Capitalism Unleashed

Accumulation, Labor, Nature & Technology
Keys

- High theory, low data (\& few pictures!)

- Capital: the driver behind economic growth
  - Capital \& technology (not simple)

- Capitalist growth comes in surges
  - Outbreaks of crisis are inevitable
  - Downturns are inevitable

- Capitalism rests on exploitation
  - Of labor \& nature – \& everyone
  - Hence on inequality of $ \& power
Capitalism Unleashed

I. Growth
II. Growth Waves
III. Exploitation
I. Growth (& Capital)

A. • What Causes Growth?
B. Markets & Competition
C. Technology & Progress
D. Profit & Accumulation
The motor behind the machine

- What causes economic growth?
  - Why assume it? Need to explain
  - Classical political economy & its doubts
- Causal candidates
  - Trade & Efficiency (Smith & Neoclassicals)
  - Technology & scale (Schumpeter & Romer)
  - Capital accumulation (Marx)
- Social order vs. *Deus ex machina*
  - Economy & society
I. Growth (& Capital)

A. What Causes Growth?
B. •Markets & Efficiency
C. Technology & Scale
D. Profit & Accumulation
Market system

- Market(s)
  - Systems of exchange
  - Producers & buyers
  - Supply + demand ➞ price + quantity

- Markets as a social system
  - Commoditization of everything
    - Land, labor & goods
  - Everything has a price
  - Production & consumption via the market

> Did not exist before modern times
Markets & Growth

- Division of labor (Adam Smith)
  - International trade (David Ricardo)

- Efficiency (neoclassicals)
  - Cost minimization

- Constant returns to scale (CRS)
Competition - Key Driver

- Markets » competition among firms
  - As buyers & sellers & producers
  - Race to keep even
  - » General equilibrium

- Strong vs. weak competition
  - Race to get ahead (extra profits)

- Schumpeter & Marx
  - Business & governments, too!
  - competitive edge, competitive advantage
Who Competes?

- Firms (companies)
  - Only type in neoclassical economics
  - Intra-firm (profit centers)
- Industries (products, sectors)
  - Compete for investment capital
- Places (at all scales)
  - Countries, cities, continents (see Part II)
I. Growth (& Capital)

A. What Causes Growth?
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D. Profit & Accumulation
Scale

- Increasing Returns to Scale (Romer)
  A *grab bag*
  - Economies of market size (Smith revisited)
  - Economies of scale (bulk & shared overhead)
  - Economies of mass flow
  - Economies of (growing) interaction
    - See also lecture 9

- But something’s missing…
Unleashing the genie

- Technology & innovation
  - Better not just bigger ways of doing things
  - Second driver of growth (xxx)
- Search for the new
  - New products
    - New designs, new functions
  - New production
    - New machines, new processes, new systems
    - Rising productivity

Recall lecture 1
Technology On Demand?

- ‘Big bang’ model
  - Major scientific breakthroughs

- Incremental model
  - Steady improvements

- No simple divide
  - Advances come both ways
Who Makes Technology?

- **Tinkering & genius**
  - aircraft design, plant genetics, software, SV garages

- **Corporate R&D**
  - Applied science & engineering
  - Blend with manufacturing & marketing

- **University & government labs**
  - Can the university be milked?
The Holy Grail

• ‘Technical innovation’
  • Every firm & country wants it

• How to get it?
  • Technical plans & strategies

• But why?
  • Back to competition & on to accumulation
I. Growth (& Capital)

A. What Causes Growth?
B. Markets & Competition
C. Technology & Scale
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The Stock of Capital

- Plant & equipment
  - Machinery of production
- Goods
  - Inventories
- Land (purchased)
  - Real estate & resources
- Money
  - Store of value
The Flow of Capital

- **Investment**
  - Flow of capital (≠ stock of K)
  - Putting money to work
  - Key function of capital

- **Profit**
  - Return on investment
  - \( \pi = \frac{S}{K} = \frac{(R - C)}{K} \)
  - Source of \( \pi = \) surplus (value)

- **Profit rate**
  - Surplus/investment over time
  - \( \pi = \frac{S_t}{K_t} \)
  - *Key signal for capital investment*
Capital Accumulation

- Growth of capital stock
  - Investment » profit » more capital
    - Reinvestment » more profit » yet more capital, etc.

