

Uusi talous - totta vai tarua?

Matti Pohjola

UNU/WIDER & HKKK

Kansantaloudellinen Yhdistys

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Uusi talous

1. Mitä se on?
2. Kuinka suuri se on?
3. Miten se vaikuttaa?
4. Mitä uutta siinä on?
5. Millä toimin sitä voi tukea?

“The New Economy”, The Economist
23-29 Sep 2000

1. Mitä uusi talous on?

1.1 Journalists' Definition of the New Economy

1) Globalization of business

- spreading of capitalism around the world (introduction of markets, free trade, and deregulation)

2) Revolution in information technology

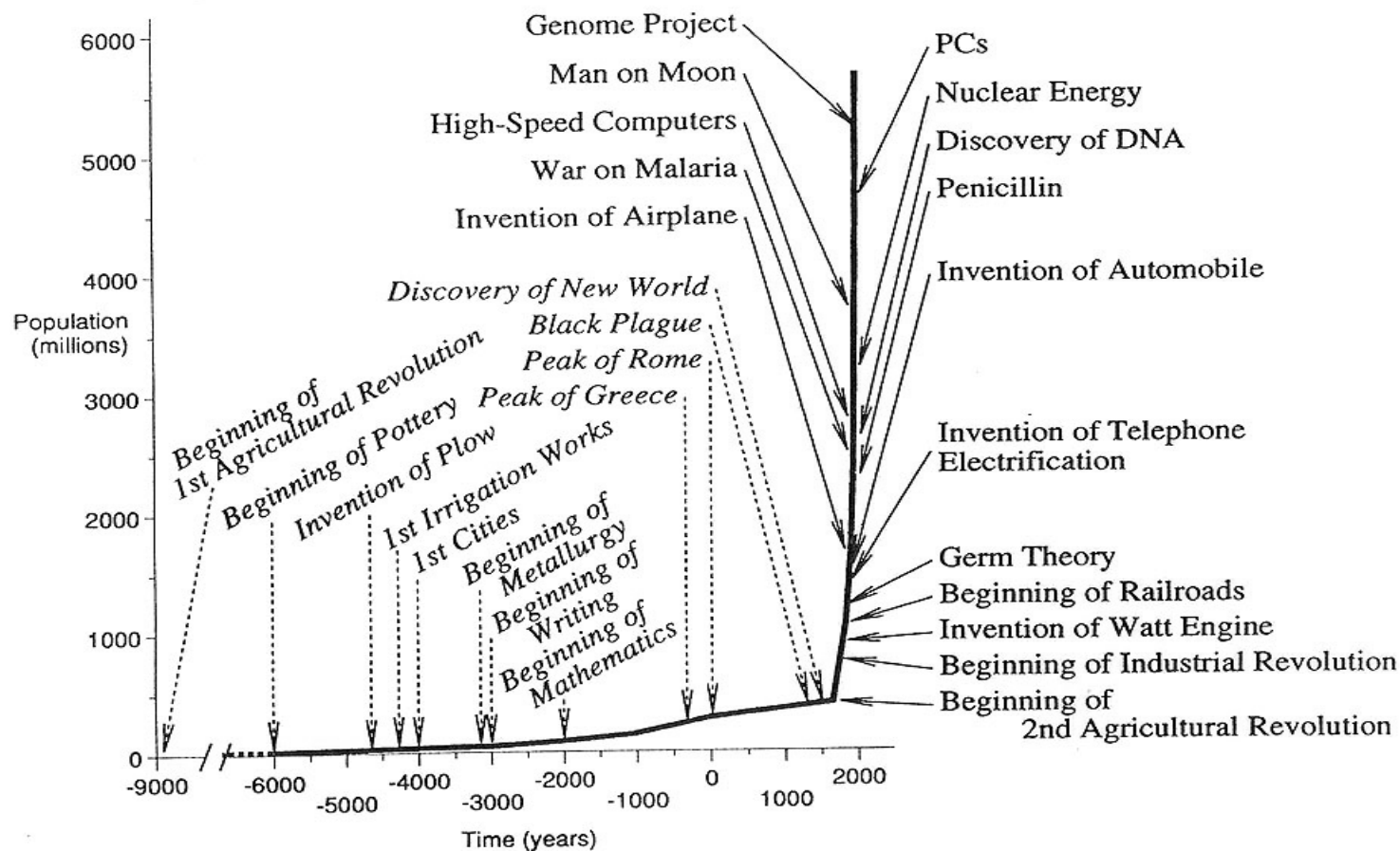
- decline in the costs of computing
- convergence in communication and computing technologies through the digitization of information
- networking of computers via the Internet
- creation of new companies and industries
- restructuring of existing firms

