

# **Resource Management: INSTITUTIONS AND INSTITUTIONAL DESIGN**

SOS3508

Erling Berge

## **The Process of Economic Change II**

NTNU, Trondheim

Fall 2009

## Literature

- North, Douglass C. 2005. Understanding the process of Economic change. Princeton: Princeton University Press
  - Ch 7 The Evolving Human Environment
  - Ch 8 The Sources of Order and Disorder
  - Ch 9 Getting it Right and Getting it Wrong
  - Ch 10 The Rise of the Western World
  - Ch 11 The Rise and Fall of the Soviet Union
  - Ch 12 Improving Economic Performance
  - Ch 13 Where are we going?

## The road ahead: an agenda for research

- Key problem: belief systems and their evolution
  - The world we need to understand is socially constructed, largely with surviving beliefs and institutions
  - The constructs blend rational and non-rational
  - How do they create, favour or hinder productive political institutions
  - Four unexplored challenges in neo-classical economics
    - From personal to impersonal exchange
    - Specialisation and division of labour, coordination of knowledge
    - Dynamic changes in market incentives must encourage productive activity not rent-seeking behaviour
    - Creating limits to government's rent-seeking behaviour

Fall 2009

© Erling Berge 2009

3

## The human environment

1. First economic revolution: agriculture 8000bc
  2. Sec. economic revolution: science in production 1600ad
- Basics
    - Genetics of 4 mill years as hunter-gatherers
    - Environment-body interactions, adaptations, immunities
    - Development of languages
    - Symbol systems and storage of knowledge
  - Evidence of large scale change:
    - Population growth, longevity, mortality, cities
    - Growth of economic and social inequality, rich and poor countries
    - Division of labour driving transaction costs, driving growth in services and international trade
    - Uncertainty due to physical factors declines while uncertainty due to social factors increase (predatory states, wars, terrorism)
    - Growth of knowledge linked to evolving systems of beliefs: what is the difference between knowledge and belief?

Fall 2009

© Erling Berge 2009

4

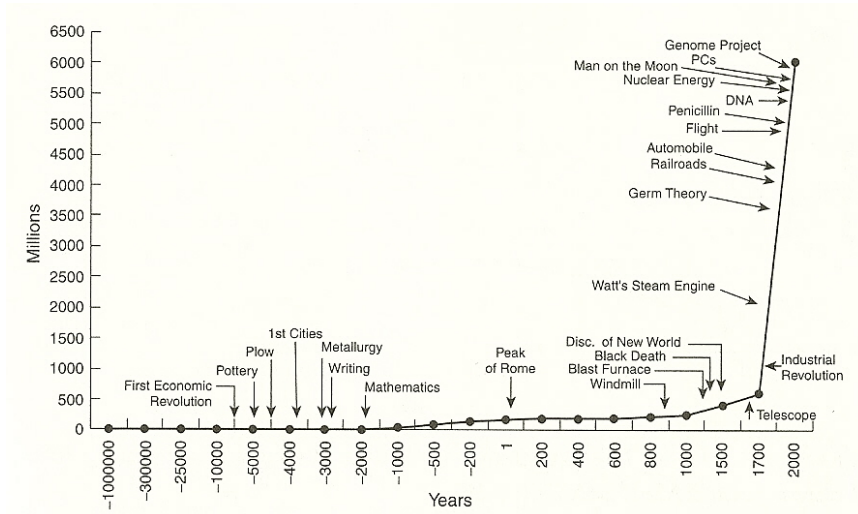


FIGURE 7.1. World Population, 1,000,000 B.C. Present. Source: Kremer (1990, 683); also adapted from Fogel (2003).

