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

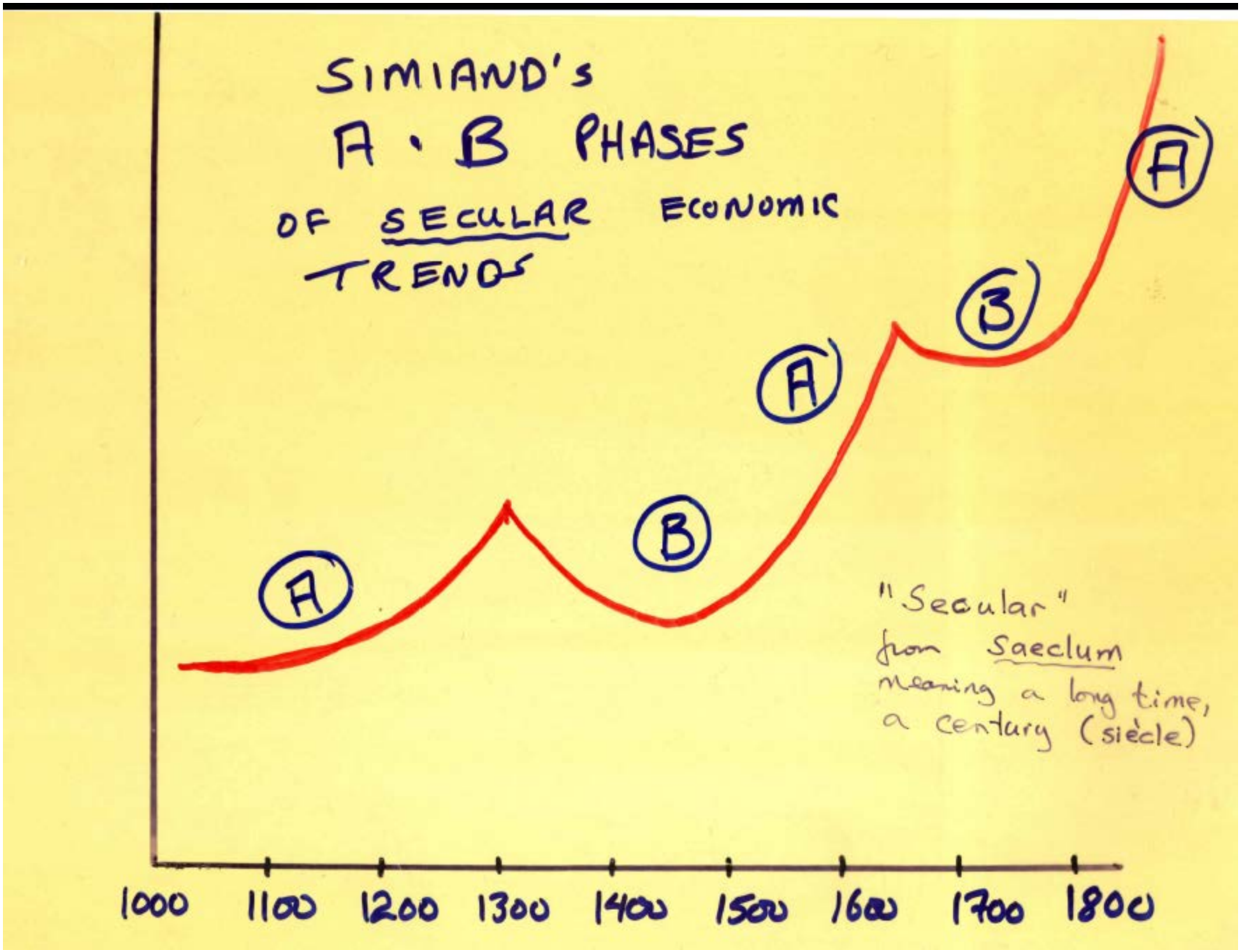
C. Changes in Prices and Price Trends (Inflation and Deflation) in the European Economy, ca. 1300 – 1520:

THE ROLE OF DEMOGRAPHIC AND MONETARY FACTORS, Part 1

4. **2 October 2013** **Brady**, ch. 5 (Munro); **Cipolla**, ch. 7, 8; **Davis** chs. 6, 14; 2 **ET 3**	**4**	**THE COURSE OF PRICES:** The Quantity Theory Revisited: Monetary and Real Factors in European Price Trends and Economic Development, 1300-1520.	

Long-Waves and Price Trends in European Economic History

- **LONG WAVES**: cycles of alternating periods of **INFLATION & DEFLATION**: A and B Phases
- **19th century Classical School of Economists:**
- **that money did not matter**: that money was a 'veil that disguised the operations of the REAL ECONOMY'
- **Modern Day debate: REAL vs. MONETARY factors**
- **Marc Bloch** (d. 1944)
- **- monetary phenomena act like a peculiar seismograph**: one not that only registers earth tremors but sometimes helps bring them about.


