Theory of Business Cycles

Going to describe the development of those aspects of Economic Theory which have a bearing on business cycles.

Business cycles theory a late development.

Earlier Economic Theory had some relevant material classified under theory of cycles. Errors commercial & financial.

Errors chiefly discussed even though they were really concerned with industrial crises.
2) Currency and Banking School completely the idea of recurrent crises of business cycle took place.

3) Work of Karl Marx.

Historical basis out of which practically all later treatments of business cycle occurred.

Discussions regarding the Law of Market.

Post-Napoleonic crisis 1818.

Treated by contemporary authors in same basis as earlier commercial crises.

Crisis due to a great change in the nature of the market.
Controversy between them.

Malthus maintained that the crises are due to excess saving by the population.

Malthus' Principles of Political Economy, 1820.

But quite obvious that excess saving destroys motive of production.

Adam Smith had maintained that saving is always a social benefit. Saving a social virtue.

Thus can never be any express in Saving.
Malthus maintained that there can be excess saving.

Malthus did not maintain that all saving was undesirable. He maintained that 3 is a limit beyond which saving was harmful. Excess saving cuts production. No incentives to invest.

There is an optimum quantity of saving. 3 of crises indicates that saving is not at the optimum rate.


Takes up the same position as Malthus: Maintain that the crisis of 1878-1825 is due to over-saving. Reversed.
Siamondi deduced that the overflowing influence of incomes under capitalism would be characterized by permanent unemployment and depression. Only one factor; which helps to overcome this: effort from capitalists countries to more primitive countries.

Solution: Unequal distribution of incomes? Siamondi's argument was later taken over by the group of Socialists.
Simmonds advocated a return to peace in the petty-bourgeois setup.

Matthews differed from Simmonds in his explanation of the causes of over-saving and in his solution.

Simmonds was a petty-bourgeois Radical.

Matthews was a staunch Tory.

Radical Whig

Matthews thought that the landed interests have a useful social function to perform. The landed interests (aristocracy) have useful functions in spending necessary to maintain sufficient consumer demand.

Over-saving causes unemployment without them.
Jones, Records, and Lange 1913

James Mead opposed overemerging by formulating the Law of the Market
[Say's Law]

Denied the possibility of overemerging. The more saving the better. Denied the law of the market as a theoretical basis for their opposition. Matthews and Seaman said a lack of sufficient consumer demand caused an oversupply of all commodities [unemployment] and this was the cause of unemployment.

Records and Say denied the possibility of overproduction.

Say: Investment Political Economy.
Day: Feb 29 1928

much of a commodity on the market people superficially assume that I enough money
However, monetary demand is caused by selling commodities

lack of monetary demand is caused by lack of sufficient other commodities to create the monetary demand for this commodity

only relative excess supply of the commodity.

General overproduction is impossible.

Some statement repeated by Ricardo & James Hill.
Crisis interpreted not as an excess of production over total demand but as a misallocation of production. Shifting of Capital.

Crisis is a mal-distribution of labor and capital between different industries. Mal-distribution due to sudden shifts in channels of trade. Price mechanism tends to bring correct distribution of production. Price mechanism therefore each crisis tends to bring about its own solution.
Dawn of Modern Industrial Capitalism

must meet the needs of the people

I. French Revolution
II. Industrial Revolution

In summary, the French Revolution was a pivotal point in modern history.

Dawn of Modern Industrial Capitalism

must meet the needs of the people
Discussing The Law of

The Market as formulated
by Say, Ricardo and James Mill.

Analyze it in some greater detail.

Closest statement by Ricardo in
Ch. XXI in his Principles - the
effect of accumulation upon
profit and interest.

 Attacks doctrine of over-supply
of gluts on market for
particular commodities
Cannot be true for all
commodities. Formulate
doctrine of the impossibility
of general over-production.

Production of commodity
is always the demand
for another commodity

Statement about the
impossibility of universal
excess supply.

Then cannot be over-production
of all commodities in sense
that none of it can be sold
at price covering cost.
Doctrine of general overproduction

Taken to follow from inirginibility of general overproduction. Not quite true.