1.2 Economists' Definitions of the New Economy

- **The Information or Network Economy** (Carl Shapiro & Hal Varian, Bradford De Long, et al)
 - information is anything that can be digitized
 - network effects prevail
 - technology changes, economic laws do not
- **The Weightless Economy** (Danny Quah)
 - economic value is created by producing and distributing bits of logic rather than atoms of physical material
 - ICT, e-commerce, media entertainment, biological algorithms etc
- **The Digital or Internet Economy**

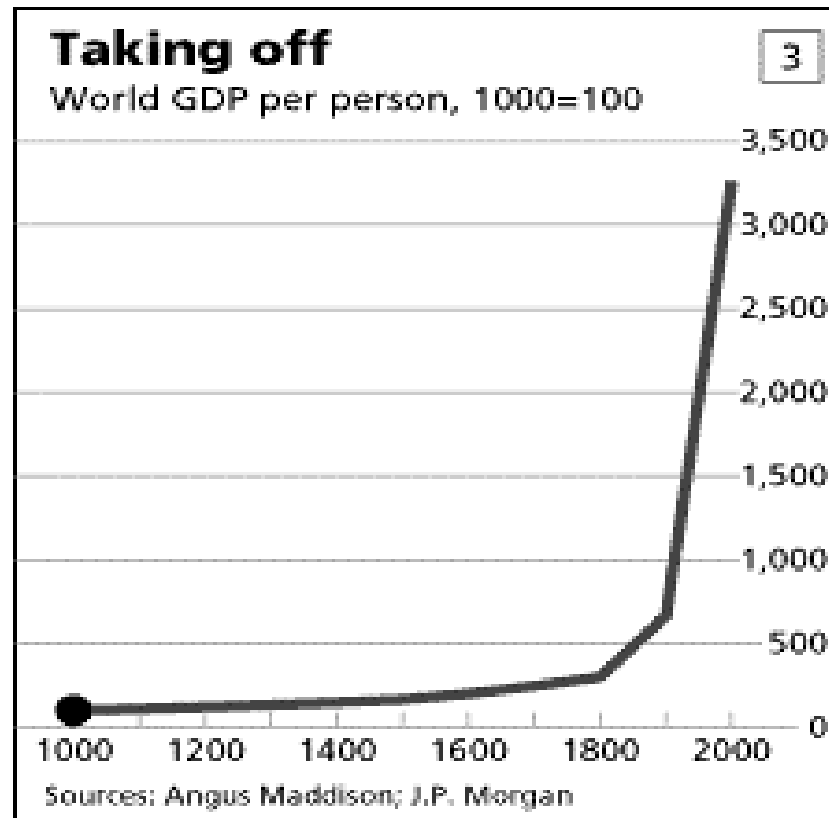
1.3 How new is the New Economy?

The History of Technology and the Growth of the World Population



Source: R.W. Fogel, "Catching up with the Economy", American Economic Review 89 (1999)

