

ECON 305

Comparative Economic Systems

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Syllabus Review

Website:
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Office Hours: MWF 9:30-10:30, unless canceled,
or by appointment

Grading based on:
* Essay Exams
* Two Papers – one short, one long
* Daily One-minute Essays

BOOKS

REQUIRED TEXTBOOK:
Rosser, J. Barkley, Jr., & Marina V. Rosser (2004), *Comparative Economics in a Transforming World Economy*.

- PLUS ONE OF THE FOLLOWING:
- 1) Bernstein, William J. (2004), *The Birth of Plenty: How the Prosperity of the Modern World was Created*.
 - 2) Friedman, Thomas (2000), *The Lexus and the Olive Tree: Understanding Globalization*.
 - 3) Olson, Mancur (2000), *Power and Prosperity*.
 - 4) De Soto, Hernando (2003), *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*.

I. INTRODUCTION

- Not long ago, the world was divided into two seemingly monolithic systems - the socialist and the capitalist worlds -- engaged in a long-standing conflict, the Cold War. Countries were either in the first (capitalist), second (socialist), or third (developing) worlds.
- After 1989-1991, that all changed. By 1992, Francis Fukuyama argued that liberalism (private property rights, free economic activity, market exchange) was the only surviving alternative.
- What we then experienced was one of the greatest economic experiments in history. Socialist economies began to transition into market economies, and we could observe and participate in the construction of economic systems, and learn how they really work.
- The journalist Thomas Friedman argues that the Cold War was the world's economic system, and the new world system is Globalization. The new conflict is between the Lexus (the modern economy, with trade, technology, and human capital) and the Olive Tree (traditional economies, traditional values, and nationalism).

What did we learn from the transition process?

- We learned that economic principles really matter, that incentive matters and markets work. But markets don't solve all problems, and some problems they can make much worse.
- We also learned that everything is so much more complicated than we had believed. Change is slow and difficult, information is limited, economic institutions and behaviors evolve slowly, and everything in a modern economy is dependent on everything else.
- This field, comparative economic systems, is also evolving. Not long ago it focused on studying the comparative performance of socialism vs. capitalism, but that is becoming less relevant. Now, we are focusing on the diversity of institutions and systems even among the capitalist economies, the process of economic reform and transition, and the emergence of new alternatives.

What is an Economic System?

"An economy is a group of people who are located within a political entity that has particular geographic characteristics and who are producing and consuming goods and services."
- Rosser & Rosser

It must decide what goods are produced (and with what resources), how these goods are produced, and who receives the goods produced.

An economic system is the set of rules and institutions that define and constrain the production and consumption of goods and services.

Institutions include households and the family, government policies and instruments, enterprises (or firms), labor organizations, NGOs, and markets.

Rules include the legal framework and the extent of enforcement, organizational rules, procedures, customs, culture, and tradition.

The Economy as a Production Process

Country i 's economic outcome $O_i = (Q_i, \text{other outcomes})$
and $Q_i = F_i(NR_i, PC_i, LF_i, HC_i) = T_i \times f_i(NR_i, PC_i, LF_i, HC_i)$

where Q = real economic output produced, which is produced with:
 T = total factor productivity,
 NR = natural resources (including land),
 PC = produced capital assets,
 LF = labor force, and
 HC = human capital assets per capita.

Extensive growth occurs by having more resources, i.e. using NR faster, or having more PC (through savings and investment) or LF (labor force participation). This is subject to diminishing returns, resource constraints, depletion, overuse.

Intensive growth occurs through greater T (better technology, more efficient use) or more HC (skills, education).

Economic Dualities

Let's start with two ways of looking at the basic opposing forces in an economic system:

- The Public Sector (the state, a.k.a. government), its roles, rules, power and limits, versus the Private Sector, with private property, free markets, and the institutions and associations of a civil society.
- Capital, with a minority controlling the "means of production" (firms, equipment, natural resources, et cetera), versus Labor (which itself can be divided into skilled and unskilled). The role of government then depends on which group controls it (e.g., capital through funding or labor through voting).

Social vs. Self Interest

Economics usually assumes that people are primarily motivated by individual self-interest, and by the accumulation of material wealth. All groups (e.g., firms, societies) are composed of individuals with interests that may or may not conflict.

This is in contrast to the Marxian approach, which generally assumes that people act as a class, in their class interest.

Two contradictory models of self-interest drive the private sector:

- Adam Smith's Invisible Hand: Individuals who act in their own self-interest unintentionally promote the public interest, frequently more effectively than when they intentionally pursue it.
- The Prisoner's Dilemma: When individuals act in their own self-interest at the expense of others, the result can be that everyone is worse off.

This leads to...

Two contradictory models of the role of government:

- **The Social Compact:** Individuals join together to govern themselves. By restraining self-interest and providing public goods, government can promote the public interest.
- **The Predatory State:** Government is used by one group (e.g., government agents, an oligarchy, a privileged class, even a voting majority) in its own interest, at the expense of society overall.

Understanding the objective of the state is key to understanding its actions, and the role of the state is key to classifying economic systems.

How do we define and classify economic systems?