SIMIAND's
A · B PHASES
OF SECULAR ECONOMIC
TRENDS
A
B
A
B
A
"Secular"
from Saeclum
meaning a long time,
a century (siècle)
1000
1100
1200
1300
1400
1500
1600
1700
1800

A and B Phases: in more detail

- **ca. 1100 - ca. 1320: Phase A: Medieval 'Commercial Revolution': led by the Italians**
- **ca. 1320 - ca. 1460: Phase B: Late-Medieval 'Great Depression': rise of the North (Hanse & Dutch)**
- **ca. 1460 - ca. 1520: weak Phase A: Early-Modern Economic Recovery: leaders: South Germany, Portugal, Holland**
- **ca. 1520 - ca. 1640: strong Phase A: 'Price Revolution': Antwerp's supremacy, then lost to Amsterdam**
- **ca. 1640 - ca. 1760: Phase B: 'General Crisis of the 17th Century' : era of Dutch dominance, and English challenge**
- **ca. 1760 - ca. 1870: strong Phase A: Industrial Revolution Era - era of British dominance**

Inflation: nominal & real prices 1

- **The case of the Ford Mustang: from 1966 to 2013**

- (1) **In Oct 1966: a very basic Ford Mustang cost me : $3,500.00 CAD**
- ■ **In Oct 2013: a Mustang (basic V-6 model) – with a starting price of $22,069** (without HST: and up to $50,000 in deluxe models)
- ■ i.e., a 6.30 **fold** increase (530.54% increase)
- ■ So: we can see the extent of inflation over 47 yrs.

Inflation: nominal & real prices 2

- (2) **But we could also calculate that, while its nominal price has risen substantially, its real price has fallen substantially:**
- **a) on the one hand: the Consumer Price Index (base June 2002 = 100) has risen somewhat more, though only slightly more:** from **17.46 in 1966** to **121.70 in 2012** (Dec data): thus a **6.970 fold** increase (597.02%)
- **-b) on the other hand, an important difference: quality changes!**

Ford Mustang 2014

MODERN QUANTITY THEORIES OF MONEY: FROM FISHER TO FRIEDMAN

- 1. **The Fisher Identity, or The Equation of Exchange: M.V ≡ P.T**

- **M = stock of money in coin, notes, bank deposits ('high-powered')**

- **V = the velocity of circulation; the rate at which a unit of money circulates in effecting transactions in course of one year (average turnover) – difficult to measure: only as V = T/M (see below)**

- **P = measure of the price level; i.e., the Consumer Price Index**

- **T = the total volume of monetary transactions taking place during the course of that year: but impossible to quantify**

- **inflation: too much money chasing too few goods.**

The Fisher Identity in Brief

- **The Fisher Identity, for the Quantity Theory of Money**, is an identity rather than a causal equation:
- $M.V \cong P.T$ simply indicates that:
- **total spending, in terms of M.V** – money stocks times the flow) is the same as
- **total spending, in terms of P.T** – the CPI (consumer price index) time the volume of exchange transactions – or in effect GNP

MODERN QUANTITY THEORIES OF MONEY: FROM FISHER TO FRIEDMAN

- (2) **The Cambridge Cash Balances Equation:**

$$M = k.P.T$$

- formula resolved the problems concerning **Velocity**:
- **M, P, and T: as defined above in the Fisher Identity**
- **k = the ratio of cash balances to the total money value of all transactions in the economy:**
- **the proportion of the total value of all monetary transactions that the public chooses to hold in cash balances;**
- tells us the necessary amount of M that is required for that level of P * T (= total spending): **'k' is reciprocal of V**

Faulty Assumptions of Quantity Theory: traditional versions

- (1) **Economy is always at Full Employment**
- (2) **Inflation is proportional to increases in M**: and almost automatic, instantaneous
- (3) **Money supply is exogenous**
- (4) **Demand for money is solely for transactions** (ignores Liquidity Preference)
- (5) **Transactions demand is stable** – always proportional to total demand
- (6) **Those with excess money will spend it all**

CASH BALANCES & LIQUIDITY PREFERENCE (KEYNES)

- (1) **transactions motive**:
- - people hold a stock of ready cash in order to meet their day to day needs in buying goods and paying for services, etc.: deemed to be the major need for holding ready cash.
- (2) **precautionary motive**:
- - to have ready cash on hand in order to meet some unforeseen emergency (even in the present)
- as a contingency fund for **future** needs ('rainy day').
- (3) **speculative motive**: - to have ready cash to take immediate advantage of some special investment opportunity -- a cash fund to speculate with.