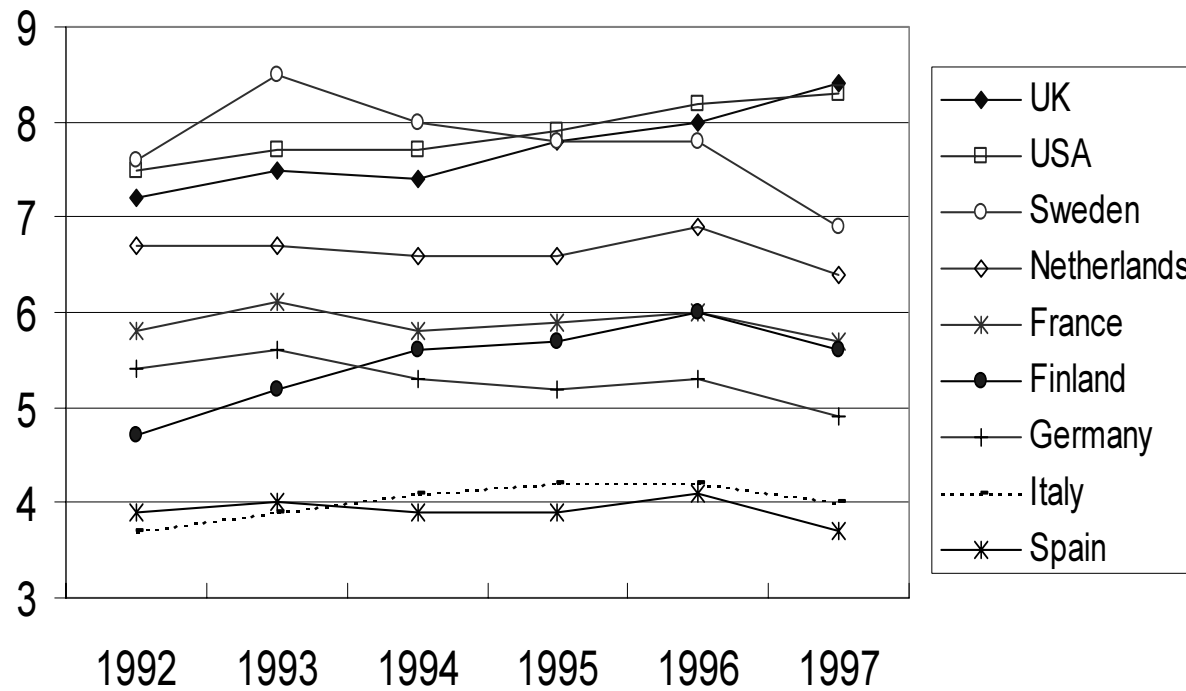
World GDP per person, 1000-2000



Source: "The New Economy", The Economist 23-29 Sep 2000

2. Kuinka suuri uusi talous on?

2.1 ICT Expenditure as a Percentage of GDP, 1992-97



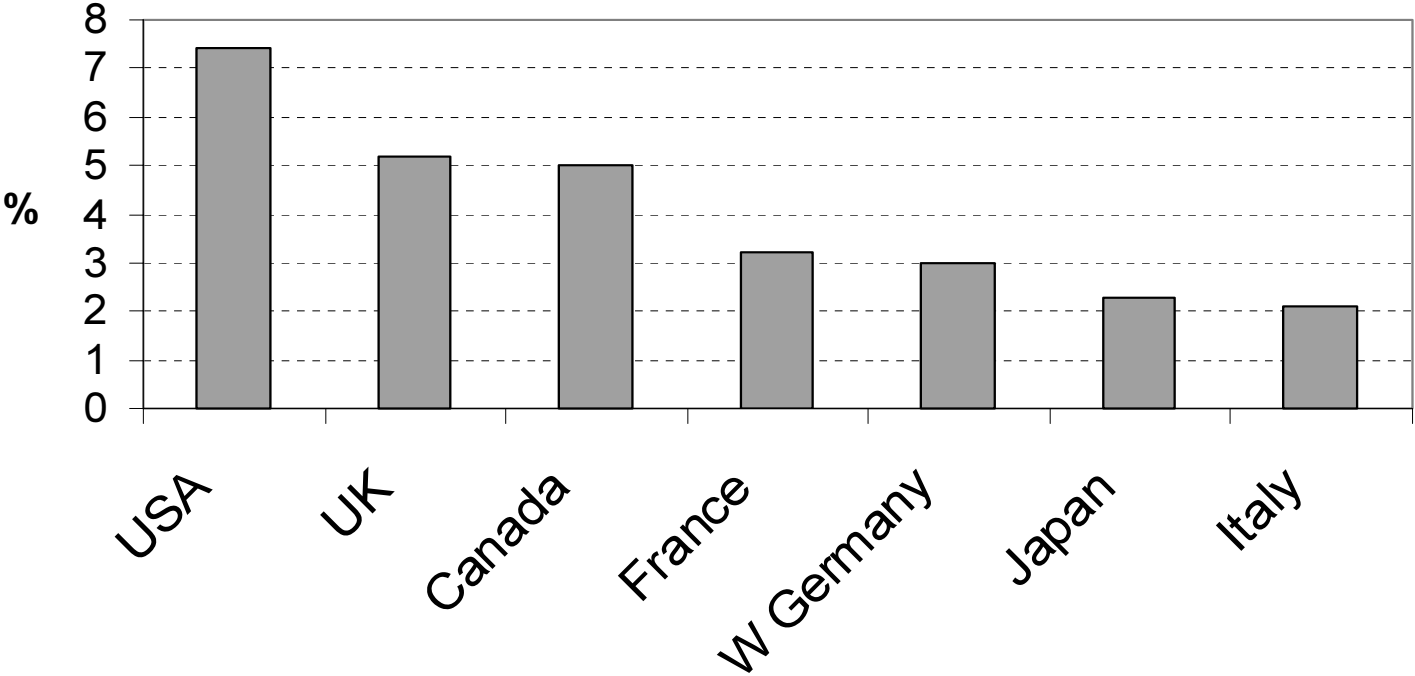
2.2 The Computer as a Factor of Production in Leading Industrial Countries