Fall 2009

© Erling Berge 2009

5

HISTORY'S HAVES AND HAVE-NOTS ▪ 99

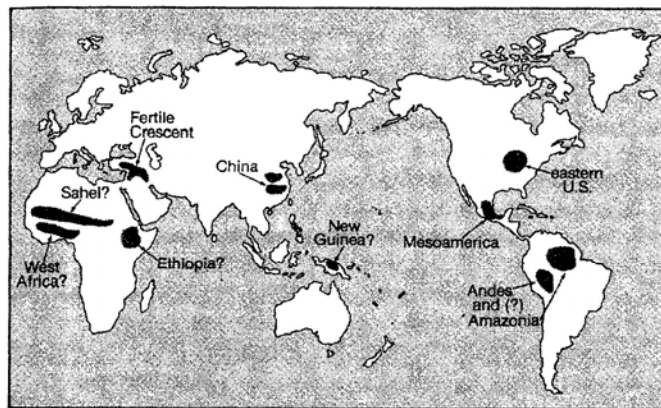


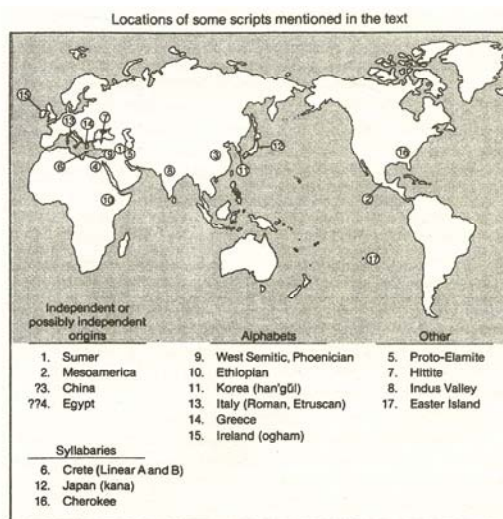
Figure 5.1. Centers of origin of food production. A question mark indicates some uncertainty whether the rise of food production at that center was really uninfluenced by the spread of food production from other centers, or (in the case of New Guinea) what the earliest crops were.

Source: Daimond, J. 1998. Guns, Germs, and Steel.

Fall 2009

© Erling Berge 2009

6



Source:  
Daimond, J.  
1998. Guns,  
Germs, and  
Steel.

Figure 12.1. The question marks next to China and Egypt denote some doubt whether early writing in those areas arose completely independently or was stimulated by writing systems that arose elsewhere earlier. "Other" refers to scripts that were neither alphabets nor syllabaries and that probably arose under the influence of earlier scripts.

Fall 2009

© Erling Berge 2009

7

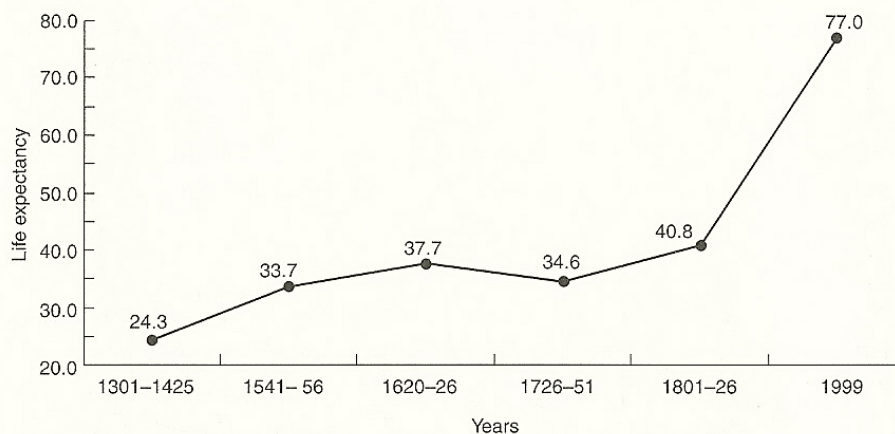


FIGURE 7.2. Years of Life Expectation at Birth in the United Kingdom, 1300-Present. Source: Maddison (2001, 29).

Fall 2009

© Erling Berge 2009

8

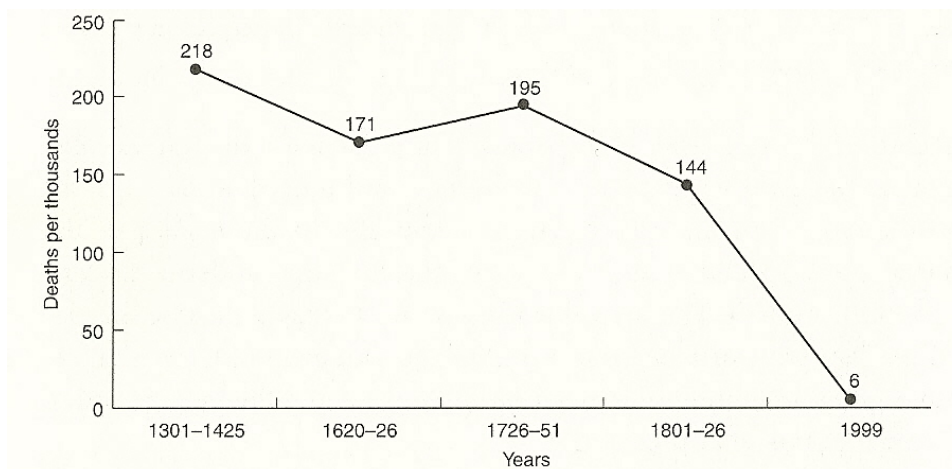


FIGURE 7.3. Deaths per Thousand in First Year of Life in the United Kingdom, 1300–1999. Maddison (2001, 29).