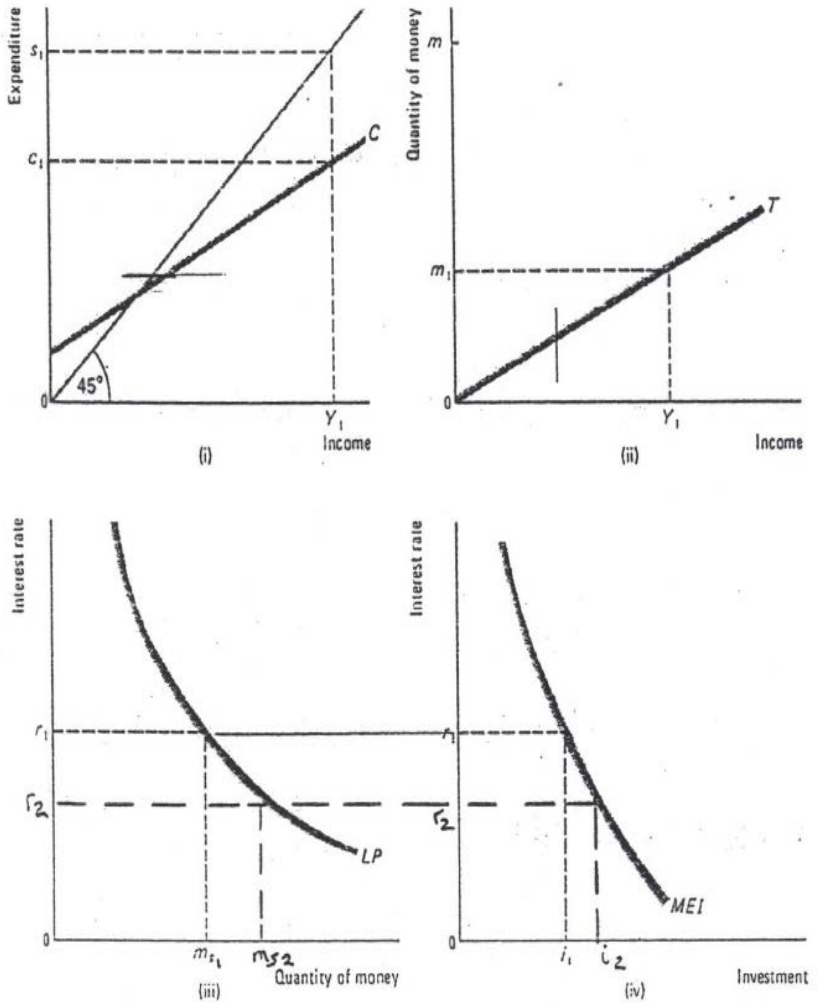
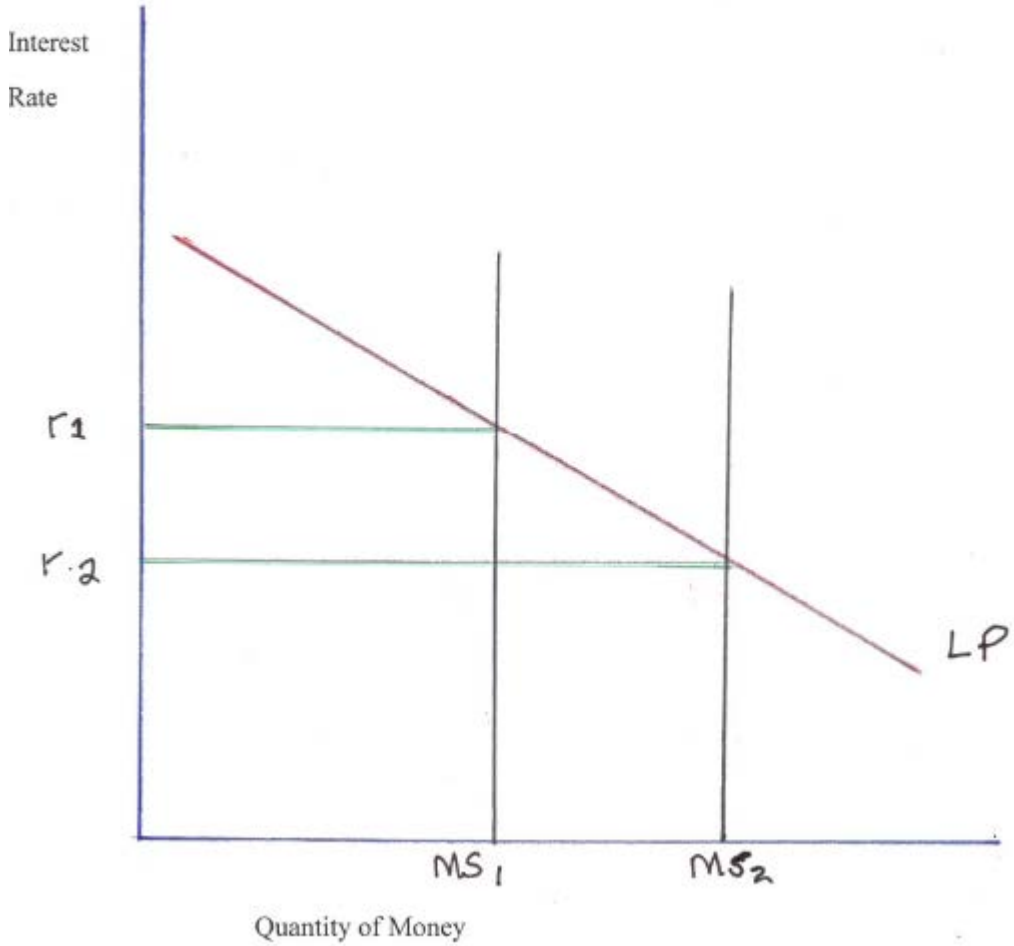