- Spiral of accumulation
  - But why?
  - Desire for wealth
    - Monetary wealth
      - Pure form
      - Limitless
      - Ideology of the age

- Third driver of growth
  - beyond competition & technology
Capitalism in History

- Capitalism begins c. 1500
  - Vast commercial expansion of Europe
- Leaps ahead in Holland & Britain, 1600s
  - Not just the Scientific Revolution
- Agrarian revolution follows
- Then Industrial Revolution
  - Not just invention of steam engine
Lecture 3: Capitalism and Growth

I. Growth
II. Growth Waves
III. Global Instability
Growth waves

- Economy grows in bursts *(see lecture 3)*
  - Upswings & downturns
  - Wave-like pattern
  - Often dramatic boom & bust
- Capitalism creates those waves
  - No *deus ex machina*
    - Technological breakthrough, globalization, right President, etc.
    - Blaming terrorists, oil peaks, etc etc.
- Capitalism works both sides
  - Drives upswings
  - Undermines conditions for boom
  - Generates crises & downturns
II. Growth Waves

A. Upswings & Bottlenecks
B. Overaccumulation & Bubbles
C. Downturns & Recessions
D. Recovery & Ruin
Business rising

- Key Indicators
  - Orders, output, capacity use

- Key signal
  - Rising profit rate

- Key vector
  - Investment booms
Virtuous circle (feedback)

- Labor
  - Hiring, rising wages
- Technology
  - Adopting new processes
  - Introducing new products
  - Building new factories
- Money (Multiplier)
  - Consumers, business, government
Geography of booms

- **Outward**
  - New industrial spaces
    - Guangdong in 1980s
  - New urban rings
    - Beijing in 2000s

- **Upward**
  - Cities rising, greater density
    - L.A. in 1980s
Bottlenecks

- Rising demand
- Supply lags
  - Labor, resources, machinery
- » Input prices (costs) rise
- » Profit squeeze

![Chart: Iron ore price, cents per DMTU*](image.png)

- % change on year earlier

Source: IMF
*Dry metric ton unit
II. Growth Waves

A. Upswings & Bottlenecks
B. •Overaccumulation & Bubbles
C. Downturns & Recessions
D. Recovery & Ruin
Overshoot

- Occurs at peak of upswing

Overaccumulation
- Too much investment
  - Excess capacity & output
- Too many firms
  - Too many competitors
- Too much capital
  - Too much asset value
Glut

- Excess output
  - Unsold goods » rising inventories
  - Oversupply » falling prices
  - Falling prices » falling revenues (R = P x Q)

- Excess capital
  - Idle capacity (machines & factories)
  - Overvalued companies (stocks & bonds)
Profit rate falls

- \( \pi = \frac{R-C}{K} \)
- R down (falling prices)
- C up (bottlenecks)
- K too large (overvaluation)
Telecoms in the 90s - a classic case of overaccumulation

Technology

Fiber-optics companies choke on excess capacity

Cable-layers saw growth that didn't materialize

WALL STREET JOURNAL

DENVER -- As he railed at last winter's America with fiber-optic cable, James Crowe wasn't the sort to let anything stand in his way not the Rocky Mountains and certainly not his crusty old, Joseph Nardino.

In 1999, when Crowe's Level 3 Communications Inc. started lugging a huge交错 Denver and Salt Lake City, Nardino's Quasi Communications International Inc. had already threaded its own cable using the optic fiber. The project was a megalomaniac vision, a sprawling pipeline to carry the grantees of the Continental Divide. Underwritten, Level 3 invested in excess 70 million dollars, more than the entire state of Kentucky, installing fiber at a blinding 700 miles per day.

But now, Level 3 has hit a wall even Crowe may have trouble overcoming. The company's original ambition - to build the nation's largest, most advanced fiber-optic network to carry explosive amounts of Internet traffic - is now part of one of the few growth areas the industry has seen. Of the, about 7 million miles of fiber-optic cable stretch beneath the nation's U.S. railroad network, with a dozen major companies vying to build or expand nationwide networks and $10 billion of fiber during the past four years.