(1) **Ownership** of property, and the role of individual rights

- Three aspects of property rights:
 - Right of control, of transfer, to residual income
- Private vs. public (state/government or common) ownership
- Private rights are never complete.
 - Zoning laws, for example, prevent many uses of private property, and taxes limit residual income.*
- Difference between *de facto* and *de jure* property rights. Capital is most useful when they coincide (De Soto).
- Other aspects of individual rights: Civil rights and labor mobility

Marx saw ownership as the fundamental condition.

Classification continued

(2) **The Coordinating Mechanism:**

- The method of allocation and distribution
- System includes the collection and dissemination of information
- Command vs. market

(3) **The Organization of Decision-making:**

- Are economic decisions centralized or decentralized?
- Hierarchy, institutions, firm structure, culture, and the type of political system.

(4) **The Incentive Structure:**

- How do you motivate people to do what you want?
- material, coercive, and/or moral incentives

Classification continued

(5) **Income Distribution and Redistribution:**

- Poverty programs, unemployment, subsidized education, social security, disability, medical insurance, minimum wages, et cetera.
- Is the outcome of a market economy just?
- Does redistribution worsen incentive?

(6) **Political or Ideological Objectives:**

- For example, efficiency, fairness or equity, state power
- Mao's China had revolution as an end in itself
- Others (Friedman) might argue that free enterprise or consumer sovereignty is the goal, not just a means to an end.

So how many possible economic systems are there?

There are many potential combinations of these six characteristics:

- two possible outcomes each: $2^6 = 64$
- three possible outcomes each: $3^6 = 729$

However, if economies are systems, many of these characteristics go together as part of a system.

Two Basic Archetypes of Economic Systems:

- **Market Capitalism** – predominance of private property and individual rights, free market coordination of allocation, production, and distribution, material incentives, decentralized decision making and popular election of governments with laissez faire policies.
- **Command Socialism** – predominance of state ownership, state management and planning, moral and coercive incentives, centralization of decision making, and unchallenged power held by an ideologically-driven oligarchy.

Few economies match the archetypes

- Virtually all economies are mixed to some extent, and we have to consider the predominance of a characteristic, not its mere presence. Still, some economies cannot fit in the two basic categories (e.g., new traditional economies), and some economic systems are simply dysfunctional.
- Rosser & Rosser distinguish between planned market capitalism and social market capitalism. There is also monopoly capitalism, dirigism, corporatism, fascism, et cetera.
- There is also market socialism, labor-managed socialism, and the hybrid economies of the former socialist economies.

Capitalism vs. Socialism

Marx's definition of **capitalism** – an economic system in which one class (the bourgeoisie) owns the means of production and thus is able to exploit another class (the proletariat).

Kornai's definition of **socialism** – an economic system in which a Marxist-Leninist communist party has an unchallenged monopoly on political power.

Socialism is not simply government intervention, nor having an expanded welfare system. Just because a color is not white does not make it black.

Where do these countries fit: The U.S., Sweden, the U.K., Nazi Germany, Italy, China, the U.S.S.R.?

What is communism?

Many people are confused by the terms.

- Communism as an economic system is neither socialism nor capitalism. Advanced communism (as opposed to primitive communism) would require the elimination of scarcity and the withering of the state.
- As a political system, communism refers to a totalitarian government that meets Kornai's definition.

2. The Comparison of Economic Outcomes: Criteria and Difficulties

Once we define an economic system, how can we judge how well it performs?

Economic Outcomes

- 1) Output/Income produced (usually GDP)
- 2) Economic Efficiency
- 3) Macroeconomic Stability
- 4) Economic Security
- 5) Economic Equality
- 6) Economic Freedom
- 7) Long-term Viability

1) Output Produced

Say's Identity: Output produced = Income received

Basic Measure is GDP: the final market value of goods produced within a country during a given year. GNP and GNI are similar measures, with minor adjustments.

Physical Quality of Life Index, Human Development Index -- life expectancy, infant mortality, literacy, educational enrollment, nutrition, et cetera, are all highly correlated with GDP per capita.

Output levels: should be adjusted for inflation, population, comparable currencies. A truly accurate measure would measure the net social value of all economic activities, rather than merely GDP, and would adjust for the use of natural resources and other capital.

Growth rates: change over time. But lesser-developed economies have the potential to grow at faster rates, since they start at a lower initial base and there is a catch-up effect.

Output composition: civilian or military goods; consumption, investment, or government goods; food vs. housing vs. luxury goods.

2) Economic Efficiency

Efficiency is the ratio, relative to the maximum possible, of the total value of what we produce, divided by the total value of the resources we used, from now into the future.

Efficiency is a more perfect measure than GDP, but it is also much harder to measure and not easily available.

Static efficiency - Can a reallocation of existing resources increase current output? Can we get the same current output using fewer resources? Do prices reflect scarcity values?

technical efficiency: Are we using the most productive technology?

allocative efficiency: Are resources distributed to the right producers, in the best mix?

consumption efficiency: Are we consuming the best mix of goods and services?

We often look at *labor productivity*, which is an incomplete measure at best.

Dynamic efficiency - Is the long-run value of output being maximized? Savings, investment, technological progress, etc.

And the rest...