Fig. 43.1 The Keynesian model. (i) The consumption function (ii) The transactions demand for money (T) varies with the level of income (Y) (iii) The speculative and precautionary demand for money (LP) varies with the rate of interest (r) (iv) Investment (MEI) varies with the rate of interest (r)

LIQUIDITY PREFERENCE AND CHANGES IN THE MONEY SUPPLY



The Modern Form of the Quantity Theory: Friedman's Version

- **Friedman replaced Fisher's unmeasurable T with measurable 'y' (i.e., NNI or NNP)**
- in both the Fisher Identity and in the Cambridge Cash Balances, approach so that:

- **M.V. = P.y:** **V = income velocity of money**

- **M = k.P.y**

- **y = real Net National Product (NNP)** = real Net National Income (NNI)

Friedman and Keynes

- **The two equations: M.V = P.y; and M = K.P.y**
- - are based on the Keynesian equation for net national income:
- **Y = C + I + G + (X – M)**
- **To calculate Friedman's y**: divide **Y by P;**
- i.e., by the Consumer Price Index
- **Cambridge and Fisher versions** are mathematical reciprocals:
- **In that**: k = 1/V; and V = 1/k

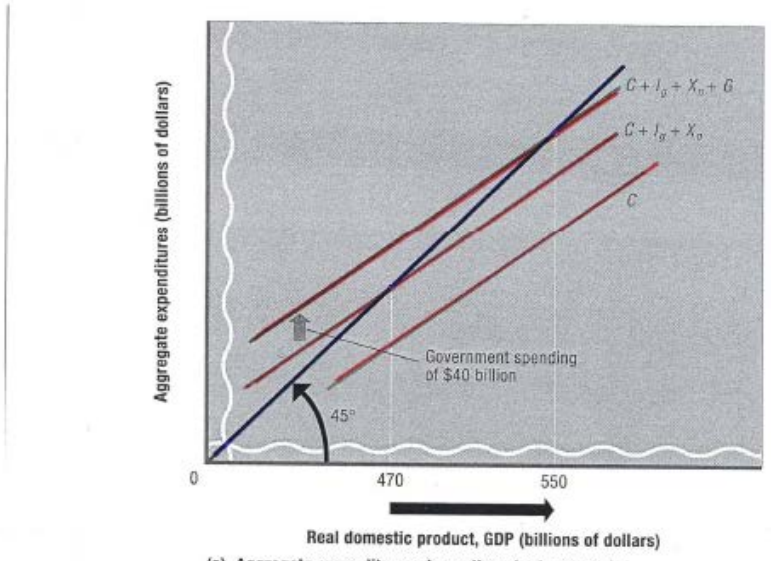
THE KEYNSIAN MODEL OF REAL GDP

AGGREGATE EXPENDITURES AND EQUILIBRIUM REAL GDP

and the INFLATIONARY GAP

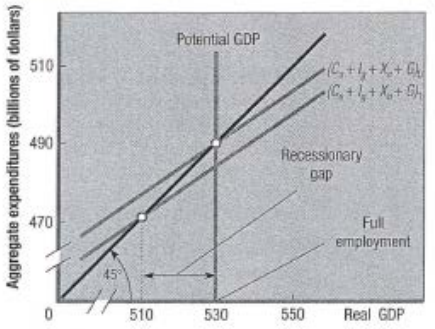
Y (GDP) = C + I + X + G + (X-M)

[here: X = net exports (X - M)