TABLE 7.1.  
Per Capita GDP, Developed and Undeveloped World, 1000–1998

	<i>(1990 international dollars)</i>					
	1000	1500	1600	1700	1820	1998
Average Developed	405	704	805	907	1,130	21,470
Average Undeveloped	440	535	548	551	573	3,102
Ratio, Developed to Undeveloped	0.92	1.32	1.47	1.65	1.97	6.92

Source: Maddison (2001, 46).

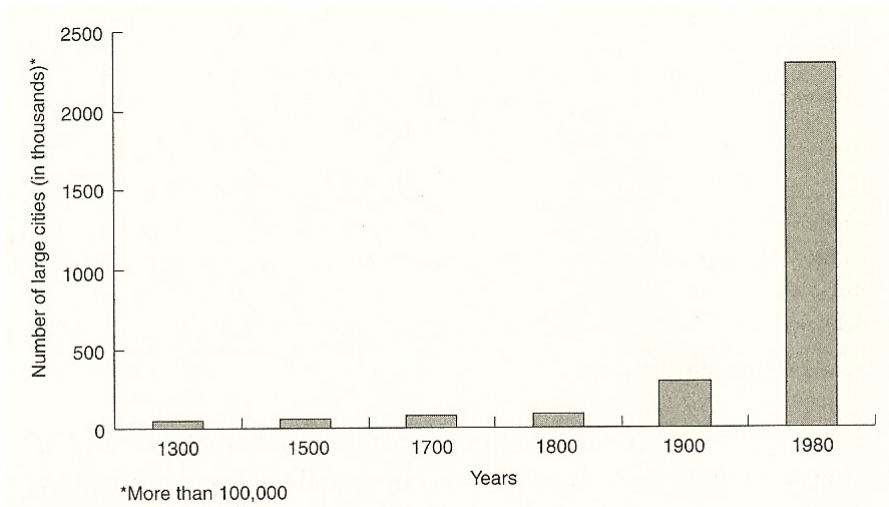


FIGURE 7.4. Number of Large Cities in the World (1300–1980). Source: Bairoch (1988, 502).

Fall 2009

© Erling Berge 2009

11

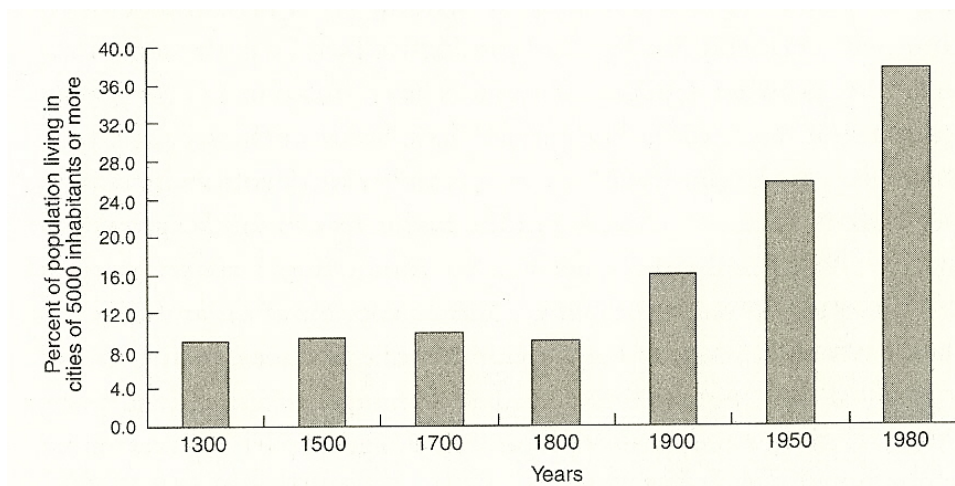


FIGURE 7.5. Urbanization in the World. Source: Bairoch (1988, 495).

