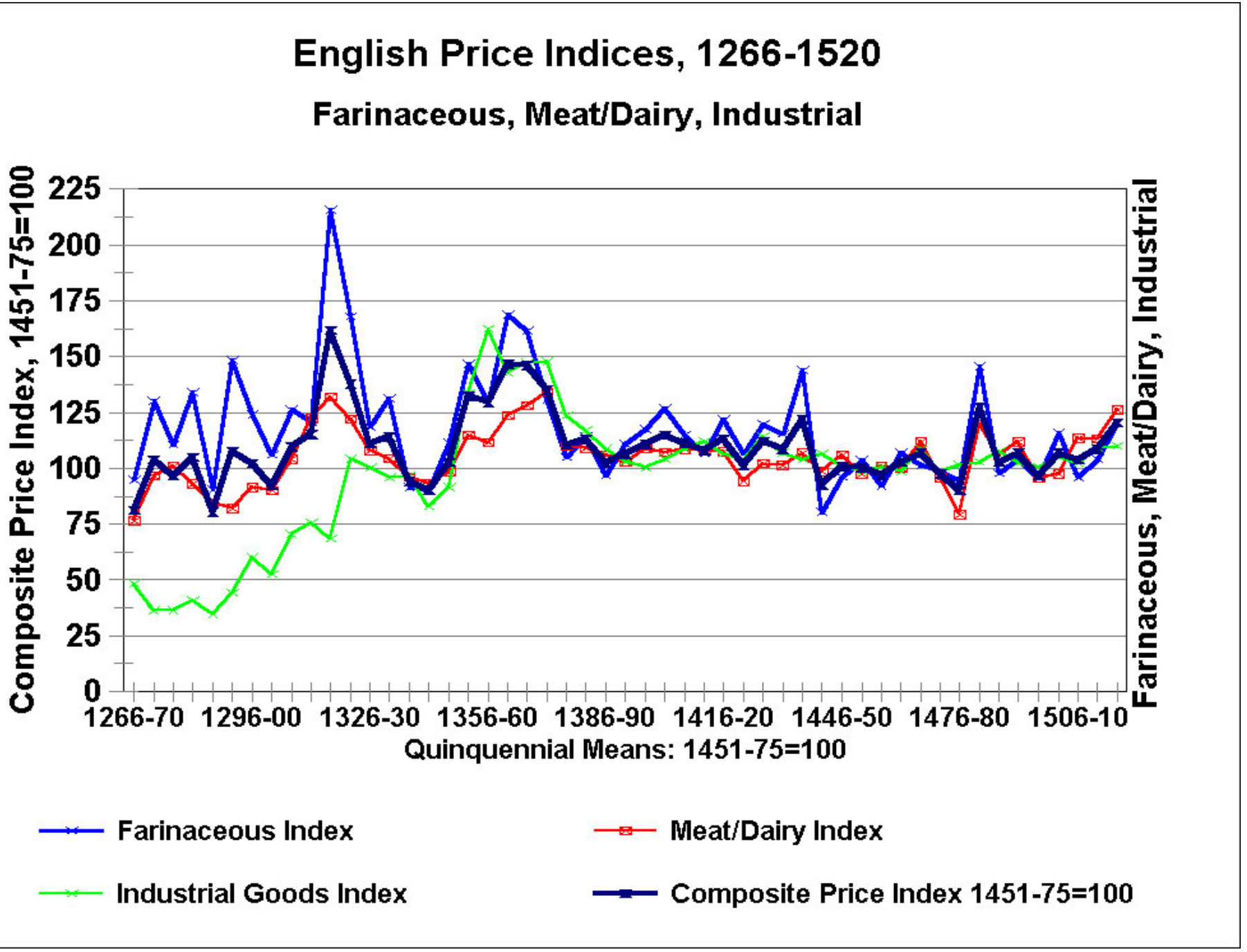
II. MACRO- AND STRUCTURAL CHANGES IN THE EUROPEAN ECONOMY, 1290 - 1520

D. Money and Population in Late-Medieval Price Movements and 'Long Waves'

5. **9 October 2013** **Epstein** ch. 6, 8-9 **Brady**, ch. 5 (Munro); **Cipolla**, ch. 7, 8; **Davis** chs. 6, 14; 2	**4**	**ECONOMIC TRENDS and 'Long Waves':** The Debate about the Black Death and the Late-Medieval 'Great Depression': Slump and Economic Recovery, 1320 - 1520

Commercial Revolution Era: ca. 1180 – 1320 (1): PHASE A

- **Culmination and conclusion of powerful Phase A period of economic growth**
- **Expanding population**, with Germanic expansion into Slavic eastern Europe
- **Expanding money supplies**: silver mining boom
- **and inflation**, reaching a peak about 1315-20
- **Expanding trade with both Byzantine Empire and the Islamic caliphates** in Middle East and North Africa: with African gold influxes


English Price Indices, 1266-1520
Farinaceous, Meat/Dairy, Industrial
Composite Price Index, 1451-75=100
Farinaceous, Meat/Dairy, Industrial
225
200
175
150
125
100
75
50
25
0
1266-70
1296-00
1326-30
1356-60
1386-90
1416-20
1446-50
1476-80
1506-10
Quinquennial Means: 1451-75=100
Farinaceous Index
Meat/Dairy Index
Industrial Goods Index
Composite Price Index 1451-75=100

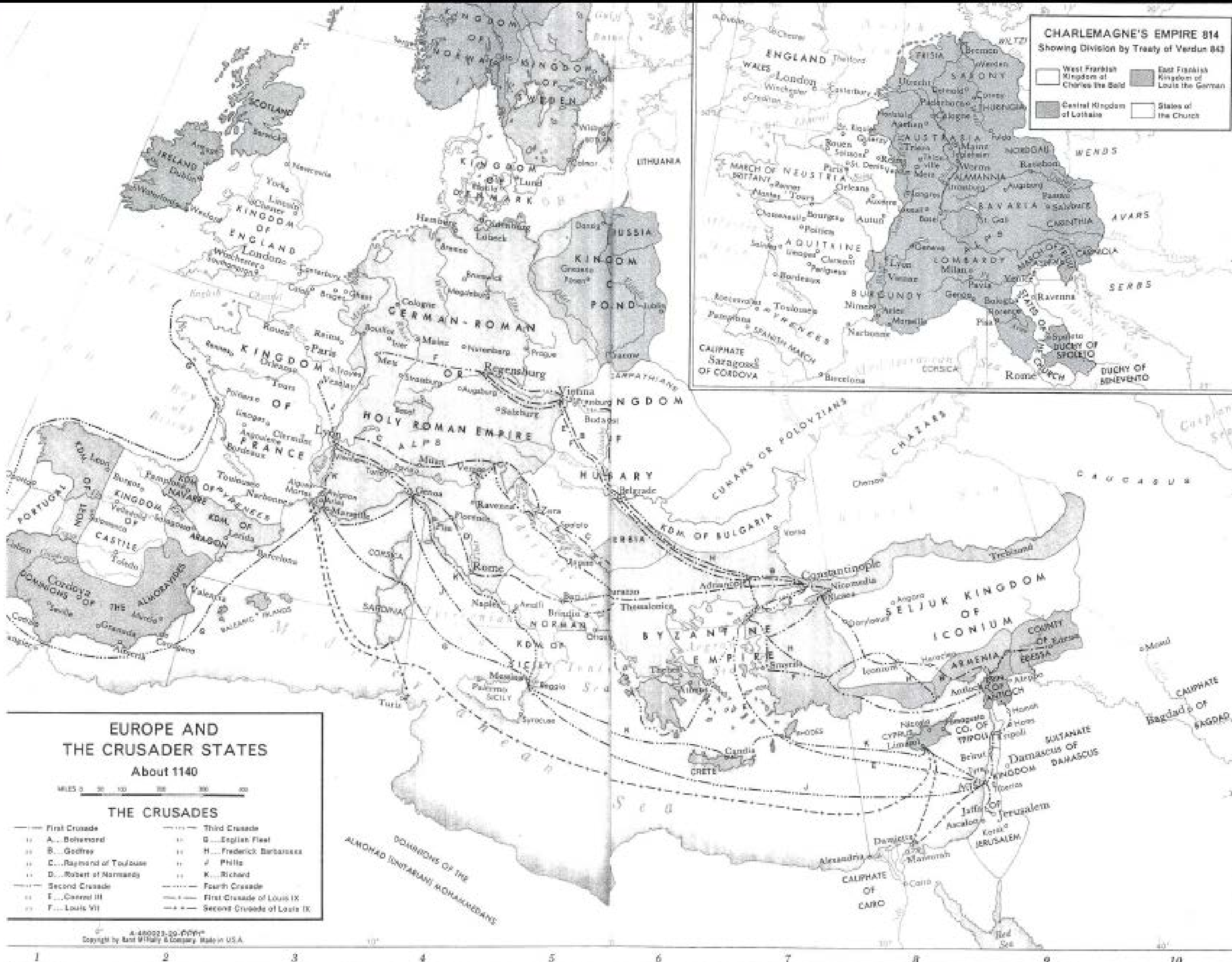
End of Commercial Revolution era: demographic crises ca. 1290 – 1320?

- (1) **Population growth: signs of an incipient Malthusian crisis**
- (2) **Great European famine**: 1315 – 1322
- (3) **Evidence of demographic decline**:
- in Essex (eastern England), Normandy, Provence (France), Tuscany (Italy)

End of Commercial Revolution Era: spreading warfare from 1290s (1)

- (1) **In eastern Mediterranean**
- **Muslim (Mamluk) conquest of remaining Crusader states** in Palestine: 1291
- **Papal ban on Muslim trade:** to 1345 (licences)
- **Wars between Venice and Genoa** for control of Black Sea and eastern Mediterranean: 1291-99
- **Ottoman Turkish conquests of Byzantine** territories in Asia Minor and Balkans: from 1302
- **Mongol attacks** on Italian colonies in Black Sea
- **Anarchy in Mongol Khanate of Persia:** from 1335


Ragusa
SERBIA
1330
Küstendil
Adrianople
Pera
Sinope
Trapezus
Amastris
Samsun
Emp. of TRAPEZUS
BYZANTINE EMPIRE
Durazzo
Thessalonica
Constantinople
Despotate of EPIRUS
Janina
Nicaea
Brussa
OTTOMAN TURKS
1243 MONGOLS
Corfu
Duchy of ATHENS
Negroponte
Smyrna
TURKS
1259–60
Caraman
Iconium
Pty of ACHAEA
Mistra
Modon
Duchy of NAXOS
Kdm of LITTLE ARMENIA
Lajazzo
Pty of ANTIOCH
Rhodes
Crete
MAMELUK EMPIRE
Kdm of CYPRUS
County of TRIPOLIS
Genoese possessions



