DEBUNKING ECONOMICS
THE NAKED EMPEROR DETHRONED?
SUPPLEMENT

Steve Keen
1. US inflation and unemployment from 1955

2. Bernanke doubles base money in five months

3. Private debt peaked at 1.7 times the 1930 level in 2009
4 Rising total utils and falling marginal utils from consuming one commodity

5 Total utils from the consumption of two commodities

6 Total ‘utils’ represented as a ‘utility hill’
7 The contours of the ‘utility hill’

8 Indifference curves: the contours of the ‘utility hill’ shown in two dimensions

9 A rational consumer’s indifference map
Indifference curves, the budget constraint, and consumption

Deriving the demand curve
12 Upward-sloping demand curve

13 Separating out the substitution effect from the income effect
Engel curves show how spending patterns change with increases in income.

Straight-line Engel 'curves'.

Economic theory cannot rule out the possibility that a market demand curve may have a shape like this, rather than a smooth, downward-sloping curve.
17 Profit maximization for a monopolist: marginal cost equals marginal revenue, while price exceeds marginal cost

18 Profit maximization for a perfectly competitive firm: marginal cost equals marginal revenue, which also equals price

The procedure:
1 Market sets equilibrium price
2 Price taking firm sets marginal revenue equal to marginal cost
3 Profit maximized

Profit maximization for a perfectly competitive firm: marginal cost equals marginal revenue, which also equals price.
19 A supply curve can be derived for a competitive firm, but not for a monopoly.

20 A competitive industry produces a higher output at a lower cost than a monopoly.

21 The standard ‘supply and demand’ explanation for price determination is valid only in perfect competition.
Farm (a)
Area 1 square mile
Fence 4 miles long

Farm (b)
Area 4 square miles
Fence 8 miles long
Four times the area; twice the fencing cost

22 Double the size, double the costs, but four times the output

23 Predictions of the models and results at the market level

24 Output behavior of three randomly selected firms
Profit outcomes for three randomly selected firms

Product per additional worker falls as the number of workers hired rises

Swap the axes to graph labor input against quantity
28 Multiply labor input by the wage to convert Y-axis into monetary terms, and add the sales revenue.

29 Maximum profit occurs where the gap between total cost and total revenue is at a maximum.

30 Deriving marginal cost from total cost.
The whole caboodle: average and marginal costs, and marginal revenue

The upward-sloping supply curve is derived by aggregating the marginal cost curves of numerous competitive firms

Economic theory doesn’t work if Sraffa is right
34 Multiple demand curves with a broad definition of an industry

35 A farmer who behaved as economists advise would forgo the output shown in the gap between the two curves

36 Capacity utilization and employment move together
37 Costs determine price and demand determines quantity

38 A graphical representation of Sraffa’s (1926) preferred model of the normal firm

39 The economic theory of income distribution argues that the wage equals the marginal product of labor
Economics has no explanation of wage determination or anything else with constant returns.

The demand for labor curve is the marginal revenue product of labor.
The individual’s income–leisure trade-off determines how many hours of labor he supplies.

An upward-sloping individual labor supply curve.

Supply and demand determine the equilibrium wage in the labor market.
Minimum wage laws cause unemployment.

Demand management policies can't shift the supply of or demand for labor.

Indifference curves that result in less work as the wage rises.
48 Labor supply falls as the wage rises

49 An individual labor supply curve derived from extreme and midrange wage levels

50 An unstable labor market stabilized by minimum wage legislation
51 Interdependence of labor supply and demand via the income distributional effects of wage changes

52 The rate of profit equals the marginal product of capital
Supply and demand determine the rate of profit.

The wage/profit frontier measured using the standard commodity.

Standard neo-classical comparative statics.
56 Sensitive dependence on initial conditions

57 Unstable equilibria

58 Cycles in employment and income shares
A closed loop in employment and wages share of output.

Derivation of the downward-sloping IS curve.

Savings a function of income:

\[ S(I) = I \]

Investment a function of interest rate:

\[ I = C(i) \]

Multiplier:

\[ I = S(I) \]

IS curve:

\[ I = S(I) \]
61 Derivation of the upward-sloping LM curve

62 ‘Reconciling’ Keynes with ‘the Classics’

63 Unemployment–inflation data in the USA, 1950–72
Unemployment–inflation data in the USA, 1960–80

Supply and demand in the market for money

The capital market line
Investor preferences and the investment opportunity cloud

Multiple investors (with identical expectations)

Flattening the IOC
70. Inflation and base money in the 1920s

Inflation and base money in the 1920s

-12 -8 -4 0 4 8
Percent
1924 1925 1926 1927 1928 1929 1930 1931 1932

71. Inflation and base money in the post-war period

Inflation and base money in the post-war period

-20 -10 0 10 20
Percent p.a.

Grey area indicates periods of recession

72. Bernanke’s massive injection of base money in QE1

Bernanke’s massive injection of base money in QE1

-4 0 4 8 12
Percent p.a.
2005 2006 2007 2008 2009 2010 2011

Nominal
After inflation
73 Change in M1 and unemployment, 1920–40

74 Change in M0 and M1, 1920–40

75 Mo–M1 correlation during the Roaring Twenties
76 Mo–M1 correlation during the Great Depression

77 Bernanke's 'quantitative easing' in historical perspective

78 Change in M1 and inflation before and during the Great Recession
The money supply goes haywire

Lindsey, Orphanides, Rasche 2005, p. 213

The empirical 'money multiplier', 1960–2012
The disconnect between private and fiat money during the Great Recession

Growth of output

Employment Rate

Goodwin's growth cycle model
My 1995 Minsky model

Cyclical stability with a counter-cyclical government sector
**86** Australia's private debt-to-GDP ratio, 1975–2005

**87** US private debt

**88** The correlation of debt-financed demand and unemployment
Correlation of credit impulse and change in employment and GDP

Growing level of debt-financed demand as debt grew faster than GDP

Relatively constant growth in debt
Change in nominal GDP growth then and now

Real GDP growth then and now

Inflation then and now
Unemployment then and now

Nominal private debt then and now

Real debt then and now
Debt to GDP then and now

Real debt growth then and now

Debt by sector – business debt then, household debt now
The Credit Impulse
then and now

Debt-financed demand and unemployment, 1920–40

Debt-financed demand and unemployment, 1990–2011
Credit Impulse and change in unemployment, 1920–40

Credit Impulse and change in unemployment, 1990–2010

The Credit Impulse leads change in unemployment
A nineteenth-century private banknote

A credit crunch causes a fall in deposits and a rise in reserves in the bank's vault.
109 A bank bailout’s impact on loans

110 A bank bailout’s impact on incomes

111 A bank bailout’s impact on bank income
112 Bank income grows if debt grows more rapidly

113 Loans grow more with a debtor bailout

114 Profits do better with a debtor bailout
Bank income does better with a bank bailout.

Modeling the Great Moderation and the Great Recession – output.

Income distribution – workers pay for the debt.
Actual income distribution matches the model

Lemming population as a constant subject to exogenous shocks

Lemming population as a variable with unstable dynamics