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This thesis was submitted by its author to the School of English and American Studies, Eötvös Loránd University, in partial fulfilment of the requirements for the degree of Bachelor of Arts. It was found to be among the best theses submitted in 2012, therefore it was decorated with the School's Outstanding Thesis Award. As such it is published in the form it was submitted in **overSEAS 2012** (http://seas3.elte.hu/overseas/2012.html)

EÖTVÖS LORÁND TUDOMÁNYEGYETEM

Bölcsészettudományi Kar

ALAPSZAKOS SZAKDOLGOZAT

Tudor gazdasági problémák
A 16th századi árforradalom

Tudor economic problems
The price revolution of the 16th century

Témavezető:

Dr. Velich Andrea

Egyetemi docens

Készítette:

Szuromi András

Anglisztika alapszak

Angol szakirány

2012

A HKR 346. § ad 76. § (4) c) pontja értelmében:

„…. A szakdolgozathoz csatolni kell egy nyilatkozatot arról, hogy a munka a hallgató saját szellemi terméke....”

NYILATKOZAT

Alulírott (*Név és keresztnév)* ezennel kijelentem és aláírásommal megerősítem, hogy az ELTE
BTK ……..…….……..…….alapképzés/alapszak ……..…
……..…….. szakirányán írt jelen záródolgozatom saját szellemi termékem, melyet korábban más szakon még nem nyújtottam be szakdolgozatként/záródolgozatként és amelybe mások munkáját (könyv, tanulmány, kézirat, internetes forrás, személyes közlés stb.) idézőjel és pontos hivatkozások nélkül nem építettem be.

Budapest, 20__ _____

_____

Aláírás

Abstract:

The aim of my thesis paper is to examine the economic problems of the Tudor era between 1485 and 1603. This will be done from different aspects and I aim to identify the possible causes and effects of these symptoms. These problems, ranging from the deficient trade balance and the overall decreasing wages, are connected chiefly to the 16th century price revolution. In order to give a summary of its progress in England, I will collect the possible causes behind it. These causes may be divided into two groups: the monetary and realist causes[1]. By weighing them against each other and looking for gaps in their supportive arguments, I hope to explain this economic anomaly of Tudor England.

[1] Wordie, J. R. "Deflationary Factors in the Tudor Price Rise." *Past & Present* No. 154 (1997): 61.

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List of abbreviations:

2 per. Mov. Avg.: two period moving average trendline

d: Penny

dwt: pennyweight= 1.5 grams

Expon.: exponential trendline

fineness: fine weight; the amount of silver in 12 troy ounces of alloy

grain: 64.79 milligrams

Lb.: pound=0.453 kg

oz. t: troy ounce= 31.1 grams

s: Shilling

troy.: troy pound= 373.24 grams

Introduction:

The 16th century saw many changes in the economy of England, some of which are now considered to be the roots of the later capitalist development of the country, and diversification of financial life and trade. Among these were the enclosures in the early Tudor period criticized for depopulating large areas in the *A discourse of the common weal of this realm of England* first printed in 1581, which is attributed to John Hales.[2] The conversion of these lands forced their previous residents either to live in cities or to become vagabonds. Another later innovation was the strengthening of overseas trade and the establishment of the trading companies of the merchant adventurers. However, the most important phenomenon was the substantial inflation process of the 16th century, first called the „Price Revolution" by Professor Georg Wiebe, which remains still highly debated. [3]

I intend to collect the potentially responsible factors listed by economic historians, in order to explain the process of the "Price Revolution", which peaked in England in the middle and late periods of the 16th century with a fivefold rise in prices as seen on the graph below.

[4]

[2] Later referred to as "Discourse" only

[3] Wiebe, Georg. *Geschichte der Preisrevolution des XVI. und XVII. Jahrhunderts*. Leipzig: Dunder and Humblot, 1895. in Munro, John. "Economic History Association." 29 April 2012. *American Treasure and the Price Revolution in Spain, 1501-1650, Review Essay by John Munro.* 25 April 2012. <http://eh.net/node/2741>.

[4] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 244

Both the enclosures and the commerce of the century were linked to the problem of inflation as possible causes; more precisely in the case of international trade, it was the influx of precious metals, from other countries. Gold and silver were the basis of the economic strength of all European countries at that time. More gold and silver meant that their purchasing value decreased affecting all citizens of the realm. The research of this phenomenon was pioneered by Earl J. Hamilton in the case of Spanish gold from America. [5] As opposing to this, John Nef's theory put the focus on the Central European silver mining, which could have raised Europe's precious metal stock significantly before the 1530s. [6] Nonetheless, this factor had been frequently criticized by other historians such as Y. S. Brenner or C. E. Challis as the sole cause because of the lower volume of overseas trade than today. [7]

Therefore it is suggested that the causes of the inflation have to be mainly within the borders of the kingdom. On the one hand, these could have been the frequent wars of the Tudors both against outside enemies like the French in the time of Henry VIII in the Italian Wars of 1542–1546 and against internal ones like the insurgents of the Kett's rebellion in 1549 during the reign of Edward VI (1547–1553), who many times fought with the help of foreign mercenaries. As these wars required immense amount of money, both rulers had used coinage debasement to increase their income but bringing long term consequences upon themselves and later kings and queens. [8] Despite these possible „manmade" causes I have to consider the forces of nature affecting the harvests and population growth, as well as, the plague, which would have been factors outside of human control.

[5] Hamilton, Earl J. "Imports of American Gold and Silver Into Spain, 1503-1660." *The Quarterly Journal of Economics* 43.3 (1929): 436-472.

[6] Nef, John. "Silver Production in Central Europe, 1450-1618." *Journal of Political Economy* (1941): 575-91. in Munro, John. "Economic History Association." 29 April 2012. *American Treasure and the Price Revolution in Spain, 1501-1650, Review Essay by John Munro.* 25 April 2012. <http://eh.net/node/2741>.

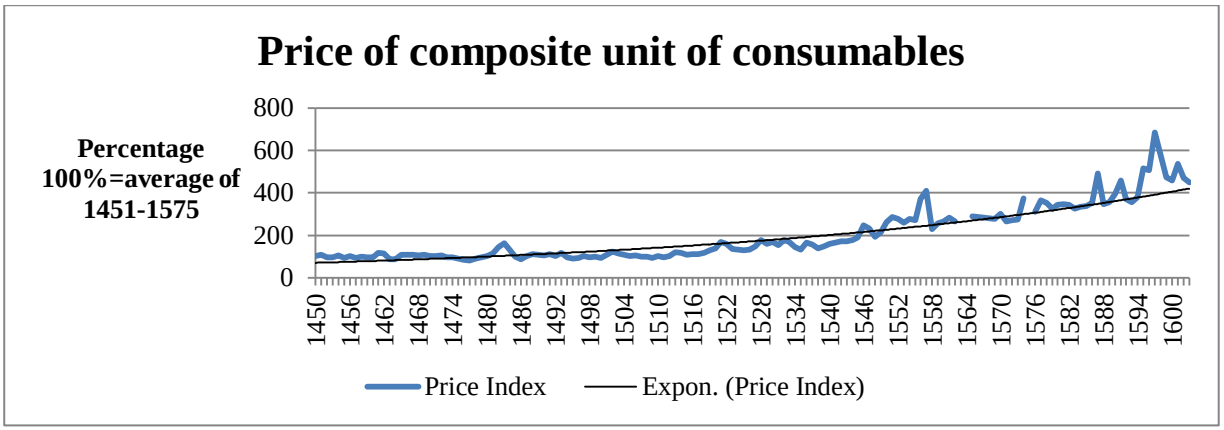
[7] Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 266-284.

[8] Challis, Christopher Edgar . *The Tudor Coinage*. Manchester: Manchester University Press, 1978.

As we have seen, one must consider numerous factors in connection with the economic changes of the Tudor period and one is not able to find a single answer to the questions regarding the complex processes of the age. However, by exploring the probable influences present one may get closer to understanding the reasons behind the Tudor economic problems.

1. The Price Index of Phelps Brown and Hopkins:

One of the most frequently applied methods to illustrate the process of the price revolution is the price index tables made by E. H. Phelps Brown and Sheila V. Hopkins.[9] By price index we mean the representation of the prices of an average basket of goods made up of several different products characteristic of a certain era as everyday necessities, such as food (meat, dairy and wheat) and industrial products (cloth, fuel). During a longer period not all products have the same rate or direction of change in their price, but the differences balance each other. In addition, the prices are predominantly wholesale prices without regard to regional differences or seasonal fluctuations.[10]

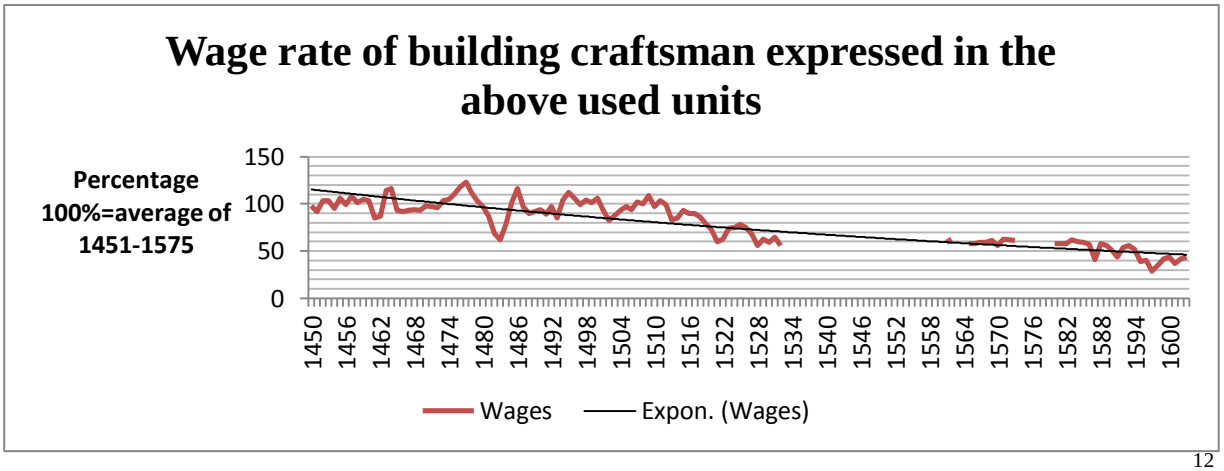


[11]

[9] Hopkins, Sheila V. and E. H. Phelps Brown. "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. Suffolk: Methuen & Co Ltd., 1971. 18-42.

[10] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. 1. Cambridge: Cambridge University Press, 1984. 48.

[11] Hopkins, Sheila V. and E. H. Phelps Brown. "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. Suffolk: Methuen & Co Ltd., 1971. 38-41.



[12]

Phelps Brown and Hopkins compiled a very large amount of data to create the table representing the changes in the average price index and the average wage rate of a builder in south England, from 1260 to 1954. Their data is based heavily on Thorold Roger's and Sir Beveridge's works complemented with their own research into manorial and college accounts.[13]

Phelps Brown's and Hopkins' graph uses the average of prices from the period 1451-1575 as a benchmark due to the relative stability of those years. The inflation started to increase after the first quarter of the century at a steady rate, and continued to rise with two peaks in the 1550s and the 1590s. The worst year was 1597 according to the proportion of the price index and the wage rate. The wage rate shows similar movement throughout the period, however, there are several years with no information. Nonetheless, the tendency is clear; the purchasing power of the builders decreased with the rise in the prices.

[12] Hopkins, Sheila V. and E. H. Phelps Brown. "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. Suffolk: Methuen & Co Ltd., 1971. 38-41.

[13] Hopkins, Sheila V. and E. H. Phelps Brown. "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. Suffolk: Methuen & Co Ltd., 1971. 27.; works mentioned: Rogers, James Edwin Thorold and Arthur George Liddon Rogers. *A history of agriculture and prices in England from 1259 to 1793*. Oxford : Clarendon Press, 1866. and Beveridge, Sir William. *Prices in England from the Twelfth to the Nineteenth Century*. London: Longmans, Green and Co., 1939.

The wage index does not include the perks and non-monetary payments to builders.[14] Nevertheless, the building industry employed the most people in the 16th century after agriculture; therefore the wage rate index can be treated as representative of the population. From the comparison of both values throughout the years we can infer the change in the living standard of the age.

Despite the disadvantages of this indexing method, the table is a reliable source of information on longer periods and this is acknowledged by most researchers of the topic.

2. Monetarist Interpretations of the Price revolution:

Researchers of the price revolution mainly belong to two groups: the monetarists and the realists. The former circle emphasizes the importance of the quantity and velocity of the circulating medium; the latter focuses on other possible causes, such as population changes.[15] In the late 19th and early 20th century most historians such as Hamilton and Wiebe attributed the price rise almost purely to monetarist causes, a conclusion that is easy to draw if we compare the American gold imported into Spain with the rise of prices in England. One of Hamilton's main pieces of evidence was the correlation between Spanish gold imports and the English price index changes. These causes had been already mentioned by the Doctor in the latter edition of the *A Discourse of the Common Weal of this Realm of England* printed in 1581, which was probably influenced by the earlier works of Jean Bodin in 1568.[16]

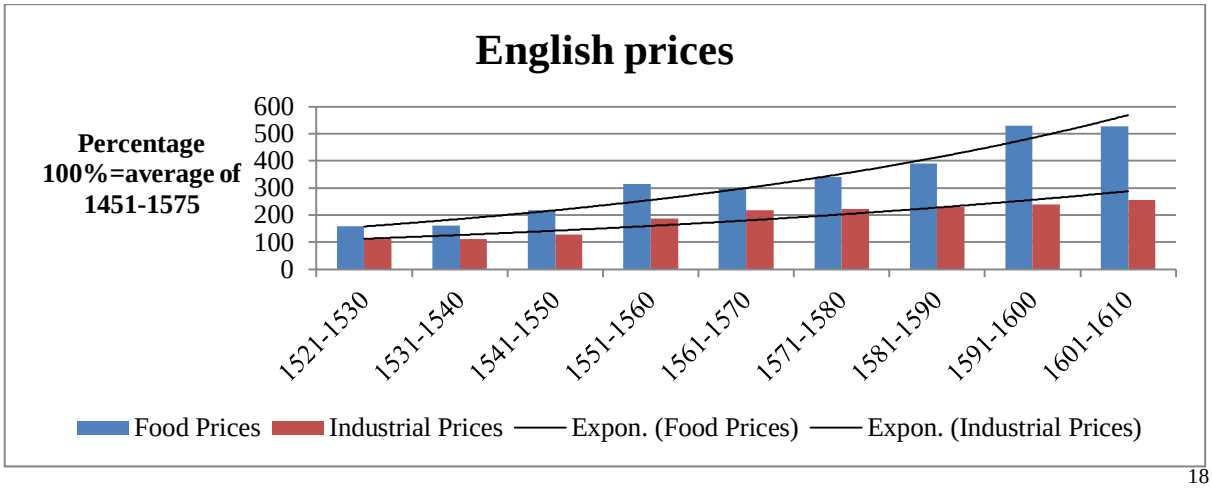
„Another reason I conceiue in this matter, to be the great store & plenty of treasure, which is walking in these partes of the world, far more in these our dayes, then euer our

[14] Hopkins, Sheila V. and E. H. Phelps Brown. "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. Suffolk: Methuen & Co Ltd., 1971. 29.