EUROPE AND
THE CRUSADER STATES
About 1140
THE CRUSADES
First Crusade
A...Bohemond
B...Godfrey
C...Raymond of Toulouse
D...Robert of Normandy
Second Crusade
E...Conrad III
F...Louis VII
Third Crusade
G...English Fleet
H...Frederick Barbarossa
J Philip
K...Richard
Fourth Crusade
First Crusade of Louis IX
Second Crusade of Louis IX
CHARLEMAGNE'S EMPIRE 814
Showing Division by Treaty of Verdun 843
West Frankish Kingdom of Charles the Bald
East Frankish Kingdom of Louis the German
Central Kingdom of Lothaire
States of the Church
SCOTLAND
IRELAND
KINGDOM OF ENGLAND
London
KINGDOM OF FRANCE
Paris
GERMAN-ROMAN OR HOLY ROMAN EMPIRE
KINGDOM OF POLAND
KINGDOM OF HUNGARY
KDM. OF BULGARIA
BYZANTINE EMPIRE
Constantinople
SELJUK KINGDOM OF ICONIUM
COUNTY OF EDESSA
ARMENIA
KINGDOM OF JERUSALEM
Jerusalem
CALIPHATE OF CAIRO
CALIPHATE OF BAGDAD
SULTANATE OF DAMASCUS
DOMINIONS OF THE ALMORAVIDES
DOMINIONS OF THE ALMOHAD (UNITARIAN) MOHAMMEDANS
CUMANS OR POLOVZIANS
CHAZARS
CAUCASUS
Rome
CRETE
CYPRUS
SICILY
CORSICA
SARDINIA
LITHUANIA
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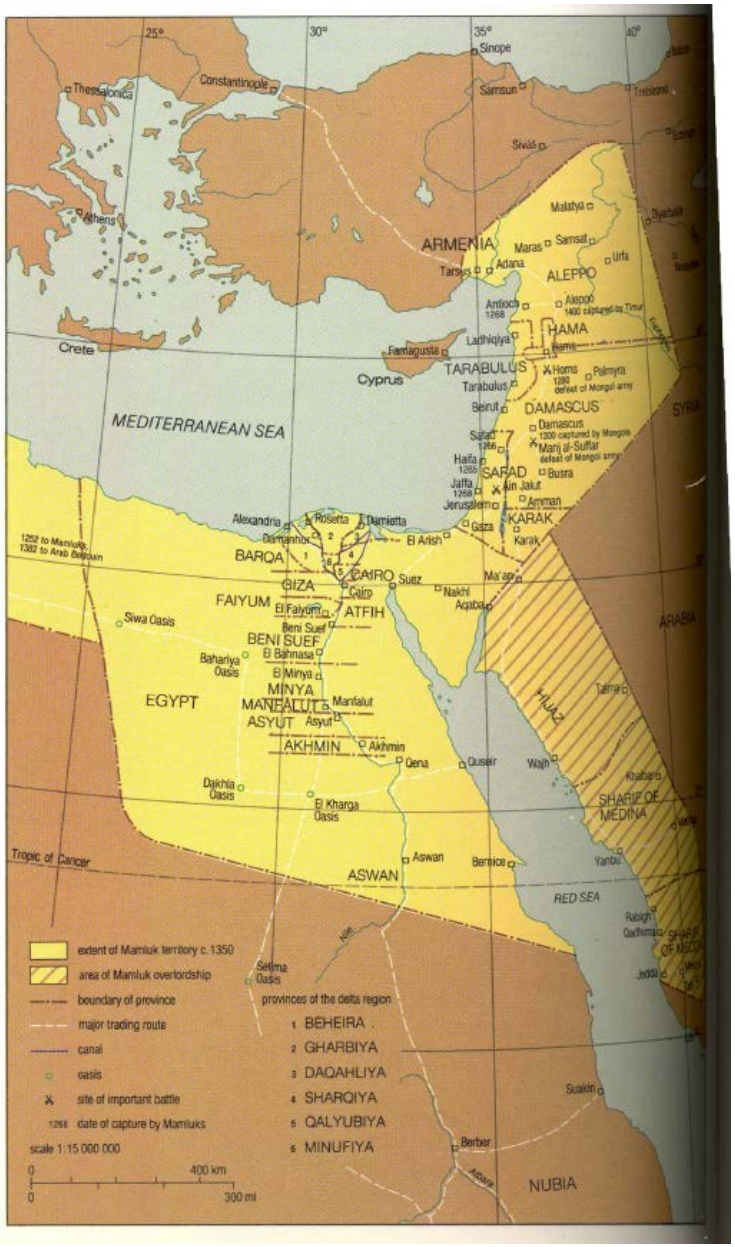
MEDITERRANEAN LANDS
AFTER 1204
Copyright by C.S. HAMMOND & Co., N.Y.
SCALE OF MILES
Fourth Crusade, 1202-04
Crusade of Friedrich II, 1228-29
Crusades of Louis IX, 1248-54 and in 1270
Venetian possessions
Genoese acquisitions after 1261 underlined: Pera
HOLY ROMAN EMPIRE
KINGDOM OF TWO SICILIES
K. OF HUNGARY
K. OF SERBIA
K. OF BULGARIA
LATIN EMPIRE OF CONSTANTINOPLE
EMPIRE OF NICAEA
EMPIRE OF TREBIZOND
SULTANATE OF ICONIUM OR RUM
KHANATE OF THE GOLDEN HORDE
KINGDOM OF GEORGIA
KINGDOM OF CYPRUS
LESSER ARMENIA
KURDISTAN
ORTUQIDS
ZANGIDS
ABBASID CALIFATE
THE AYYUBIDS
HAFSIDS
ZIYANIDS
THE ALMOHADES
KHWARIZM SHAHS
AZERBAIJAN
KHELAT
MEDITERRANEAN SEA
BLACK SEA
ADRIATIC SEA
IONIAN SEA
Arabia


25°
30°
35°
40°
Sinope
Constantinople
Thessalonica
Samsun
Trebizond
Sivas
Athens
Malatya
Diyarbakir
ARMENIA
Maras
Samsat
Tarsus
Adana
Urfa
ALEPPO
Antioch
1268
Aleppo
1400 captured by Timur
HAMA
Crete
Famagusta
Ladhiqiya
Hama
TARABULUS
Homs
1281
defeat of Mongol army
Palmyra
Cyprus
Tarabulus
Beirut
DAMASCUS
SYRIA
MEDITERRANEAN SEA
Damascus
1300 captured by Mongols
Safad
1266
Manj al-Suffar
defeat of Mongol army
Haifa
1265
SAFAD
Busra
Jaffa
1268
Ain Jalut
Jerusalem
Amman
KARAK
Alexandria
Rosetta
Damietta
Gaza
Karak
Damanhur
El Arish
1252 to Mamluks
1382 to Arab Bedouin
BARQA
CAIRO
Suez
Ma'an
GIZA
Cairo
Nakhl
Aqaba
FAIYUM
El Fayum
ATFIH
ARABIA
Siwa Oasis
Beni Suef
BENI SUEF
El Bahnasa
Bahariya Oasis
El Minya
MINYA
EGYPT
MANFALUT
Manfalut
ASYUT
Asyut
HIJAZ
Taifa
AKHMIN
Akhmin
Qena
Quseir
Wajh
Dakhla Oasis
El Kharga Oasis
Khaibar
SHARIF OF MEDINA
Tropic of Cancer
Aswan
Berenice
Yanbo
ASWAN
RED SEA
Rabigh
Qadhimah
Selima Oasis
Jedda
extent of Mamluk territory c. 1350
area of Mamluk overlordship
boundary of province
major trading route
canal
oasis
site of important battle
1268 date of capture by Mamluks
provinces of the delta region
1 BEHEIRA
2 GHARBIYA
3 DAQAHLIYA
4 SHARQIYA
5 QALYUBIYA
6 MINUFIYA
Suakin
Berber
scale 1:15 000 000
0
400 km
0
300 mi
NUBIA


SLAVS
Paris
KINGDOM OF THE FRANKS
Poitiers
CANTABROS
BURGUNDY
Lombards
CROATS
Zagreb
MAGYARS
SERBS
Ragusa
Durazzo
Ochrida
BULGARS
Thessalonica
Constantinople
Cherson
Rome
Naples
BYZANTINE EMPIRE
ANDALUSIA
Toledo
KINGDOM OF THE VISIGOTHS
Empire
Syracuse
Cartagena
Malagra
Reggio
Antioch
Aleppo
ARMENIA
AZERBAIJAN
Tiflis
Mosul
Samarkand
TRANSOXIANA
KHORASAN
TABARISTAN
Kabul
QUHISTAN
PUNJAB
Baghdad
IRAQ
Kufa
Basra
IFRIQIYA
Barqa
Alexandria
Jerusalem
Beirut
SYRIA
Damascus
EGYPT
AL MAGHREB
KIRMAN
MAKRAN
Hormuz
SIND
HEJAZ
Medina
Mecca
ARABIA
HADRAMAUT
OMAN
Yemen
Legend
The Expansion of Islam
Caravan routes
Borders of the Byzantine Empire
Expansion of Islam up to the death of Muhammad (632)
Expansion under the four caliphs (632–656)
Expansion under the Umayyads (661–750)
Expansion under the Abbasids (750–945)

End of Commercial Revolution Era: spreading warfare from 1290s (2)

- (2) **Warfare in western Mediterranean and western Europe**
- **Spain: invasions by North African Merinids** (Berbers): invading Castile, Aragon, Grenada, from 1291
- **Italy: Wars of the Sicilian Vespers, from 1282-1302**; followed by civil wars (**Guelfs vs Ghibelllines**) and invasions of Italy from 1315 to the 1380s
- **England, France, and Flanders**: **wars and invasions** from 1290s to 1316
- **All these wars, when resumed, led into the Hundred Years' War (1337-1453)**

Late-Medieval 'Great Depression' of 14th and 15th centuries

- **All the features of a classic Phase B era (Simiand)**
- -**era of protracted, widespread warfare:** not seen since the later Carolingian Empire
- **FALLING POPULATION**: from **Great Famine** era and especially from the **Black Death**, lasting, in northern Europe, until early 16th century
- **MONETARY CONTRACTIONS:** last day's lecture
- **PRICE MOVEMENTS**: alternating cycles of **inflation** (post-Black Death; wars, debasements) and **deflation**

Is the term Great Depression Justified?

- (1) **Can we define the term depression?**
- - can we define the term recession?
- **If western Europe lost 40% or more of its population,** would there have been a corresponding contraction in total output?
- **Would such an economic contraction justify the term 'Great Depression'?**
- **Was there increased capital investments and technological innovations** to compensate for the massive loss of labour (supply) and markets (demand)?

Was there a Depression?: the role of plagues and warfare 1

- (2) T**he negative roles of plague and warfare,**
- **Disrupting production and major trade routes**; disruptions of fairs
- **Transfer of international trade from overland to maritime routes**: which then fell victim to chronic naval wars and chronic piracy (**Van der Wee thesis**)
- - **concentrating trade** in far fewer hands (Italians)
- **The impact of commercial embargoes** and coinage debasements in disrupting or curbing trade
- **The impact of taxation**: both on trade (import and export duties, licence fees, etc) and consumption

Was there a Depression?: the role of plagues and warfare 2

- **Warfare meant enormous increases in public borrowing**: **which in turn meant massive increases in consumption taxes** to pay for that borrowing (interest, etc.)
- **Population decline**: meant fewer survivors to sustain the burden of paying increased mountains of debt for financing wars
- **Pessimism, in midst of plagues, wars, taxation, and economic disruption**: → **negative impact** on spending, investment, the circulation of money

Money and Prices during the late-medieval 'Great Depression' (1)

- (1) **DEFLATION: Termination of Commercial Revolution era:** from 1320s to 1340s:
- **evidence of both monetary scarcities and severe deflation,** at least in England
- **Possible explanations**: in previous lectures
- - **decline in European silver mining**
- - **bullion exports to finance** continental wars (but that pertains only to England)

Money and Prices during the late-medieval 'Great Depression' (2)

- (2) **INFLATION: after The Black Death, from 1347-48:**
- **the BD was followed not by deflation (as in Ricardo model),** but by horrendous **inflation**, lasting until the 1370s (England) or 1380s (Flanders)
- **Increases in per capita money supplies:** 'Men were dying but coins were not' (Herlihy)
- **Post-plague hedonistic spending sprees** ('eat, drink, and be merry – for tomorrow you die')': Boccaccio's *Decameron;* Italian art, sculpture, dress
- **Thus income velocity of money** rapidly increased
- **Effects of coinage debasements**: **to finance warfare** in France, Low Countries, Italy, Castile & Aragon (England: only in 1351, 1411)

Money and Prices during the late-medieval 'Great Depression' (3)

- (3) **DEFLATION: from 1370s to ca. 1415**
- - **decreases in the coined money supply**:
- from falling mining outputs, increased silver outflow (the East); and reduced gold inflows from Africa
- - **increased hoarding:** i.e., reductions in the income velocity of money: from fear and pessimism
- - **did falling population also reduce Velocity**??
- (4) **INFLATION: from ca. 1415 – ca. 1440**: from resumption of Hundred Years' War and more horrendous coinage debasements
- (5) **DEFLATION: from 1440s to 1470s**: as seen before