Taking to fill

Demand doctrine of general overproduction. If demand for a product is supply of another. If there is a deficiency in demand for a commodity it is because there is not a sufficiency of supply of another commodity.

This argument makes a peculiar assumption regarding money. That no money is awarded to cash balance.
Each sale of a commodity implies a demand for another commodity. Each supply creates its own demand e.g. an equivalent demand.

True an assumption that whole income is used for purchases.

[illegible]

Proponents of say law were conscious of this assumption e.g. Ricardo.

Money serves not only as medium of exchange standard of value and also as a store of value.

[illegible]
First used as a store of value, i.e., as part of the economy. Monetary economy \\
implies a demand for money.

Supply of a commodity implies a demand for another.

If a hoarding takes place, \\
there is a demand without supply.

If a supply takes place, \\
there is a surplus without demand.

If you allow for hoarding,

Possibility of over-supply.
\[ D_m = \varphi S + \sum_{i=1}^{m} \phi_i S_i \]

\[ D_m = \frac{\sum_{i=1}^{m} \phi_i S_i}{\sum_{i=1}^{m} \phi_i} \]

\[ S_m = \varphi D + \sum_{i=1}^{m} \phi_i D_i \]

\[ S_m = \sum_{i=1}^{m} \phi_i D_i \]

\[ D_m = S_m \quad \text{when} \quad \sum_{i=1}^{m} \phi_i S_i = \sum_{i=1}^{m} \phi_i D_i \quad \text{when and only when} \quad D_m + S_m \]
\[ D_M = \sum_i p_i \cdot D_i \]
\[ S_M = \sum_i p_i \cdot D_i \]
\[ \sum_i p_i \cdot S_i = \sum_i p_i \cdot D_i \text{ when } M = M_y \]
\[ \text{when } D_M = S_M. \]

**Condition of Monetary Equilibrium**

Say's Law:
\[ \sum_i p_i \cdot S_i = \sum_i p_i \cdot D_i \]

**2.5. The relation holds under all circumstances**

Say's Law also says
\[ D_M = S_M \]

This assumption made
quite clearly by the
proponents of Say's Law
\[ \text{Ep}_i \cdot \text{Si} = \text{Ep}_i \cdot \text{Pi} \]

\[ \text{Dm} = \text{dm} \]

Assume \( \text{Dm} > \text{Sm} \).

\[ \text{Dm} - \text{Sm} = \text{DM} \]

Boardsing people want to acquire more money than they want to spend.

This is money flows not money stocks. Epstein flows with stocks: relation is really very simple.

\( \text{DM} \) is \( \text{D} \)/unit/ time which they wish to increase their stocks.

People do not wish to increase or decrease their stocks when \( \text{DM} = 0 \).
Can put it (underfoot) as "in terms of stock of money & willingness to hold stock of money"

Whole community does not want to destroy or hoard then $M = S_M$

$M = D_M - S_M = 0$ in monetary equilibrium

Demand for cash balance is equal to actual quantities held.

Says law assumes the demand for money is of a very peculiar nature.
Now we know that
\[ \Delta M = D_m - D_s \neq 0 \]
is not true at all times.

Holding takes place when people do want to hold more money than the quantity in existence.

2. If money actually held is equal to the existing stock at time 1, monetary equilibrium aggregate demand + aggregate supply if commodities are equal.

Malthus had doctrine of excess saving in terms of food.
Matthews did not state his argument quite clearly.

2nd part of 1st law

more complicated. It states that there cannot be universal overproduction in a sense that all products cannot be sold covering at a price covering costs.

2nd statement does not follow from assumption if 3 a situation that none of the commodities can be sold at a price covering cost.
Price factors always such that they are sufficient covered by price of commodity

Say Ricardo 1774 never quite clearly saw the assumption needed

1) First statement says law follows from monetary assumption model
2) Second proposition of miners of overproduction does not follow
Say's Law: The controversy did not discuss the business cycle per se.

...Mises, Hayek, and Friedman...

Jay Leno did not see possibility.

Concept of business cycle & business cycle theory developed later.

There were a number of discussions which were relevant to business cycle theory.

1. Continuation of discussion of Say's Law

Karl Marx

3. The development of Dynamic Economic Theory: 
Sequencing Analysis: present in writings of Marx & Wicksell & developed by Mathematical Economics.

