	138.73	138.73
1541–45	173.44	167.69	147.90	147.90
1546–50	166.01	218.12	165.89	165.89
1551–55	216.87	261.63	176.02	176.02
1556–60	250.34	300.00	194.01	194.01
1561–65	261.34	274.80	223.43	223.43
1566–70	264.97	277.63	227.73	227.73
1571–75	352.49	281.24	246.77	246.77
1576–80	400.18	319.61	247.82	247.82
1581–85	513.98	320.58	269.07	269.07
1586–90	665.77	367.74	274.97	274.97
1591–95	573.01	395.14	284.42	284.42
1596–00	626.80	513.42	320.97	320.98
1601–05	509.74	438.12	349.92	352.43
1606–10	512.71	472.06	330.11	335.31
1611–15	529.56	506.11	316.81	322.68
1616–20	521.93	494.28	328.56	335.64

Years	Brabant, 1501-10 = 100	England, 1501-10 = 100	Spain, 1501-10 = 100 Silver based	Spain, 1501-10 = 100 Vellon based from 1597*
1621–25	679.09	503.14	317.85	344.72
1626–30	765.57	498.72	328.04	410.81
1631–35	756.32	577.86	329.91	395.13
1636–40	805.55	584.26	323.47	409.67
1641–45	821.78	532.37	313.50	432.48
1646–50	845.07	697.54	343.36	457.09

* Vellon was a largely copper-based coinage, with little but diminishing amounts of silver. The high-denomination and basically pure silver and gold coins were not debased. From 1597 this index is based on actual Spanish prices, while the silver-based index is based on Hamilton's estimates of prices based on the silver contents of the entire coinage (i.e., as if the vellon coinage had been excluded).

about 2.25 million, evidently less than half the late-medieval peak of about 5.0 million in 1300, it is inconceivable that any renewed population growth in the following three decades could have produced the ensuing inflation, by which the mean price index more than doubled, to a mean of 218.12, in the quinquennium 1546–1550.

The relationship between monetary and socalled "real factors" (population, investment, technology, trade) can be best expressed by the Equation of Exchange, M.V = P.y, which is a modified version of the famous Fisher Identity. On the righthand side, P stands for the price level, as measured by one of the aforementioned "basket of consumables" indexes; and y represents the real (deflated) value of net national income (NNI) = net national product (NNP = Gross National Product minus depreciation), replacing the unmeasurable T (total transactions) in the original Fisher Identity. On the left-hand side, M is the total stock of available money, which, in this era meant gold and silver coins, supplemented by some credit instruments; and V represents the income velocity of money: the rate at which a unit of money (e.g., the silver penny) circulates in producing aggregate national income y.

A much earlier generation of economists had quite fallaciously believed that both V and T (or y) were fixed, at least in the short run, so that changes in the quantity of money M necessarily produced a proportional change in the price level P. But since all four of these variables are in fact always variable, an increase in M need not produce any inflation, because it could be offset by a fall in V and a corresponding rise in y, that is, by stimulating real economic growth. Indeed, Keynesian

economists believe that, since a high level of V reflects society's efforts to economize on scarce stocks of money, an increase in M should be offset by some fall in V, a theorem that can be historically demonstrated for much of western Europe from the thirteenth to nineteenth centuries, with one significant exception: the price revolution era, when V may have doubled.

For this era, we may conclude that the product of M.V ultimately expanded to a greater extent than did the real growth of national income y (or NNP), so that inflation (rising P) ensued. Population growth (more than doubling, in England, to 5.60 million by 1651) may have played a dual role in this inflation: by inducing diminishing returns and rising marginal costs in the agricultural and extractive industries, thus restricting the rate of economic growth; and by inducing a rise in V (income velocity), through changes in demographic structures (higher dependency ratios) and market structures, with increased urbanization and commercialization.

The Causes of the European Price Revolution, 1515–1650

But if the crude quantity theory of money is historically fallacious, nevertheless changes in money stocks and money instruments do remain paramount in explaining the price revolution. Monetary expansion in fact had begun far earlier, with Portuguese imports of West African gold from the 1460s, but most especially with the central European silver-copper mining boom, also from the 1460s. It may have increased European silver stocks fivefold by the 1540s (to possibly 90,000 kg per year); and a considerable stock of underutilized resources may explain why inflation did not ensue until after 1510. Only from the 1540s did an influx of Spanish American silver become truly important, with imports rising from an annual mean of 16,816 kg in 1541–1545 to a peak of 273,705 kg in 1591–1595 (223,027 kg in 1621–1625). But of equal monetary importance was a veritable financial revolution in negotiable credit, established in the Habsburg Netherlands and England from the 1520s: with effective institutions for legally enforceable transactions in negotiable bills of exchange, bills obligatory (promissory notes), and government annuities (rentes). Indeed in Habsburg Spain the issue of negotiable annuities (juros) (many of which were traded on the Antwerp Bourse) rose from 3.6 million ducats in 1516 to 80.4 million ducats in 1598 (death of Philip II). The impact of such changes in both private and public credit increased both the effective money supply and certainly its velocity of circulation.

One may therefore wonder why the degree of inflation was so much less in Spain than in the Netherlands (Brabant) and England. The principal reason lies in another monetary factor. For coinage debasements were absent in Spain before 1597 but had become quite drastic in sixteenth-century England ("Great Debasement" of 1542–1552) and in the southern Netherlands (less drastic, though more prolonged). Furthermore, credit undoubtedly played a smaller role in the relatively undeveloped Spanish economy.

The Consequences of the European Price Revolution

Only a summary of the consequences of inflation may be suggested here. In general, inflation redistributes income from wage earners and those living on fixed incomes, especially landowners with many hereditary tenures, or leaseholds on long-term contracts, to merchants and industrialists,

in particular. Many in the latter group certainly benefited from a general lag of wages behind prices, even if industrial prices rose much less than did grain prices; and, given the vital importance of capital in the economy, most merchants and industrialists benefited from a fall in real interest costs, all the more so since nominal as well as real interest rates fell over this entire period throughout western Europe. Many peasants or small landholders also gained, insofar as their rents remained fixed, while the prices of the products that they sold in the market continued to rise. On the other hand, some undoubtedly did suffer the consequences of population growth, at least in areas of partible inheritance, which thus meant a significant subdivision of holdings. A balance sheet of winners and losers from inflation would be most difficult to construct for the price revolution era.

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