Economic Fluctuations and Business Cycles

Su, Chapter 7

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Chapter Goals

- 1. Understand the nature of business cycles
- 2. Understand the terminology used to describe business cycles
- 3. Learn about past business cycle behavior in the US economy
- 4. Review economic models of business cycles
- 5. Understand explanations for why business cycles happen

What are Business Cycles?

Burns and Mitchell:

A type of fluctuation in the aggregate economic activities of nations that organize their production and distribution mainly in business enterprises; a cycle consists of expansion occuring at about the same time in many economic activities, followed by similarly general recessions, contractions and revivals which merge into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; they are not divisible into shorter cycles of similar character"

What are Business Cycles?

- Fluctuations in aggregate economic activity as a whole, not confined to particular industries
- Sequence of business cycle phases (expansion, peak, contraction, trough) repeats in the same order
- Duration, scope, amplitude, etc. varies substantially from cycle to cycle
- Characteristic of modern market economies
- Hard to quantify or measure simply

What Do Business Cycles Look Like?

- Business cycles typically have 4 phases:
 - 1. Depression (Trough)
 - 2. Recovery (Expansion)
 - 3. Prosperity (Peak or Boom)
 - 4. Recession (Contraction)

Phases of Business Cycles



Phases of Business Cycles



Depression or Trough

- A Turning Point in the cycle the end of a contraction
- Characterized by high unemployment and low consumer demand relative to industry capacity
- Greatest period of excess capacity over the cycle
- Business profits are low or negative
- Some prices are falling, others unchanged
- Consumers and firms expectations about future are bleak

Recovery or Expansion

- Employment, production, prices, and wages all begin to rise at roughly the same time
- Expectations of consumers and firms optimistic or favorable
- Investment spending increases
- Consumer demand rises

Peak or Boom

- A Turning Point in the business cycle the end of an expansion
- Economy at or close to full employment
- Capital and Labor utilization high
- Prices and costs rise at moderate rates
- Firm's profits high
- Interest rates rise
- Consumer's and firm's expectations favorable

Recession or Contraction

- Consumer spending falls
- Investment spending falls
- Inventories Accumulate
- Firm's Profits decline
- Business failures increase

Pre War Recessions

				Cycle	
Trough	Peak	Contraction	Expansion	TT	PP
December 1854 (IV)	June 1857(II)	_	30	_	_
December 1858 (IV)	October 1860(III)	18	22	48	40
June 1861 (III)	April 1865(I)	8	46	30	54
December 1867 (I)	June 1869(II)	32	18	78	50
December 1870 (IV)	October 1873(III)	18	34	36	52
March 1879 (I)	March 1882(I)	65	36	99	101
May 1885 (II)	March 1887(II)	38	22	74	60
April 1888 (I)	July 1890(III)	13	27	35	40
May 1891 (II)	January 1893(I)	10	20	37	30
June 1894 (II)	December 1895(IV)	17	18	37	35
June 1897 (II)	June 1899(III)	18	24	36	42
December 1900 (IV)	September 1902(IV)	18	21	42	39
August 1904 (III)	May 1907(II)	23	33	44	56
June 1908 (II)	January 1910(I)	13	19	46	32
January 1912 (IV)	January 1913(I)	24	12	43	36
December 1914 (IV)	August 1918(III)	23	44	35	67
March 1919 (I)	January 1920(I)	7	10	51	17
July 1921 (III)	May 1923(II)	18	22	28	40
July 1924 (III)	October 1926(III)	14	27	36	41
November 1927 (IV)	August 1929(III)	13	21	40	34
March 1933 (I)	May 1937(II)	43	50	64	93
June 1938 (II)	February 1945(I)	13	80	63	93
October 1945 (IV)	November 1948(IV)	8	37	88	45