Karl Marx & his discussion of problems presented by classical economists & possibility of general over-supply.

Impossibility of general over-production does not follow from these facts:

A statement about the price structure.

There were written & pretty unknown writers who saw issues & solved it.

Thomas Attwood
Argument against 1st part of Say's Law: In exactly the same terms as Marx.

Marx speaks of money as stores of value. Hoarding and dishoarding:

Attwood & Marx criticize Say's Law in modern terms:

Say was interested in the 2nd part of Say's Law: The possibility of overproduction, overcrowding due to distribution of income.
Malthus: I am Large II. P. optimum of saving

Many interested in this:

1st refutation of
Ricardo & Smith's
that inequality of
distribution of income
was automatic cause of
over-saving

2nd: equilibrium condition
of saving & capital
accumulation

Malthus's apparatus of analysis:

based upon division
of economy into 2 parts
1. produces consumption goods
2. produces or
   investment goods

Malthus discussed relation
between two parts of economy
Output between investment and consumption goods

Decomposed output into

3 parts:

C = replacement of capital goods used up in production.

V = expenditure wages

S = profits + rent

C + V + S = total cost.

Main:
1. C = constant capital
2. C = r: replacement

V = wage bill: variable

S = surplus values: interest, profit, rent
May divides economy into 2 pts.
I. producers' goods.
II. consumers' goods.

\[
\begin{align*}
\text{I} & \quad 4000C + 1000V + 1000S = 6000 \\
\text{II} & \quad 2000C + 500V + 500S = 3000 \\
\hline
& \quad 6000C + 1500V + 1500S = 9000
\end{align*}
\]

If economy is in equilibrium, have to find following thing:
\[
\begin{align*}
D + S & \quad \text{of consumers' goods} \\
D + S & \quad \text{of producers' goods}
\end{align*}
\]

Ex. above:
\[
D = S \quad \text{of consumers' goods}
\]
\[
D = S \quad \text{of producers' goods}
\]
\[
D = S \quad \text{of consumers' goods}
\]
II $V_2 + V_2 + S_2$

$V_2 + V_2 + S_2 = V_1 + S_1 + V_2 + S_2$

$V_2 = V_1 + S_1$

$V_2 + V_2 + S_2 = V_1 + V_2$

$V_2 + S_2 = V_2$

All above in postulate of no saving.

Many different analysed aggregates in economy

 macro economics

Burning cycle literature carried us in term of aggregate relations
A fundamental principle is that reproduction
in a balanced ecosystem is not separated from ecosytem
management. The fact that we are in a
recognized equilibrium state requires caution.
Beneath a supply of food is a
producer/consumer food web. A
producer/consumer food web is
based upon genetic diversity.
Equilibrium within a
producer/consumer food web
requires a
balance of exchange.
The page contains handwritten mathematical calculations and notes. Here is a transcription:

**VII of Capital**

**Eastern Chapter**

I. \[ 1000V_1 + 1000V_1 + 1000S = 3000 \]

II. \[ 1500V_2 + 750K_1 + 750S_2 = 3000 \]

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I. \[ 4000V_1 + 1000V_1 + 1000S_1 = 5000 \]

\[ 1500K_2 + 750K_2 + 750S_2 = 3000 \]

\[ 5500 + 1750 = 7250 \]

\[ 5500V_1 + 3500 (V+S) \]

500 excess in production

If production increases

D for producing goods

must be increased by

500
assume 500 saving

5,500 + 3,500 = 9,000
+500 - 500

6,000 + 3,000 = 9,000

$\times$ save more than

500: Underconsumption

of consumer goods

excess demand of

producer goods

$D(\text{good}) = D(\text{muter})$

Consumer goods
May's Equilibrium conditions:
Stationary and Expanding Economy.