Fall 2009

© Erling Berge 2009

12

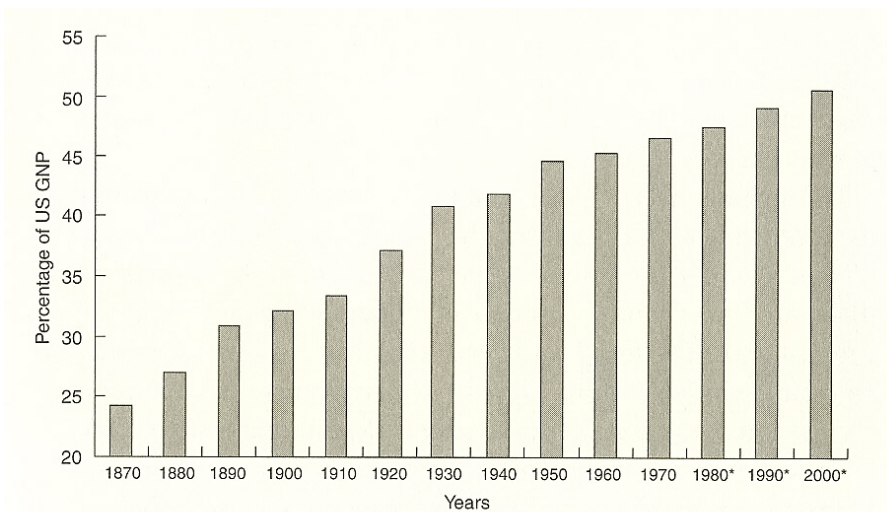


FIGURE 7.6. Transaction Costs as a Percentage of U.S. GNP, 1870–2000. Source: Wallis and North (1988).

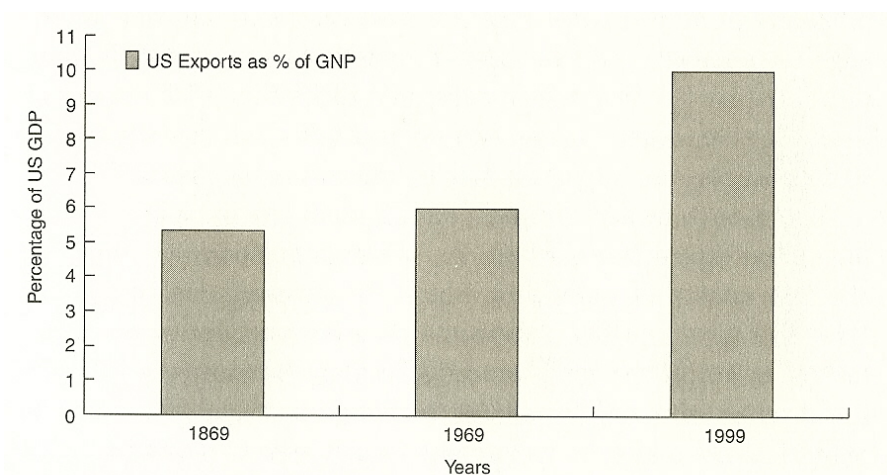


FIGURE 7.7. International Trade, 1869–1999. Source: Author’s calculations from U.S. Department of Commerce (1976) and U.S. Department of the Treasury (2001).

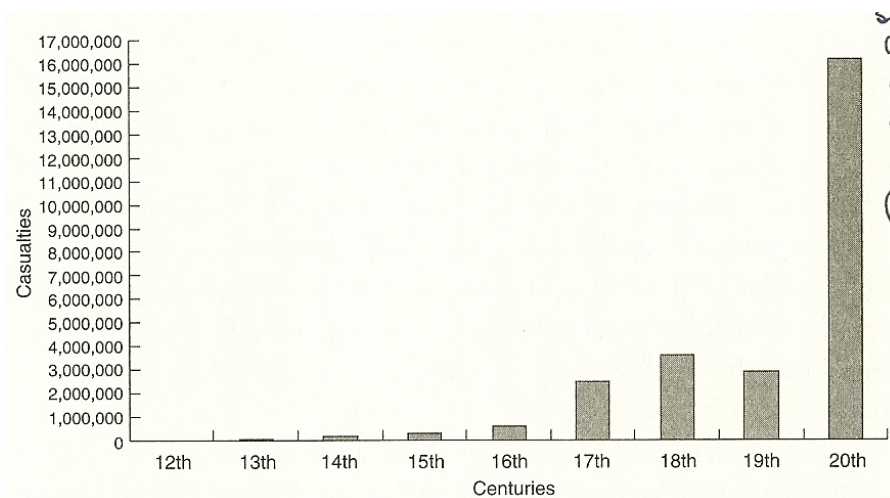


FIGURE 7.8. Casualties in England, France, Russia, and Austria-Hungary, Twelfth–Twentieth Centuries. Source: Peace Pledge Union, <[www.ppu.org.uk/war/facts/nine\\_century.html](http://www.ppu.org.uk/war/facts/nine_century.html)>.