[15] Ramsey H., Peter. *The Price Revolution in Sixteenth-Century England*. London: Methuen & Co. Ltd., 1971. VIII.

[16] Arestis, Philipp and Peter Howells. "The 1520-1640 "Great Inflation": An Early Case of Controversy on the Nature of Money." *Journal of Post Keynesian Economics* 24.2 (2001-2002): 188.

forefathers haue sene in times past. Who doth not vnderstand of the infinite sums of gold & siluer, whych are gathered from the Indies & other countries(…)," [17]



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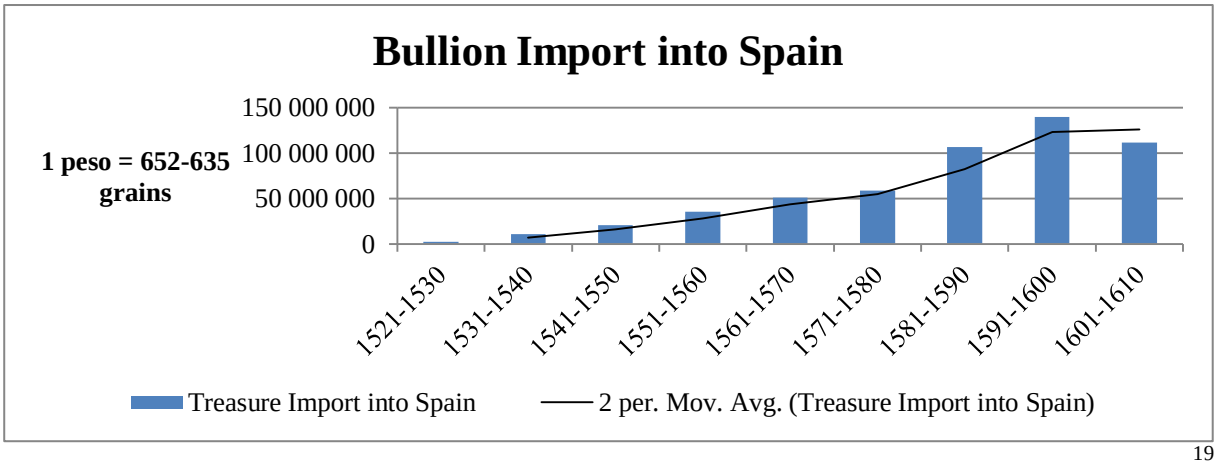

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Comparing both charts one can see that the English prices started their real climb after 1550s, the same time when the Spanish imports of precious metals first surged significantly. Additionally, the late 16th century peak of the price revolution is in line with the Spanish silver imports. This immense profilation of available silver and gold translates to a growth from 9,190,000 kg of silver and 815,000 kg of gold in 1544 to around 21,400,000 kg of silver

[17] Lamond, Elizabeth, ed. *A Discourse of the Common Weal of this Realm of England First printed in 1581 and commonly attributed to IV.S.* Cambridge: Cambridge University Press, 1929. 187.

[18] Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 267.

[19] Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 270.

and 1,192,000 kg of gold in 1600 according to Wiebe.[20] In theory, a considerable part of this amount must have been paid for export products of England directly or through France, the Low Countries and the Italian Peninsula where the Spanish military activity was high for quite a long time. The soldiers fighting there certainly spent part of their pay in the conquered lands. Also, the reliance of the Spanish sovereign on foreign banking families, such as the Haros and Vaglios in Antwerp, for loans helped the spread of the American treasure in Europe. [21]

The monetarist school uses the exchange of equation $P \cdot Q = M \cdot V$ invented by Irving Fisher in 1911 to describe the financial balance of a country. [22] In the equation, P denotes the general price level, Q the total value of transacted goods and services in one year, M the quantity of available money; and V the velocity of money circulation.[23] The members of the equation on each side are in inverse ratio to one another, therefore, when one decreases, the other must increase to keep up the balance. In other words, if the total amount of available money (M) is increased the general Price level will increase as well, in case of relatively unchanged velocity of circulation (V) and number of transacted services and goods (Q) assumed for the age.

Nevertheless, foreign money may help in case of an underemployed economy. However, when the maximum number of people that can be employed is reached, and the limit of production capacity is reached; additional currency in the system will increase prices. Due to the low technological level of the era this maximum point was quickly reached. The

[20] Wiebe, Georg. *Geschichte der Preisrevolution des XVI. und XVII. Jahrhunderts*. Leipzig: Dunder and Humblot, 1895. 281. in Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 266.

[21] Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 269.

[22] Fisher, Irving. *The Purchasing Power of Money*. New York: The Macmillan Co. , 1911.

[23] Brenner, Y. S. "The Inflation of Prices in Early Sixteenth Century England." *The Economic History Review, New Series* 14.2 (1961): 225.

evidence for this is the falling wage rate during the century, which is observable on the Phelps and Hopkins graph.[24]

Dennis Flynn employs a different interpretation of the international quantity theory of money which may explain inflation without bullion inflow from another country with deflating prices.[25] In his paper, he speculates that a country's real income and demand for money is determined by real factors (such as population, trade, industry etc.). Only the internal money supply can be controlled by the authorities, who decide when to release more money into the market. The internal price level is regulated by internal demand and international prices as well. Also, the internal money stock, which is not the same as the internal money supply, is controlled by the money supply and demand. Internal money stock here refers to any available medium used for transactions, not only coins. When demand exceeds supply, coins must be supplemented with other financial tools such as credit and bills.[26]

The equation $(X_g-M_g) + (X_c-M_c) + (X_m-M_m)=0$ further describes this theory regarding a certain country's balance of payments. X denotes export, M refers to imports. Lowercase g, c and m refer to goods capital and money respectively. Naturally, if internal prices are lower than the external prices, the rate of export will be boosted, and it will become greater than the rate of import, thus money flows into the country. However, before that, increased internal money demand expands supply, and therefore the price level will increase, because there will be a greater money stock in the system. Consequently, the higher domestic prices will make the gap between the exports and imports narrower and narrower. The whole process could be

[24] Chabert, Alexander E. "More about the Sixteenth-Century Price Revolution." Burke, Peter. *Economy and society in early modern Europe, Essays from "Annales"*. London: Routledge and Kegan Paul, 1972. 51.

[25] Fisher, Douglas. "The Price Revolution: A Monetary Interpretation." *The Journal of Economic History* 49.4 (1989): 888.

[26] Flynn, Dennis O. "A New Perspective on the Spanish Price Revolution: The Monetary Approach to the Balance of Payments." *Explorations in Economic History* (1978): 388-40. in Fisher, Douglas. "The Price Revolution: A Monetary Interpretation." *The Journal of Economic History* 49.4 (1989): 889.

summarized with Fisher's reference to McCloskey and Zecher who stated that the risk of arbitrage on its own is enough to level out international price differences. [27]

2.1 The Debasements and their Possible Effect on the Price Revolution

Christopher Challis approached the problem of the inflation from another angle. In his work he created one of the best estimates of English coinage of the period with focus on the several debasements affecting the country's economy and using this knowledge he calculated the money stock in use.[28]

The word debasement may mean the decrease of the coins total weight or only their base metal content reducing their fineness or the introduction of new face values for coins of lower worth. The extracted gold or silver is the crown's profit after the reminting. This practice was very often used by the rulers of the age, as it usually induced less public discontent than the introduction of a new tax. As countries relied for their economic conduct almost exclusively on coinage whose base metal content backed their value by itself, these measures could cause far-reaching effects for the afflicted nation. If the precious metal content of the coin was too low or too many new were minted, the nation's financial capabilities suffered seriously, as purchasing value of the money decreased. This was recognized in the "Discourse", as early as the 1550s, the alleged time of its writing:

"[…] cheife cause of all this dearth of thinges, and come of the of the manifest imporishment of this Realme, […] is the basinge or rather corruptinge of oure coine and treasure"[29]

[27] The Price Revolution: A Monetary Interpretation Douglas Fisher: The Journal of Economic History, Vol. 49, No. 4 (Dec., 1989), pp. 889

[28] Challis, Christopher Edgar . *The Tudor Coinage*. Manchester: Manchester University Press, 1978.

[29] Lamond, Elizabeth, ed. *A Discourse of the Common Weal of this Realm of England First printed in 1581 and commonly attributed to IV.S.* Cambridge: Cambridge University Press, 1929. 69.

The most important of the English debasements were in 1526, from 1542 until 1547 under Henry VIII, from 1547 continuing till 1551 under Edward VI and in 1561 under the reign of Elizabeth I. The first one in 1526 is considered the least detrimental, as its official aim was to balance the value of the English coins with the continental coins, which were worth less. The debasement was initiated, on the basis that better domestic coins will always induce a bimetallic flow through international trade and precious metals will start to leave the country. This process was named Gresham's Law or the "bad money drives good out" introduced by Thomas Gresham, a financial expert of the second half of the 16th century. People cherished their higher quality coins; therefore would only spend their coins with low metal content, which inevitably lead to the loss of trust in international trade and credit transactions. [30] As the Doctor put in the Discourse: "[…] *raked all the old coyne for the moste parte in this realme, and founde the means to haue it caried ouer […]".*[31]

In 1526, the weight of the penny was reduced to 10,66 grams and the face value of the angel coins (the coin bearing the image of the Archangel St. Michael) was increased to 7s. 6d.[32] After this moment, in Challis's view the coinage face value and real value started to differ ever increasingly with subsequent debasements. He estimated a total money supply of £1,67 million for this year and around £1,5 million for the years of Henry VII's rule. However, the latter should be treated with caution due to the lack of data.[33]

The next period of debasement started in 1542 and ended with Edward VI's recoinage of 1551. The financial measures of these years struck one of the most serious blows to England's economy aside from the wars. In May 1542, the crown started to raise the mint price of silver to 4s./oz. t. and the price of gold to 48s/oz. t., in order to attract money for

[30] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 225.
[31] Lamond, Elizabeth, ed. *A Discourse of the Common Weal of this Realm of England First printed in 1581 and commonly attributed to IV.S.* Cambridge: Cambridge University Press, 1929. 32.
[32] Challis, Christopher Edgar. "The Debasement of the Coinage, 1542-1551." *The Economic History Review, New Series* 20.3 (1967): 443.
[33] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 245.

recoinage. Since the new prices would have been suspicious to the merchants, when compared to the lower market prices (45s/oz. t. for gold; 3s 8,5d./oz. t. for silver). Therefore, initially they were kept secret and the process was fuelled by royal money, yielding around a total of £14,830 of profit from reducing the gold standard to 23 carat from 23 and 3,5 grains and silver standard from 10 oz. t. to around 9oz. t.[34]

However, this was only the first step in the following even harsher reductions of the fineness of coins carried out by the four, later eight mints of the nation. On the 16th of May, the crown already publicly announced the new rates for silver and gold in new coins, as royal supply could not keep the mint working on its own. Gradually, the official mint price, in other words the face value, was raised from 4s 1d/oz. t. to 10s/oz. t. for the silver between 1544 and 1551. In the case of gold the mint price was increased 48s/oz. t. to 60s/oz. t. between 1544 and 1549.[35]

This means that the merchants in 1545 received 56s for every lb. of silver they brought to coin instead of the 52s earlier with the new mint price of 4s 8d/oz. t. Nevertheless, because of the reduced fineness of 7oz. t./troy., one shilling worth of coin contained only 60 grams of fine silver instead of the old 90 grams. The coins he received in value of 56s were worth only 32s 8d in real value. Naturally, people realized the fraud and the incoming metal supply dwindled with each following debasement. Therefore, in April 1548 a proclamation was issued to bolster the incoming money stock. The proclamation stated that testons minted after 1544 were not legal from the December of the same year on.[36]

[...] his highness' most gracious clemency, tendering his subjects' and other's interests, which by lawful means do possess the said testons as their proper goods, and for

[34] Challis, Christopher Edgar. "The Debasement of the Coinage, 1542-1551." *The Economic History Review, New Series* 20.3 (1967): 444.
[35] Challis, Christopher Edgar. "The Debasement of the Coinage, 1542-1551." *The Economic History Review, New Series* 20.3 (1967): 446.
[36] Challis, Christopher Edgar. "The Debasement of the Coinage, 1542-1551." *The Economic History Review, New Series* 20.3 (1967): 447.

avoiding of the loss which otherwise they should sustain hereby, is pleased [. . .] that every person or persons so having and possessing the said testons, being of his highness' just standard, shall and may bring or send the same to the officers of any of his majesty's mints, where in exchange shall be delivered unto him [...] the just value and recompense thereof,[37] The goal of the measure was to collect the coins still containing silver of 9 oz. t. fineness and remint them to coin with 4 oz. t. fineness.