Post War Recessions

				Cycle	
Trough	Peak	Contraction	Expansion	TT	PP
October 1949 (IV)	July 1953(II)	11	45	48	56
May 1954 (II)	August 1957(III)	10	39	55	49
April 1958 (II)	April 1960(II)	8	24	47	32
February 1961 (I)	December 1969(IV)	10	106	34	116
November 1970 (IV)	November 1973(IV)	11	36	117	47
March 1975 (I)	January 1980(I)	16	58	52	74
July 1980 (III)	July 1981(III)	6	12	64	18
November 1982 (IV)	July 1990(III)	16	92	28	108
March 1991 (I)	March 2001(I)	8	120	100	128

Averages

			Cycle	
	Contraction	Expansion	TT	PP
Average, all cycles:				
1854-1991 (31 cycles)	18	35	53	53
1854-1919 (16 cycles)	22	27	48	49
1919-1945 (6 cycles)	18	35	53	53
1945-1991 (9 cycles)	11	50	61	61
Average, peacetime cycles:				
1854-1991 (26 cycles)	19	29	48	48
1854-1919 (14 cycles)	22	24	46	47
1919-1945 (5 cycles)	20	26	46	45
1945-1991 (7 cycles)	11	43	53	53

The NBER

- National Bureau of Economic Research
- Private research institution established in 1920 by Wesley Clair Mitchell
- Macroeconomic think tank where Mitchell did important research on business cycles
- Since 1938, has officially determined the turning points in the US business cycle Business Cycle Dating Committee

Some Other Cycles in Economic Activities

- In general, economic fluctuations can be thought of as a number of oscillations with different frequencies and amplitudes.
- Other cycles include:
 - Kondratieff Cycles: 40-50 years peak-to-peak, associated with major technological innovations like railroads
 - *Kuznets Cycles*: 15-25 years, due to population growth, demographic changes, etc.
 - Juglar Cycles: 7-10 years
 - Kitchin Cycles: 3-4 years
- Existence of these cycles is disputed by some economists

Identifying Characteristics of Business Cycles

- The sequence of phases in the business cycle is not strictly periodic irregularly timed
- Business cycles typically last from 2-10 years, peak-to-peak or trough to-trough
- Involve all sectors of the economy: "Comovement" of many economic series
- Have a powerful tendency to synchronize the industrial, commercial and financial sectors of the economy
- Always include a visible growth component, not simply oscillations
- A product of progress, business cycles are found only in modern economies

Business Cycles: 1854-1945

- Period included 22 full peak-to-peak cycles
- This period was examined by Burns and Mitchell at the National Bureau of Economic Research (NBER)
- Aggregate price level generally rose and fell with the cycle
- Greater movement in industrial activity and employment during this period than was seen in post World War II business cycles
- Tended to be shorter in duration than in postwar period
- Average length 50 months
- Always included visible growth component "Growth Cycles"
- Increase during expansions on average greater than decline during contractions

Postwar Business Cycles

- Ten complete peak-to-peak cycles from October '45 March '01
- "Growth Cycles" more pronounced than in pre WWII period
- Continuously rising prices, no deflation "Downward Rigidities"
- 1949 recession featured inflation
- No apparent association between inflation and business cycles in postwar period
- Reduced severity in terms of relative magnitude of declines relative to pre WWII period
- Longer duration relative to pre WWII period
- Average length 60 months
- Expansions 5 times longer than contractions
- Contractions averaged 10.5 months, expansions 50

Phases of Postwar Business Cycles



New Stages in Postwar Business Cycles

- Because postwar expansions have been prolonged, they can be divided into two parts
- **Stage 1**: *Recovery* First year to year and a half after trough. Rapid growth period (5.5% GDP growth)
 - Sales of consumer durables increase
 - Residential Construction increases
 - Inventory investment grows
 - Unemployment rate does not change much
- Stage 2: *Expansion* Two to three years following recovery; Rapid growth slows (3.5-4.5% GDP growth)
 - Inventory investment drops
 - Fixed investment rises

Why Postwar and Prewar Cycles Differ

- Long-term structural changes in the economy
 - Changes in US Industry Composition
 - Larger Government Sector less cyclical variation in government spending
 - Greater Wage-Price Stickiness
- Countercyclical Economic Policies
 - Automatic Stabilizers
 - Progressive Income Taxation
 - Unemployment Insurance
 - Welfare Programs
- Discretionary Policies, Public Works Projects, Wage and Price Controls, Tax Rate Variation
- Monetary Policy, Increased Regulation of Financial Sector (SEC, FDIC)

Why are there Business Cycles?