May 2 pts of economy

produces goods
Consumers

\[ \begin{align*}
I & : \quad 4000Y + 1000V + 1000S = 6000 \\
II & : \quad 1500Y + 750V + 750S = 3000 \\
\end{align*} \]

\[5500Y + 1750V + 1750S = 9000\]

\[5500Y + 3500(V + S) = 9000\]

\[500\text{ Invest} + - 500\text{ Saving} = 0\]

\[6000Y + 2\text{ Invest} + 3000V + S = 9000\]

Propone economy in equilibrium if

\[V + S = I_{\text{income}}\]

(May assumes all saving

\begin{itemize}
\item \text{done by property owners}
\item \text{S, superfices consumed}
\item \text{S, supplies saved}
\end{itemize}
I \quad r + v_i + s_i' + s_v''

II \quad r_2 + v_2 + s_2' + s_2''

r_2 + v_2 + s_2' + s_2'' = v_i + s_i' + v_i + s_i''

r_2 = v_i + s_i' - s_v''

r_2 + s_2'' = v_i + s_i''

Total V. for consumption goods

: output of consumption goods.

r_i + v_i + s_i' + s_i'' = r_i' + s_i' + s_i''

v_i + s_i' = r_2 + s_2''

\Rightarrow total Q. for producers goods = total output of producers goods.
The economics of

I: producers goods sector
II: consumers goods sector

1) Producers goods sector sells up 1) its own replacement
   2) its own saving
   Sells to other sector \( \ell + 1 \)

2) Consumers sector consumes \( \ell_2 + \ell_2 \) of its own production + sells \( \ell_2 + \ell_2 \) to other sector

\( \ell_1 + \ell_1 = \ell_2 + \ell_2 \)

Savings: investment:

outputs of producers goods

Equilibrium conditions:

independent of a distribution of income + rate of saving.
New theory refutes Malthus, Samuelson, and Samuelson.

Difference between Marx and Ricardo.

Marx recognized the possibility of disequilibrium.

\[ V_1 + S_2'' \neq V_1 + S_1' \]

\[ V_1 + V_1 + S_1' + S_1'' - V_1 - V_2 \]

\[ = S_1' + S_2'' \]

\[ V_1 S_1' - V_2 = S_2'' \]

\[ V_1 + S_1' = V_2 + S_2'' \]

If saving + spares

If output of producers

good overreplacement.

e.g. saving + investment

Marx's terminology different
May's analysis establishes the possibility of crises and indicates their source.

Concept of business cycle known to Marx.

Marx spoke of crises not as independent phenomena interrupting progress but as a recurrent phenomena.

May: Business cycle as something more than a regular succession of crises never presented in form of a consistent theory.
Fundamental ideas of business cycle in Marx

Literature: Karl Marx's ideas in 3rd Volume of Capital.

Good deal of discussion.

2nd volume: Marx established the sources of business cycle: Where to look for the disequilibria. Does not explain how and where such disequilibria will arise.

Investment depends upon the rate of return. The factors which determine the rate of profit in Capital.

Total capital in economy: Capital goods + Money capital, involving fund to pay wages.

C + V

S: Surplus value
\[ \beta = \frac{s}{c+v} = \text{profit rate} \]

\[ \beta = \text{rate ofduplex Value} = \frac{s}{v} \]

\[ \beta = \frac{s}{s+v} \cdot \frac{1}{1 + \frac{1}{v}} = \frac{\beta}{d+1} \]

\( d = \frac{s}{v} \): organic composition of capital.

\[ p = \frac{\beta}{1 + d} \]: rate of profit

\( \mu = \text{takes into account} \) period of turnover of constant capital.

\( \frac{s}{v} = t \): period of turnover.

\( r_c = \text{replacement rate} \)

\[ d = \frac{s}{v} = \frac{r_c}{v} \]

Empirical statement: M. Marx:

Development of capital consists in a constant raising of \( d \) in two grounds.
1. capital accumulation: rate of capital/labor increase

2. technical progress increase: ratio of capital accumulation to labor increase

d increases

if p remains the same

B would have to increase

B may increase: empirically, Anand held this may hold?

Also based upon subsistence theory of wages

Many more sense between

Empirical: t tends to increase

B's increase: limited
Thus the long-run tendency must be for it to increase faster than B.

Therefore rate of profit must decrease.

Rate of profit falls too much, he argues. Rate of profit falls, investment falls. Workers cannot consume & therefore savings & investment profit fall, diminishes, reduces indent to invest.

Basic Marx's theory of crises: Indicates a possible mechanism. Does not explain cycle.