The total profit estimated from all debasement, from 1542 to 1551, based on the accounts of the High treasures of the mints, could be as high as £1,285,000. This amount was higher than the taxes collected in the same period which amounted to only £976,000 without benevolences, forced loans and first fruits of the clergy. [38] The total amount of coins produced in between 1544-1551 was around £3,970,145 of which £1,298,593 was in gold and £2,671,552 in silver, nevertheless the real numbers should be higher as some of the data is still missing and no data can determine the exact rate of counterfeiting and outflow of coin to foreign countries. Also, most of the coins were recalled with taxation and thus reminted. Challis estimates together with the missing years of 1542-1544 £4,3 million produced at the middle of the century. Notwithstanding, production is not the same as the circulating medium, the effective amount of money used in the economy. With recalled money in mind Challis estimates a circulating medium of £2,405,000 in silver and £870,000 in gold in 1551 based on production data.[39]

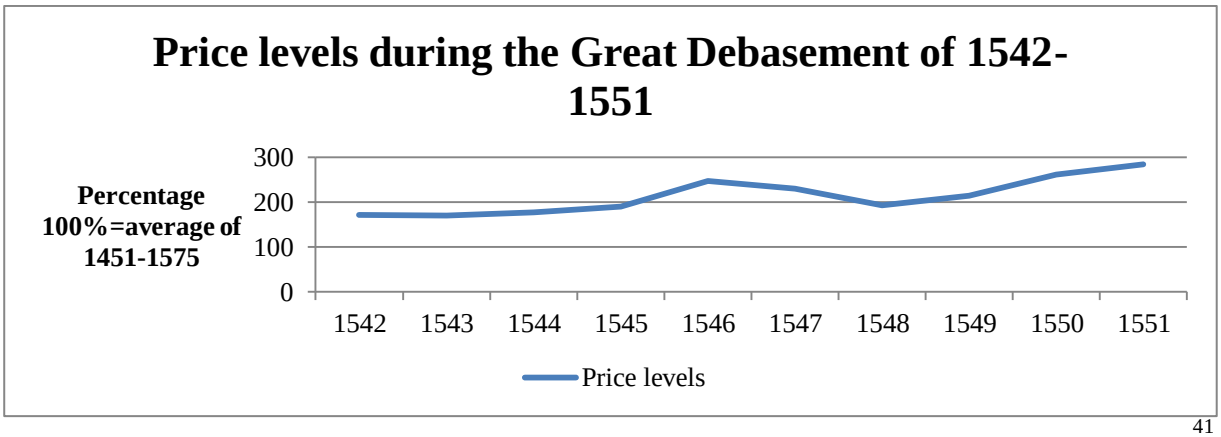
Considering the amount of gold minted, it might have nearly disappeared from circulation after 1551, according to the rolls of the exchequer. Additionally, William Thomas,

[37] Hughes, P. L. and J. F. Larkin. *Tudor Royal Proclamations*. New Haven: Yale University Press, 1964. no. 302. in Challis, Christopher Edgar. "The Debasement of the Coinage, 1542-1551." *The Economic History Review, New Series* 20.3 (1967): 447.

[38] Challis, Christopher Edgar. "The Debasement of the Coinage, 1542-1551." *The Economic History Review, New Series* 20.3 (1967): 447.

[39] Challis, Christopher Edgar. "The Circulating Medium and the Movement of Prices in Mid-Tudor England." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. London: Methuen & Co. Ltd., 1971. 119-124.

a clerk working for the Privy Council, warned that available gold in the money stock decreased. This was probably caused by a bimetallic flow because of the undervalued gold in relation to foreign currencies. In 1546, one part gold was worth 5 parts of silver in England; however, in France one part gold paid around ten times more. In Spain and the Low Countries similar ratios were present. Direct exportation without a licence was forbidden, but trade and smuggling surely contributed to the process. All adjustment considered, Challis' final estimation for the era's circulating medium is £2,5 million of which only £100,000 is in gold. This was nearly twice as much as before the Great Debasement.[40]



[41]

On the graph of Phelps Brown and Hopkins depicting the period of the debasement one can see a general upward trend with one drop in 1548. The highest point is at 1551 at the peak of the debasement when the average coin quality was at the lowest. Apart from the drop in 1546-48, which could be a sign of a particularly good harvest, the data supports the theory that debasement could affect price levels significantly, as the supply of circulating medium rose by 200%, in parallel with the price level's rise.

The financial turbulence in the middle of the century was tamed in 1561, during the reign of Elizabeth I (1558-1603). The reform was nearly overdue, as there were cases of

[40] Challis, Christopher Edgar. "The Circulating Medium and the Movement of Prices in Mid-Tudor England." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. London: Methuen & Co. Ltd., 1971. 129-133.

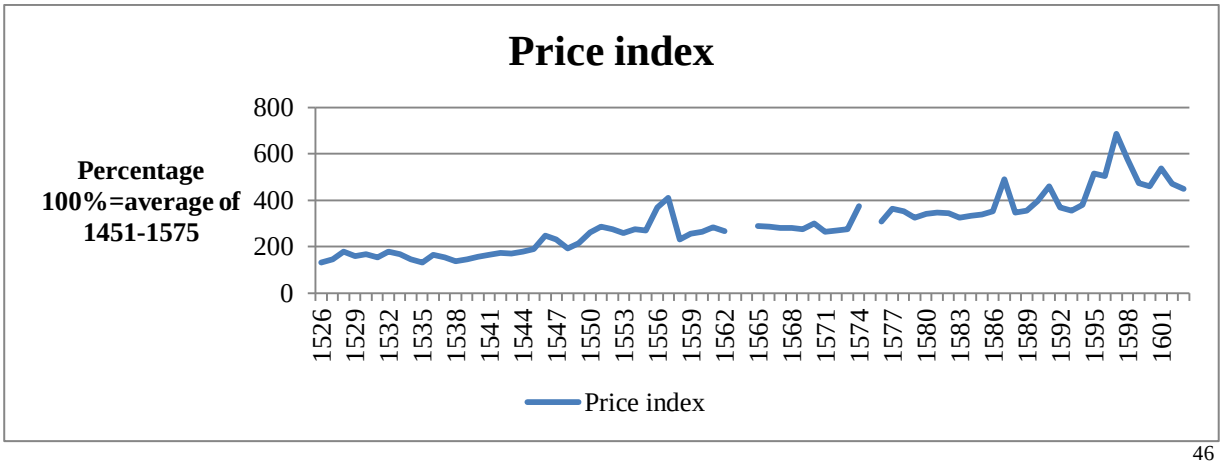
[41] Hopkins, Sheila V. and E. H. Phelps Brown. "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. Suffolk: Methuen & Co Ltd., 1971. 38-41.

unrest in London some years earlier because of the low quality of coins.[42] The several different coins in use were recalled and reminted with a single standard to restore order and credibility of the English coin. The new silver standard was 11 oz. 2 dwt. of pure silver and 18 dwt. alloy in one pound troy (one pound troy is 373.24g). Effectively one pound troy of silver was coined into 3 lbs. of money. Old coins with lower fineness were revalued by a royal proclamation: a penny to 3 farthings, the half groat (2d) to a penny and a half. Two types of testons (6d) were in circulation one with a higher fineness. This was revalued to 4 penny and a half, the lower quality testons to only 2 penny and a half.

Despite the overall decrease of face value the crown could make a profit by setting the silver standard lower than in some better coins still in circulation. Approximately 77,448lbs of testons with 11,25 oz. t. fineness silver content were still in use, which were the source of the crown's profit. These together with coins of significantly lower quality were recoined into 121,619 troy. 9oz t. silver which was made into £364,859 of coin.[43]

The total net profit of Elizabeth I was around £45,000 which is very low compared to the whole income of the crown, however still a significant amount.[44] Based on the calculations of Challis the money supply stood at only £1.45 million after the revaluation and recoinage. This means a reduction of around £1 million or 42%.[45]

[42] Challis, Christopher Edgar and C. J. Harrison. "A Contemporary Estimate of the Production of Silver and Gold Coinage in England, 1542-1556." *The English Historical Review* 88.349 (1973): 824.
[43] Read, Conyers. "Profits on the Recoinage of 1560-1." *The Economic History Review* 6.2 (1936): 186-188.
[44] Read, Conyers. "Profits on the Recoinage of 1560-1." *The Economic History Review* 6.2 (1936): 191.
[45] Challis, Christopher Edgar . *The Tudor Coinage*. Manchester: Manchester University Press, 1978. 241-6.



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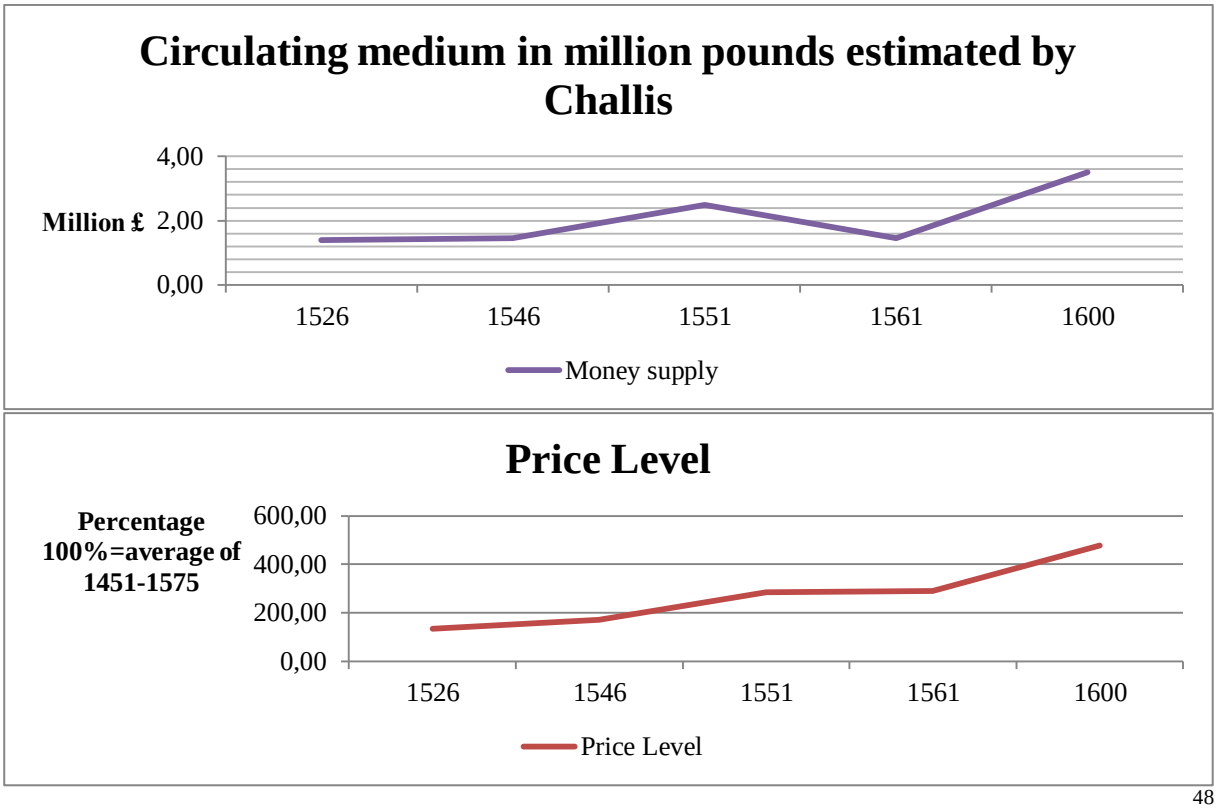
On the graph edited from Phelps Brown's and Hopkins' original unfortunately we cannot see data directly from the recoinage years, but the following years were marked by relative stability compared to the later upsurge of the late 16th century. Again the prices fell accordingly to the decrease in the money supply, although not in the same proportion.

For the period after the Elizabethan recoinage, at the end of the century, Challis calculated a far larger money supply of at least £3,5 million which is a 240% increase compared to the 1561 data. This roughly corresponds to the price index in the graph, however, one cannot easily judge the effects of the increase of available money stock, as both the price and the money supply data are not precise and they do not refer to an exact point in time. They should be interpreted rather as general characteristics of a longer period. When the data is read this way, a clear correlation can be identified between the rate of inflation and the increase in money supply in circulation can be seen on the following graphs focusing on the years mentioned earlier. [47]

[46] Hopkins, Sheila V. and E. H. Phelps Brown. "Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. Suffolk: Methuen & Co Ltd., 1971. 38-41.

[47] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 244.



[48]

2.2 Problems of the monetary interpretation of the price revolution regarding the trade balance

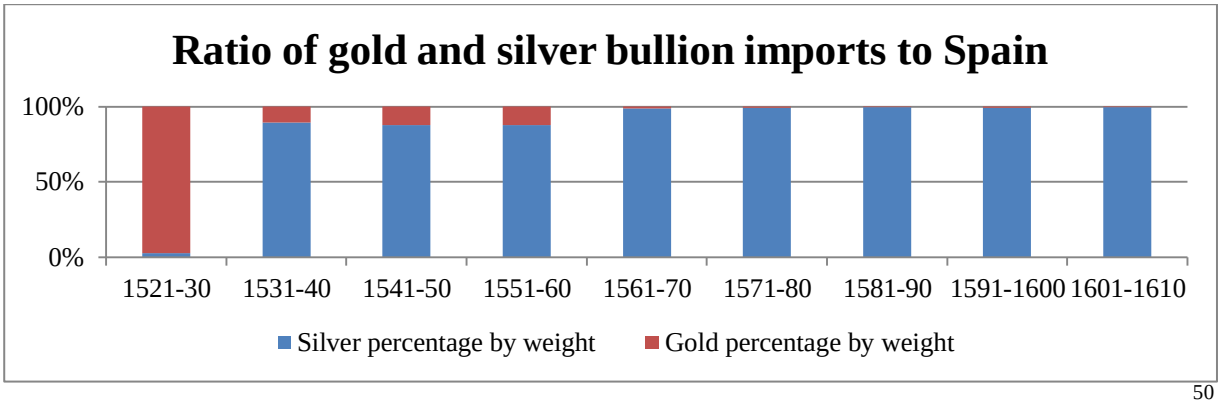
Despite the apparent plausibility of the price revolution's explanation by monetary reasons alone, several counterarguments must be introduced to arrive at a clearer view of the topic.