- 3) **Macroeconomic Stability** – prices, unemployment, recessions, and growth.
- 4) **Economic Security** – can people find and keep good jobs, is insurance (public or private) widely available? Is there a social safety net?
- 5) **Economic Equality (Equity)** – distribution of wealth, income, and opportunity.
- 6) **Economic Freedom** - To own, buy, or sell what you want, to work and live where you want.
- 7) **Long-term viability** - Is the economic system adaptable? Does it maintain or destroy itself? Is it sustainable in its use of the natural environment?

Conflicts and Complements

Which of these measures are likely to be complementary?

- Output level is usually correlated with static efficiency, growth with dynamic efficiency, both with economic freedom
- Economic security is correlated with macroeconomic stability and/or equity
- Dynamic efficiency implies long-run viability

Problem 1: There are often conflicts between measures.

- For example, some static inefficiencies may be dynamically efficient, and vice-versa.
- Economic freedom may conflict with security.
- Efficiency may conflict with equity.

Problem 2: Many (most) statistics are usually not available, not objective, or not comparable.

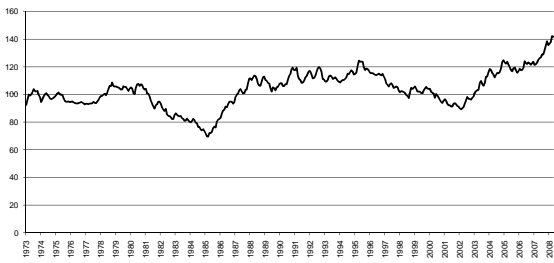
- Statistics are measured differently for each country, e.g., unemployment in U.S. vs. China. GNP, GDP, or NMP?
- Should output include black or grey markets? What about nonmonetary goods?
- Inflation is often hidden or repressed.
- Do growth rates accurately adjust for capital accumulation, or natural resource depletion?

**A problem of comparison:
Exchange rate comparability and variability**

We often compare one country's income to another using official exchange rates.

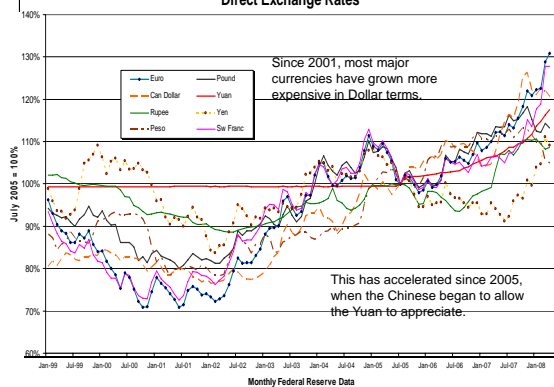
But Purchasing Power Parity (PPP) is *not* true, at least in the short-run. Relative prices differ. Trade markets are segmented, distorted. Productivity differences may lead to widely different wage rates, e.g., cost of services.

Average Price of Foreign Currency
(Major Currencies vs. U.S. Dollar, 1973=100)



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Direct Exchange Rates



How much has the Dollar depreciated?

- Since 2001:
 - the Euro has risen by 85%,
 - the Canadian Dollar by 50%,
 - the Swiss Franc by 75%,
 - and the Mexican Peso by 15%.
- Since 2005:
 - the Euro has risen by 22%,
 - the CD by 22%,
 - and the SwF by 18%.
 - Also, the Yuan has risen by 18%, the Yen by 6%, the Won by 6%, the Pound by 5%, and the Indian Rupee by 9%.

A problem of comparison: exchange rate comparability and variability

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But Purchasing Power Parity (PPP) is *not* true, at least in the short-run. Relative prices differ. Trade markets are segmented, distorted. Productivity differences may lead to widely different wage rates, e.g., cost of services.

The PPP method tries to adjust for this, in effect by using our prices times another country's quantities to develop a relative index.

But it is not perfect. Not only does it have more measurement error, problems with comparing product quality, but there is the *Gershchenkron Effect* - An economy looks better if measured in foreign prices, e.g., the CIA measurements of Soviet GDP were typically overstated.

Gershchenkron Effect Example for China and Japan

Assume agricultural output (A) is relatively abundant in China (C), and industrial output (I) is relatively abundant in Japan (J). So we define GDP (Y) in each as:

$$Y_C = P^A_C Q^A_C + P^I_C Q^I_C$$

$$Y_J = P^A_J Q^A_J + P^I_J Q^I_J$$

with quantities: $Q^A_C, Q^A_J, Q^I_C, Q^I_J$

and prices: $P^A_C, P^A_J, P^I_C, P^I_J$

We expect that if $(Q^A_C / Q^I_C) > (Q^A_J / Q^I_J)$ - China produces relatively more A, then this implies $(P^A_C / P^I_C) < (P^A_J / P^I_J)$ - China has relatively lower prices for A.

Suppose $E = \text{RMB}(\text{Yuan}) / \text{Yen}$

For Japan: China's Y (in Yen) = Y_C / E

For China: Japan's Y (in RMB) = $Y_J \times E$

So what's so strange about that?