Fall 2009

© Erling Berge 2009

15

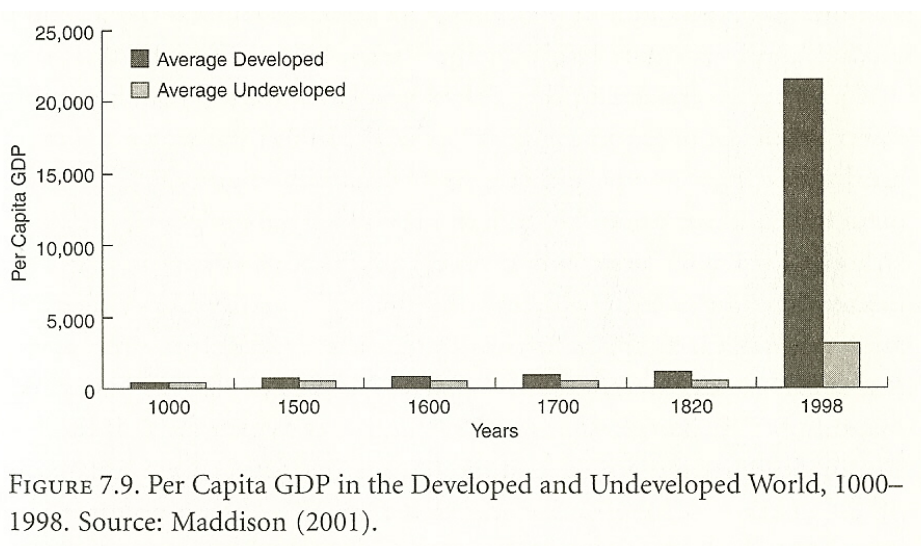


FIGURE 7.9. Per Capita GDP in the Developed and Undeveloped World, 1000–1998. Source: Maddison (2001).

Fall 2009

© Erling Berge 2009

16



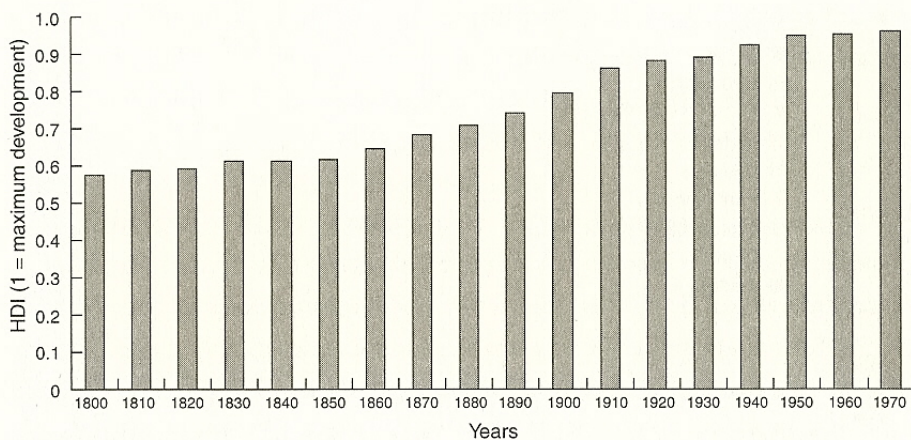


FIGURE 7.10. Costa and Steckel Estimates of Human Development Index, 1800–1970. Source: Costa and Steckel (1995).