Firstly, the immense amount of American treasure imported to Spain must have found a way to England to exert influence on the prices there. This was far less likely before 1545, the year of the discovery of the famous Potosi silver mines, which were the source of the majority of all silver imported from the colonies.[49] On the graph below adapted from Hamilton we can see that already before the Great Debasement of the 1540s and 1550s predominantly silver was imported. If a huge amount of silver really did flow into England

[48] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 244.

[49] Fisher, David Hackett. *The Great Wave, Price revolutions and the rhythm of history*. New York: Oxford University Press, 1996. 81.

before this point, the proportion of gold currency must have decreased earlier than stated by Challis.



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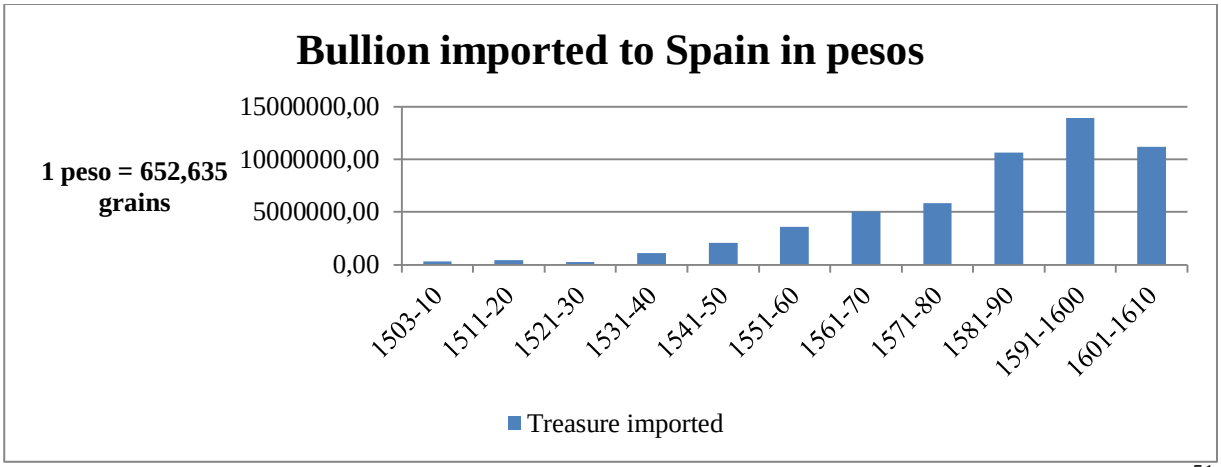

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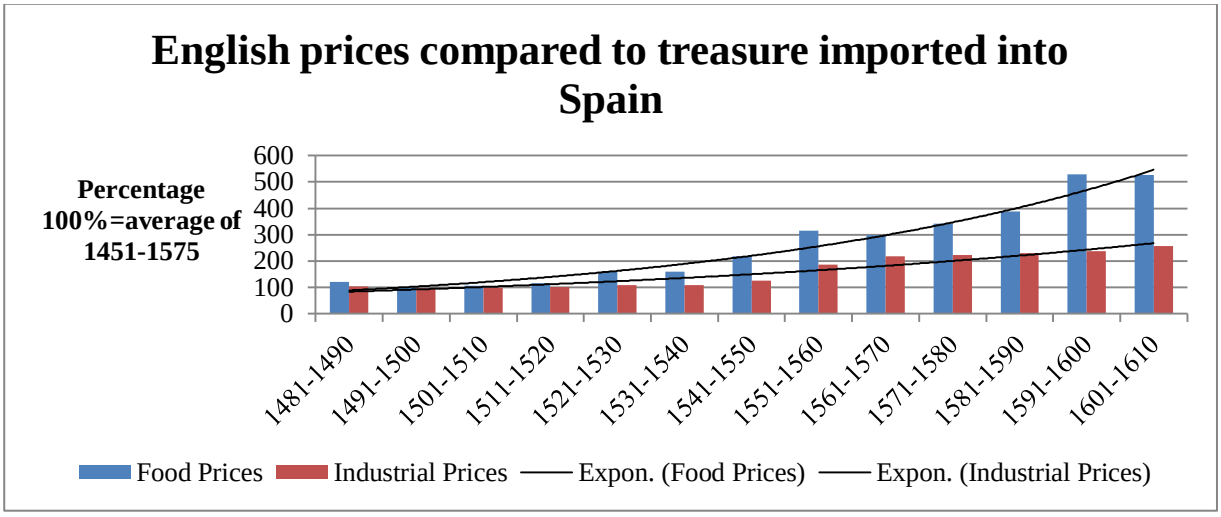

[52]

[50] Hamilton, Earl J. "Imports of American Gold and Silver Into Spain, 1503-1660." *The Quarterly Journal of Economics* 43.3 (1929): 468.

[51] Hamilton, Earl J. "Imports of American Gold and Silver Into Spain, 1503-1660." *The Quarterly Journal of Economics* 43.3 (1929): 464.

There are clear signs of inflation on the extended Phelps Brown and Hopkins graph before this event, so the silver alone cannot answer for the inflation and it could be a major factor only in the later periods of the century.[53]

Secondly, England must have had a positive trade balance to gain advantage of Spain's newfound riches, on the basis, that a positive trade balance was the most likely way to increase England's money supply. [54] Although most of England's population was earning a living by agriculture or some activity directly connected to it; textile industry was the main driving force in international trade. [55] Already in Henry VII's time, cloth export replaced the export of raw wool and by 1538-44 92% of the trade consisted of cloth. The main source of the unfinished or undyed cloth export was in the West Country: Gloucestershire, Somerset and Wiltshire. The target of trade was primarily the Low Countries, the Holy Roman Empire and later the states of Italian Peninsula. England's foreign trade activity was extremely lopsided towards textile products, the tin and pewter of Devon and Cornwall was completely overshadowed by the amount of cloth exported. [56]

70% of all trade was conducted in London, with Southampton as the second most important port in Henry VII's time. Later in the 1540s London carried 90% of all trade activity.[57] The primary trade hub of the age was Antwerp, outperforming any other city in volume of business. The key to the city's success was its location: connection to the sea, close proximity to England and to the Baltic countries and virtually forming the endpoint of the overland trade route to the Holy Roman Empire and to the cities of the Italian Peninsula.

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[52] Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 267.

[53] Fisher, David Hackett. The Great Wave, Price revolutions and the rhythm of history. New York: Oxford University Press, 1996. 81.

[54] Fisher, David Hackett. *The Great Wave, Price revolutions and the rhythm of history*. New York: Oxford University Press, 1996. 117.

[55] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 229.

[56] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 48-52.

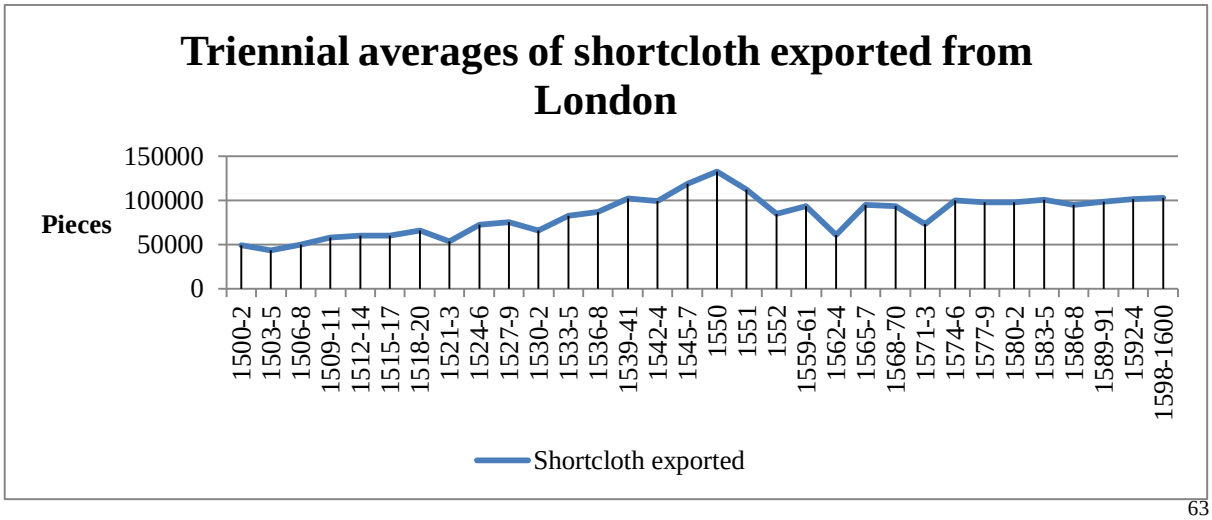
[57] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 112.

The contemporary Flemish proverb expressed the English reliance on Antwerp in a very rude way:

"If English men's fathers were hanged at Andwarpes gates, their children to come into that towne would creepe betwixt their legges".[58]

English cloth export grew gradually peaking in the late 1540s. In 1500, 2/3 of the total value of exports was from cloth trade.[59] In Henry VIII's reign, between 1542-44 an average of 99,000 pieces of short cloth was exported from London; in the 1545-47 period, this grew in 1550 to 133000 pieces increasing the proportion of cloth in trade to 90%. The cheap English coin was the main motivating force behind the process; the exchange rate was as low as 13s 4d in Flemish currency for £1 compared to the 32s of 1526.[60] Later, as the value of money was readjusted in 1551, the price of cloth rose and the market became saturated as well.[61] Apart from the general downward trend and the later stagnation of cloth exports there are two significant drops on the graph below in the periods of 1563-4 and 1569-73. In the former the Netherlands denied export opportunities to Elizabeth I (1558-1603), because she did not support the rebels against the Spanish, in the latter case the Spanish obstructed trade because of the deteriorating Anglo-Spanish relationship.[62]

[58] Fisher, F. J. "Commercial Trends and Policy in Sixteenth-Century England." *The Economic History Review* 10.2 (1940): 97.
[59] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 104.
[60] Fisher, F. J. "Commercial Trends and Policy in Sixteenth-Century England." *The Economic History Review* 10.2 (1940): 99.
[61] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 68.
[62] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 115.



[63]

In addition, the continental nations were afflicted by inflation as well, thus they had less income for foreign wares in parallel, besides, the fashion shifted to a preference of lighter fabrics. [64] Another heavy blow to trade was the intensifying Spanish campaign for the pacification of the Dutch and a sweating sickness epidemic in the middle of the century. The final end to Antwerp's leading role in the North European trade was when the city was sacked by Spanish mercenaries in 1576 and later when the Dutch rebels blockaded the river Scheldt, effectively denying sea access.[65]

The government and the society of merchants responded to the cloth crisis with restrictive measures to limit the number of people having access to the market. In 1552, the rights of the Hanseatic League, who were still a major player in trade, as they had a virtual monopoly on the Baltic trade, were curtailed and they were compensated only in 1560 to a lesser extent. In 1555 the entry fee of the Merchant adventurers was increased from £10 to £100 to limit the competition.[66]

[63] Fisher, F. J. "Commercial Trends and Policy in Sixteenth-Century England." *The Economic History Review* 10.2 (1940): 96.
[64] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 15.
[65] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 57.
[66] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 80.

The many restrictive measures left a mark on England's foreign evaluation; a Venetian ambassador wrote about these actions:

"The natives here, have laid a plot to ruin the trade of all foreign merchant"

Despite all the efforts the cloth exports were 30% lower in the beginning of Elizabeth I's reign. The lack of technological innovations prohibited textile manufacturers to reduce their prices; therefore they could only increase their product range.[67] This innovation was heralded by the protestant refugees from France and Low Countries in the 1560s, who started to manufacture finer cloths called "says".[68] The highly positive trade balance was a thing of the past after the middle of the century as imports grew more than exports.[69]

In the second half of the century, several attempts were made to find new markets for English wares, but none were successful enough to bring back the heyday of cloth exports in the late 1540s. Already in 1551 Edward VI signed a treaty with Morocco to import sugar in exchange for cloth. In 1555, the Muscovy Company was established by Willoughby and Chancellor. However, Russia and Morocco could only take up 1% and 2% respectively of English cloth production. These companies were followed by the Turkish and the Levant Company in 1580 and 1593 whose main activity was to import luxury products.

Despite the numerous trading companies founded, such as the Eastland Company in 1579 or the Barbary Company in 1585; these only employed a handful of merchants, who jealously defended their monopoly. Their profits were concentrated on imports, and therefore they were even willing to export at loss to continue their business. Both of these factors highly restricted the effectiveness of export. [70]

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[67] Fisher, F. J. "Commercial Trends and Policy in Sixteenth-Century England." *The Economic History Review* 10.2 (1940): 103-109.

[68] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 17.

[69] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 35.

[70] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 127-129.