On average, we can expect:

$$Y_C / E < (P^A_C Q^A_C + P^I_C Q^I_C) - \text{China's PPP income will be higher}$$

$$Y_J \times E < (P^A_C Q^A_J + P^I_C Q^I_J) - \text{Japan's PPP income will be higher}$$

Though more precisely, given our assumptions, it is easy to prove that:

$$Y_C \times Y_J = (P^A_C Q^A_C + P^I_C Q^I_C) \times (P^A_J Q^A_J + P^I_J Q^I_J) \\ < (P^A_J Q^A_C + P^I_J Q^I_C) \times (P^A_C Q^A_J + P^I_C Q^I_J)$$

If we use our prices to measure another country's output, we are giving more weight to what they produce relatively more of, and less weight to what they produce less of.

Using the PPP should lead to a bigger number. If it doesn't, then this implies that the exchange rate is really overvalued.

An example?

1998 Data

Country	Population (millions)	GDP Per-Capita (USD OER)	Per-Capita (USD PPP)	Ratio
United States	270	\$29,340	\$29,340	1.00
United Kingdom	59	\$21,400	\$20,640	0.96
Germany	82	\$25,850	\$20,810	0.81
France	59	\$24,940	\$22,320	0.89
Sweden	9	\$25,620	\$19,480	0.76
Japan	126	\$32,380	\$23,180	0.72
Russia	147	\$2,300	\$3,950	1.72
China	1239	\$750	\$3,220	4.29

World Bank Data 2003

	Population	GDP	Growth	GNI per capita	Growth	PPP-Adjusted	PPP/GNI-1
Norway	4.6	221	0.4%	43,400	-0.2%	37,300	-14%
Switzerland	7.4	320	-0.4%	40,680	-1.2%	32,030	-21%
United States	290.8	10,949	3.1%	37,870	2.0%	37,500	-1%
Japan	127.6	4,301	2.7%	34,180	2.7%	28,620	-16%
Sweden	9.0	302	1.6%	28,910	1.2%	26,620	-8%
United Kingdom	59.3	1,795	2.2%	28,320	2.1%	27,650	-2%
Germany	82.5	2,403	-0.1%	25,270	-0.1%	27,460	9%
France	59.8	1,758	0.5%	24,730	-0.3%	27,460	11%
South Korea	22.6	605	3.1%	12,030	2.4%	17,930	49%
Czech Republic	10.2	90	3.1%	7,150	2.9%	15,650	119%
Hungary	10.1	83	3.1%	6,350	0.7%	13,780	117%
Mexico	102.3	626	1.3%	6,230	-0.1%	8,950	44%
Poland	38.2	210	3.8%	5,280	4.9%	11,450	117%
Russia	143.4	433	7.4%	2,610	7.8%	8,920	242%
Iran	66.4	137	6.6%	2,010	4.4%	7,190	258%
China	1288.4	1,417	9.3%	1,100	8.4%	4,990	354%
India	1064.4	601	8.6%	540	6.4%	2,880	433%

More Problems:

Problem 3: How do you weight these criteria?

$O = \sum_k a_k O_k$
where O_k are different outcome values and a_k are the weights.

Too many dimensions to the problem, weights are biased and subjective.

Problem 4: You should be careful comparing actual to ideal systems.

- Comparing theoretical capitalism to actual socialism is poor science, and vice versa.

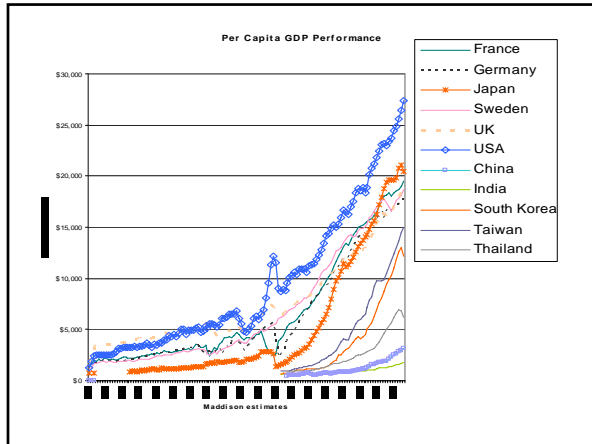
Problem 5: The Source of Performance Differences may not be the Economic System.

Bornstein argues that performance depends on:

- 1) The level of economic development** - capital and technological, size and structure of economy, the degree of centralization (and the degree of corruption?).
- 2) Social and cultural forces** - beliefs, values, education, social mobility, and the role of ideology (in influencing, rationalizing, and disguising).
- 3) The Natural Environment** - geography, climate, resources, population. More soon.

So, how do countries compare?

- The U.S. is the world's largest economy, with the highest PPP per-capita (and HDI) of any major economy. It is one of the most free, it is the most globally competitive, and it is in the upper fifth of most transparent (i.e., least corrupt) economies.
- China is currently the fastest growing economy, with the highest investment rate, but it does not score well on economic freedom and transparency indices.
- Japan has the highest life expectancy and the most equal distribution of income of any market economy. Sweden is second.
- As a share of GDP, Sweden spends the most on education, Cuba and Germany the most on health.
- The U.S. spends relatively more on the military than any other major economy. In total spending, the U.S. spends more on the military than all other countries in the world, combined.
- China has a relatively small government, though there is clearly a measurement problem. Of capitalist economies, Japan and Hong Kong have the smallest governments. The U.S. government is *relatively* smaller than in most major economies.
- Hong Kong has the best score for economic freedom, and among the worst are Iran, Iraq, Cuba, and North Korea (the U.S. is closer to HK than Japan or other major economies).