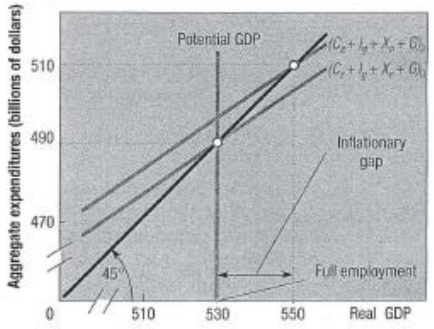


(a) Aggregate expenditures-domestic output approach

FIGURE 10-8 Recessionary and inflationary gaps



(a) Recessionary gap



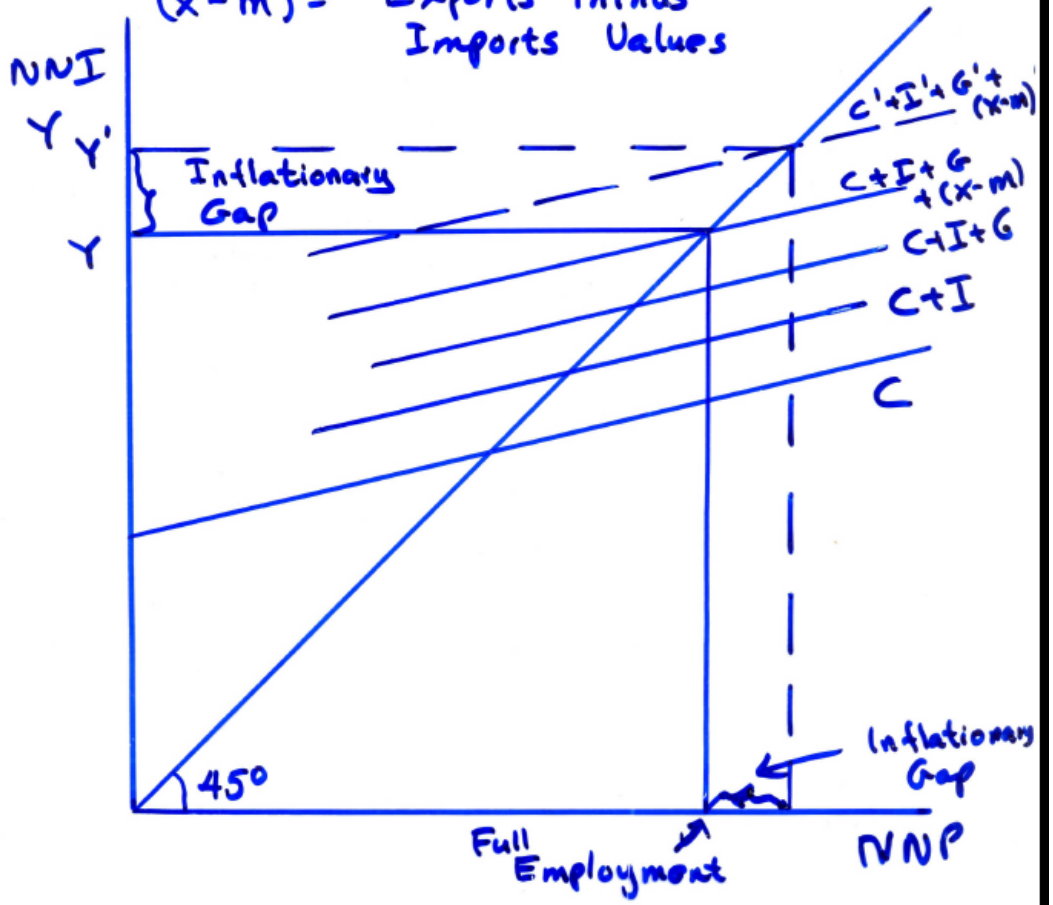
(b) Inflationary gap

C = Consumption

I = Investment (= Savings : I = S)

G = Government Spending

(X - M) = Exports minus Imports Values



$$Y = C + I + G + (X - M)$$

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

Money Supply, GDP, and Prices in Canada, 1990 - 2011: Annual Means of monthly data

	M1 narrow	M1+ Gross	V = Y/M [narrow]	V = Y/M [gross]	k gross M1+ base	P (1)	P (2)	y	GDP = Y	Population	Inflation:
Year	Money: M1 narrrow $ billions IMF	M1+ Gross broad $ billions IMF	Income Velocity of M1: Narrow Base	Income Velocity of M1: Gross Base	Cambridge cash balances k = 1/V	CPI 1992= 100 Cansim	CPI 2002 = 100 StatsCan	Real GDP: $ billions 1992 dollars CANSIM	Gross Domestic Product in billions current market prices	Canadian population in millions	Percent Change in CPI
1990	43.6960	128.499	15.560	5.2913	0.18899	93.27	78.40	729.008	679.921	27,638,583	4.76%
1991	46.1710	134.510	14.844	5.0953	0.19626	98.51	82.80	695.745	685.367	27,987,829	5.62%
1992	49.1970	139.841	14.238	5.0091	0.19964	99.98	84.00	700.655	700.480	28,319,473	1.49%
1993	56.5290	151.501	12.864	4.7999	0.20834	101.83	85.60	714.092	727.184	28,648,235	1.86%
1994	60.9850	156.280	12.640	4.9326	0.20273	102.00	85.70	755.758	770.873	28,958,270	0.16%
1995	65.5270	160.398	12.368	5.0526	0.19792	104.21	87.60	777.698	810.426	29,262,649	2.17%
1996	77.9190	179.464	10.740	4.6631	0.21445	105.85	88.90	790.613	836.864	29,570,577	1.58%
1997	86.4950	197.601	10.206	4.4672	0.22385	107.57	90.40	820.638	882.733	29,868,726	1.62%
1998	93.6230	205.509	9.773	4.4522	0.22461	108.63	91.30	842.258	914.973	30,125,715	0.99%
1999	101.1830	221.764	9.710	4.4301	0.22573	110.52	92.90	888.953	982.441	30,369,575	1.73%
2000	116.1030	249.199	9.273	4.3201	0.23147	113.50	95.38	948.557	1,076.577	32,352,977	2.70%
2001	133.8580	279.640	8.278	3.9624	0.25237	116.36	97.78	952.244	1,108.048	31,129,298	2.52%
2002	140.1970	297.658	8.223	3.8733	0.25818	119.00	100.00	968.828	1,152.905	31,446,719	2.27%
2003	153.7390	314.994	7.891	3.8514	0.25964	122.27	102.75	992.190	1,213.175	31,734,093	2.75%
2004	170.1790	343.417	7.586	3.7590	0.26603	124.54	104.66	1,036.514	1,290.906	32,038,401	1.86%
2005	188.7220	366.910	7.280	3.7444	0.26707	127.30	106.98	1,079.216	1,373.845	32,352,977	2.21%
2006	215.3450	403.777	6.735	3.5921	0.27839	129.85	109.12	1,116.992	1,450.405	32,690,242	2.00%
2007	226.3779	431.645	6.757	3.5436	0.28220	132.63	111.45	1,153.314	1,529.589	33,048,782	2.14%
2008	n.a.	488.047		3.2854	0.30438	135.77	114.09	1,180.986	1,603.418	33,448,916	2.37%
2009	n.a.	491.771		3.1091	0.32163	136.18	114.43	1,122.807	1,528.985	33,856,945	0.30%
2010	n.a.	551.750		2.9445	0.33962	138.60	116.47	1,172.192	1,624.608	34,254,344	1.78%
2011	n.a.	599.765		2.8431	0.35173	142.63	119.86	1,195.519	1,705.181	34,605,346	2.91%