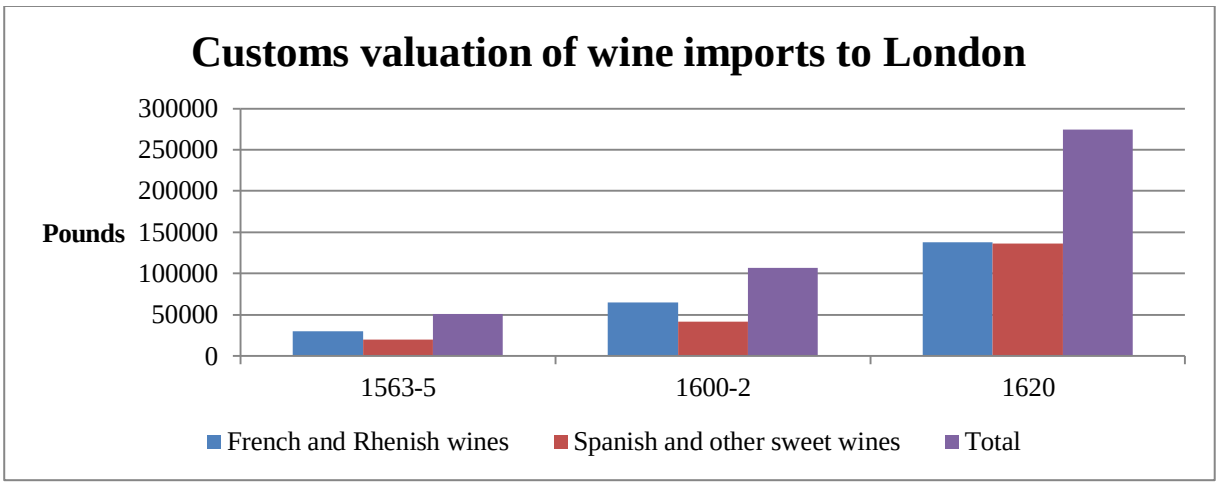
Sir William Cecil had already recognized the dangers of the increasing imports in 1564:

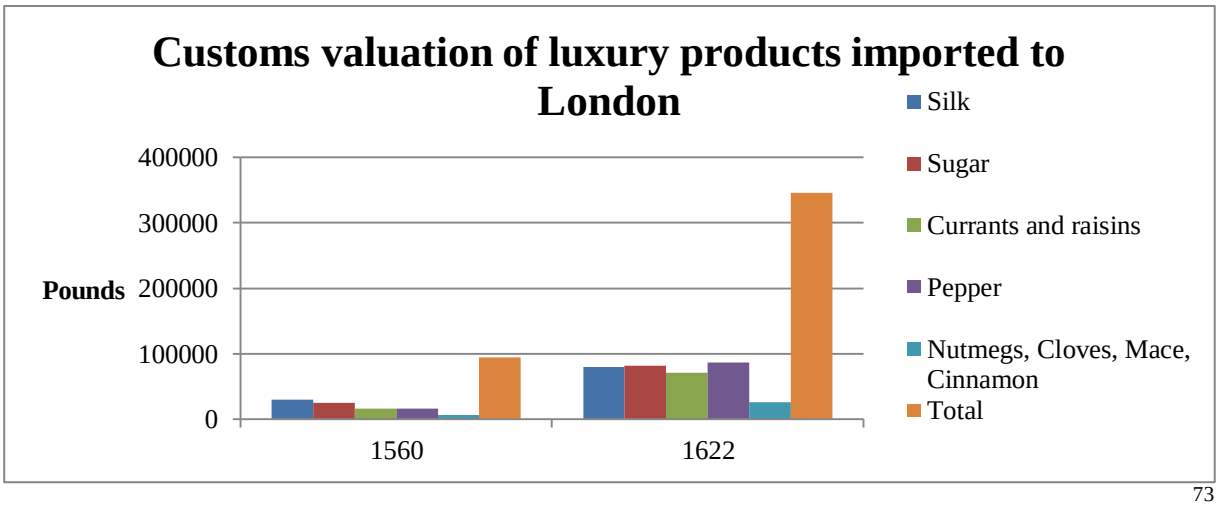
"this realm is over-burdened with unnecessary foregin wares, and if the trade therof should continue but a while, a great part of the treasure of the moneyof the realm would be carried thither to asnswer for such unnecessary trifles, considering it is to be seen that very lately the commodities carried out of the realm beyond the seas had scantly answered for the value of the merchandise brought in"[71]

As with exports, London handled at least 80% of the import trade so by examining London's trade activity alone, we may get a relatively reliable picture of England's trade balance. The import of everyday products such as textiles or metal wares from the Hansa and the Netherlands decreased from 43% to 31,9% in relation to the total trade activity between 1563 and 1622.

This cannot be said about the import of luxury products, which with the changing of fashion sharply increased from 24% to 44% of the total amount of imported goods. The import of wines doubled between the 1560s and 1600s. Albeit the tables adapted from Millard only contain information of the 1560 and 1620, when new products were included, such as tobacco, we can still suppose that there was a considerable increase for the import of luxury products, for instance currants, spices and sugar. These data refer to London only, but the city preserved its leading role in commerce, therefore the information can be viewed as reliable. [72]

[71] Tawney, R. H. and Eileen Power. *Tudor Economic Documents*. London: Longmans, Green and Co., 1924. 45.
[72] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 123-125.





[73]

According to Lawrence Stone the overall volume of trade did not change much, but the luxury products increased in proportion to other products, and their value is several times

[73] all three tables adapted from Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 124-125.

higher and this leads to an adverse trade balance. This theory is supported by the data from William Coleshill's, a customs officer's, inquiry into London's trade balance in 1559-61. The total worth of export trade amounted to £590,397 in 1559-60 and £564,552 in 1560-61. Nevertheless, after examining the relationship of export and import trade he assessed a negative of £102,401 for the period of 1559-60 and £109,746 for 1560-61.[74]

F. J Fisher estimated the annual average of short cloth export at 104,406 pieces between 1598-1603.[75] The value of these cloths was around £7 each and £730,842 in total when expressed at the price of James I's reign. Additionally, products of £127,665 worth were exported annually from London in the period, giving an overall £858,507 average export value annually in James I's prices. J. R. Wordie calculated the inflation of wool, necessary for the making of cloth, to reach a plausible devalued sum for the Elizabethan export average projected from the figures available at the end of the 16th century. By incorporating the rising prices of the other exported products, he reached the value of £572,338, which is very close to the above mentioned Coleshill's contemporary estimation.[76]

Notwithstanding, we must also account for the trade volume passing through smaller ports to get a more realistic figure. J.D. Gould estimated that in the 1560s only around 12% of trade was not going through London.[77] W. B. Stephens thinks that this proportion was as high as 24% in the 1610s. If we take the smaller ports into consideration by multiplying the formerly reached export value estimates with 88% and 76% for the 1560s and 1600s respectively, we get the figure of £656,222 for the 1560s and £1,129,614 for the beginning of the 17the century, which expressed in Elizabethan price levels is £753,076. The difference between the two is 14,8%, which represents the possible export increase of the second half the

[74] Wordie, J. R. "Deflationary Factors in the Tudor Price Rise." *Past & Present* No. 154 (1997): 50-51.
[75] Fisher, F. J. "London's Export Trade in the Early Seventeenth Century." *The Economic History Review, New Series* 3.2 (1950): 50.
[76] Wordie, J. R. "Deflationary Factors in the Tudor Price Rise." *Past & Present* No. 154 (1997): 53-54.
[77] Gould, J. D. *The great debasement*. London: Clarendon Press, 1970. in Wordie, J. R. "Deflationary Factors in the Tudor Price Rise." *Past & Present* No. 154 (1997): 50.

16th century. This is an extremely brave and rounded estimation, but it can be still viewed as usable based on England's heavy reliance on textile products in her exports.

Edward Misselden, a later customs officer, provided additional evidence for England's growing trade deficit. His customs inquiry from 1622 rated the total trade activity of London at £2,619,315 in imports and £2,320,437 in exports. In conclusion, the overall value of imports has crept up from 85% to 89% in relation to the overall export value since the 1560s. This means that the trade deficit, most probably, still stood at around 85% at the end of the 16th century. Using the hypothesized 85% as the rate of imports Wordie gauged an annual negative difference of around £200,000 compared to exports for the period of 1597-1603 based on the data of Stephens and Gould.[78]

This result about the minimal growth of exports and the high proportion of luxury item in relation to the import of low cost products together with Coleshill reports of negative trade balance in London after the middle of the 16th century suggests that England probably could not maintain a rough parity between her imports and export, and it is more likely that there was an outflow of bullion from the nation. This prolonged condition simply did not allow for such amounts of precious metals to flow into the country, as theorized by Earl J. Hamilton, which could significantly alter the money supply of England.

[78] Wordie, J. R. "Deflationary Factors in the Tudor Price Rise." *Past & Present* No. 154 (1997): 54-55.

2.3. Problems of the strict interpretation of the monetarist causes

Professor Hamilton recognized that not even in Spain did the prices rise in correlation with the imported amount of precious metals. The amount quoted by him would necessitate a far larger increase in prices if velocity (V) and the volume of transactions (T or Q) remained constant. He accounted for the lower increase with lower agricultural activity and population in Spain, both reducing T and V.[79]

Moreover, if a certain country receives large amount of bullion from Spain due to a positive trade balance, the incoming money must be minted and spent first to be added to the general money supply. Hammarström suggests that the money supply is not entirely independent of economic activity. It may be spent or hoarded based on the economic climate of the country and it is not spent as soon as having been minted.

However, according to the equation PT=MV a strong economic state (increased T) will bring prices down, as there is less money in the system for the amount of transactions, despite the fact that production costs will rise due to the employment of more people, which should bring P upward. The other way round, with worse economic conditions people tend to invest and spend less, forcing prices down, although the equation also suggests higher price levels, as there should be more money available for fewer transactions.[80]

J. D. Gould criticizes the traditional monetary theories, particularly the effect of the successive debasement. In his view, the devaluation of money alone could not incite the inflation as according to the equation of exchange, an increase of money supply (M) will cause increased price levels only when the total number of transactions (T) and the velocity

[79] Hamilton, Earl J. "American Treasure and Andalusian Prices, 1503-1660: A Study in the Spanish Price Revolution." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. London: Methuen & Co. Ltd., 1971. 179.

[80] Hammarström, Ingrid. "The Price Revolution of the Sixteenth Century: Some Swedish Evidence." Ramsey, Peter H. *The Price* . London: Methuen & Co. Ltd., 1971. 51-53.

(V) of these transactions are constant. This is highly unlikely with the growing urban and overall population in the 16th century. The increased volume of transactions must have counteracted the rise of the price levels with the help of increased money flow.[81]

Also, debasement with the minting, transport and organizational technologies of the age is a very slow process and can never be fully completed. Not all coins can be reminted and the method requires years to complete; many different types of coins will remain in circulation. In fact, the reminting of older coins may have been beneficial, as those must have lost a considerable amount of metal due to wear and tear, not to mention the clipping. Based on these arguments, debasement will neither cause an immediate effect on the money supply and nor a proportionate decrease in value.[82]

In addition to his doubts about the importance of debasement, Gould echoes the thoughts of Hammarström when he warns that the quantity of money theory should be corrected in accordance with new ideas about the connection of savings and investment ratio to inflation. When the proportion of investments becomes greater than the proportion of savings, inflationary processes may start. However, his main concern regarding the quantity of money theory is its rigidity. The strict application of the theory does not allow for numerous deflationary factors, such as, regional differences in employment and prices. [83]

The question of velocity of circulation must be examined also. N. J. Mayhew assigned a greater role to velocity, a factor that had often been overlooked in the past. The fact that the velocity of circulation (V), similarly to the total volume of transactions, (T) cannot be reliably

[81] Gould, J. D. "The Price Revolution reconsidered." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. London: Methuen & Co. Ltd., 1971. 95.
[82] Gould, J. D. "The Price Revolution reconsidered." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. London: Methuen & Co. Ltd., 1971. 104.
[83] Gould, J. D. "The Price Revolution reconsidered." Ramsey, Peter H. *The Price Revolution in Sixteenth-Century England*. London: Methuen & Co. Ltd., 1971. 106.

measured according to the quantity theory; only in relation to the changes of the other factors of the equation of exchange, may explain this partly.[84]

Miskimin pointed out that increased velocity does not always mean a healthy economic situation but it could be a sign of an economy in need of currency for expansion resulting in higher prices. In order to determine velocity independently, Goldstone developed a formula which states that the velocity of circulation is proportional with the square of the population growth. Notwithstanding, several other elements affect velocity such as the proportion of urban residents, as in cities the high population density makes it easier to form more tightly organized commercial systems with more members. [85]

It must be noted, however, that the velocity theory is not without flaws. It cannot differentiate between the payment of £1 or 240 d., as it concerns only the total value passing through the economy, neither does is account for the different performance of gold and silver currencies. Gold has a far higher value than silver allowing only large denominations as opposed to silver, of which more coins must be minted to cover the same value. To counter this weakness the Cambridge school of economists introduced the demand for money factor (K) instead of velocity.[86]

Another problem of the traditional interpretation is that velocity may even fall when the money supply grows, which seems contradictory. Mayhew explains this with the fact that renaissance credit instruments worked as a supplement to the general money supply, depending on it heavily; which is exemplified in the following quote.

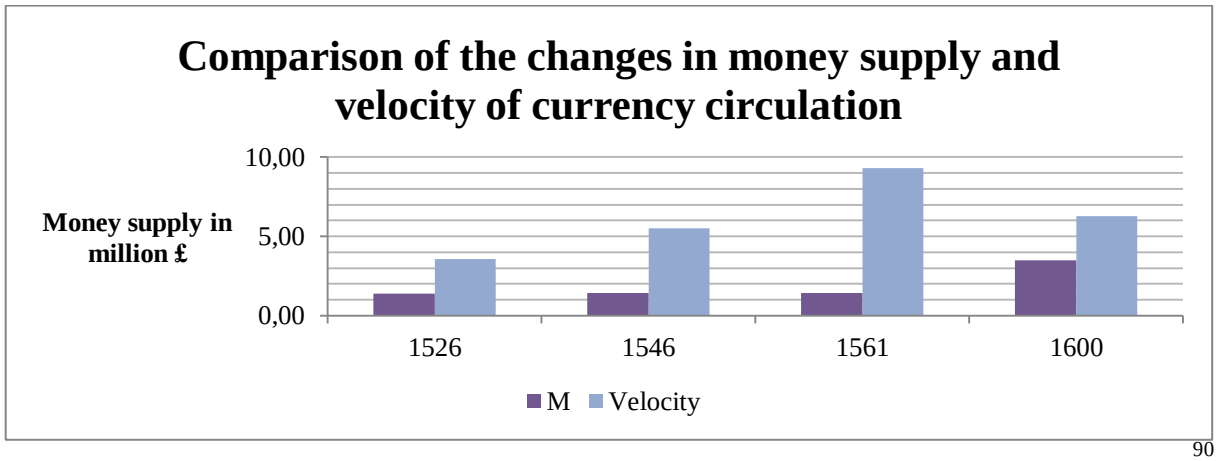
[84] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 239.

[85] Miskimin, H. A. "Population growth and the price revolution in England." *Journal of European Economic History* (1975): 179-86. in Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 240.

[86] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 250-253.