Bullion Famines and Deflation

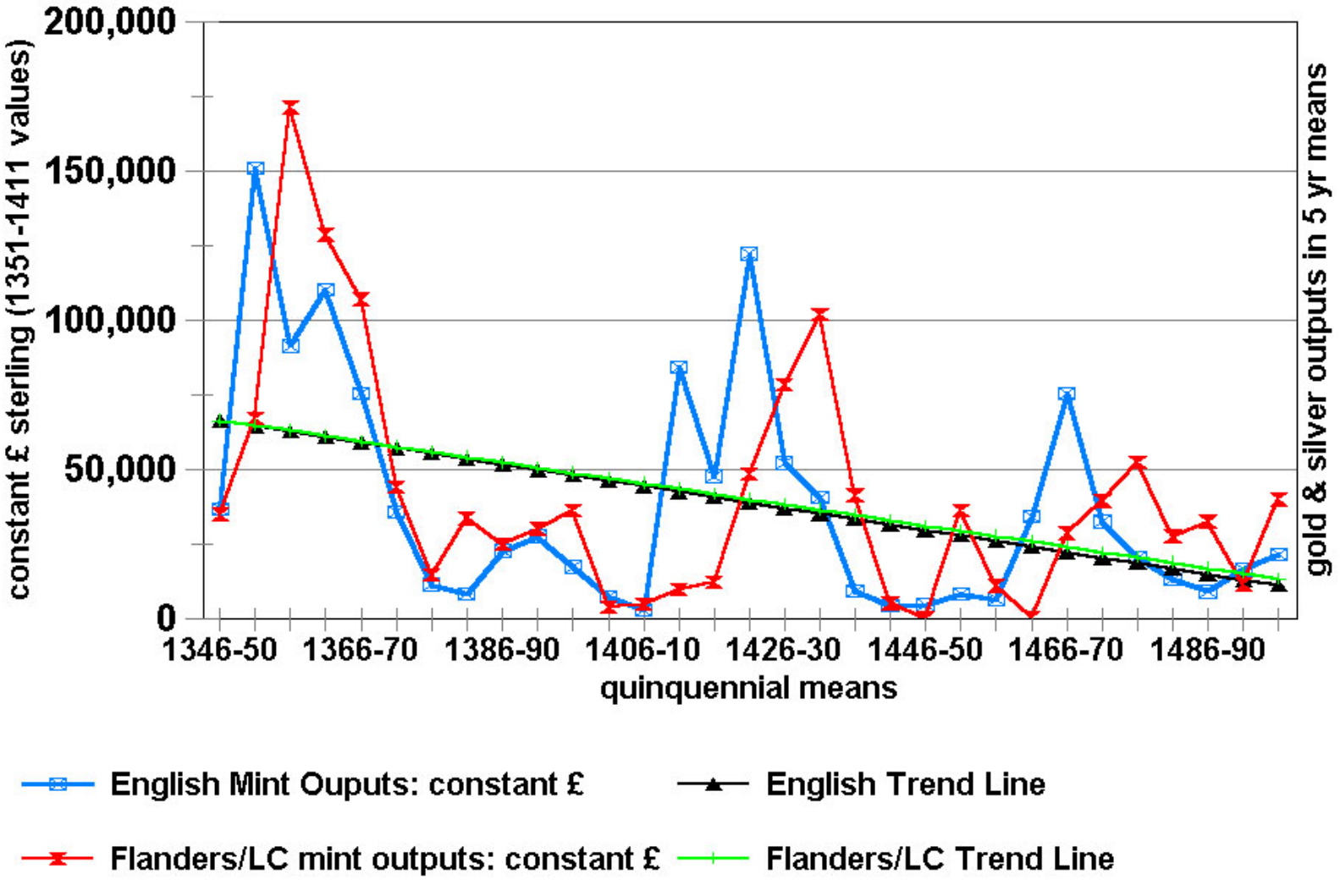
- 1) **Two 'Bullion Famine' eras with deflation:**
- a) **ca. 1370 – ca. 1415**
- b) **ca. 1440 – ca. 1470**
- 2) **Explanation in terms of Quantity Theory:**
- **MV = P.y** [100.0 * 4.5 = 100.0 *4.5 = 450.00]
- a) **possible contraction in M** – money stocks
- b) **probable fall in V** (income velocity of money): from hoarding and falling population
- c) **almost certain fall in 'y'** (**NNP**):
- d) **Thus a necessary fall in P** (**CPI** or price level)
  - The changes: **95.0 * 4.0 = 95.0 * 4.0 = 380.00**

Mayhew on English Money Supplies, Prices, National Income, Velocity in millions (£ sterling & population)

Date: Years	1300	1470	1526	1546	1561	1600	1643	1670
Money Supply:	0.900	0.900	1.400	1.450	1.450	3.500	10.000	12.000
Income Velocity	5.178	3.889	3.571	5.517	9.310	6.286	3.500	3.407
Price Level: PBH Index	104.800	104.600	135.100	172.300	289.300	478.300	597.800	635.700
National Income Y	4.660	3.500	5.000	8.000	13.500	22.000	35.000	40.880
Population:	6.000	2.300	2.300	2.900	3.000	4.100	5.100	5.000

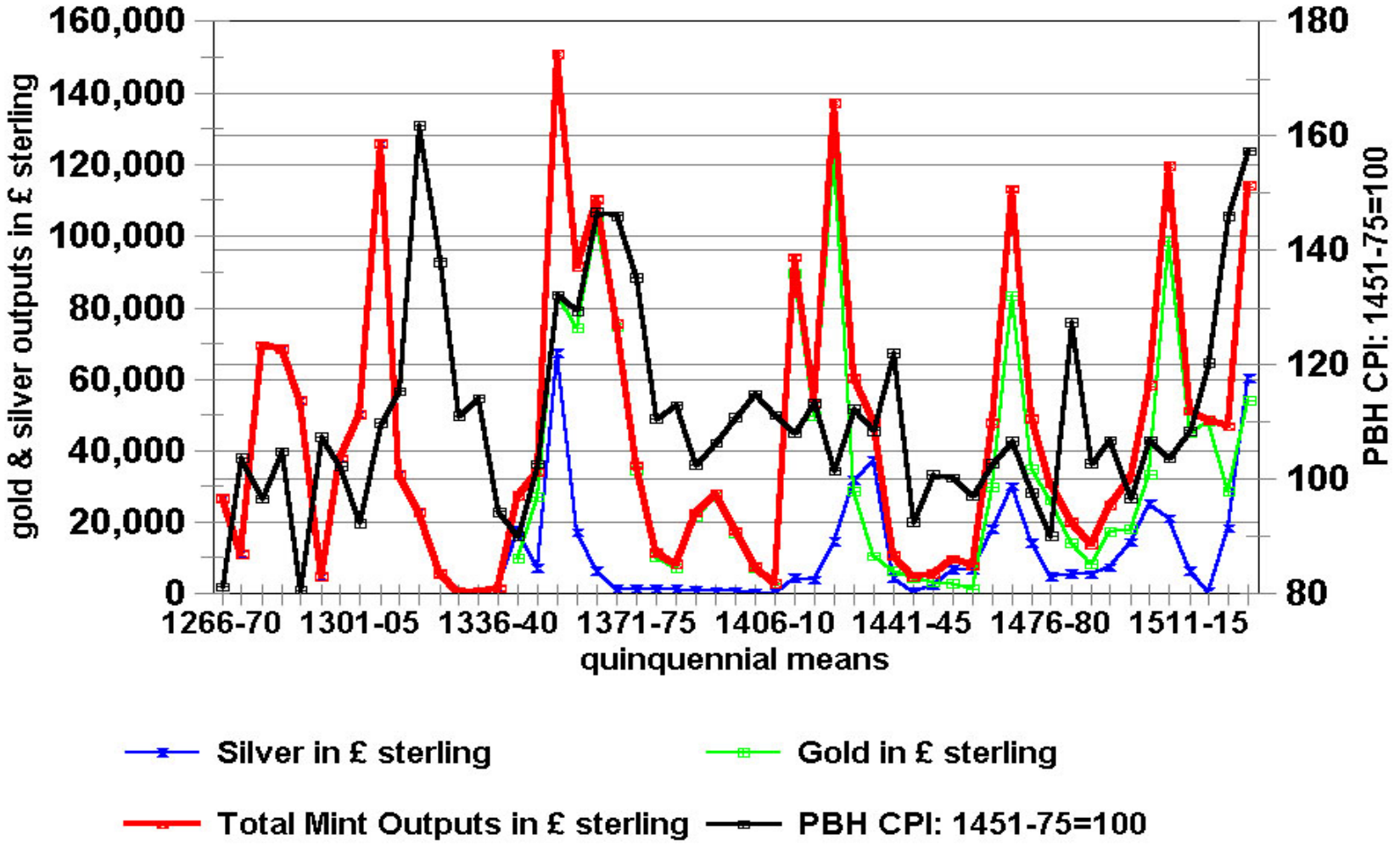
Mint Outputs of England & Flanders/LC

1346 - 1500 in constant £ sterling:



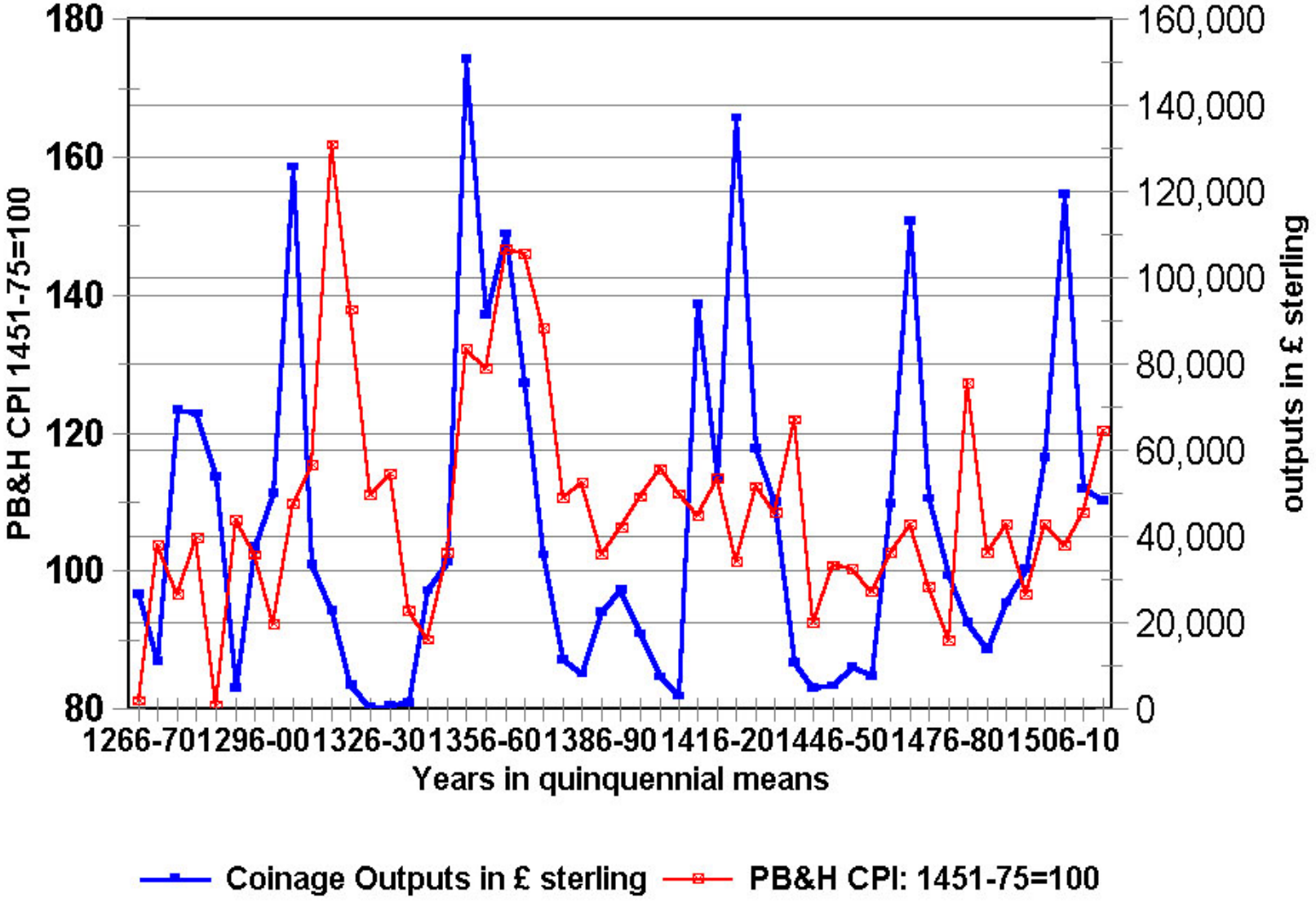
English Mint Outputs and Prices

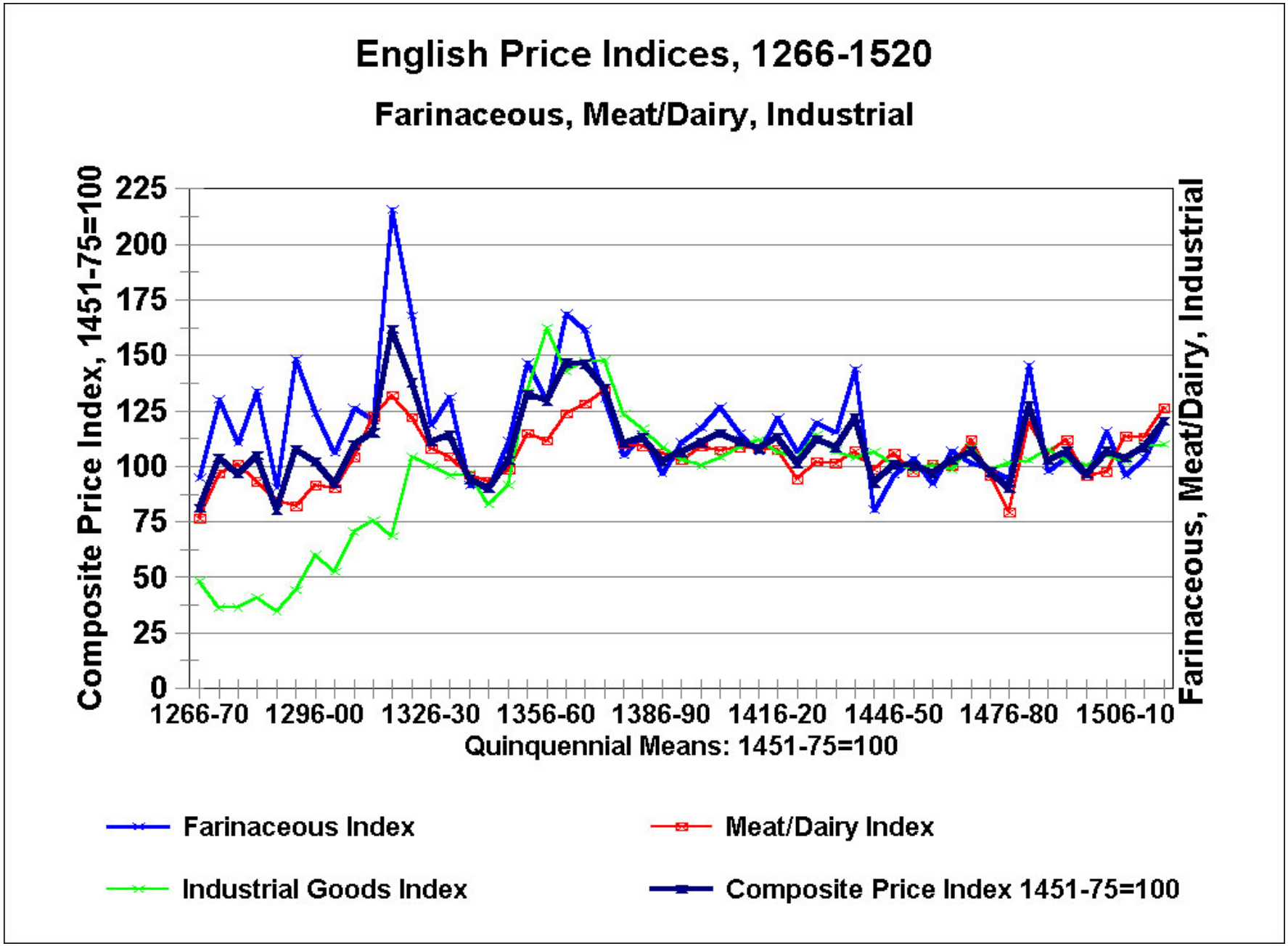
1266-70 to 1526-30: 5 yr means



Coinage and Prices in England

Mint Outputs and CPI, 1264-1520




English Price Indices, 1266-1520
Farinaceous, Meat/Dairy, Industrial
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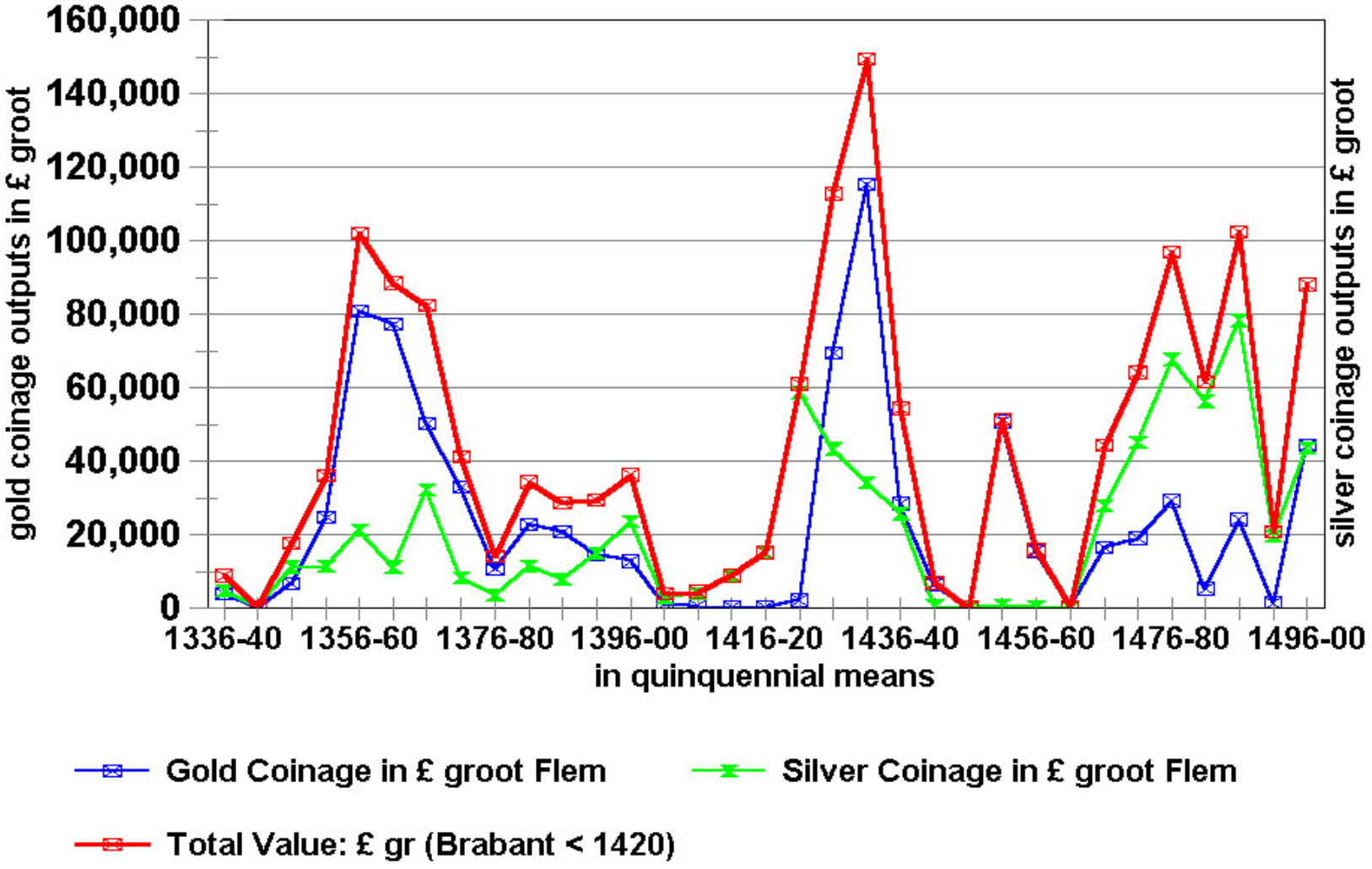
1476-80
1506-10
Quinquennial Means: 1451-75=100
Farinaceous Index
Meat/Dairy Index
Industrial Goods Index
Composite Price Index 1451-75=100