The company invested in excess $1 billion in 1999, to be completed this year, with annual estimates of about $300 million. Analysts surveyed by Prime Financial First Call had expected the company to report a $1.27 a share this year.

Robert Welch of Cablevision, one of the leading operators of fiber networks, said that the fiber glut has led to a situation where some operators are struggling to find customers. "The market is now flooded with fiber," he said. "There's no shortage of fiber, but there's a shortage of customers."
Housing in 2000s

Source: Census Bureau/Black Analytics
Bubbles

- Finance expansion
  - Credit (lending)
  - Asset values (capital markets)
    
    *See Part V of course*

- Financial bubbles @ peak
  - Excess lending/rising risk
  - Asset bubbles/self-propelling

- Speculation takes charge
  - Everyone thinks it won’t end…
  - Lending for asset bubbles

Anyone who was in Bear Stearns the stock last Tuesday and held it on what Cramer said is not going to be a happy camper today.

This graph of the rise and fall of Bear Stearns stock is one for my historical files. Let it be a reminder not to put all your eggs in one basket, even if you work at the company and the company pays you in company stock. Take profits and diversify!
Financial bubble boosts overaccumulation

- Even more capacity (hence more output)
- Even more new & bigger firms (more competitors)
- Even more paper capital (which must earn dividends, interest, etc)
- Even more debt (which must be paid off)
Geography of bubbles

Hit quickly & powerfully -- & locally

- L.A. in 1980s
- Bay Area in 1990s
- Inland California in 2000s
- Japan in late 1980s
- SE Asia in early 1990s
II. Growth Waves

A. Upswings & Bottlenecks
B. Overaccumulation & Bubbles
C. Downturns & Recessions
D. Recovery & Ruin
Heading down

- Basic driver
  - Falling profits → less investment

- Vicious cycle (negative feedback)
  - Layoffs
  - Plant closures
  - Less money & spending
Financial crises

- Payments fall behind
  - 40 day delay (ave)

- Credit becomes tight
  - Fear of lending

- Banks collapse
  - Easy lenders go first

- Capital markets fall
  - Anti-wealth effect
Geography of busts

Even quicker & harder

- De-industrialization
  - Detroit in 1930s, 1980s
- Collapsing cities
  - L.A. in early 1990s
  - SF in early 2000s
  - Inland California today
- Country crises
  - Mexico 1994
  - Thailand 1996
  - Argentina 2001
II. Growth Waves

A. Upswings & Bottlenecks
B. Overaccumulation & Bubbles
C. Downturns & Recessions
D. • Recovery & Ruin
Recessions clean house

- Reduced K
  - Plant closures
  - Bankruptcies
  - Fire sales
- Reduced C
  - Layoffs
  - Wage cuts
  - Falling input prices
- Improved $\pi$
  - $\pi = (R-C)/K$

(AP)......Stricken Bear Stearns is being bought by rival JP Morgan Chase for just $2 a share — versus Friday’s closing price above $30 —
Financial cleansing

- Asset values fall
  - Reduce dividends

- Debt falls
  - Refinance loans at lower interest rate

- Stop paying creditors
  - Bankruptcy
Recessions drive new effort

- Work intensity
- Fewer workers
- Longer hours
- (productivity rises)
- New technology

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US workers suffer labour pains as they put in record hours at work

Michael Elliott in New York

For men and women of the United States work is the longest hours in the industrialized world. Average Americans now spend so much time at work that they are putting in another week a year compared with 30 years ago, says a new study published today, coinciding with the Labour Day holiday last weekend.

In 1990 the US and the US worked 1,000 hours a year, now they tell for 1,001 hours, says the report, by the International Labour Organization.

"The increase in the number of hours worked within the US means it is the trend in other industrialized countries, where we are seeing declining hours worked," said Lawrence J. Johnson, a Brookings Institute economist who headed the team that drew up "Key Indicators of The Labour Market 2000-2001.""Back in Australia, Canada, Japan, and Mexico workers devote about 1,900 hours a year — a 3-weeks less — to their job, it says. Britons and Australians work 1,000 fewer hours, roughly the same as the Germans on 1,800 fewer hours, or about 12 weeks.