'When there was but little Money, the Credit was also very little', or again, 'credit is always most, when there is most Money to satisfie the same.[87]'

In other words, V falls with the increase of M to which it is tied, if it does not allow a greater rise in Y or total output (T or total transactions), namely in times when currency was less available. This condition was fulfilled only during the time of the Elizabethan recoinage in the 1560s, when the money supply was seriously curtailed.[88] This is verified by some contemporary accounts of the period and the statute of 1571, which maximized the interest rate for lending at 10%. The fact that it needed to be maximized suggests that many usurers could raise the interest rate for the their customers because of the scarcity of money.[89]



[90]

This realization clarifies partly why the price rise did continue after the Elizabethan recoinage, which should have ended it by reducing the circulating medium available for at least shorter period. Comparing the exceptional increase of velocity after the recoinage with the graphs on price levels included earlier one can see the common trend. Nevertheless, Mayhew's table contains information for a limited number of years in the period impeding us

[87] McCulloch, J. R. *Early English tracts on commerce*. Cambridge: Cambridge University Press, 1970. in Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 254.

[88] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 256.

[89] Arestis, Philipp and Peter Howells. "The 1520-1640 "Great Inflation": An Early Case of Controversy on the Nature of Money." *Journal of Post Keynesian Economics* 24.2 (2001-2002): 192.

[90] Mayhew, N. J. "Population, Money Supply, and the Velocity of Circulation in England, 1300-1700." *The Economic History Review, New Series* 48.2 (1995): 244.

in creating a more precise and reliable analysis of the relations of velocity of circulation and the general price levels.

3. Demographic growth and other realist causes

After the major monetarist causes, I would like to examine the equally important realist causes, which can be divided to "cost-push" and "demand-pull" types.[91] The former includes the government spending and the already mentioned monetary causes. The latter consists of the earlier described velocity increase, the increase of the population, the enclosures and the higher rents.

From the causes above, the population increase is the most widely known and used as a counterargument against the monetary theories. If population really rose in the period, that must have had a detrimental effect on prices, especially on food prices. The population of England was estimated to be around 5-6 million people in the 14th century, which was decimated by dearth in 1315-17 and by the plague in 1348-49, and thus reduced the population to 2.5 or 3 million based on the poll tax levied by Richard II.[92] This number may have decreased further to 2 million in the mid-15th century according to Professor Hatcher.[93] In the early 16th century, population was only slightly higher than two million people, of whom only 10% or less lived in towns, mainly concentrated in the South. This figure doubled to 4 million people in the last years of the 16th century. Throughout the period, there was a low life expectacny of only 32-40 years. The populace often suffered form endemic diseases such as pneumonia, tubercolsis and the sweating sickness.

[91] Fisher, Douglas. "The Price Revolution: A Monetary Interpretation." *The Journal of Economic History* 49.4 (1989): 891.
[92] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 2.
[93] Hatcher, J. *Plague, population and the English economy, 1348-1530*. London: MacMillan Press Ltd., 1977. 13-14, 63-66.

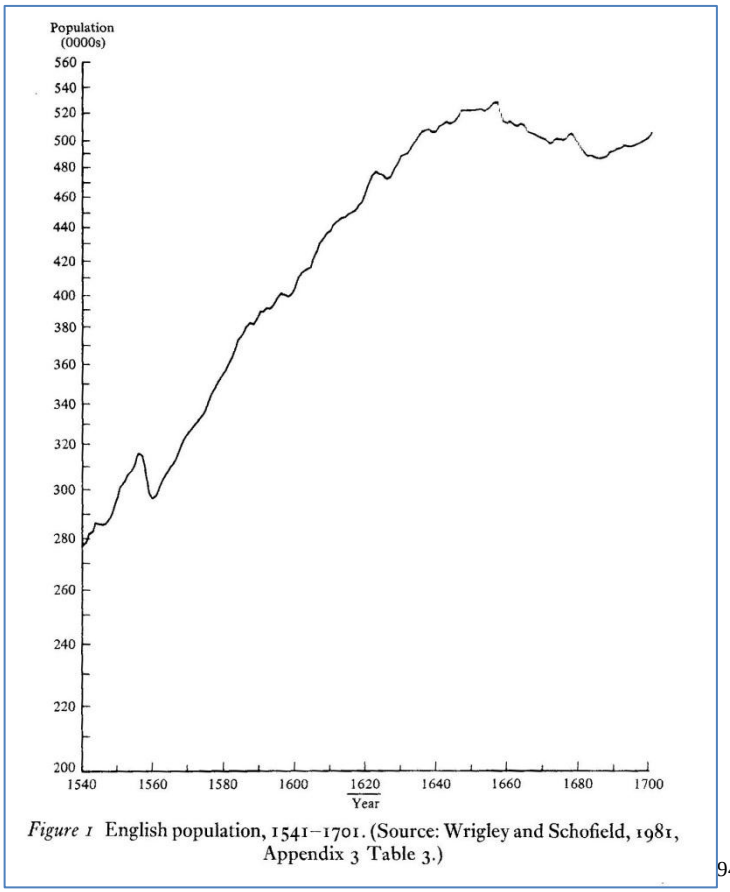


Figure 1 English population, 1541–1701. (Source: Wrigley and Schofield, 1981, Appendix 3 Table 3.)[94]

The irregular returns of the tyhpus, smallpox or the dreaded plague caused more deaths, than the aforementioned diseases. The high death rate was compensated by a high birth rate, which helped the regeneration of England after the severe pandemics of the 14th and 15th centuries. Famines ravaged the populace too, as they usually were followed by illnesses.[95]

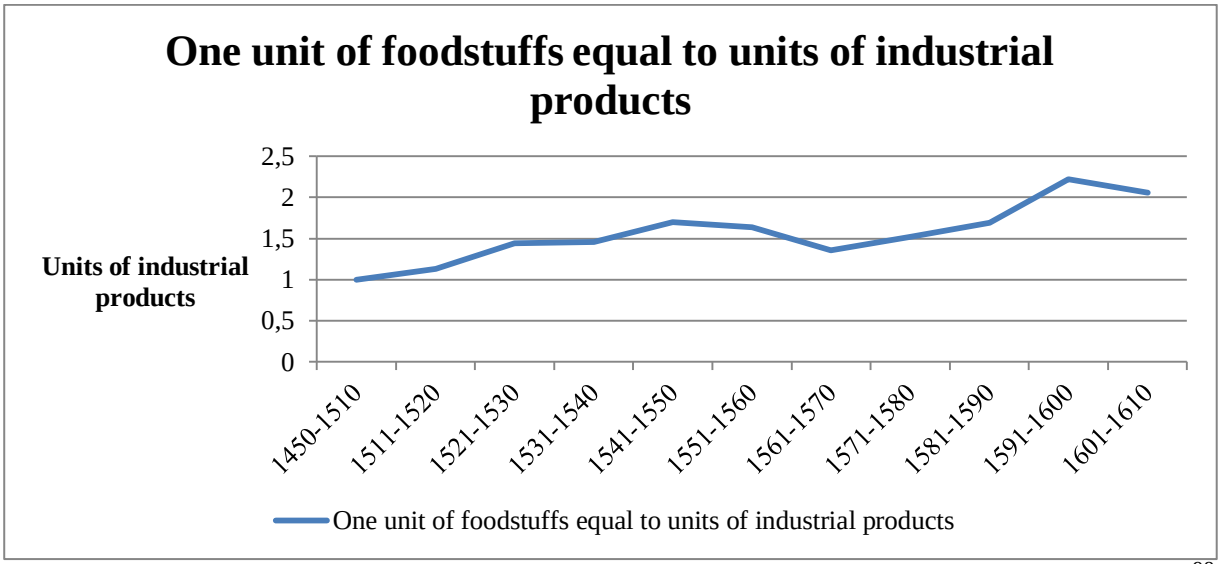
Despite the serious blows to the nation by diseases, the surviors enjoyed a better life as the lower level of available workforce demanded higher wages from employers. Higher wages meant financially more stable families, which could support more children earlier due to

[94] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 4.
[95] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 6-8.

earlier marriages. Additionaly, lower rents were general, as there was more land available. This accounted for the growth of population after the prevalent plagues of the 15th century.[96]

The continuous tendency in the 16th century was hindered significantly only once in the mid 1550s due to the combination of dearth and the sweating sickness. However, later in the 16th century as the economic situation deteriorated and rents rose with wages decreasing people tended to marry later bringing the level of fertility down, evening out the rate of population growth. This process was strengthened by landlords who tried to avoid hiring young people without homes to spare the costs of accomodation. [97]

The most commonly cited evidence for the population increase is the discrepancy between the food prices and industrial products, which is concealed at first sight by the unified price index of Phelps Brown and Hopkins.



[98]

Nevertheless, on the graph adapted from Brenner, we can see that the difference between the price of one unit of victuals and one unit of the industrial products grew over time in favour of the former ones. The increasing population consumed more food, whose

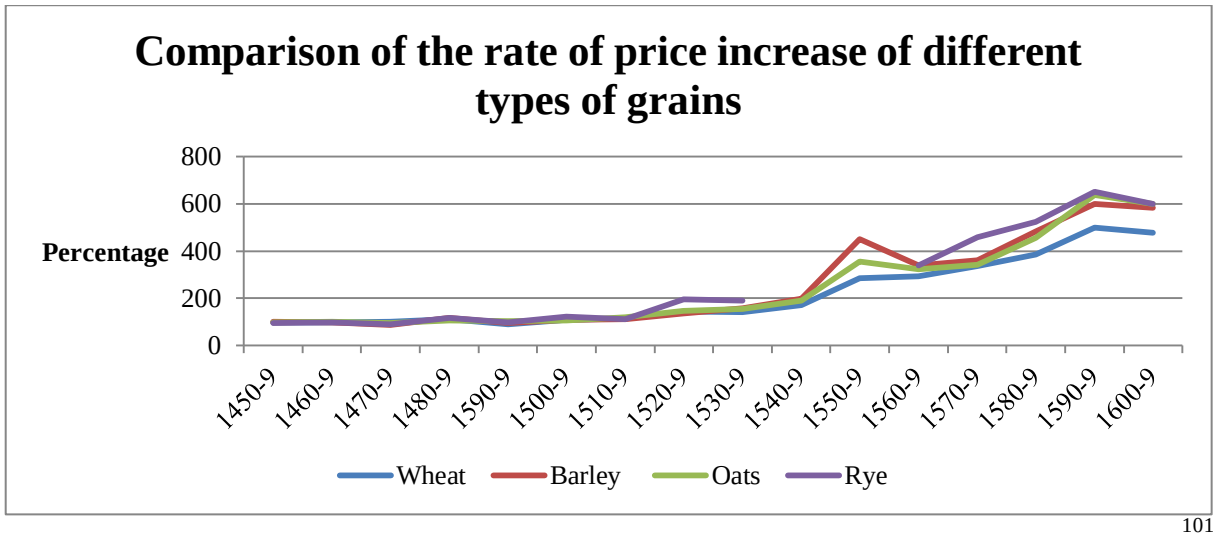
[96] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 10.

[97] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 16-18.

[98] Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 280.

price grew more due to the inelasticity of demand. People may postpone buying new clothes and other industrial products, but they always have to eat. [99]

The growth of the price of victuals is relatively slow, as during one hundred and fifty years the difference was only twofold. The tendency is upset slightly in the 1550s and the last years of the century. The former peak can be attributed to the great debasement and the bad harvests of the period. England's textile trade started to decrease heavily in the decade after the middle of the century due to the revaluation of money, which increased industrial prices significantly. This phenomenon could explain the depression on the graph during the 1560s and 1570s. The second peak is again due to the deficient harvest of the last years of Elizabeth I's reign.[100]



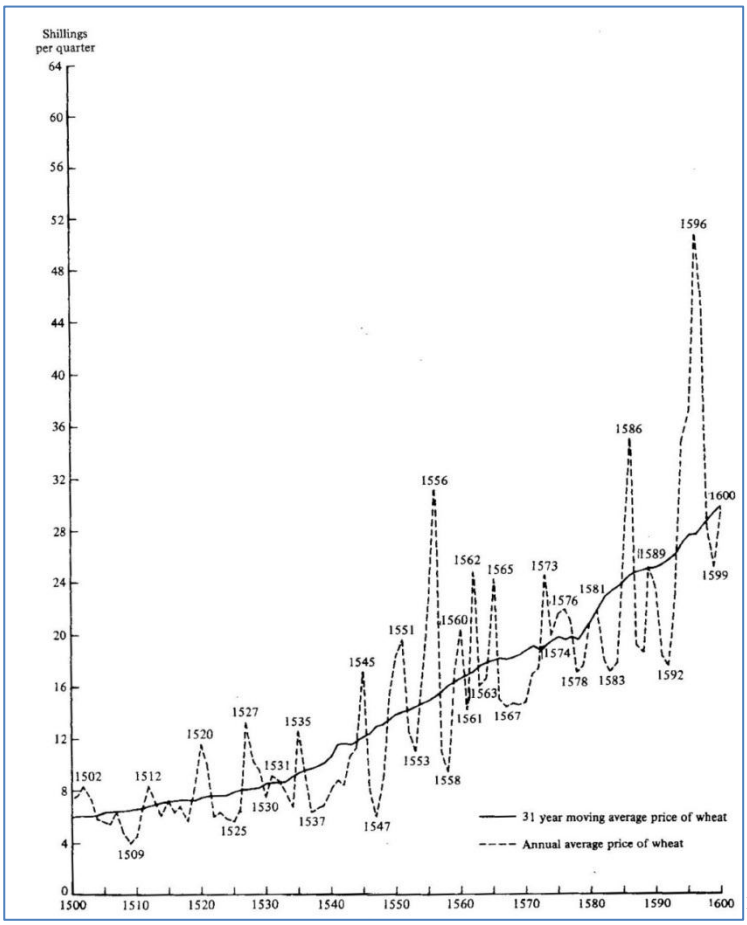
[101]

Evidence for demand inelasticity as the cause of the difference between food and industrial prices is the higher rate of increase experienced in the price of rye. Rye was the cheapest cereal available originally, the staple food of the poorest. As people became more and more poverty-stricken, they could not afford better quality food and more and more people ate rye only, which affected its price even more.

[99] Wordie, J. R. "Deflationary Factors in the Tudor Price Rise." *Past & Present* No. 154 (1997): 34.
[100] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 40.
[101] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 51.