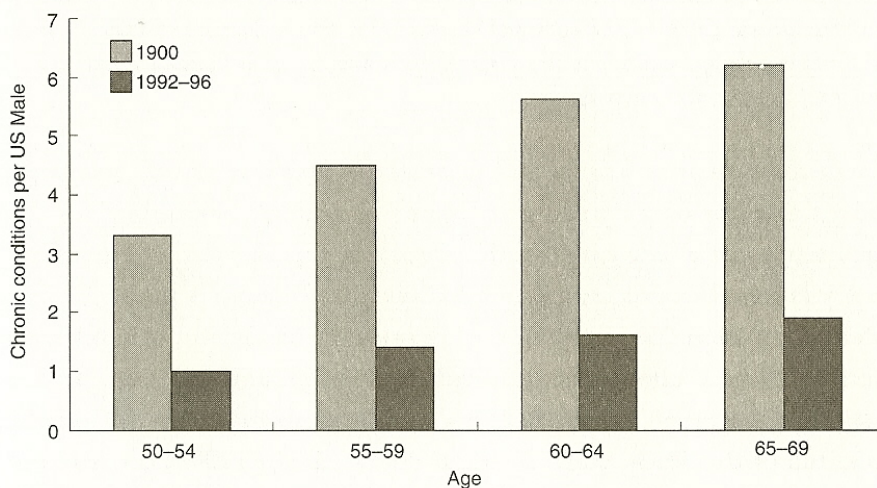


FIGURE 7.11. Age and Number of Chronic Conditions per U.S. Male in 1900 and the 1990s. Source: Fogel (2003, table 4.5).

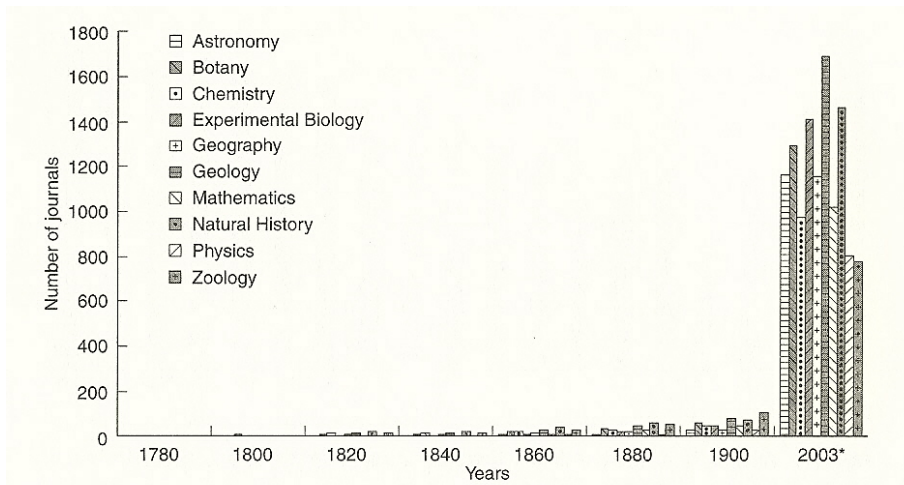


FIGURE 7.12. Scientific Periodicals, 1780–Present. Source: Law and Kim (2003).  
\* Taken from the HOLLIS Catalog of Harvard University. Number of titles in HOLLIS Catalog equals the number of records returned from subject keyword searches of the HOLLIS Journal’s database.

Fall 2009 © Erling Berge 2009 19

## Sources of order and disorder

- Disorder endemic, most players loose, so why disorder?
  - Role of consciousness and normative beliefs (deontics)
- Order can be imposed by
  - Authoritarian means (Leviathan), a mixture of coercive force and social norms
  - Consensus, internalised norms, shared belief systems and mental models, mutual coercion
  - Real societies are often a mixture

Fall 2009 © Erling Berge 2009 20

## Problem of creating order

- Disorder from changing benefits, shifts in power, eroding beliefs about legitimacy
- Order from
  - Shared beliefs about the role of government and rights of citizens
  - Constitutions assigning rights to citizens also limits the role of the state
  - Property rights are well defined so that transgressions are easily detected
  - States provide credible commitment to citizen rights
  - Formal commitments backed by strong social norms
- Case study: USA from colonial era onwards
  - Adaptively efficient institutions mostly inherited from Britain
- Case study: Latin America from colonial era
  - “Stop and go” growth based on institutions inherited from Spain

Fall 2009

© Erling Berge 2009

21

## Fallible humans getting it right

- Problem: Reducing uncertainty and producing welfare
- Get it right by trial, errors, and new trials
- Needs to understand
  - Decision making under strong uncertainty
  - How humans learn
- Get it wrong when
  - Mental models provide wrong interpretations
  - When conflicting beliefs allow those in power to avoid institutional change
    - Case: shift from personal exchange to impersonal in pre-modern Europe
      - Personal: reciprocity, repeated dealings, informal norms
      - Impersonal: economic & political institutions must reward cooperation
    - The shift requires states that create and enforce rules that can sustain contracts across distances both geographically and socially

Fall 2009

© Erling Berge 2009

22

## From personal to impersonal exchange

- Sources of inability to change
  - Human genetic architecture developed for small groups. Defection was “natural” in large groups
  - Problematic defections in large groups required development of new mental models and institutions
  - And in particular enforcement mechanisms for the new institutions; meaning: shaping the state
  - Using the state as third party enforcer also entails creating limits to the powers of the state
- How to create such a state is poorly understood. But it is known to take time and it has to be supported by an appropriately shared norm structure