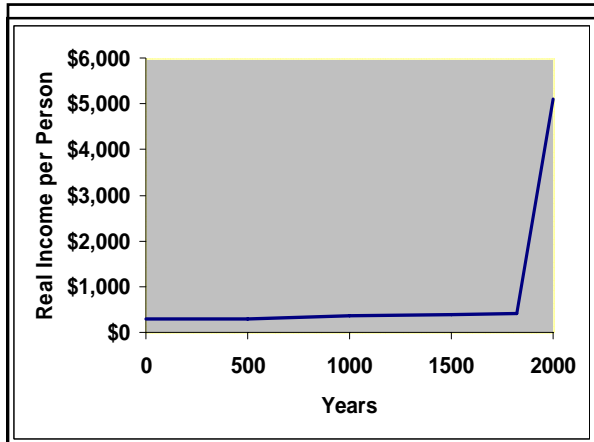


Growth patterns

- Why do some countries grow faster than others?
- Why do some poor countries grow more slowly than rich countries (divergence)?
 - Low-level equilibrium trap
 - Dysfunctional economic and/or political system
 - Many countries (e.g., in Africa) have stopped growing at all.
- Why do some poor and middle-income countries grow more quickly than rich ones (convergence)?
 - Catch-up effects due to available technologies
 - Foreign Trade and Investment

A More Long-Run View of the World's Growth History

- From 0 AD to 1000 AD:
 - Population grew at less than 0.02% per year
 - Output per capita did not improve
- From 1000 AD to 1820:
 - Population grew at less than 0.2% per year.
 - Per-capita GDP grew at an average of 0.05% per year.
- From 1820 – 2000:
 - Population grew at slightly less than 1% per year.
 - Per-capita GDP grew at more than 1% per year.
- And from 1950 – 2000:
 - Population grew at about 1.8% per year.
 - Per capita output grew at about 2.1% per year.



Another way to look at it...

- Economic growth is a relatively recent phenomenon.
- The question may not be why do many countries not grow.
- Instead, why did the economies of some countries suddenly start growing, and how did this growth affect other countries that did not?

B. The Roots of Modern Economic Systems

1. The Historical Development of Capitalism
2. Theories of Economic Change: Classical/neoclassical, Marxist, and Evolutionary
3. The Marxist-Leninist Critique of Capitalism

The Historical Development of Capitalism

(European/Anglo-American focus)

The result (or latest stage) of a long historical process

- Anatomically similar humans emerged about 100,000 years ago, behaviorally similar humans around 50,000 years ago in Africa, migrating to Asia, Europe, and (eventually) the Americas.
- Traditional subsistence economies: hunter-gatherers, small extended family or tribal bands. Gradual reduction in social aggression.
- Marx's primitive communism, Sahlin's original leisure society vs. Hobbes' view that life was "nasty, brutish, and short" without a central authority.
- "First economic revolution," circa 10,000 years ago: settled agriculture, domestication of animals. Predominance of agriculture through most following history.
- Ancient hydraulic civilizations (i.e., Tigris/Euphrates, Yellow River, Nile, and Indus) around water control/irrigation, use of large-scale labor projects, creation of "surplus."
- Military technology (iron, bronze, et cetera) helped to create centralized power, class societies, autocratic government, and the great ancient empires. Oriental despotism.

Precapitalist history, continued

Classical Slave Economies:

- **Greek cities** (i.e. Athens, Sparta) mostly slave-based.
- **Roman Empire** dominated Europe and entire Mediterranean until its collapse in 5th & 6th Centuries.
 - Class society of patrician, plebian, and slave.
 - Rural economy (*latifundia*), with relatively large cities.
 - *Collegia* of free artisans.
 - Mostly nonmarket economy, but there was "free trade."
 - As in prior civilizations, individual/family wealth resulted from military, political, and religious power, not economic activity.

Collapse of the Roman Empire brought the end of economic development, chaos, declining population and the emptying of cities, the dark ages, and the slow development of Feudalism.

What was Feudalism?

Roughly, the economic system of Europe from the 5th through the 15th Centuries, with many local variants.

- Cellular, rural, agricultural, mostly non-market economy.
- The militarily powerful developed into lords and overlords, with bonds of military support and loyalty, and eventually into an aristocracy entitled through birth.
- Manorial system: serfs tied to land and lord, with implicit rights, access to land and commons based on subsistence and tradition, as well as responsibilities to lord and church.
- Very little social mobility. Again, wealth resulted from power.
- Property rights were incomplete, even for the aristocracy: the lord's ownership was conditional on will of his overlord.
- Powerful Catholic Church with little tolerance for scientific rationalism, though monasteries (esp. Irish) did protect classical writings and promote literacy.
- Nonexistent capital markets due to laws against usury, though there were moneylenders for princes to fight wars.
- Travel dangerous and difficult, so inadequate transportation and communication.