Contemporary sources mentioned the high population level as one of the cause of the rising cereal prices too. Alderman Box reported to Lord Burghley in 1576, that *"Now the time is altered […] for the people are increased and ground for plows doth want, corn and all other victual are scant [and] many strangers [are] suffered here, which make corn and victual deare."*[102]

The following graph illustrates the major changes in agricultural production deduced from the price fluctuations. These changes could be as high as 200% in some severe cases in the 1550s and the 1590s. The increasing level of fluctuation may be a sign of the growing prices and the higher demand pressure exerted by the growing population.[103]



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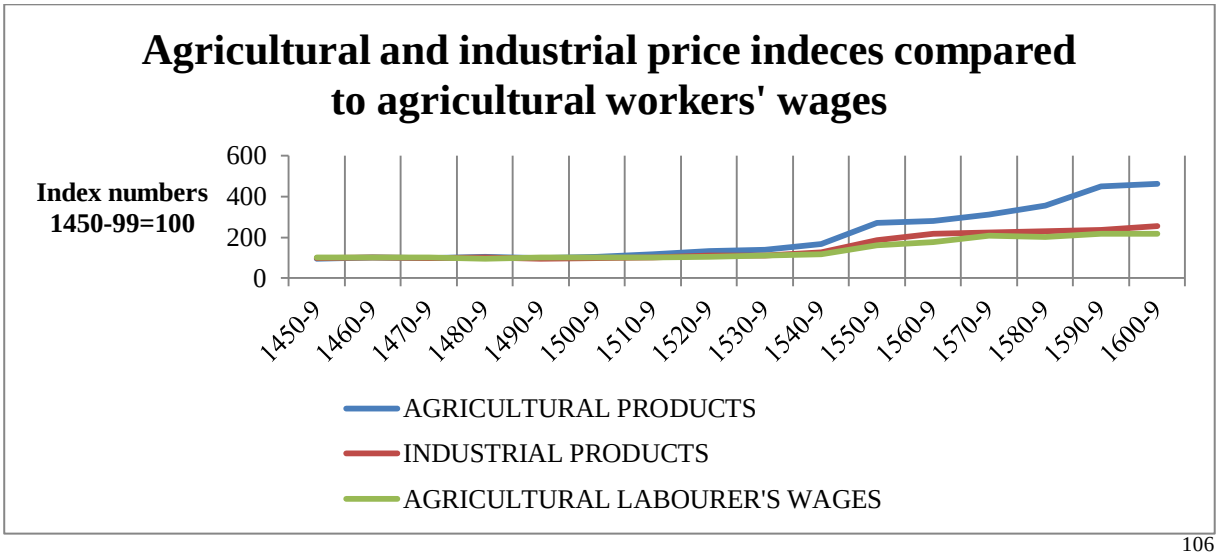
[102] Fisher, David Hackett. *The Great Wave, Price revolutions and the rhythm of history*. New York: Oxford University Press, 1996. 85.

[103] Brenner, Y. S. "The Inflation of Prices in Early Sixteenth Century England." *The Economic History Review, New Series* 14.2 (1961): 78-79.

[104] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 41.

It has been argued that the second half of the 16th century was affected by what was called "The Little Ice Age Phase I" resulting in lower overall production rates and greater liability of variation. However, this was disproved by N. S. B. Gras who examined the agriculture of Crawley, a village in Hampshire. He showed no conclusive evidence for the effect of the alleged Ice Age. [105]

Another argument for a permanent population increase is the significantly slower rate of wage increase, as seen on the graphs below.



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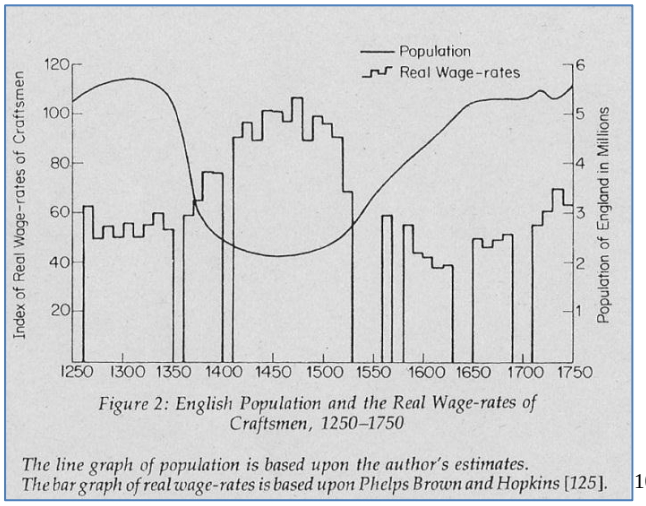

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[105] Gras, Norman Scott Brien. *The economic and social history of an English village (Crawley, Hampshire) 909-1928*. Cambridge, Massachusetts: Harvard University Press, 1930. in Brenner, Y. S. "The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 281.

[106] Tables VII, XII and XVI, from Statistical Appendix, complied by P. Bowden, in Thirsk, Joan. *The Agrarian History of England and Wales 1500-1640*. Vol. VI. Cambridge: Cambridge University Press, 1967. VIII vols. in Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 49.

The builders' wages seem to fall, while the agricultural workers' wage level out at the end of the 16th century. The great difference between the graph of the agricultural workers' wages and builders' wages seen in the graph of Hatcher compiled from the data of Phelps Brown and Hopkins in the price index section of this paper, is due to different statistical methods employed. The graph of Phelps Brown and Hopkins depicts the purchasing power of the builders in the same units as the general price index for comparison. Bowden's graph represents the changes of wages in percentage of their face value. Despite the method used, it can be observed that the agricultural workers' wages' rate of increase were far below the increase of prices. Low wages suggest a steady or even growing supply of workforce, whose payment decreased according to the laws of supply and demand. The crown tried to control this situation with the wrong tools. The Statue of Artificers in 1563 limited the mobility of the workforce, by increasing the entry fee for certain guilds and requiring a seven year apprenticeship from new workers. These measures only limited competition and partially protected existing guilds, but did nothing to solve the problem of the masses.[108]

Also, the Vagabond Acts and the Tudor Poor Laws of 1530, 1551, 1597 and 1601 may be interpreted as indirect evidence for the growing population. Due to the lower overall wages more people could not maintain a permanent lifestyle and were forced to wander and beg. This problem was addressed by these acts requiring the setting up of workhouses and collection of poor rates.[109]

Without contemporary demographic data due to underdeveloped administrative methods we have to rely on estimates extrapolated from smaller areas with more documents. Therefore, both wages lagging behind prices and the difference between the price of victuals and industrial products are only indirect evidence for the population increase.

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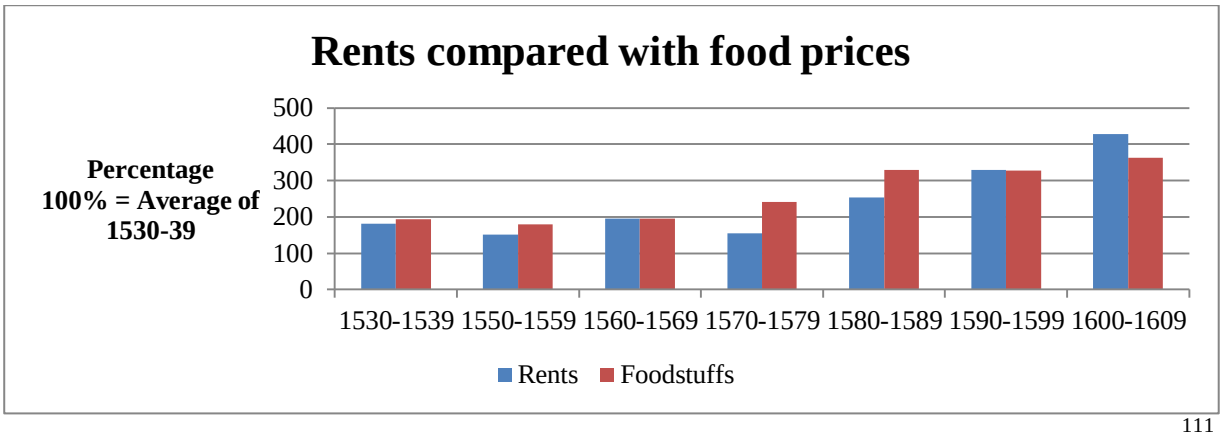
[107] Hatcher, J. *Plague, population and the English economy, 1348-1530.* London: MacMillan Press Ltd., 1977. 71.
[108] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 234.
[109] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 157.

Notwithstanding, these are sufficiently extended to make the growth of the populace one of the plausible and significant causes of the price revolution.

4. Enclosures and the movement of rents

Enclosure and the rising rents were among the most debated problems of the era due to their social effects on the population. Contemporary populace was extremely sensitive to these processes as they afflicted the main source of their livelihood, which was earlier relatively well controlled and protected by customs and laws. In theory, food production, and thus most of the income of the people was based on the feudal relationship of the landlord and the tenant, the turmoil of this system could raise the prices of all products or in the words of the Husbandsman of the "Discourse": "[…] *youe gentlemen that this dearth is, by reason youe enhaunce youer landes to such an height, as men must nedes sell deare againe, or els .they were not able to make the rent againe."*[110] Based on the graph of Brenner, a general upward trend of rents is observable, although the rise of food prices is not always in line with the increase of the lease.



[111]

[110] Lamond, Elizabeth, ed. *A Discourse of the Common Weal of this Realm of England First printed in 1581 and commonly attributed to IV.S.* Cambridge: Cambridge University Press, 1929. 38.

[111] Brenner, Y. S."The Inflation of Prices in England, 1551-1650." *The Economic History Review, New Series* 15.2 (1962): 283.

However the extent of the enclosure in the 16th century is questionable, thus their effect on prices is also uncertain. Peter Ramsey is particularly critical of the alleged effect of enclosures on prices after he has studied the situation of agriculture in the period.

The tenants of the era can be categorized mainly into two groups: freeholders and copyholders. The latter were far more vulnerable depending on their type of lease. Either they were tenants by customs or by copy, in which case they had better legal claim in an argument with the landlord. Several factors influenced the security of the copyholder: the length of the lease after rents were again negotiable by the landlords, the possibility of inheritance and the fee of inheritance. According to R. H. Tawney only one fifth of the tenants were freeholders, who were "nearly" owners of the land, and two third were copyholders of various status.[112]

Landlords of the period could choose two methods to overrule the traditional open-field system and create larger and continuous, thus more efficient farms. One was the fencing off of land from the commons, the field where the tenants of the locality could graze their animals. The other was the engrossing and converting of arable land to pasture after evicting or buying up the tenures of copyholders[113]. Breeding of sheep required fewer men than cultivating plants, thus depopulation due to unemployment was a real danger of this method.[114] According to the letter titled *"The defence of John Hales ayenst certeyn sclaundres and false reapertes made of hym"* the most depopulations happened before 1485:„*the chief destruccion of Townes and decaye of houses was before the begynnynge of the reigne of kynge henry the seuenth".*[115]

The main motivating force behind conversion was the lively textile industry of the first half the 16th century mentioned earlier. The textile industry consumed enormous amounts of

[112] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 34-35.
[113] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 232.
[114] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 19.
[115] Lamond, Elizabeth, ed. *A Discourse of the Common Weal of this Realm of England First printed in 1581 and commonly attributed to IV.S.* Cambridge: Cambridge University Press, 1929. LXIII.

wool and mutton was also a sought after product due to the increasing population.[116] This was understood already in the period and the victims of the conversions blamed sheep breeders:

"Yea, those shepe is the cause of all theise mischeives, for they haue driven husbandrie oute of the countrie, by the which was encreased before all kynde of victuall, and now altogether shepe, shepe."[117]

As the price of wool fell after the 1550s, the number of enclosure dropped. The price of wool rose again in the 1590s, but the cereal prices were far higher then, thus conversion was not lucrative enough. The inquiry of Cardinal Wolsey on the situation regarding enclosures showed that in five Midland counties (Oxfordshire, Buckinghamshire, Northamptonshire, Warwickshire and Berkshire) 80% of all lands were converted to pasture.

There is not enough data to assess all the counties, but the figures concerning individual ones help to see the tendency. In Leicestershire, between 1485-1607 33000 acres were enclosed; 33% of this was before 1510 and only 19% was converted in the 1510-1580 period. However, in the next 10 years at the end of the century, due to the rising wool prices 48% was enclosed again, with the remaining 27% falling over to the next century. Similar data is present in the depopulation commission of 1607 in the Midlands, according to which the most of the enclosures took place at the end of the century, between 1578-1607. These lands were the most affected ones as their soil was less suited for cereal farming.[118] The most enclosed fields lay in the South, East and in the Midlands. Another reason for enclosure of these lands was the relative close proximity to major cities, buying the most wool and meat.[119]

Another way to find indirect evidence for the enclosures is to assess the laws implemented against them. The first enclosure law was enacted in 1488 mainly against

[116] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 20-23.
[117] Lamond, Elizabeth, ed. *A Discourse of the Common Weal of this Realm of England First printed in 1581 and commonly attributed to IV.S.* Cambridge: Cambridge University Press, 1929. 20.
[118] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 25-27.
[119] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 75.

depopulation of the Isle of Wight followed by a more extensive one.[120] These were followed by legislation in 1515, 1536. In 1533 the number of sheep per farms was maximized at 2400 and tax was levied on excess sheep by the measure titled *"An Act Concerning Farms and sheep"*.[121] The sheep tax of 1549 was quickly repealed, but it marked a present problem of the society. The law was the idea of the alleged writer of the Discourse of the Common Weal, John Hales. He tried to levy a tax of one penny on each sheep and half penny on the pound of produced wool.[122]

Only two commissions of enquiry were set up to examine enclosures around the country: one in 1517 and the next one in 1548. Following these, in 1593, most limiting laws were repealed, which marked a revival of the phenomenon until 1597 when the Act for the Maintenance of Husbandry and Tillage[123] banned further conversion in certain shires.[124] Despite the numerous laws and the lively debate of the problem the local Justice of Peace's could not enforce much of these laws due to resistance and lack of effective administration. Landlords often referred to the ancient Statute of Merton, written in 1235, to bypass anti enclosure laws. This measure enabled them to enclose land from the commons provided they left enough of it for the peasants.[125]

Besides enclosures, rack renting was a serious problem; the huge raising of rents by the landlords, when the lease was renewed. In order to pay the increased sum, farmers were forced to employ all family members to supplement their income with wages. Both tenants and landlord blamed each other for forcing prices upward. As the inflation progressed the

[120] An Acte aganyst pullyng doun of tounes Sattues of the realm, Tawney, R. H. and Eileen Power. *Tudor Economic Documents*. Vol. II. London: Longmans, Green and Co., 1924. 4.
[121] 25. Henry VIII c. 13. Statutes of the Realm, Vol. III., p. 451, 1533-4 in Bland, A. E., P. A. Brown and R. H. Tawney. *English Economic History Select Documents*. London: G. Bell and Sons Ltd., 1933. 264.
[122] Bindoff, S. T. *Tudor England*. Harmondsworth: Penguin Books Ltd., 1950. 133.
[123] An Act for the Maintance of Husbandry and tillage 39 Eliz. c. 2, Statutes of the Realm, Vol. IV., Part II. pp. 893-96, 1597-98. in Bland, A. E., P. A. Brown and R. H. Tawney. *English Economic History Select Documents*. London: G. Bell and Sons Ltd., 1933. 268.
[124] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 38-40.
[125] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 69.

traditional 40-50-60 year leases were changed to a maximum of 21 years. Landlords were nearly entirely dependent on fixed rents during the leases, so they either raised the rents or decreased their household's expenses.[126]

In the "Discourse" the Knight often points this to the others: *"I doe either receive a better fyne then of old was vsed, or enhaunce the rent therof*"[127]. Another contemporary account of rent increases can be found in the sermon of Bishop Latimer, where he says that his father must pay £16 instead of the £3 or £4 common in the beginning of the century.[128]

If we examine the laws against enclosures and depopulation in the Midlands, we can see that the bulk of enclosures were carried out before and after the middle of the 16th century, which is not entirely in line with the price changes of the century. Despite the fact that the tension culminated in 1549 with the Kett's rebellion, Ramsey could not establish a clear connection to the price changes.[129] Although the lack of sufficient correlation does not allow the direct linking of enclosures and rising rents to the phenomenon of inflation, the dependence of the population on agriculture and the accounts of contemporary sources suggest at least a partial connection to the rising food prices.