## Knowledge and specialisation

- Need to integrate dispersed knowledge at low cost of transactions
  - Small scale society needed that each was a jack of all trades
  - Increasing specialised knowledge came at the expense of general knowledge. This had to be compensated by trade
  - Uncertainty due to specialisation must be compensated by availability of wider variety
  - This entails low cost of transacting across a diverse range of markets
  - To sustain the development increases in specialised knowledge became institutionalised

## Creating “efficient” markets: statics

- **Statics**
  - Assuming income and wealth maximising choices, what incentives will give correct behaviour in each factor market?
  - Each market is a mixture of formal and informal constraints. These are reflected in the transaction costs
  - Changes in constraints are created by a government with its own structure of interest
  - It is not obvious that even a benevolent government knows enough to achieve its objectives
  - Enforcement of institutions is made by agents with their own structure of interest

Fall 2009

© Erling Berge 2009

25

## Creating “efficient” markets: dynamics

- **Dynamics**
  - Alterations in the performance of factor markets require understanding of its sources
  - Success in alterations to improve performance over time require understanding the process of change
  - Implementing changes require that the players possess the knowledge and are willing to act upon it
  - If changes require political action the resistance of well adapted groups must be overcome
- Continuous institutional change to maintain the most useful incentives for players is particularly critical for capital markets: Japan in the 1990ies, USA in the 2000ies?? [Enron-Citybank-Lehman Bros-financial crisis]

Fall 2009

© Erling Berge 2009

26

## Creating “efficient” markets: theory

- Neo-classical economics is static, giving the wrong advice in dynamic settings. But dynamic theory is unlikely because
  - Change is basically change in institutions, that is: in the beliefs held by players in a position to change institutions
  - Proposed changes induce reactions. Understanding how secondary consequences of proposed institutional change propagate through the institutional matrix is insufficient, but essential to predicting outcomes of proposed changes
  - The institutional matrix is itself evolving and maybe more rapidly than we can study it

Fall 2009

© Erling Berge 2009

27

## The rise of the western world (1)

- Start: 500 - 1500
  - Roman Empire, Church, Geography,
  - No large scale political units,
  - Military attacks by Vikings, Magyars and Muslims, military response by fortifications and cavalry
- Economy: Growth of manor and town economy
- Costs of warfare increased, giving advantage to larger political units
- Many methods of “taxing” were tried: confiscation, borrowing, trading taxes for government services
- Plagues of the 14th century induced trade decline and changed agrarian organisations

Fall 2009

© Erling Berge 2009

28

## The rise of the western world (2)

- Compare developments of the Netherlands and Spain
- From beliefs to institutional development
  - Individualism? Protestant ethic?
- Where do beliefs come from ? Religion?
  - Do they permit/ encourage learning processes?
  - Christianity: evolve belief that nature should serve man
- Enter the competition of independent polities with a common belief structure and communications:
  - Portugal/ Spain (failed)
  - Netherlands/England (success)
  - France ( in between)

Fall 2009

© Erling Berge 2009

29

## The rise of the western world (3)

- Development of towns
  - Relative autonomy from external authority, trade liberties, liberty of conscience, representative government, long distance trade networks – demand for institutions and struggle for control of the polity
- England
  - Centralised feudal structure, Magna Carta, unity of Parliament (no class sections or regional estates), fiscal crisis of crown solved by accepting taxing powers of parliament, concepts of liberty, individual rights
- Netherlands
  - Revolt against Philip II (Spain), establishment of federation (with unanimity rule), religious tolerance
- Spain, France
  - Crown monopolizes power, declining trade, revenue for war, contrast of traditions between Castile and Aragon, bullion from the new world and Habsburg empire,
- Competition among polities
  - Trading rights for revenue, havens for dissidents, evolving bargaining strengths of rulers vs constituents diverging conditions tempered by diverging belief structures. Individual rights became established in the "Petition of Rights" enacted in England in 1628. Spain/ France was different

Fall 2009

© Erling Berge 2009

30

## The evolutionary dynamic

AD 500-1500 The foundations of the European world hegemony

- Variation in polities created by beliefs, learning
  - Institutions, economy, trade, system of learning
- Competition among polities
  - Warfare, trade, learning
- Success of a polity depended on
  - Generale taxes to pay for war (economic institutions)
  - Developing war technology (learning institutions)
  - Population size (economic growth)
  - Adaptive efficiency of a system of governance permitting experimentation and weeding out failures