Factors Leading to the Demise of Feudalism

- Checks on king's power over lords (e.g., the Magna Charta).
- Crusades and contact with the East.
- Re-emergence of trading cities tolerated by local lords. Craft guilds dominated initially.
- In Netherlands, an independent society free of domination by kings, with easy access to ports and rivers.
- Elsewhere, the growth of strong nation-states beyond feudal ties, with centralized and formalized authority.
- Evolution of money, banking, and the corporate charter – fundamental conditions for economic development.
- In England, the evolution of Common Law.
- The disruption of plagues (e.g., the Black Death) leading to peasant rebellions, competition for labor, etc.
- The Enclosure Movements (13th – 18th Centuries) for more profitable use of land.

More Factors:

- *Rediscovery* – the emergence of centers of learning (esp. in muslim Spain) and translation of Greek and Arabic classics.
- The *Renaissance* – not just Italian art, but a new era of creativity and rationalization in thought, and the beginnings of real science (not just memorization of Aristotle's untested opinions).
- The *New World* – overturning of the old world view, an outlet for the discontent, new resources, and an opportunity for exploration and new wealth.
- The *Protestant Reformation*:
 - Undermining of traditional authority
 - Lutheranism and salvation through individual initiative
 - Calvinist predetermination and prosperity
- Rise of "bourgeoisie" as an economic and political force in cities, and the movement of landless peasants (the "proletariat") to the cities.

The Capitalist System

- A commercial system, and a spirit of enterprise based on profit rationality.
- Defining conditions include:
 - The private ownership of property (esp. capital) – *the pooling problem*
 - The hiring of labor for wages
 - Production for a market
 - Competition among producers
 - Retention of profit by producers for accumulation (investment)
- Marx defined it as a mode of production in which the bourgeoisie used their control over the means of production to exploit the proletariat. He saw it as a historically necessary stage, as an "engine of progress."

Stages

- **Mercantilism:** an early stage of capitalism, with the objective of enriching the crown.
 - Encouragement of monopolies, trade surpluses, with state control and intervention.
 - Opposed by Hume, Smith, Ricardo, and others.
- **Commercial capitalism:**
 - development of limited liability corporations, banking system.
- **Industrial capitalism:**
 - capital-intensive technologies to replace labor power, development of factory system
 - interchangeable parts, repetition and specialization, time clocks.
 - Rise of unions along old craft guild lines.

About Capitalism...

- In its early stages it was characterized by great poverty and inequality (which was not new) and by a high savings rate (which was new).
- After the mid 18th Century, it led to rapid technological progress (e.g., the rise of the factory system, and the industrial revolution), and wrenching social changes.

"The advancement of the arts, from year to year, taxes our credulity and seems to presage the arrival of that period when human improvement must end."
-- Henry L. Ellsworth, Commissioner of the Patent Office, 1843 report to Congress

- Capitalism led to industrialization, urbanization, export orientation, and self-sustaining growth.
- It also led to a population explosion (see prior lectures) and rapid exploitation of natural resources (including rapid species extinction).

Conditions for Growth

Bernstein's (William, not Morris) book posited four conditions necessary for sustained economic progress:

- 1) **Property rights**—Creators must have proper incentives to create.
- 2) **Scientific rationalism**—Innovators must be allowed to innovate without fear of retribution.
- 3) **Capital markets**—Entrepreneurs must be given access to capital to pursue their visions.
- 4) **Transportation/communication**—Society must provide mechanisms for effective communication of ideas and transport of finished products.

These conditions were first met in the Netherlands, then the UK, then the USA. Steamships, railroads and telegraph accelerated everything.

An Alternative Explanation

Jared Diamond's *Guns, Germs, and Steel* provides an alternative explanation for why the European economies were able to conquer much of the rest of the world. It wasn't just that they had conditions for economic success.

"Much of the credit for European military success in the New World can be handed to the superiority of their weapons, their literary heritage, even the fact they had unique load-bearing mammals, like horses. These factors combined, gave the conquistadors a massive advantage over the sophisticated civilizations of the Aztec and Inca empires.

"But weapons alone can't account for the breathtaking speed with which the indigenous population of the New World were completely wiped out.... Instead, Europeans were aided by a deadly secret weapon they weren't even aware they were carrying: Smallpox."

(From the PBS website)

Theories of Economic Change: classical/neoclassical, Marxist, and evolutionary

- Why and how does economic change occur?
- Is economic change essentially technological in nature, or does it either rely on or cause social and political change?
- Is it revolutionary or evolutionary? Gradual or sudden?
- Can it be explained as the result of a rational process?
- Is it convergent or divergent?

The Classical View

- Change is a gradual process
- Growth is primarily a function of capital accumulation
- Tendency toward equilibrium
- Ricardian/Malthusian Dialogue
- Malthusian model: population growth, the iron law of wages, diminishing returns, and the *dismal science*.
- Ricardian model: economy will eventually stagnate. Rising food costs, rising land rents, rising nominal wages, falling profits, falling investment rates (worsened by proportional depreciation.)