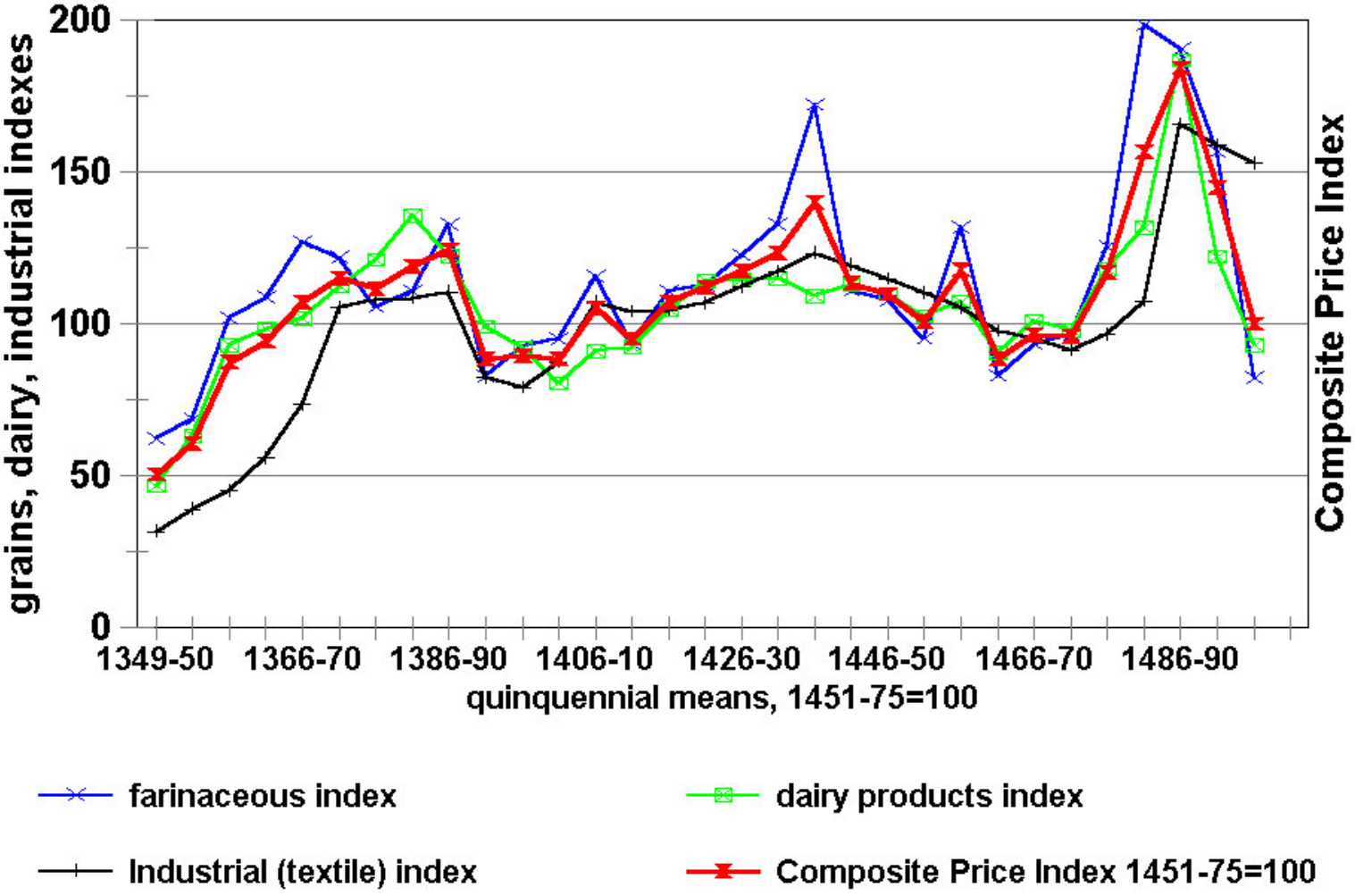
Flanders/Brabant:Gold & Silver Outputs

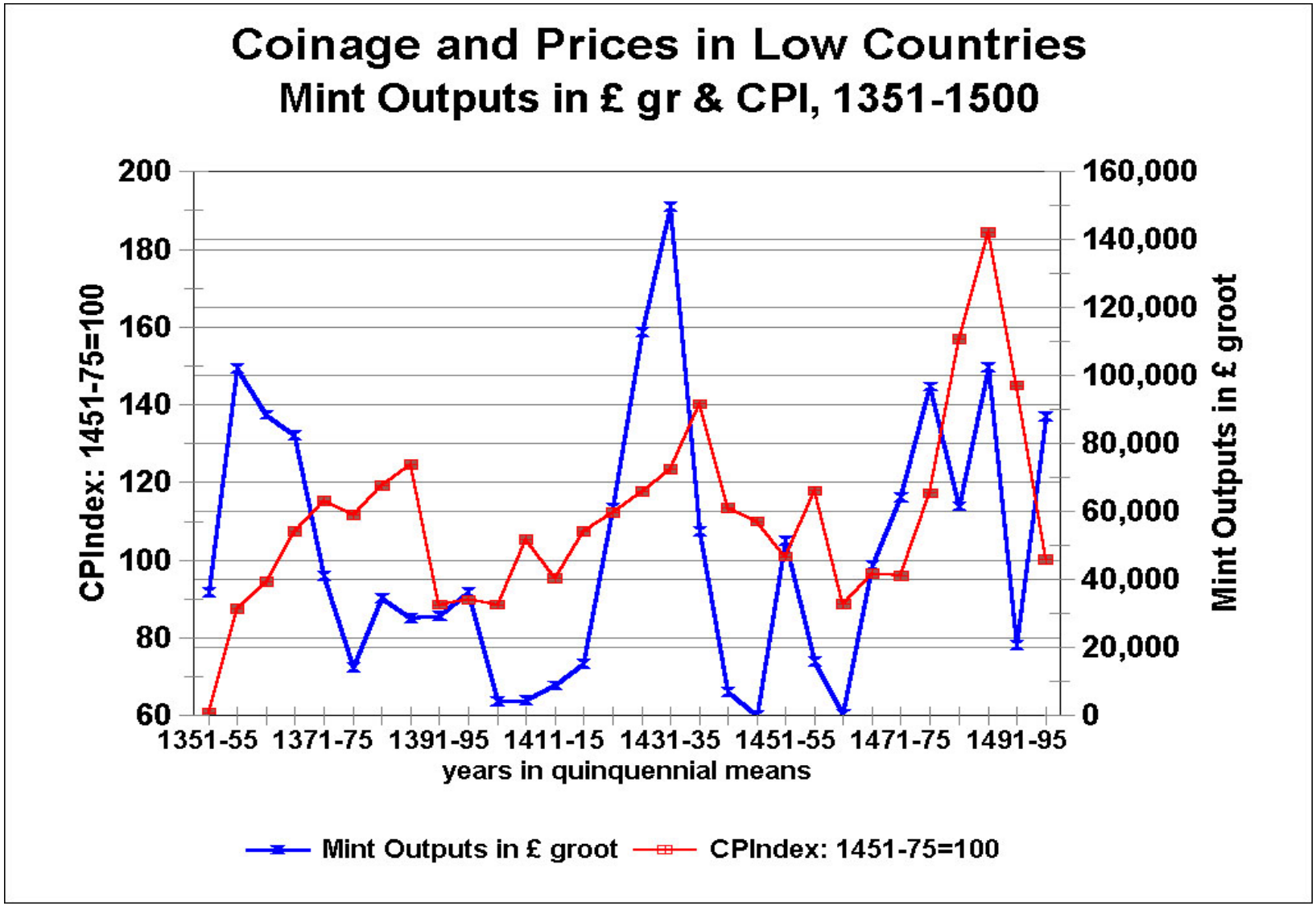
in £ groot Flemish: 1336-40 to 1496-00



Flemish Commodity Prices, 1346 - 1500

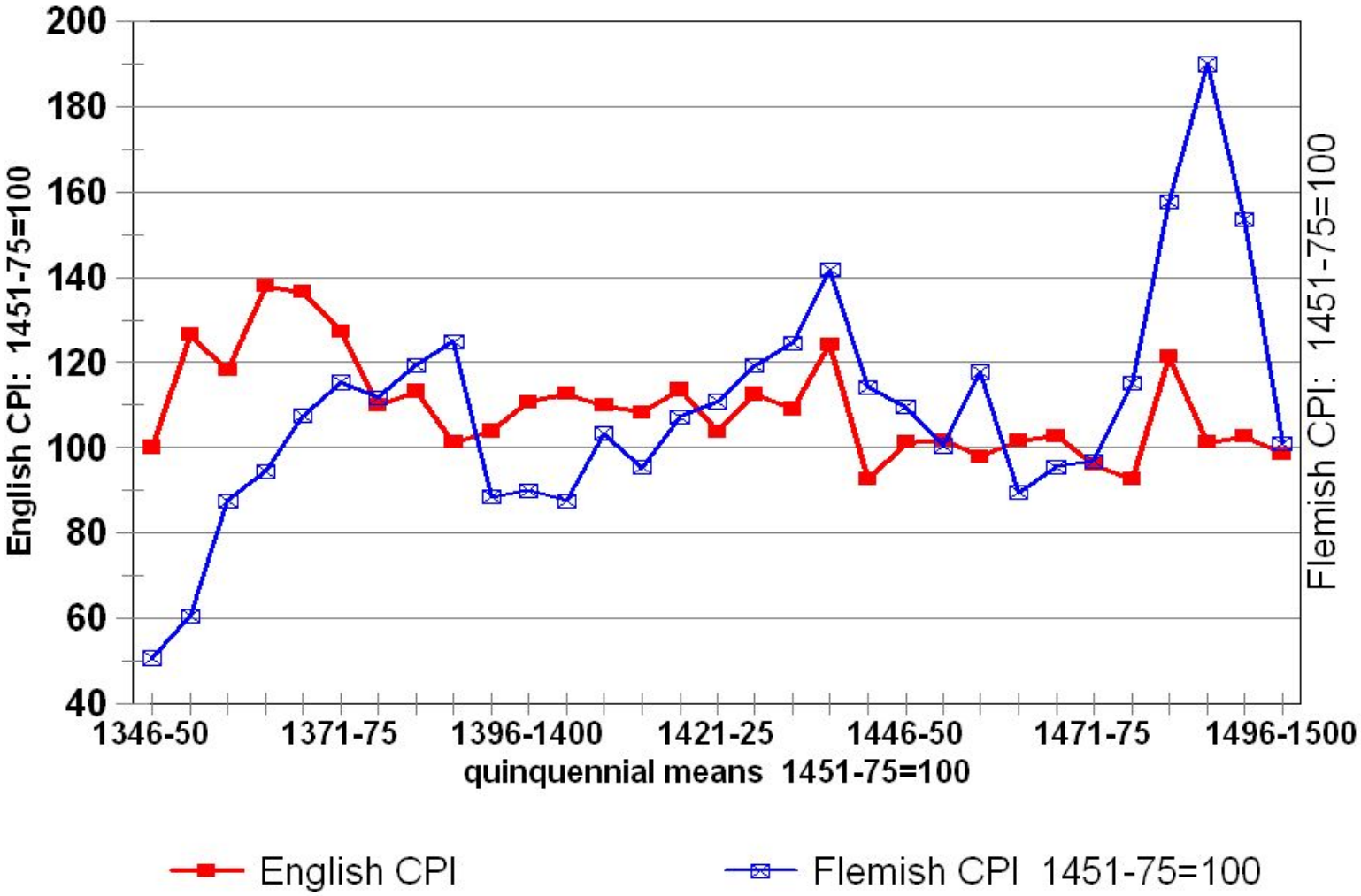
in 5 yr means: 1451-75=100




Coinage and Prices in Low Countries
Mint Outputs in £ gr & CPI, 1351-1500
CPIndex: 1451-75=100
Mint Outputs in £ groot
200
180
160
140
120
100
80
60
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
1351-55
1371-75
1391-95
1411-15
1431-35
1451-55
1471-75
1491-95
years in quinquennial means
Mint Outputs in £ groot
CPIndex: 1451-75=100

England & Flanders: Price Indexes

CPI in quinquennial means, 1346-1500

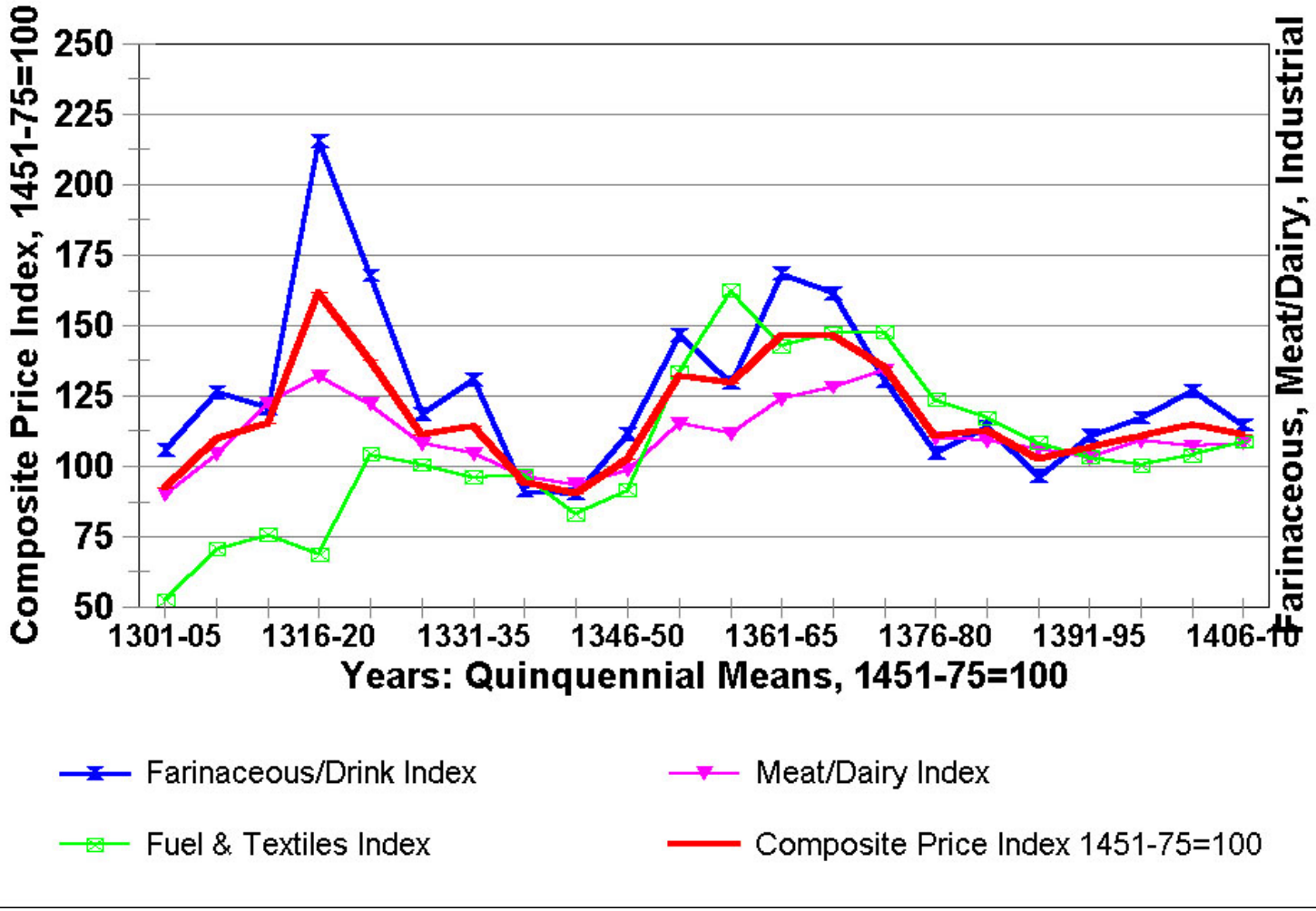


Economic Consequences of Deflation: why would it matter (then and now)?