Of countries categorized as developing or in transition, only South Korea (1,500 more hours) and China (an extra 100 hours) put in more time that Americans.

"I think it is a lot to do with the American psyche," said Mr. Johnson, who lives in Switzerland. "Americans define themselves by their work. When you see the average European, it is a shame to see how few they do for a living. They talk more about their families, Americans tell you immediately what they do."

Part of the apparent appetite for work is explained by the increasingly blurred line between work and free time.

"I played golf recently for the first time in a week," said Mr. Johnson, who described himself as a weekend golfer. "My friends played golf three times with each other. It was less time at work and more time off work."

"This is a reality," Mr. Johnson said. "We have to work more, but we don't do it for any more."

But mobile phones and computers are not unique to the US. No to Americans, though, it might find its most dramatic expression there.

"Americans have low flexibility and Americans have a tendency to move quicker from job to job," said Mr. Johnson. "We want to progress, to move on to the next level. In the US, they're putting it more than in Europe."

Americans typically get only two or three weeks' holiday a year, but in the UK there are 13 public holidays. Mary Cain on Monday, allowing for long weekends.

For long working weeks do not equalize with benefits. "A job should keep you out of poverty and keep you in.""It's tough," said Mr. Johnson, who co-authored "A Piece of the Action." "But as we celebrate Labour Day, hardworking Americans paid the minimum wages have to choose between eating or buying healthcare or medicine."

"At $5.15 an hour (the minimum wage), they earn just $10,772 a year. That's a third less than in 1980, when the minimum wage was about 30, adjusting for inflation. A couple with two kids would have to work a second job, a full-time minimum-wage job to make ends meet." Mr. Johnson suggested that the US could learn much from Ireland, where the productivity of people with jobs had increased even though employees now spent 1,100 hours a year working, down from 1,150 hours in 1990.

"The situation and training is something to think about," Mr. Johnson said. "It's a time for reflection for Americans, to see what's working or not working and what we can learn from others."

"We're not 100% sitting on the fence, but we want to do it in a way that's not too great to society. Nobody on their deathbed has ever said, 'I wish I spent more hours on that job.'"

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Intel develops revolutionary optic chips

PCs may span vast distances, scientists say

By John Markoff
New York Times

Intel Corp. scientists say they have made silicon chips that can try executives.

It will also make possible a new class of computing applications based on the possibility of transmitting high-definition video and images at hundreds or even thousands of times the speeds possible on today's Internet.

"Before, there were two worlds — computing and communications," said Alan Huang, a former Bell Labs administrator who has run the previously secret Intel research programs to explore the possibility of using standard semiconductor parts to build optical networks. "We're trying to siliconize photonic systems." Intel's device is the prototype of a high-speed silicon optical modulator that researchers have pushed above 2 billion bits per second at a lab near its headquarters in Santa Clara.

The modulator makes it possible to switch a tiny laser beam on and off and direct it into an ultrathin glass fiber.

Although the technical report in Nature focuses on the modulator, which is only one component of a networking system, Intel plans to demonstrate a working system by transmitting a movie in high-definition TV over a 5-mile coil of fiber-optic cable next week at its annual Intel Developers Forum in San Francisco.

"If Intel and other semiconductor technology companies can develop silicon optically as successfully as they have electronics, then silicon is certainly set to grow in stature as an optical material," said Graham Reed, a physicist at the University of Surrey in Britain, who wrote a commentary in Nature. Reed holds the previous 20-Mbps silicon optical switching speed record that Intel shattered. With its breakthrough, Intel researchers said they have shown that it should be possible to build optical fiber communications systems using Intel's conventional chip-making process without resorting to either the exotic materials or hand-assembly techniques that are now the standard in the fiber-optics networking industry.
Creative Destruction

- Elimination of
  - Inefficient firms (or small ones)
  - Obsolete factories
  - Unwanted workers

- Decline & decay of old industrial places
  - Rolling up the rug of progress...
Social Amnesia

- Then everyone forgets:
  - “It can never happen again”

- Carmen Reinhart and Kenneth Rogoff, *This Time Is Different: Eight Centuries of Financial Folly*
Capitalism and Growth

I. Growth
II. Growth Waves
III. • Exploitation
III. Exploitation

A. What is capital?

B. Labor & Profit

C. Nature & Rent

D. Money & Interest
Three Faces of Capital

- **Property**
  - Ownership of means of production
    - Corporations, land, financial assets

- **Wealth**
  - Accumulation of property & assets
  - Income flows to that property

- **Class**
  - Power over economy & society
Capital Lives!