Contrast with *Neo*-classical View

- Same view of gradual, equilibrating change.
- Growth results from:
 1. investment in physical capital
 2. technological progress resulting from the incentive to invest in research and development
 3. improvements in human capital resulting from individual incentives to invest in skills and education
 4. improvements in efficiency resulting from efforts to increase profits.
- Market economies with clearly-defined property rights and a minimum of government intervention are best able to provide the best incentives that lead to economic growth.
- The neoclassical view is thus much more optimistic about the prospects of continued growth, and growth in per-capita income.

Neoclassical economists are also much more optimistic about the problem of population growth.

- The decision to have children is a rational decision based on tradeoffs, not the product of uncontrollable breeding.
- As the opportunity cost of having children rises with an increasingly urbanized, industrial society in which both men and women may work, people may (and often do) choose to have fewer children, especially when women have more ability to choose.
- As infant mortality declines, people have fewer children (the *genetic lottery*).
- Countries with social safety nets have fewer children, as adults don't need more children to take care of them in their old age.
- Finally, population pressures increase the incentive for doing things more efficiently.

The Demographic Transition

If economic development leads to lower population growth, why has population exploded?

- Death rates based on nutrition and medicine – first to fall.
- Birth rates based on culture, history, incentives – slower to fall.
- Populations with bottom-heavy distributions have demographic inertia.
- Result is a transition from low population to high population, not a continuous explosion.

In the neoclassical view, international trade and finance is particularly important:

- > Firms are encouraged to produce more efficiently, and economic growth occurs from specialization and exchange.
- > An international division of labor leads to overall gains from trade that are shared among nations. The flow of goods, services, and capital between countries favors higher returns and lower costs.
- > As a result the forces of supply and demand tend to lead towards an equalization of prices, wages, interest rates, and policies across nations, and thus tends to lead towards increasing economic convergence.
- > Governments of countries which engage in global competition are less likely to get away with government intervention, since markets punish countries with inefficient policies (e.g., capital flees countries with high taxation or unstable monetary policies).

Marxist Theory of Change

- Karl Marx, Communist Manifesto, Das Kapital
- Economic change is a evolutionary (even revolutionary) process, and one which determines social and political structures.
- Based on Georg Hegel's idealist philosophy of the dialectic: conflict between thesis and antithesis leads to synthesis – a struggle between opposites.
- Marx saw history as determined by materialism and the struggle between socioeconomic classes.
- In historical materialism, productive forces determine the relations of production, which in turn determines the superstructure.

Marxist Theory of Change (2)

- The dialectical process is that as productive forces change, contradictions between productive forces and the relations of production emerge and accumulate.
- Eventually, this leads to qualitative (sudden and noticeable) change over a relatively short period of time (e.g., tectonic movement and earthquakes).
- Like the Yin and Yang of Chinese Daoist (Taoist) philosophy, each economic system (thesis) carries inside it the seeds of its own opposite (antithesis), and therefore of its own destruction.
- Societies advance according to a predetermined pattern -- Primitive Communism to a Slave Economy to Feudalism to Capitalism to Socialism to Communism and the end of history -- in a grinding historical process impervious to the actions of individuals.
- Reforms of any sort which attempt to change aspects of a system without changing its inner nature are doomed to failure.

The Evolutionary Change Hypothesis

Q: What's the difference between economics and sociology?

Economics is about how individuals in a society make choices (given scarcity, constraints, and information).

Sociology is about how society leaves no choices for individuals to make.

Q: Do people choose their economies (including institutions, technologies, and government policies), or does their history choose for them?

Q: Are economies optimal in any sense?

Q: Can we take a well-accepted theory that applies to biology – to DNA, cells, genetic traits, and species – and apply it instead to economies and human cultural behavior?

The Biological Theory

- Charles **Darwin's** theory of natural selection.
- **Darwin** was inspired by **Malthus**.
- The pressure of a population upon limited resources must lead to competition among individuals.
- Given the variation present in any population, those individuals who are best adapted to their environment have the greatest chances of survival.
- Given enough time, this leads to new species emerging from old ones (particularly if populations are isolated).
- **Wallace**: "survival of the fittest"

What we are not talking about...

Spencer's Social Darwinism – the argument that socioeconomic hierarchies are innate and based on biology.

- Old history, dating back to Plato/Socrates – but at least they knew it was a (convenient) lie.
- **Condorcet** said that proponents of such a view "make nature herself an accomplice in the crime of political inequality."
- The Eugenics movement, which Hitler took to its logical conclusion.
- The *Bell Curve*, and many other books, based on what Stephen J. **Gould** and others call bad science and a selective reading of the evidence.

Gould argues that this view makes the twin fallacies of:

- (1) biological determinism (example of height)
- (2) ranking (great chain of being)

Biological Evolution requires:

- 1) The variation of individuals in a population, in which some are better adapted than others for a particular environment;
- 2) A selection mechanism (*competition*) which leads to those whose variation is less successful in a given environment to survive in lesser proportion than those more well-adapted;
- 3) A transmission mechanism (*heritability*) which allows surviving parents to pass on their better-adapted characteristics to their offspring; and
- 4) Lots of time (*iteration*).

If these four conditions are met, then evolution is hard to argue with. In spite of religious discomfort with #4 and the implications, and constant scientific debate on the minor specifics, evolution is fundamental to all natural sciences.