- (1) **Fallacious views of the Classical School of Economics:**
- that money did **NOT** matter, for money was **'neutral'**
- **False view that prices rise together in proportion to** increases in the money supply (and reverse for contractions in the money supply, producing deflation)
- **False view that with inflation and deflation all prices move together, in tandem**: same percentage increases
- **Evidence in the graphs show that historically NEVER happens**: that **agricultural prices have wider variations** than industrial prices

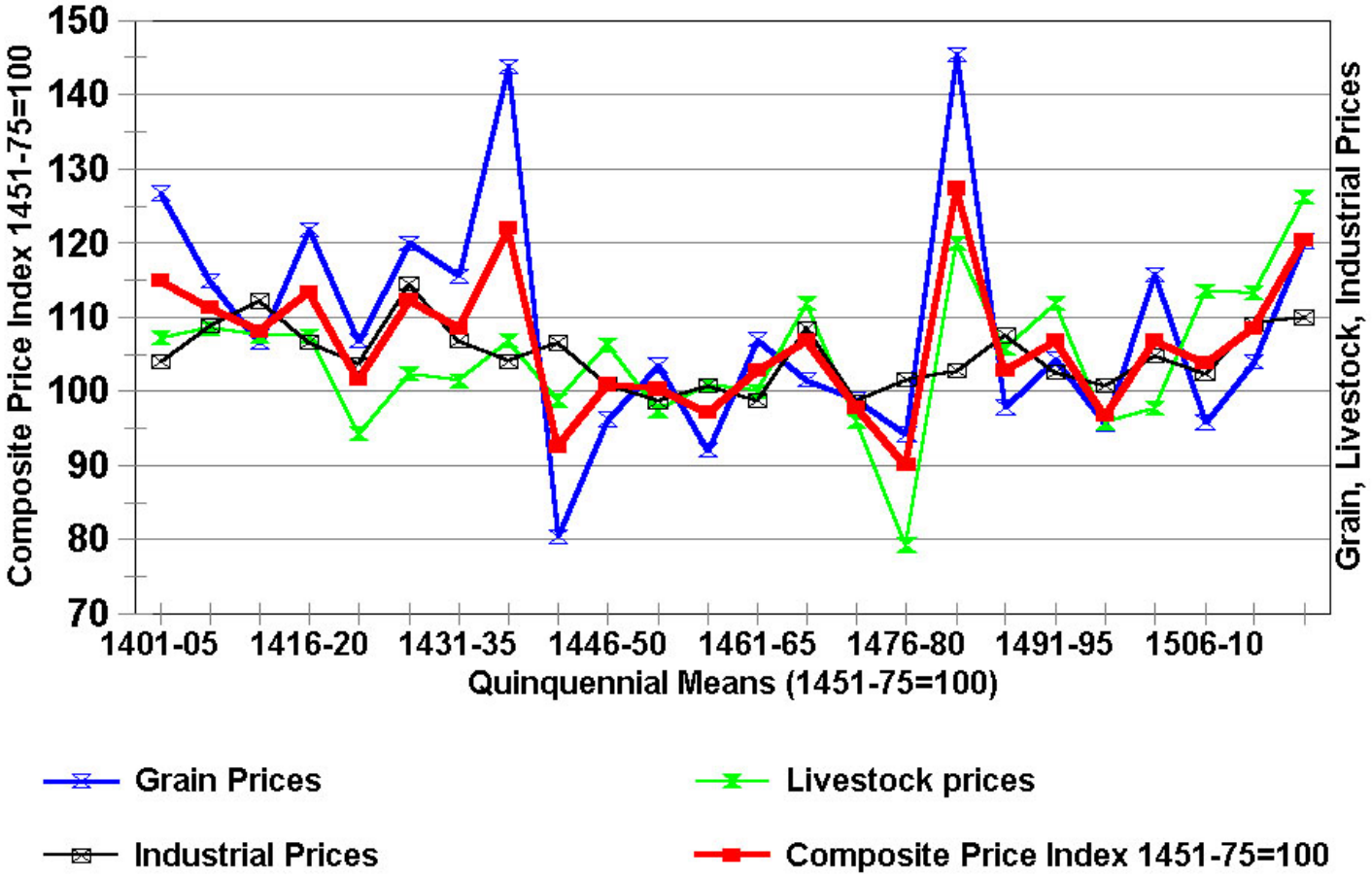
English Price Indices, 1301-1410

Farinaceous, Meat/Dairy, Industrial



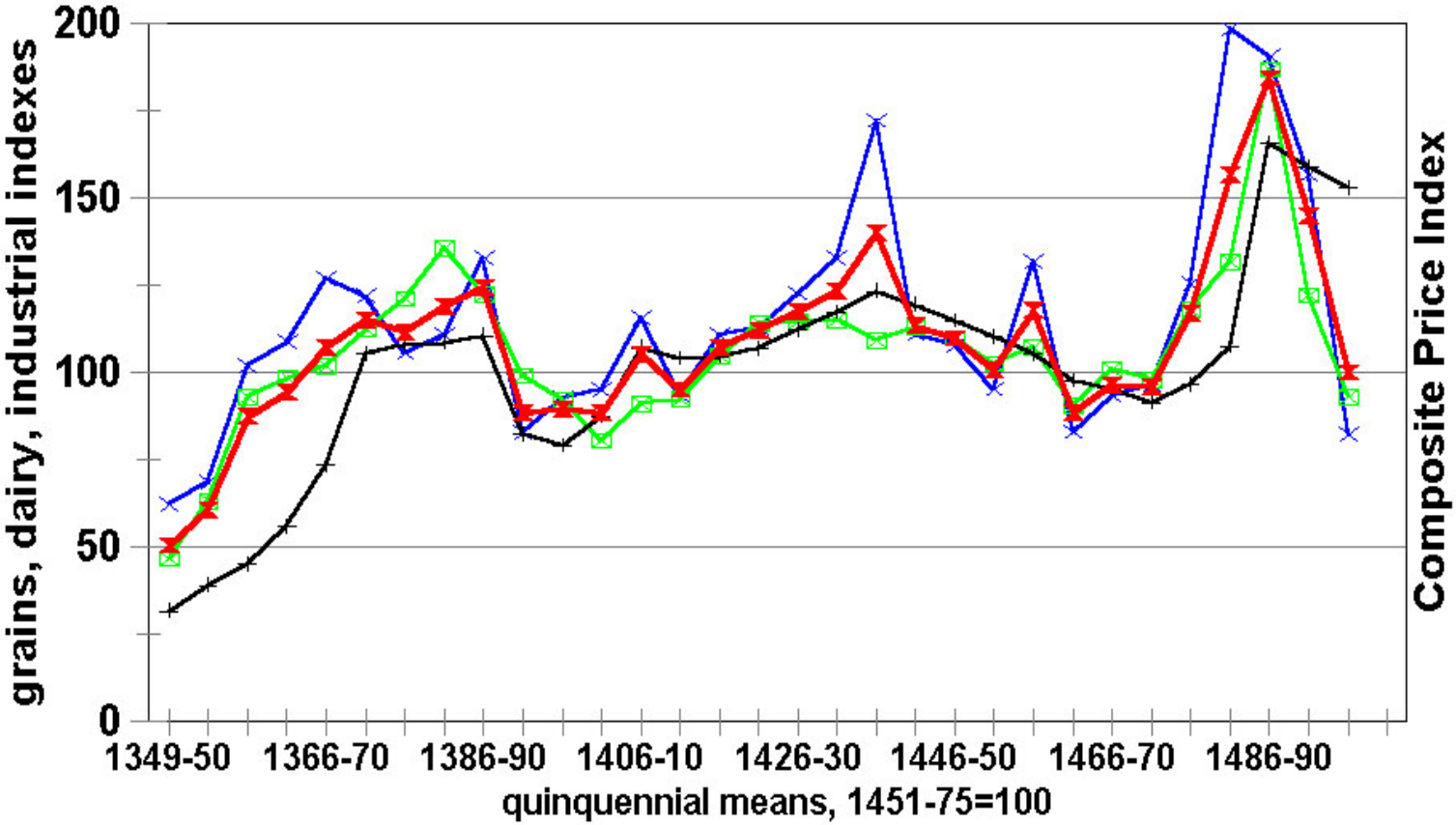
English Prices, 1401-1520

Farinaceous, Livestock, Industrial



Flemish Commodity Prices, 1346 - 1500

in 5 yr means: 1451-75=100

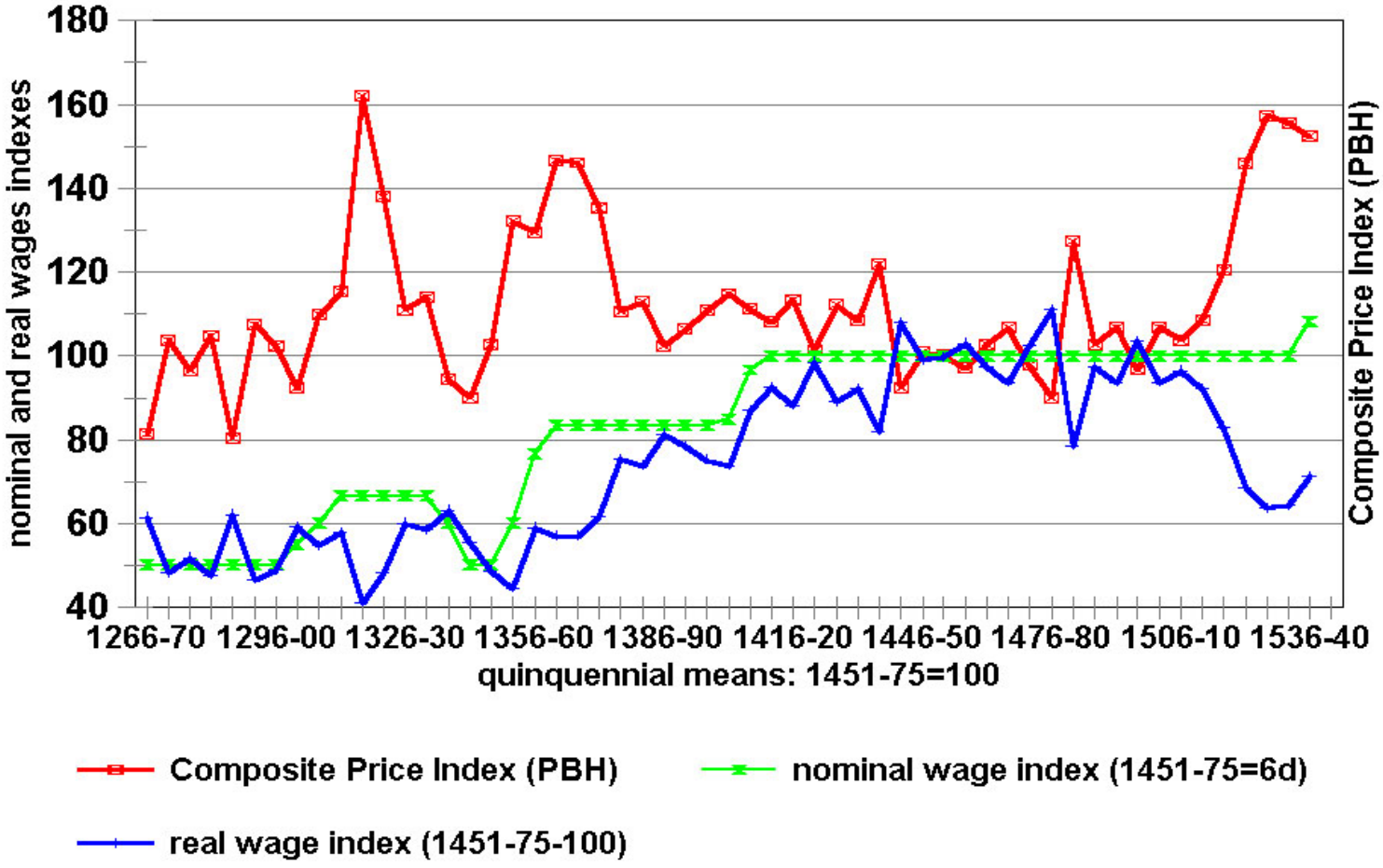


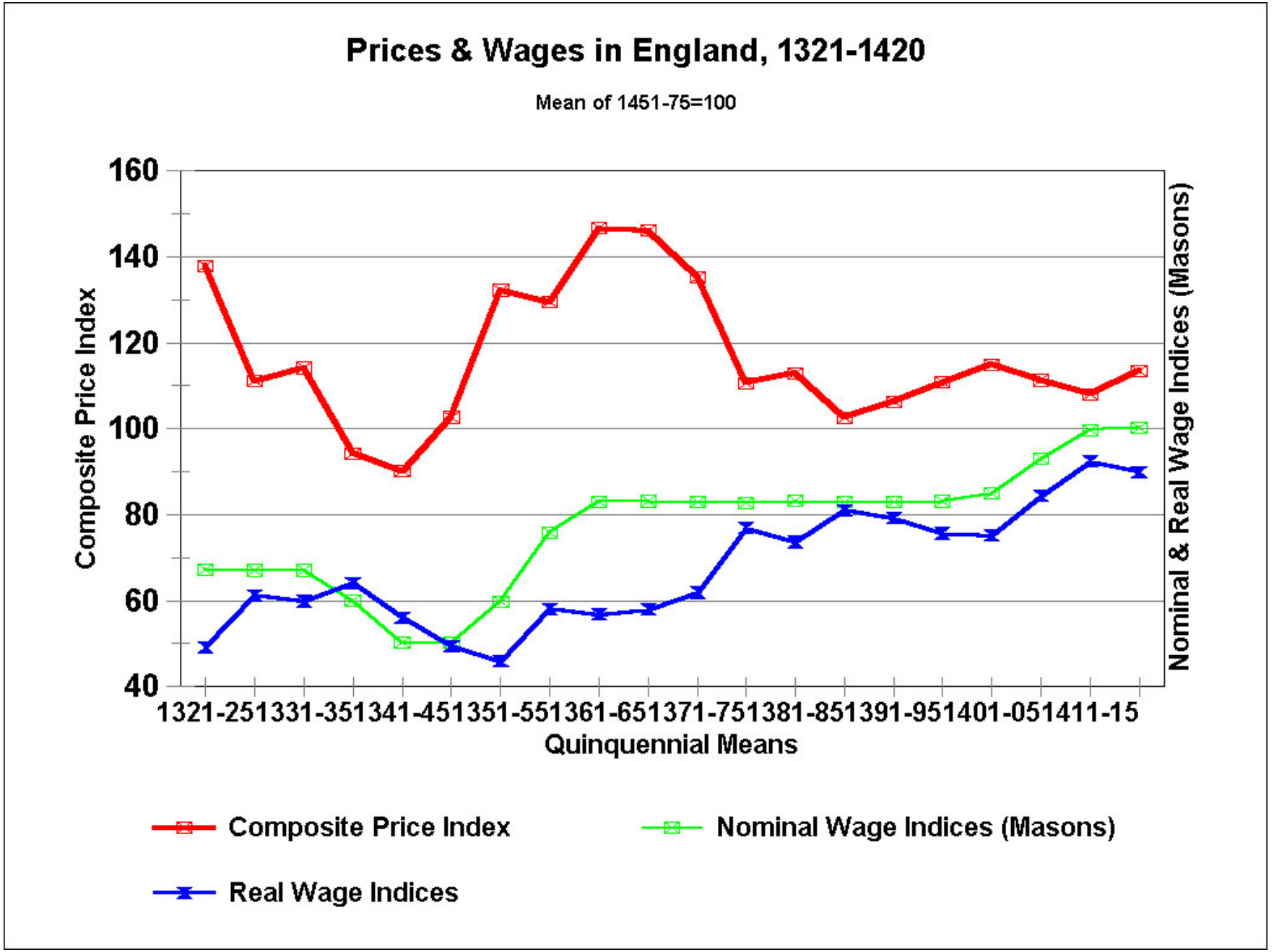
Adverse Problems of Deflation

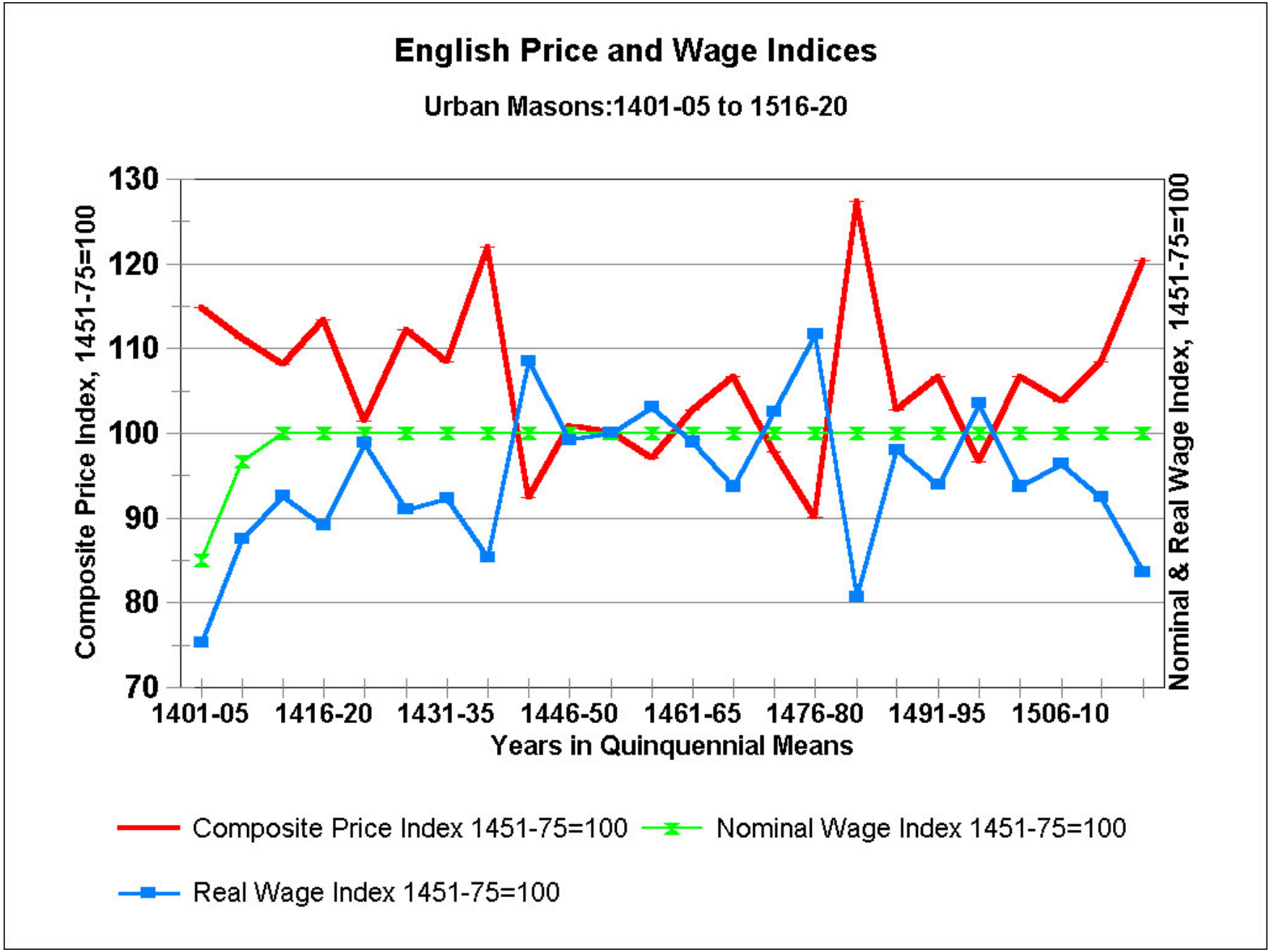
- (1) **That factor prices historically are 'sticky':**
  - **do not change in correspondence** with changes in the overall Consumer Price Index (let alone with changes in the money supply)
- (2) **Factor prices are especially 'downward sticky'** during deflations