Changes in Cambridge k: cash balances 1

- (1) **LIQUIDITY PREFERENCE** changes (in any form)
- (2) **DEMOGRAPHIC CHANGES**: age pyramids in particular: affecting household expenditures
- (3) **FINANCIAL INNOVATIONS** or restrictions: credit and banking (later topic this term): increase or decrease in income velocity
- (4) **INTEREST RATES and GNP levels**
- - **Cambridge k**: varies inversely with interest rates
- - **since k represents opportunity cost of cash balances:** higher interest rates, less cash be held

Changes in Cambridge k: cash balances 2

- (5) **CHANGES IN MONEY SUPPLY: increased M lowers interest rates** and thus **reduced M increases interest rates**
- (6) **REAL SUPPLY SHOCKS**: effects of famine, war, plagues on household expenditures
- (7) **RATIONAL EXPECTATIONS**: if higher prices expected - get rid of cash; if lower prices are expected – hold more cash

Monetary and Real variables in the Quantity Theory Equations

- **(1) Fisher-Friedman equation: M.V = P.y**
- **(2) Cambridge Cash Balances: M = k.P.y**

- **What would happen if M increased?**
- a) **some reduction in V or increase in k**: since money is more plentiful, less need to economize on its use; and increased M would lead to a fall in interest rates → **rise in k**
- b) **some increase in REAL y (NNP)**: in response to lower interest rates & expansion in aggregate monetized demand
- c) **some increase in P (Price level)**: i.e., some inflation:
- **- But never proportionate to the increase in M:** because of offsetting changes in both V (or k) and y (i.e., **real** NNP)

Population in Keynesian Aggregate Demand

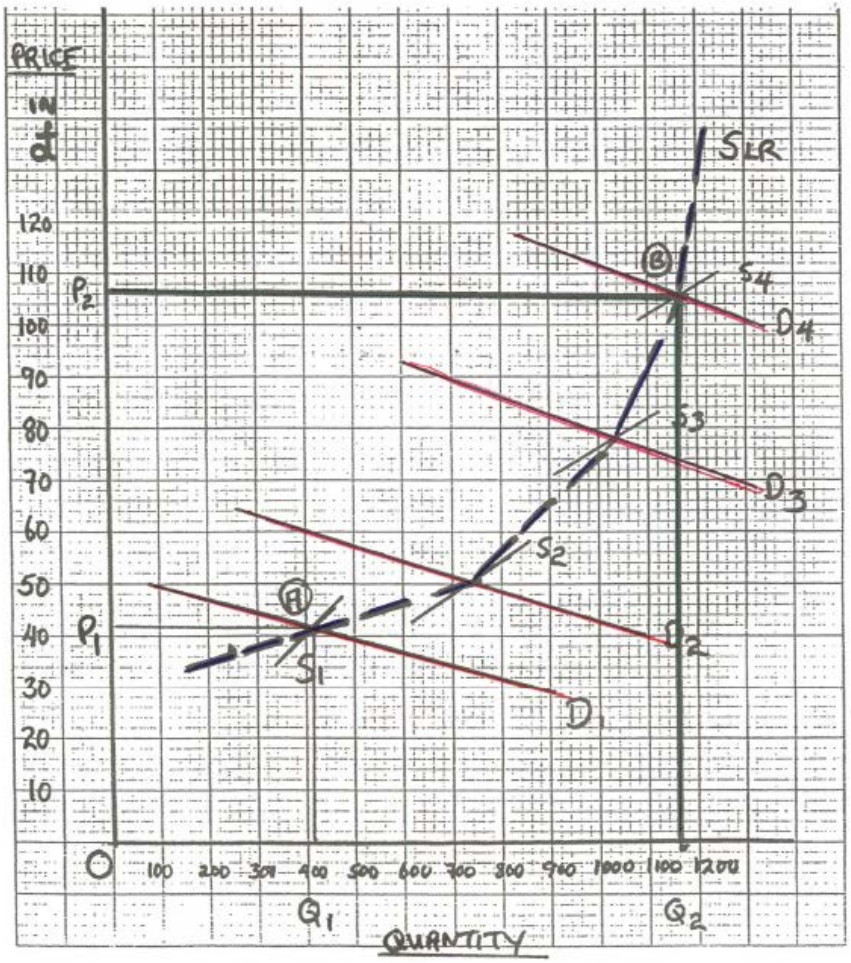
- **QUESTION**: can we use the Keynesian model of aggregate demand to argue that population **alone** can cause inflation?
- **ANSWER**: NO
- **If we use the following graph, to illustrate shifts in aggregate demand** (population), we cannot explain where the extra money came from to create that higher level of nominal Net National Income
- **Note**: prices are based on a **silver-based money of account**