- 50-60 % of employees use a computer at work
- Computer investment accounts for 10-15 % of private fixed investment
- Computer investments grow rapidly: 20-40 % a year
- Computers account for 3-4 % of the capital stock

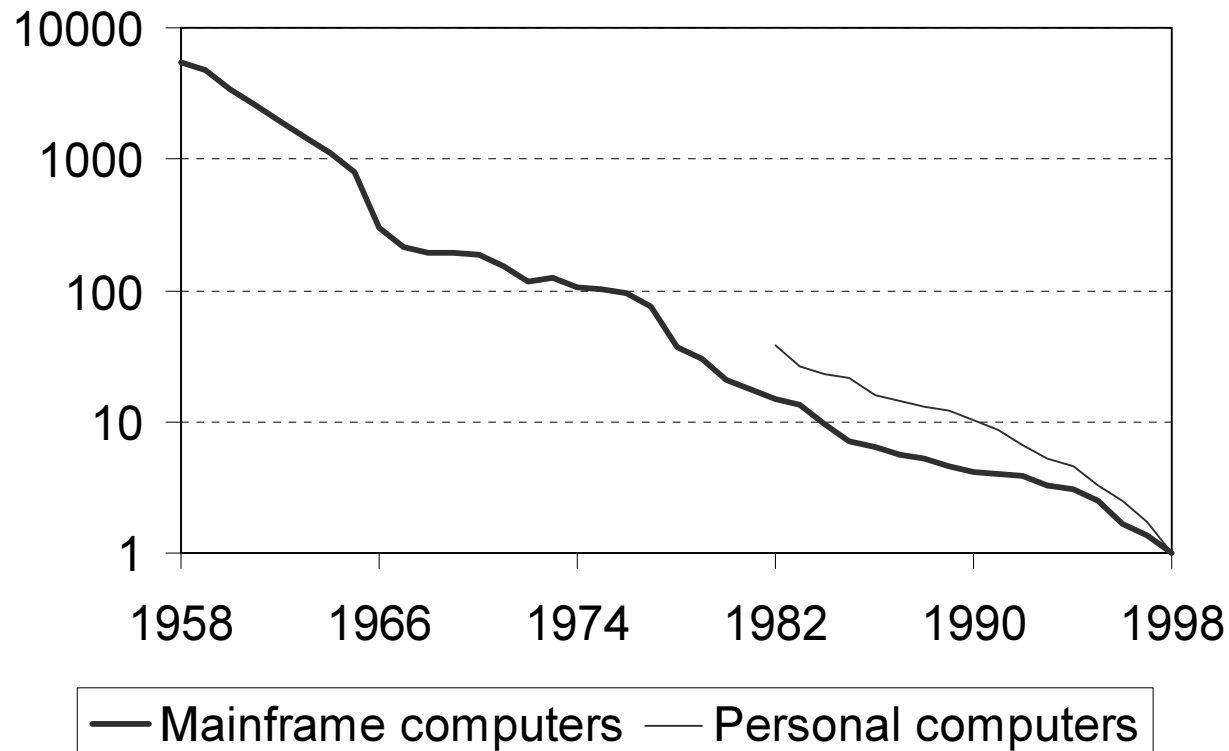
Share of ICT in Nominal Productive Capital Stock,