- Capitalism as a living thing, a social system
- Vs. conventional economics
  - cold, dead logic of markets, competition and technology
- Organization of course:
  - First half: logic of capital, territory & industry
  - Second half: the triad of exploitation
Capital Lives Off Others

- Three forms of exploitation
  - Labor (profit)
  - Nature (rent)
  - Money (interest)
Fetish of capital

Karl Marx’s greatest idea:

- Capital is not a god giving birth to wealth
- Capital, like technology, is a human product
- Capital accumulation ≠ human development
- The Wealth of Nations is not money or things, but human powers & creations
III. Exploitation

A. What is capital?

B. •Labor & Profit

C. Nature & Rent

D. Money & Interest
The Fruits of Labor

- People are the creative force of industry
  - Workers, managers, technicians, etc.
  - Both manual labor & mental labor *(lecture 13)*

- Capitalists buy labor in the market
  - Wage-labor = Commodity for sale, like any other

- Put people to work
  - Combine with machinery, materials, energy, etc.
Surplus & Profit

- Sell the products of labor
  - Output belongs to the owner/boss

- Keep the surplus over costs
  - Surplus = revenues - costs \((S = R - C)\)
  - (costs = wages + inputs)
  - ‘Value added’ = key measure

- Surplus is the source of profit of industry
Exploitation & Cycles

- Increased intensity of exploitation

Previous and revised productivity and related measures, nonfarm business, first quarter 2010 (quarterly percent change at seasonally adjusted annual rates)

Source: U.S. Bureau of Labor Statistics
Labor as a class

- Labor is exploited
  - It gives more than it receives
- Labor has little control
  - Does not make big decisions
- Working class majority
  - 60-80% of people
More on Labor

- See Part IV of the course
III. Exploitation

A. What is capital?
B. Labor & Profit
C. **Nature & Rent**
D. Money & Interest
Exploiting Nature

- Nature provides resources
  - Materials, fuel, soil, air, etc.
  - *(See Part VI)*

- Labor works on & with natural inputs

- Nature yields a ‘natural surplus’
  - Photosynthesis, animal power, fossil fuels, falling water, etc.
Who Gets the Surplus?

- Capitalist owns products of labor + nature

- Keeps the surplus over cost, again
  - Including any ‘free work’ by nature

- Capitalist pays landowners for natural inputs
  - landed property keeps the “rent”
Are landlords a class?

- Major source of wealth
  - E.g., China today

- Often targeted by economic critics
  - E.g., Ricardo, Henry George, critics of OPEC

- Often another form of capital investment
  - But that doesn’t make landowning ‘productive’
More on Resources

• See Part VI of the course
III. Exploitation

A. What is capital?
B. Labor & Profit
C. Nature & Rent
D. Money & Interest
Money Magic

- Money is the universal form of value
  - Money wealth & accumulation

- Money is lent out for interest
  - Interest is just a payment for use of money
  - Money by itself produces nothing
  - No different than profit or rent
The Monied Interest

- Financiers are the owners of extra money
  - Make money by lending money
    - Get interest – their cut of the surplus
  - Or by investing in paper assets, like stocks
    - Appreciation is paid for out of social product

- BUT isn’t money useful//productive?
  - As capital to invest, yes it expands production
  - But still subject to same analysis of profit
More on Finance

• Finance is not just parasitic
  • But largely so

• See Part V
Conclusion

- Exploitation creates antagonisms
  - Social divides in power, wealth & interest

- Hence social struggles
  - Around labor, environment & mad money

- Hence *political* economy
  - Social politics as barrier to accumulation