Beliefs tie everything together

Fall 2009

© Erling Berge 2009

31

## The Rise and Fall of Soviet Union (1)

- Case study of intentional engineered change
- The rise
  - Marxist revolution wants to do away with capitalism, build a society without commodities, values, prices, profits, wages, ..
  - The revolution in Russia was supposed to trigger a world revolution
  - No world revolution, Socialism in one country, nationalisation of everything, decision making by the Bolshevik elite, development of bureaucracy, perverse incentives in the economy, every crisis increased bureaucracy, political control of bureaucracy
  - A deeply held belief in planning and engineers

Fall 2009

© Erling Berge 2009

32



## The Rise and Fall of Soviet Union (2)

- The fall 1985-91
  - Root cause was the loss of belief in the power of the party to control, the loyalty of nomenklatura eroded
  - Since Brezhnev development of corruption and shadow economy, a succession of inept partial and failing reforms eroded confidence in the system
  - Gorbachev could not get reforms (perestroika =reorganisation) implemented due to resistance at the top, turning to glasnost (=openness) his reforms succeeded and speeded up the disintegration
- The rise and fall of Soviet Union is an illustrative case for institutional analysis. Soviet Union did not have adaptive efficiency based on learning and altering beliefs, experimentation, and weeding out failures

Fall 2009

© Erling Berge 2009

33

## Improving economic performance

- Central conditions for economic growth are known
- Beliefs →institutions →organisations →policies →outcomes may end in disaster as well as in successful economic wellbeing
- Problems of theory
  - From beliefs to institutional structure
  - Impact of changing politics and economies on transaction costs
  - Integration of distributed knowledge

Fall 2009

© Erling Berge 2009

34

## From beliefs to institutional structure

- Prospects for rational choice are not good
  - Religious fundamentalism, ethnic hatred, racist stereotypes, superstitions, ... shape transaction costs
- Inherited artifactual structure (beliefs, institutions, tools, techniques, symbol storages, ) is not easily “malleable” by deliberate actions because
  - Impervious to change, change threaten leaders’ positions, interference from competing beliefs
  - Changing one institution is never enough
  - Formal and informal institutions must “fit” each other
- Path dependence. Feedback on policy implementation is very noisy, making monitoring change difficult

Fall 2009

© Erling Berge 2009

35

## Impact of changing polities and economies on transaction costs

- Transaction costs are the costs of
  - Measuring the multiple dimensions of what is being exchanged
  - Protecting individual property rights
  - Integrating dispersed knowledge of a society
  - Enforcing agreements about exchange
- Policies for a uniform system of weights and measures, specification of property rights, an effective judiciary, organisations for integration of knowledge will lower transaction costs

Fall 2009

© Erling Berge 2009

36

## Economic performance

- The institution-organisation matrix creates vested interests in the current institutions
  - Due to “clientelism” in both economy and polity: attempting to extend personal exchange relations into larger systems
- Dispersed knowledge requires particular institutions and organisations to create effective product and factor markets
  - Specialisation means less than perfect understanding of the world
- The non-ergodic character of the world makes institutional change into a continuous process

Fall 2009

© Erling Berge 2009

37

## What we need to improve economies

- Clear understanding of the source of poor performance and the growth potential given factor endowments
- Clear understanding of the sources of the current institutional structure, particularly culture and its margins of change
- In the underdeveloped economies the state needs to intervene in just the right way to compensate for the disadvantage
- A polity willing and capable of implementing change
- A clear understanding that each society needs unique political interventions

Fall 2009

© Erling Berge 2009

38

## Where are we going?

- Our consciousness is a double edged sword
  - Source of human creativity
  - Source of human cruelty
  - Creates a diversity of belief systems tailored to particular environments
- The non-ergodic nature of the world sets limits to systematic approaches to novelty
  - How well are our minds adapted to confronting new problems?
  - How new are the problems
  - Are those who perceive a problem correctly those who are in a position to change institutions?
  - How much of our thinking is genetically driven?

Fall 2009

© Erling Berge 2009

39

## Understand the sources of human decision making

- Falling information costs
  - Imitation of seemingly successful institutions
  - A sobering story to study Sub-Saharan Africa, Latin America, the Muslim world, the development of Russia since 1991
  - Current economic theory is simply inappropriate to deal with economic and social change
- History show how societies grow and decline. Why should we be different?

Fall 2009

© Erling Berge 2009

40