1996

(source: Schreyer, OECD, 2000)



Decline in the Price of Computing (1998= 1, logarithmic scale)



Source: Triplett (1999), Computers and the Digital Economy

2.3 The Size of the Internet

Number of people “online” as of March 2000

	Number of people (million)	Share of population (per cent)
Africa	2.5	0.3
Asia/Pacific	54.9	1.6
Europe	72.0	9.9
Latin America	8.8	2.5
Middle East	1.3	0.8
North America	136.1	44.3
World total	276.0	4.6

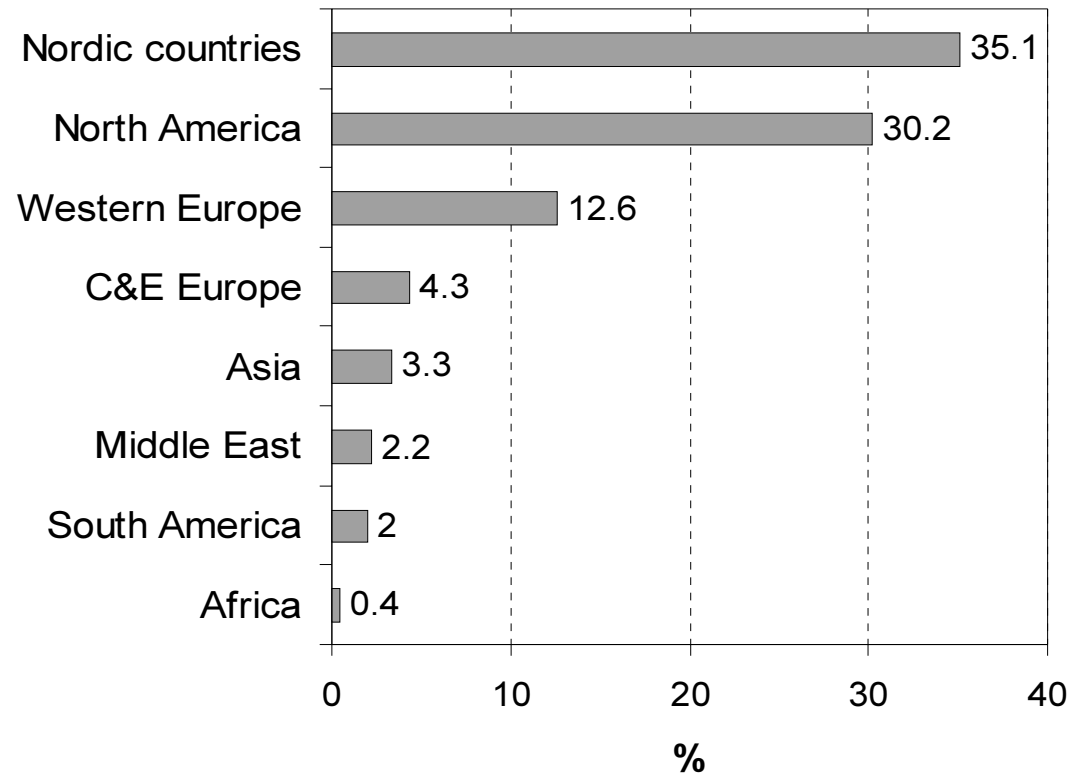
Source: Nua Ltd, 2000, http://www.nua.ie/surveys/how_many_online/index.html