- Many different theories of Business Cycles exist
- Two primary groups:
 - *External Theories*: Business cycles stem from exogenous events: Wars, Natural Disasters, Political Crises, Agricultural Failures
 - *Internal Theories*: Business Cycles are endogenous and selfgenerating: Under-consumption, over-investment, Monetary explanation

Early Business Cycle Theories

- Malthusian Explanation: Arise from Capital deficiencies and their effects on the population source of term "Dismal Science"
- Juglar Cycles: 3 components (prosperity, crisis, liquidation) and an internal causal relationship
- Evolution of Capitalism (*Marx*): Use of Currency leads to overproduction leads to "crisis"
- **Sun-Spot Theory** (*Jevons*): Agricultural in nature Sun-spots affect productivity of agriculture
- **Innovation Theory** (*Shumpeter*): Growth is driven by inventions -Business cycles are consequences of entrepreneurs exploiting inventions

Internal Business Cycle Theories

• Early Monetary Theory (*Hawtry*), based on the Quantity Theory of Money

$$M \times V = P \times Q$$

M: Money Supply, V: Velocity of money, P: Price Level, Q: Output

- Cyclical Variation in M leads to Changes in Q
- Works through Inventories
- Overinvestment (*Hayek, Wicksell*) Drops in investment spending leads to downturns
- Underconsumption (*Hobson, Haberler*) Average Propensity to Consume varies
- Can also be viewed as "Oversaving"

Keynesian Business Cycle Theory

- Internal business cycle theory
- Based on variation in the "marginal efficiency of capital" changing over time
- Accelerator effects amplify changes in the marginal efficiency of capital
- Accelerator effects predate Keynes Clark
- *Hicks*: Autonomous Investment is source of cyclical fluctuations



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Post-Keynesian Business Cycle Theories

- Kalecki's Model: Internal Business Cycle Theory
- Model of profit, wages and investment spending, no saving, model is dynamic
- C_k is purchases of consumer goods by capitalists, P is total profits, K capital stock

$$C_k = \alpha + \beta P$$
 (Consumption)
 $I_o = \gamma P - \delta K$ (Investment)

• θ is the average gestation period of investment, actual investment is

$$I_{(p)}(t) = rac{1}{ heta} \int_{t- heta}^t I_o(t) dt$$

Post-Keynesian Business Cycle Theories

- Kalecki's Model: Internal Business Cycle Theory
- Total output is the sum of profits and wages

$$Y = P + W = C_k + I_p + C_w$$

• Time path of I_o and Y

$$\frac{d(I_o(t))}{dt} = \frac{\gamma}{\theta} I_o(t) - \left(\frac{\alpha}{\theta} + \delta\right) I_o(t - \theta)$$

- Time path of Y depends on parameters of the investment function
- Empirically found that $\gamma = 0.95$, $\delta = 0.12$, $\theta = 0.6$ so the length of the cycle is about 6 years

Post-Keynesian Business Cycle Theories

- Monetarism (*Friedman*): Changes in Money Supply are the source of all cyclical fluctuations
- Quantity theory of money, P is the aggregate price level, M is the money supply, Q GDP and V the "velocity of money

MV = PQ

- V stable of slowly changing
- Changes in M leads to changes in P, changes in Y or both in the short run
- Only *P* changes in the long run
- Real Business Cycle Theory: Unobservable shocks to productivity drive cycles