AGGREGATE SUPPLY AND AGGREGATE DEMAND:

POPULATION, MONEY, AND PRICES

A. Price Level 1: $D_1.S_1 = 42 * 410 = £17{,}220\ (P_1.Q_1)$

B. Price Level 2: $D_4.S_4 = 106 * 1160 = £122,960\ (P_2.Q_2)$



The Phillips Curve: unemployment and money wage rates

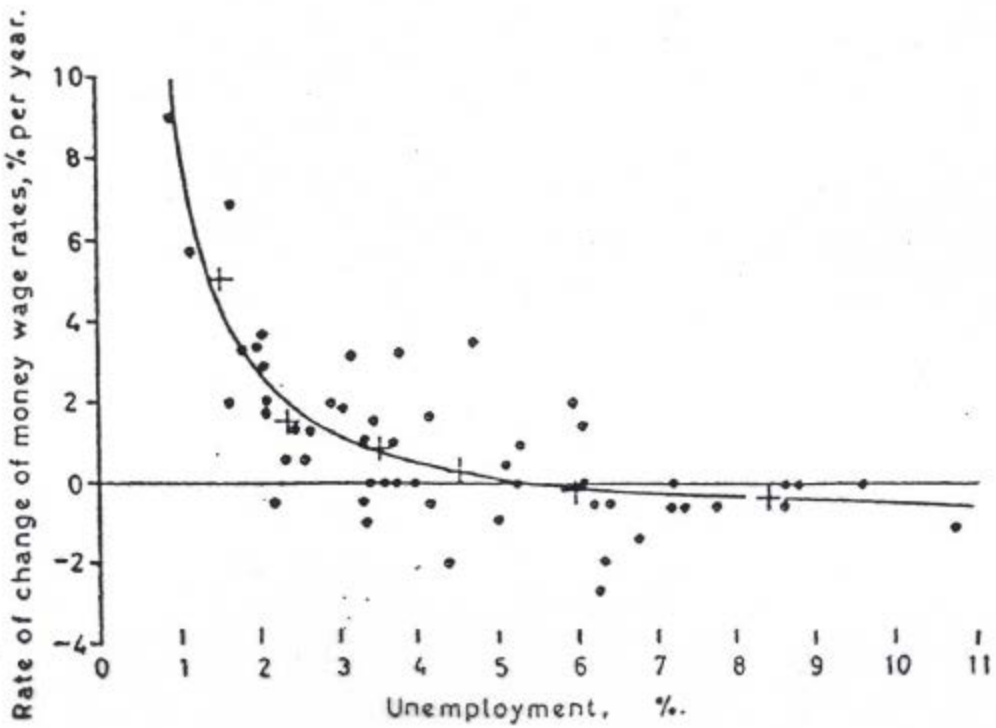
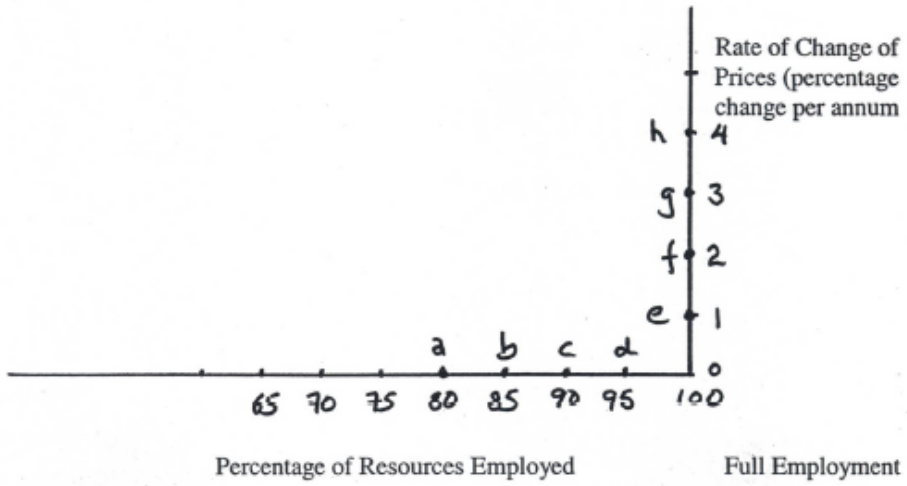