Forecast for year 2005:

World total	720	11
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Source: Computer Industry Almanac Inc. 1999, <http://www.i-i-.com/199908iu.htm>

Percentage of Population 'Online' as of Spring 2000



2.4 Internet economy in the United States

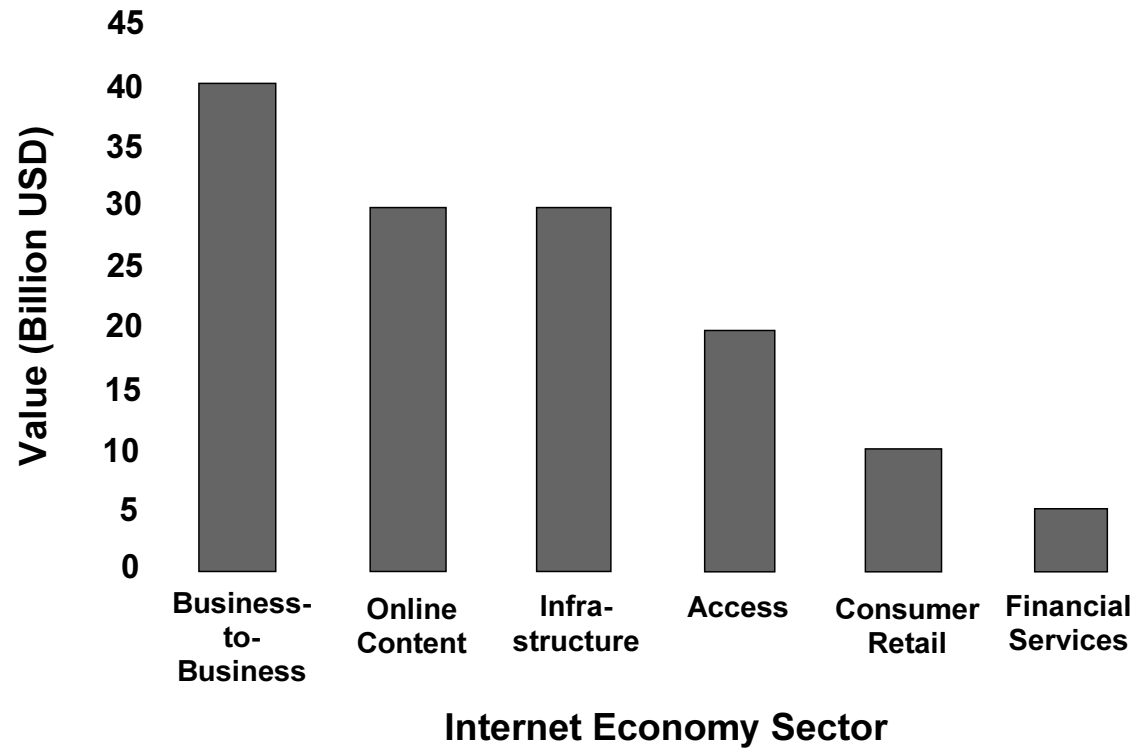
- Revenue and jobs in 1998

	Revenue (billion USD)	Jobs (thousand)
Internet infrastructure layer	115	372
Application infrastructure layer	56	231
Intermediary layer	58	252
Internet commerce layer	102	482
Total (minus overlap between layers)	301	1204