Is evolution the same as “progress”?

- A simple view of evolution tends to equate it with progress, as if objectively superior beings were replacing inferior ones (fallacy of ranking).
- Modern evolutionary theory is much more complex: great variety and interdependence among and between organisms; many strategies for adapting to the environment (e.g., simple and complex organisms, parasitism and co-evolution).
- As **Gould** once said, history is contingent. Adaptation to the environment depends on the specific context. Often called path-dependence.

- Evolution is also not the same as adaptation. Individuals may adapt to new environments, and some species are more adaptable than others (e.g., humans and high elevation).
- In complex organisms, mutation and variation most often reduces fitness.
- Essential randomness: genetic drift in small populations can overwhelm selection.
- Populations evolve, not individuals.
- This analysis does not *only* apply to species, but can be applied to any population.

Macro vs. Micro Evolution

- Biologists and geneticists who study evolution at the micro level tend to see evolution as a gradual process, unpredictably random at a predictable rate over long periods of time (e.g., DNA mutations). Microevolution is observable.
- Macroevolution is unobservable but inferred based on observed microevolution and an incredibly diverse fossil record. Characterized by punctuated equilibrium, catastrophic events, relatively sudden evolution.

Note: Combining the two parallels the general Marxian theory of change.

Do Economies Evolve?

The Austrian View

- **Schumpeter's** creative destruction is an inherently evolutionary model, and the entrepreneur is an evolutionary agent.
- **von Mises** and **Hayek**: the capitalist economy developed its institutions in a quasi-rational fashion – a sort of spontaneous order out of chaos – and institutions and behaviors which work best survive and are adopted by others.

- **North** studied the emergence of institutions like private property rights, the scientific method, the ideology of the market, and the state. Information dissemination, transactions costs, and the free rider problem. Societies choose among available alternatives best solve their particular problems.
- **Alchian** argued that bankruptcy would lead to profit maximization by firms over time even if managers did not intend it. Firms must innovate, imitate, or die.
- **Buchanan**: political institutions like constitutional democracy may be a rational answer to problems which vex the individual, but its choices are not themselves rational. (Fits with social choice theory.)

■ Economic evolution is not just an idea that economic and social change occurs over time; it is a theory about how and why those changes occur. It must include the four elements: variation, selection, transmission, and time.

■ In practice, it is hard to distinguish it from simple incentive and learning, where people try different things and then choose what works best.

■ Humans continue to evolve in small subtle ways in response to selection pressures, but it is not known yet which behaviors are affected by genetics, which by culture, and which by choice.

■ One recent approach is that individual preferences can evolve, but individual choices adapt. Economists usually assume that preferences are just given. But if certain preferences lead to more success in mating, and if these preferences can be passed on to your kids, then over time we would see certain preferences become more likely. More research is needed.

Recent evidence about firm productivity...

- There is evidence that competitive market sectors tend to improve average productivity faster than protected, regulated, non-competitive sectors.
- There is also increasingly consistent evidence that while individual firms do change their productivity over time, the trend is not necessarily positive.
- Again, individual firms do not tend to become more productive, but groups of firms do.
- More productive firms grow, less productive firms shrink or go bankrupt, and the average is weighted by output share. So the weighted average improves even if firms on average do not.

Economic Evolution as a Metaphor for Selection

- Technologies, products, and institutions which are otherwise hard to change.
- If bankruptcy acts as an artificial selection mechanism to weed out investments which, in hindsight, were inefficient, then evolution occurs because we are then left only with relatively efficient choices.
- **Nelson** argues it explains many specific technologies (QWERTY keyboard, VHS, gasoline engine), but these were not necessarily more efficient.
- Increasing returns (positive-feedback loops) are not consistent with equilibrium systems.

■ Evolution is thus path-dependent, co-evolutionary, and very non-deterministic.

■ Economic evolution is inherently different from biological evolution. Individuals and firms can adapt and learn, while a species can only change over long periods of time from accumulated mutation and selection.

■ The rational selection of institutions is always contextual. An economic system cannot simply be transplanted from one society to another and work as well. Perhaps such institutions must evolve on their own, and evolution is by nature a very slow process.

Applications to comparative economic systems:

■ Economies which allow inefficient firms to go bankrupt are more likely to have faster economic evolution, while economies which prevent bankruptcy (perhaps because the state owns the firms) do not waste productive assets but also do not face evolutionary pressures.

■ Economies which have more competition are more likely to evolve faster than those with less (this artificial selection, of course, is in addition to the improvement in managerial incentives that competition adds).

■ Economies which are open to trade, finance, and interaction with other nations have both more variation and more competition. (Of course, economies with greater incentives to adapt may also find that learning and imitation occur more rapidly as well.)

If evolution is contextual, then different economies cannot be compared easily.

■ An economy that works well in one context may not work well in another situation.

■ Economies may work well in niches.

■ This may determine whether economic systems will converge or diverge over time.

- If one type of economic system consistently performs better, if one particular set of economic, political, and social institutions tends to lead to better economic performance, then over time economies may converge to this type of system.
- If economies can find a niche, if societies can adapt to a contextual environment, then perhaps economies may continue to diverge.