- (3) **Thus deflation threaten entrepreneurs and merchants with rising factor costs: →**
  - **rising real wages**: especially with institutional wages
  - **rising real interest rates:** in borrowing capital
  - **rising real rents:** in leasing land and buildings
- (4) **Problem: factor prices (costs) often determined by long-term contracts**, not adjusted by changes in price levels

English Builders' Wages, 1266 - 1540

nominal & real wage indexes: 5 yr mean




Prices & Wages in England, 1321-1420
Mean of 1451-75=100
Composite Price Index
Nominal & Real Wage Indices (Masons)
160
140
120
100
80
60
40
1321-25
1331-35
1341-45
1351-55
1361-65
1371-75
1381-85
1391-95
1401-05
1411-15
Quinquennial Means
Composite Price Index
Nominal Wage Indices (Masons)
Real Wage Indices


English Price and Wage Indices
Urban Masons:1401-05 to 1516-20
Composite Price Index, 1451-75=100
Nominal & Real Wage Index, 1451-75=100
130
120
110
100
90
80
70
1401-05
1416-20
1431-35
1446-50
1461-65
1476-80
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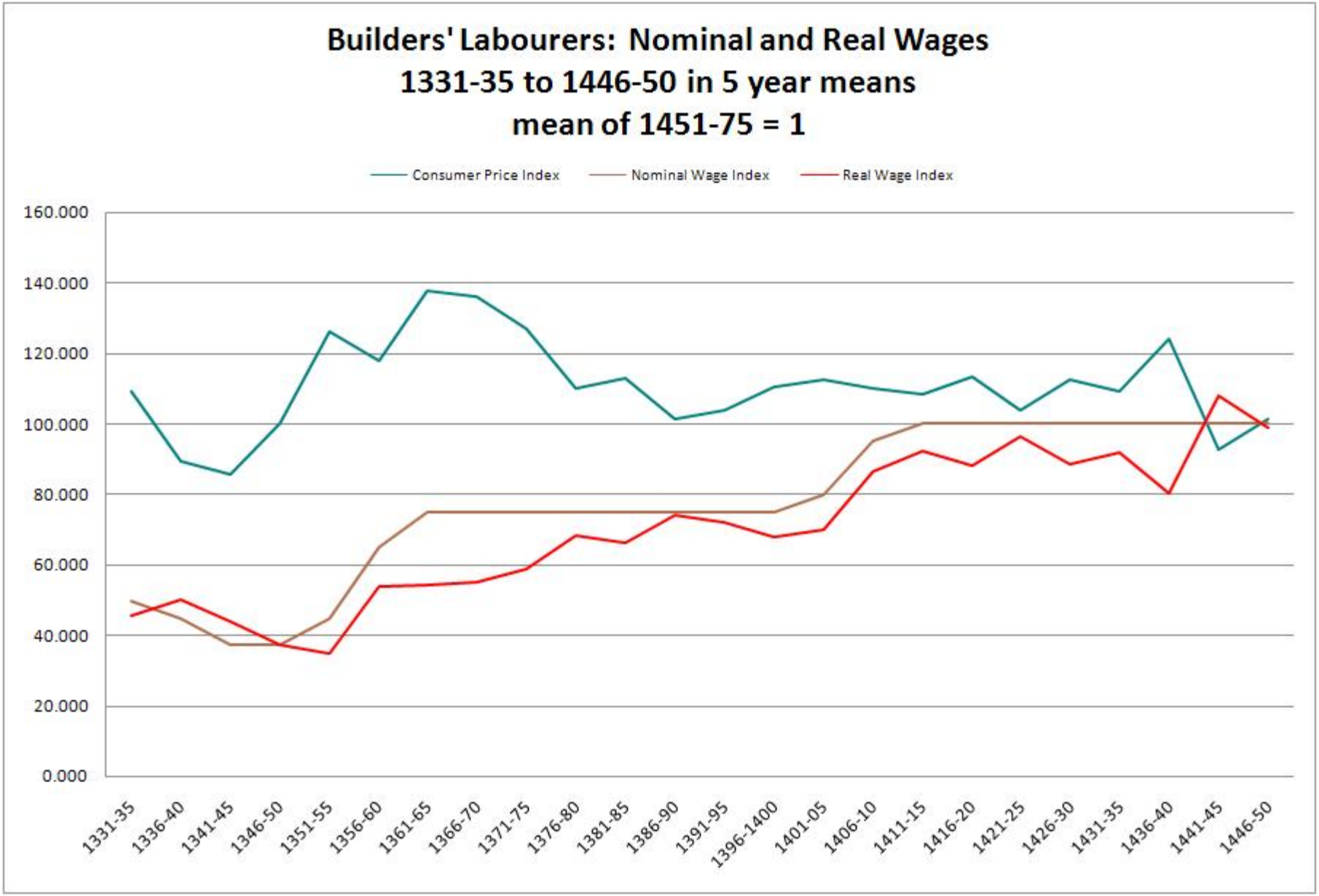
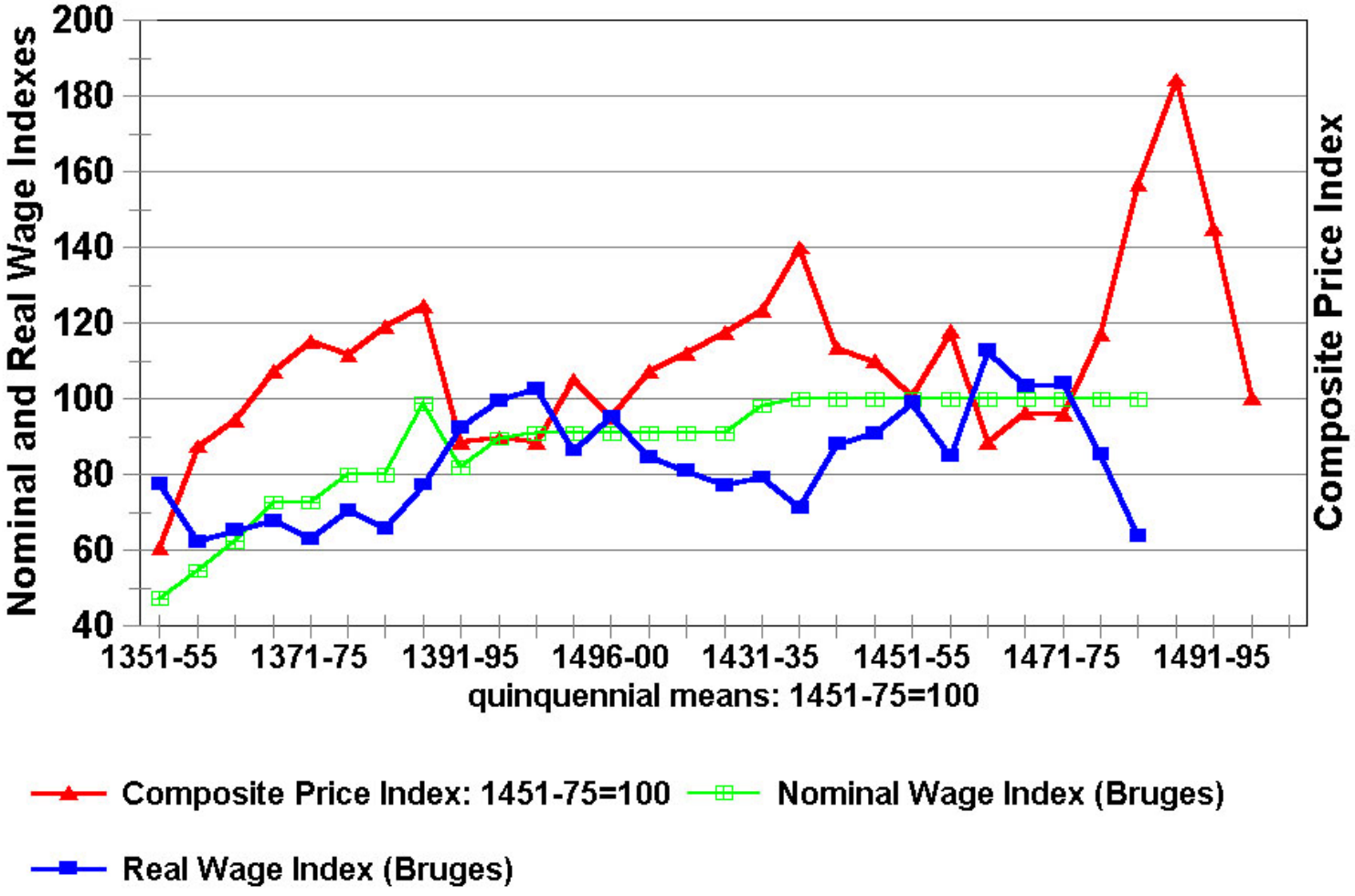
Years in Quinquennial Means
Composite Price Index 1451-75=100
Nominal Wage Index 1451-75=100
Real Wage Index 1451-75=100