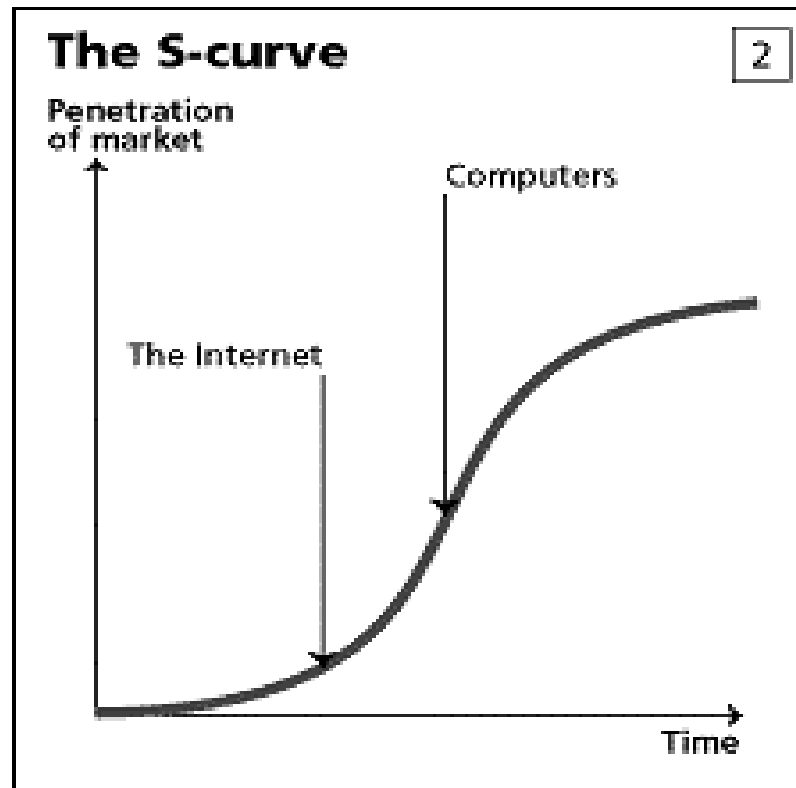
- Other findings
 - compound annual growth rate of revenues in 1995-98: 284 %
 - revenue accounts for 4 % of GDP
 - rivals in size energy (\$223 billion), automobiles (\$350 billion), telecom (\$270 billion)
 - jobs account for 20 % of all jobs in high-technology field