5. The effect of military expenditure on inflation

There were only a few years in the 16th century when England was not entangled in some kind of armed conflict. Both internal rebellions and foreign campaign either for fame or defence of the country regularly tied down the Crown's financial assets. Although we do not have comprehensive information on the war efforts of the crown throughout the century, we can say that they represented a very large proportion of all spending. Therefore we can

[126] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 233.
[127] Lamond, Elizabeth, ed. *A Discourse of the Common Weal of this Realm of England First printed in 1581 and commonly attributed to IV.S.* Cambridge: Cambridge University Press, 1929. 19.
[128] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 90.
[129] Ramsey, Peter H. *Tudor Economic Problems*. London: Victor Gollancz Ltd., 1963. 45.

estimate from the partial data available that military expenditure had a significant effect on the price revolution.

In this period, standing armies were still very uncommon. The few that existed were usually royal guard units tasked with defending the life of the sovereign and representing a sufficient force to show who the real ruler of the country is. In time of war, the bulk of the armies were recruited according to the feudal system paid by the nobility and this was often supplemented by mercenaries. This severely restricts the possibility of assessing the costs of a certain conflict. Nevertheless, I attempted to collect and compile data of war expenses and place them in context of the price revolution.

The costs of a war are mainly made up of the cost of arming and feeding of troops and their payments. This enormous rise in demand must have driven up the prices, due to the demand inelasticity of food, draught animals and arms. The costs of these were covered from Parliamentary subsidies and the sale of royal property. The majority of these were already spent in England even in the case of a continental campaign, increasing the amount of the circulating medium, while decreasing the buying power of the currency. [130]

In Henry VII's time (1485-1509) there was relatively little conflict after the conclusion of the War of the Roses. These were mainly internal struggles and the pursuit of impostors, such as Lambert Simnel and Perkin Warbeck. The former posed as Richard, Duke of York; later as the Earl of Warwick. His supporters were defeated at the Battle of the Stokes in 1487. Both sides brought several thousand troops, the Yorkists mainly Irish and some Swiss and other German speaking mercenaries.[131]

[130] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 47.
[131] Bindoff, S. T. *Tudor England*. Harmondsworth: Penguin Books Ltd., 1950. 54.

Henry's next conflict was in France, which concluded with the Treaty of Etaples. This was one of the few foreign conflicts, which brought money to the crown, as Charles VIII was obliged to pay 745,000 crowns for the lifting of the Siege of Boulogne in 1492.[132]

The pretender Perkin Warbeck caused far more trouble than Simnel. After unsuccessful conflicts in Scotland and Ireland between 1495-97 and the Cornish rebellion ending at Battle of Blackheath, he was captured and executed. Besides these conflicts, Henry VII had to spend more on the garrisons in Ireland and the campaigns of Sir Edward Poynings, who could not pacify the island totally and often had to pay off the rebellious Kildare.[133]

Although Henry VII quickly ended external wars with France and Scotland, the mobilization against the rebellion must have consumed a large amount of resources from the royal income of £142,000 at the end of his reign estimated by Professor Elton.[134]

Henry VIII was very different from his father, as he often pursued extremely expensive foreign military goals. Already in 1513, he campaigned in France, which expedition was concluded at the Battle of the Spurs with an English victory. This victory placed the cities of Tournai and Thérouanne in English hands, which required again a garrison to be recruited.[135]

His country was threatened from the North by the Scots and their French allies, who had sizeable garrisons there. The Scottish trying to draw away the English forces, invaded the north only to be stopped at Flodden field by the Earl of Surrey in 1513. Both the Scottish and French conflict involved tens of thousands of troops, significantly more than what was required for the battles of Henry VII.[136]

The combat ceased for several years because of the peace between England and France in 1514, which brought some money to the English in form of tributes in exchange for

[132] Lockyer, Roger. *Tudor and Stuart Britain 1471-1714*. New York: St. Martin's Press, 1964. 30.
[133] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 26-31.
[134] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 53.
[135] Lockyer, Roger. *Tudor and Stuart Britain 1471-1714*. New York: St. Martin's Press, 1964. 35.
[136] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 73-74.

the city of Tournai. However, it did not take long for Henry VIII to attack France again. In 1522 and in 1523 he sent the Earl of Surrey to capitalize on the rebellion of the Duke of Bourbon and harass Picardy and Normandy, without any real gain.[137]

Even internal disturbances, which involved no direct combat, such as the Pilgrimage of Grace in 1537 could have cost the crown a considerable amount, £50,000.[138]

The most costly expedition of Henry VIII was the invasion of France in 1544 with 40,000 troops to aid the Spanish. The king himself accompanied the Dukes of Norfolk and Suffolk, to attack Boulogne. This city remained in English control, steadily draining the country's resources until 1554, when the French bought it back. Professor Elton estimates the whole cost of the second French war at £2,000,000, whose sum is ten times higher than the cost of the campaigns in the 1520s.[139] Clay puts the overall military costs at an even higher sum of £3,5 million for the 1540s.[140]

In addition to the Scottish and French wars, the garrisons and pacification campaigns in Ireland continually devoured the assets of the crown until Henry VIII was recognized as king of Ireland in 1541.[141]

Although Edward VI ruled for only six years (1547-1553) with the help of protectors, his rule involved several major conflicts. In 1547, Somerset's first battle was at Pinkie Clough, the height of the Rough Wooing, in the Anglo-Scottish war, that begun in 1543. Despite his success, the victory and the garrisons only cost him £350,000 in two years. Moreover, a French army of ten thousand still posed a significant threat from Edinburgh. [142]

This was only the first of many the serious conflicts of the period. In 1549, both the Prayer Book rebellion in Cornwall and Ket's rebellion in Norfolk required sizeable armies to

[137] Lockyer, Roger. *Tudor and Stuart Britain 1471-1714*. New York: St. Martin's Press, 1964. 42.
[138] Lockyer, Roger. *Tudor and Stuart Britain 1471-1714*. New York: St. Martin's Press, 1964. 89.
[139] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 197-198.
[140] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, Industry, trade and government*. Vol. II. Cambridge: Cambridge University Press, 1984. 48.
[141] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 157-158.
[142] Lockyer, Roger. *Tudor and Stuart Britain 1471-1714*. New York: St. Martin's Press, 1964. 164.

be put down. The Prayer Book rebellion was ended at Exeter by Lord Russel. Ket's Rebellion was more serious with over 15,000 thousand insurgents, who were routed by the Earl of Warwick at Dussindale.[143]

Mary I's short reign (1553-58) did not pass without rebellion either. Sir Thomas Wyatt raised 3,000 men and reached London itself, where he was swiftly stopped.[144]

Despite the fact that Elizabeth I did not seek fame in conquest like his father, she was increasingly involved in major conflicts, mainly because of the religious differences. The Scottish war of 1559 was surprisingly not against the Scots but their French allies. Elizabeth I supported the protestant John Knox, with troops at the siege of Leith and blockaded Scottish ports. The war was ended by the Treaty of Edinburgh with the French leaving Scotland once and for all.[145]

The sovereign supported the protestant cause on the continent as well, when she expected these actions to weaken the French. She assisted the Huguenots against the Guises in France by occupying Le Havre for a short time in 1562.

The queen did not escape armed rebellion either. However, the Northern Rebellion of 1569 did not achieve anything close to restoring Catholicism or freeing Mary, Queen of the Scots.[146] These interventions although lesser in scope than the French campaigns of Henry VIII cost the queen an enormous sum. The Scottish support had consumed some thousand pounds, the Irish garrisons £30,000 a year, the failed occupation of Le Havre was even dearer with a price closing to £250,000.[147]

Nevertheless the majority of costs arose only after 1585, near the end of the queen's reign in 1603. During these years, the country was continually under threat by foreign wars on many sides. Elizabeth I garrisoned troops in Brill, Flushing, Ostend and Bergen against the

[143] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 207.
[144] Bindoff, S. T. *Tudor England*. Harmondsworth: Penguin Books Ltd., 1950. 174.
[145] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 278.
[146] Bindoff, S. T. *Tudor England*. Harmondsworth: Penguin Books Ltd., 1950. 208-210.
[147] Lockyer, Roger. *Tudor and Stuart Britain 1471-1714*. New York: St. Martin's Press, 1964. 211.

Spanish till 1603, and additional expeditional forces were sent on campaigns in the Netherlands. Besides the garrisons, she supported Henry IV of France with troops in the period of 1589-1596.[148]

To understand the enormous toll of war on the nation of around 3,500,000-4,000,000 people at the end of the 16th century, we have to compare the estimated number of soldiers. In 1591, the possible recruitable militia amounted to 104,000 men, which is more than two per cent of the total population. Professor Elton estimated that around 20,000 men were sent to France, 20,000 to the Netherlands, 17,000 men on naval expeditions and 25,000 for the occupation of Ireland over the course of years. Also, the new gunpowder weapons required the expensive rearming of troops which meant an increased cost.

The costs of the war in the Netherlands amounted to over £2,000,000 during the period. The putting down of the Tyrone rebellion with other campaigns combined on the isle cost the crown more than £4,000,000. The cost of the land campaigns were supplemented by the costs of the naval expeditions. The Cadiz and Azores expeditions (1596-97) alone took nearly £200,000 from the treasury. The mobilization against the Great Armada in 1588 was even more expensive.[149] Clay estimates the costs of the Spanish war only at £400,000, but this is a contradiction to estimation of Professor Elton.[150]

These staggering sums were naturally paid over years, but the crown's yearly income was not more than £300,000 a year in the period of Elizabeth I. This and the fact that Elizabeth I and Henry VIII died in heavy debt due to their active foreign military activity, show the incredible strain the wars put on both on the government and the economy. The increased demand in times of war must have exerted a pull on the prices, which was exacerbated by other phenomenon, such as, the debasements after the French Campaigns of

[148] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 357.
[149] Elton, Geoffrey Rudolph. *England under the Tudors*. London: Routledge, 1991. 360-362.
[150] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 48.

Henry VIII in the 1540s or the particularly bad harvests of the 1590s in the time of the Spanish war.[151] The influence of military conflicts seems plausible even if we consider the devaluation of currency over the century meaning lower actual costs than suggested by the very high numbers, as the wars became more frequent, larger in scope and were occurring further away from the English mainland.

6. Conclusion:

During my research, I have found several possible causes behind the price revolution in England. The monetarist causes represented by Hamilton's Spanish bullion influx theory could not affect the English economy to the extent as he supposed. [152] Challis stated that rather it was the internal debasements which exerted detrimental forces on the general price level of the country in a specific period, as tampering with the availability of money supply and its value seriously disrupted both the internal economic processes and international trade. Besides, due to the development of the economics, other factors, such as, the influence of velocity of circulation should be taken into account, even if their effect is difficulty to document with contemporary sources.

However, monetarist causes alone could not answer for the changes in the course of the price revolution outside the years of debasement and for its protracted length. Therefore the growth of the population should be taken into consideration, too. The increase of the populace certainly had shown an upward trend, which may account for the discrepancy between food and industrial prices. Additionally, the changes in the condition of agriculture should be considered when examining the price revolution, based on the fact, that husbandry

[151] Clay, C. G. A. *Economic expansion and social change: England 1500-1700, People, land and towns*. Vol. I. Cambridge: Cambridge University Press, 1984. 48.

[152] Hamilton, Earl J. *American Treasure and the Price Revolution in Spain, 1501-1650*. Vol. XLIII. New York: Octagon books, 1965. in Munro, John. "Economic History Association." 29 April 2012. *American Treasure and the Price Revolution in Spain, 1501-1650, Review Essay by John Munro.* 25 April 2012. <http://eh.net/node/2741>.

was the most important branch of production due the number of people involved and reliance on the food produced. Moreover, mid-Tudor and later Tudor wars heavily strained the government's expenditures.

When looking closely at the listed reasons for the price revolution, one realizes that they interacted with each other during the period in an extremely complicated way. Their combined effect formed the changes of prices in England without one overruling the other completely. It is unlikely, that one will ever find the exact proportion of their influence due the complexity of the economic system and due to the lack of precise data available on the period. Nevertheless, it is still possible to form theories of the trends observed from the available data.

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