Builders' Labourers: Nominal and Real Wages
1331-35 to 1446-50 in 5 year means
mean of 1451-75 = 1
Consumer Price Index
Nominal Wage Index
Real Wage Index
160.000
140.000
120.000
100.000
80.000
60.000
40.000
20.000
0.000
1331-35
1336-40
1341-45
1346-50
1351-55
1356-60
1361-65
1366-70
1371-75
1376-80
1381-85
1386-90
1391-95
1396-1400
1401-05
1406-10
1411-15
1416-20
1421-25
1426-30
1431-35
1436-40
1441-45
1446-50

Flemish Builders' Wages, 1351 - 1500

Nominal & Real Wage Indexes: 5 yr mean

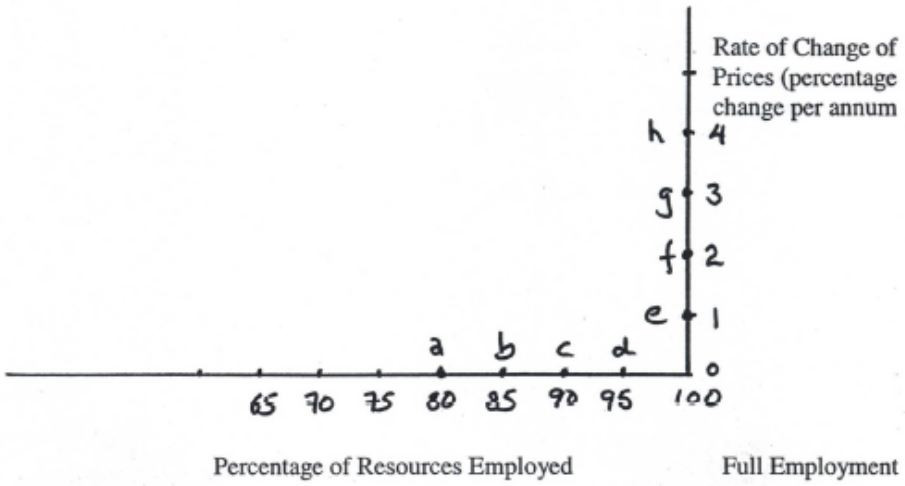


Beneficial effects of Deflation

- (1) **Rising real incomes** for those whose incomes are based on these factor costs: influence on market demand
- (2) **Stimulus for technological changes:**
- **Thus , if this problem constitutes a 'price-cost squeeze'**, entrepreneurs and merchants were forced to innovate just to survive: as we shall see later (& often throughout course)
- (3) **MINING: In particular, the mid 15th-century deflation** provided the profit motive for technological changes in South German **silver-copper mining**:
- in **Mechanical Engineering** (water-powered drainage pumps) and **Chemical Engineering** (the *Saigerhütten* process of separating silver from copper)
- (4) **Why was this mining boom NOT initially inflationary?**

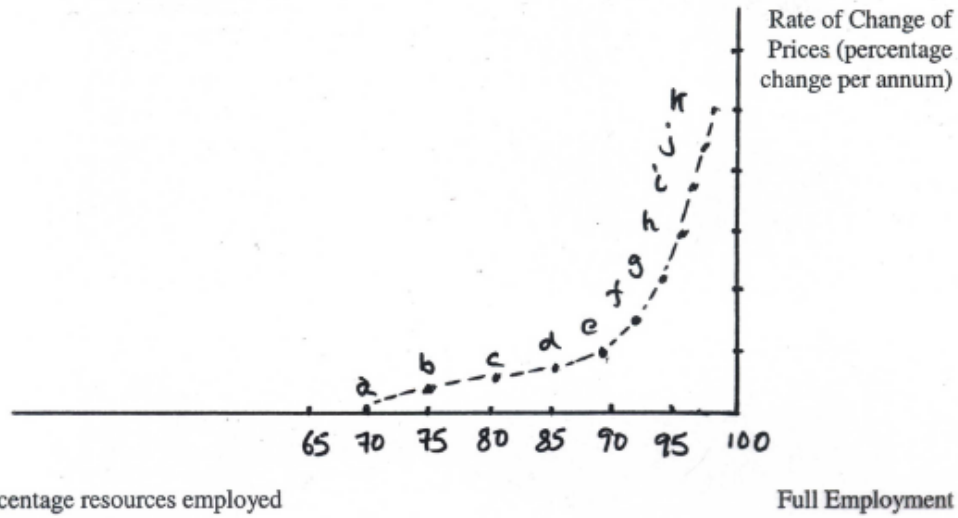
KEYNES AND PHILLIPS

Inflation with Full Employment: the Keynes L-Shaped Relation (Inverted)

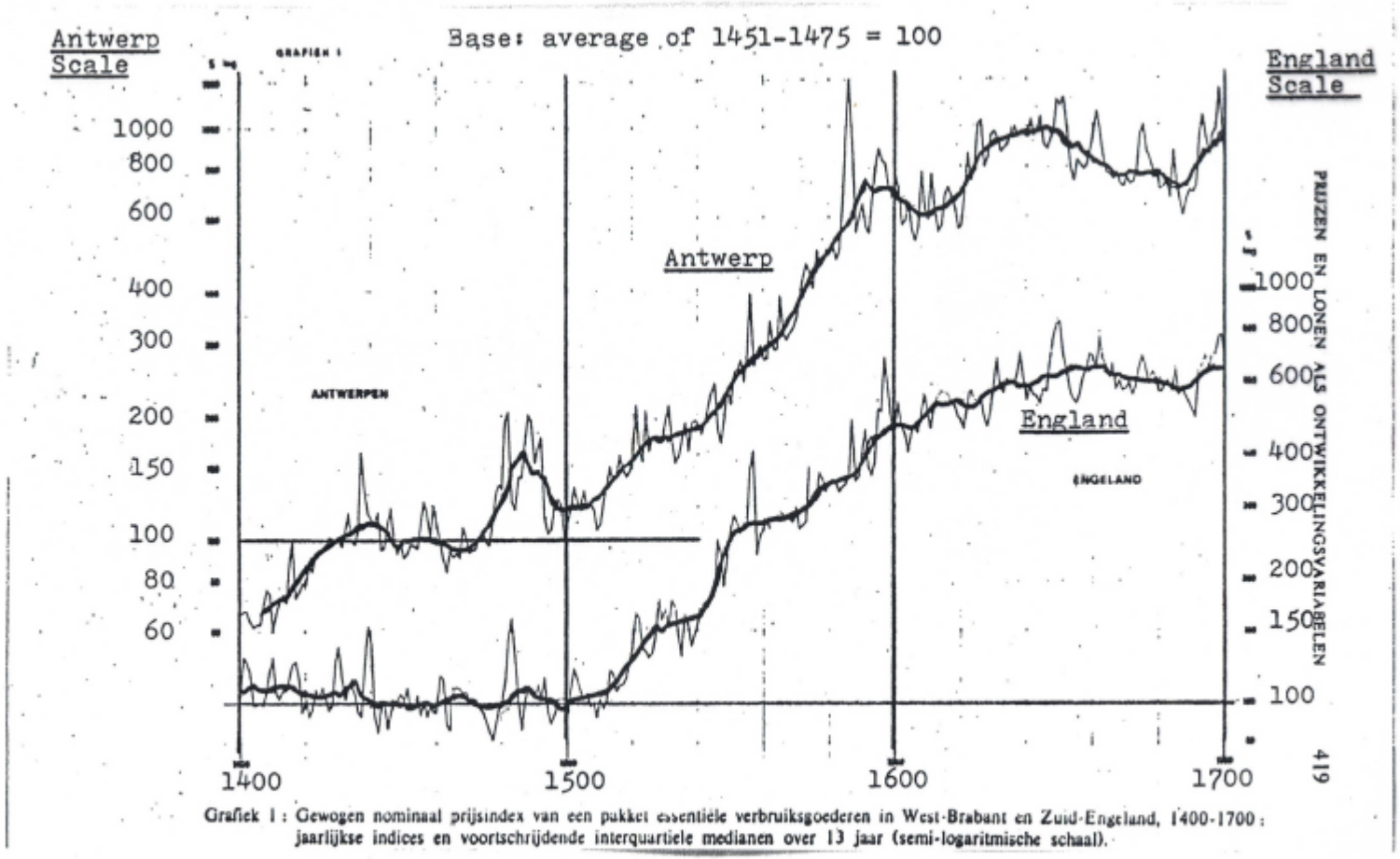


The Inverted Phillips Curve:

degrees of inflation with unemployed and then fully employed resources



The Movement of Prices in England and the Low Countries, 1400 - 1700
annual indexes and moving averages (13 years): mean of 1471-75 = 100



Grafiek 1 : Gewogen nominaal prijsindex van een pakket essentiële verbruiksgoederen in West-Brabant en Zuid-Engeland, 1400-1700 : jaarlijkse indices en voortschrijdende interquartiele medianen over 13 jaar (semi-logaritmische schaal).

Weighted price index of a basket of essential household goods in West Brabant (Antwerp-Lier region) and southern England, 1400 - 1700: annual indexes and 13-year moving averages (inter-quartile medians), on a semi-logarithmic scale.

Source: Herman Van der Wee, 'Prices and Wages as Development Variables: A Comparison Between England and the Southern Netherlands, 1400 - 1700', *Acta Historiae Neerlandicae*, 10 (1978), 58-78.