Fig.1. 1861 – 1913

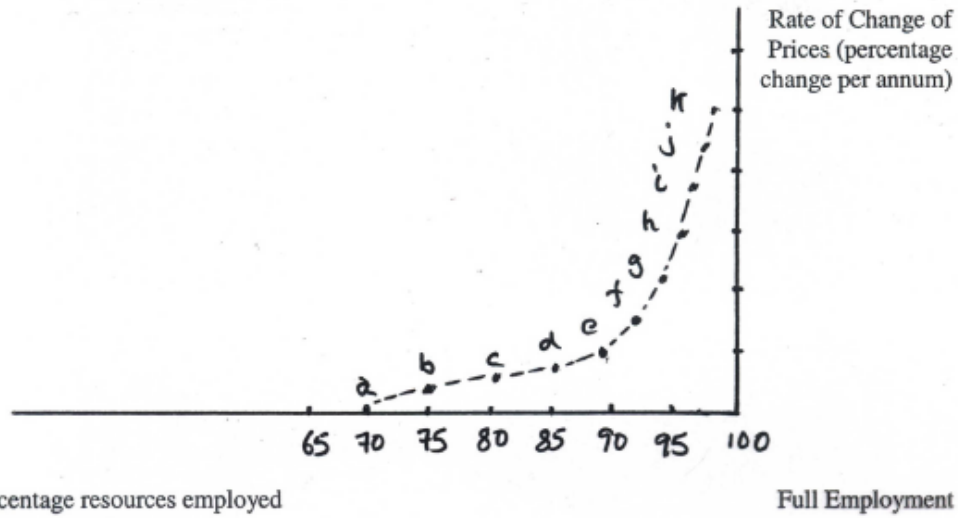
KEYNES AND PHILLIPS

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

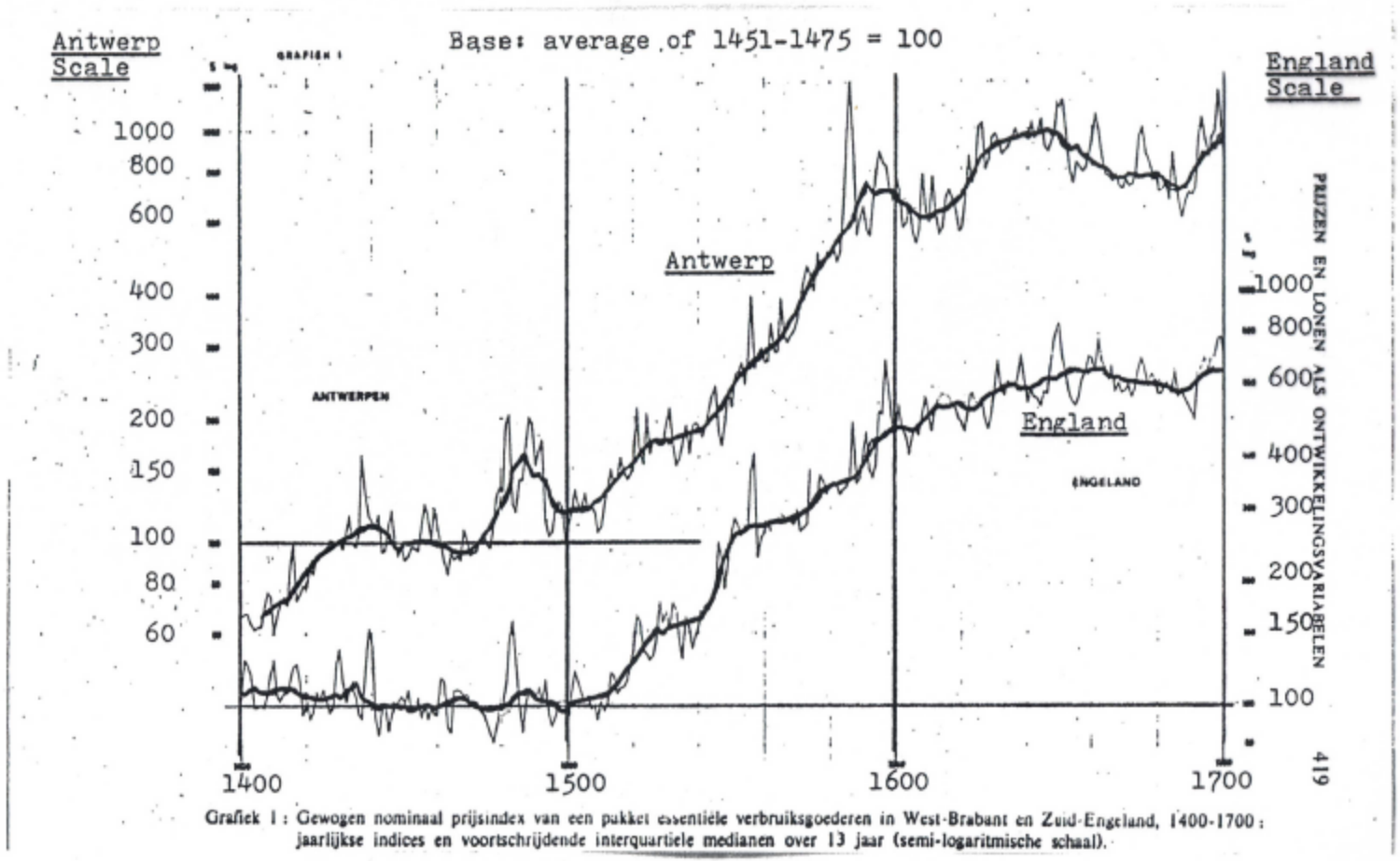


The Inverted Phillips Curve:

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.