Source:<http://www.internetindicators.com/>

The Structure of the Internet Economy In the US, 1999

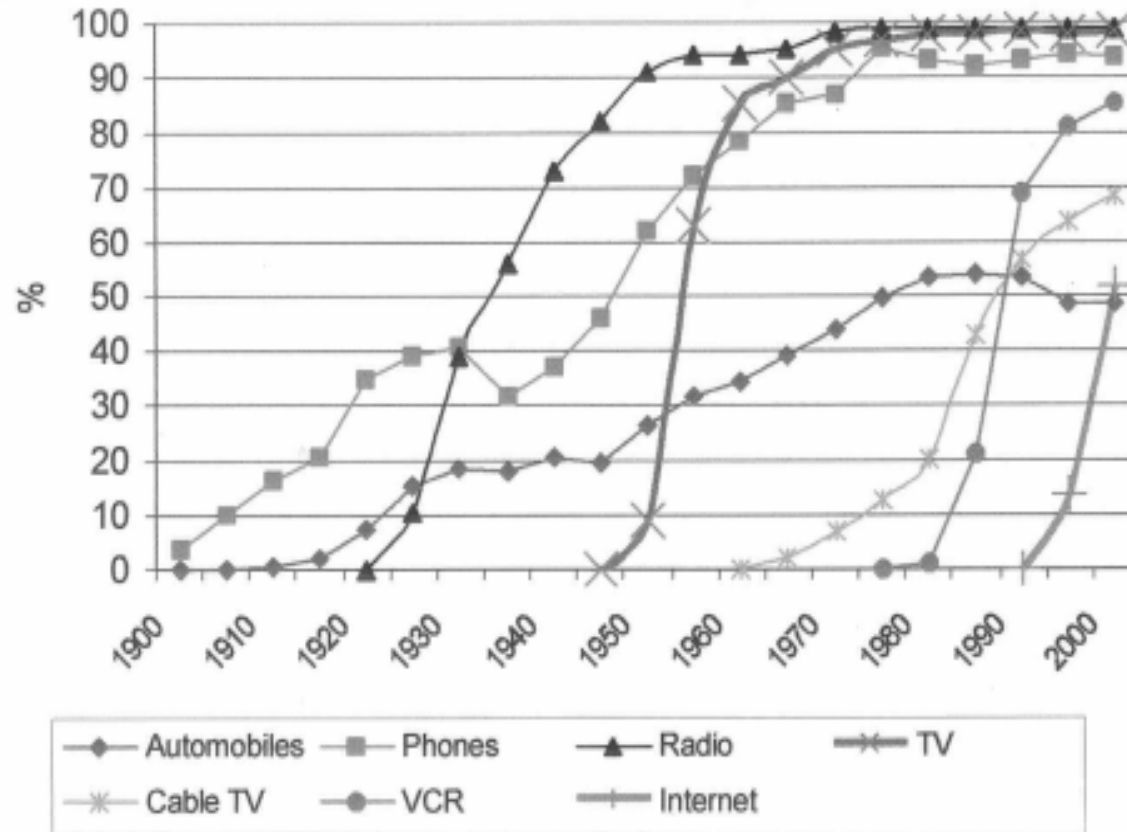


2.5 The diffusion of the Internet



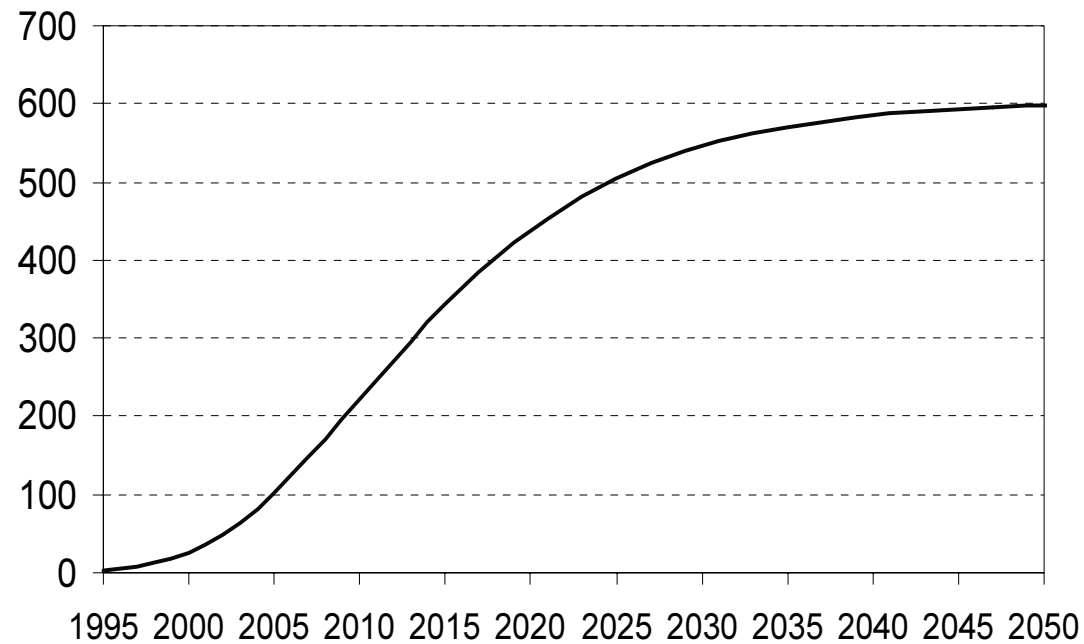
Source: "The New Economy", The Economist 23-29 Sep 2000

Technological Diffusion in the US



Source: Norris, P. (2000)

The Diffusion of Internet Hosts per Capita in the OECD: A Gompertz Projection



Source: Pohjola and Kiiski (2000)

3. Miten uusi talous vaikuttaa?

3.1 “Evidence” for the New Economy

- 57 % of Americans (including President Clinton) believe that the country has entered “a new kind of economy”
- strong GDP growth since 1991
- low unemployment and low inflation
- continuing boom in the stock market
- rapid wages increases in software, financial services, media, and consulting industries
- increase in the growth of labour productivity in the late 1990s
 - IT accounts for two-thirds of the one percentage point step-up

3.2 Impacts on Productivity and Economic Growth

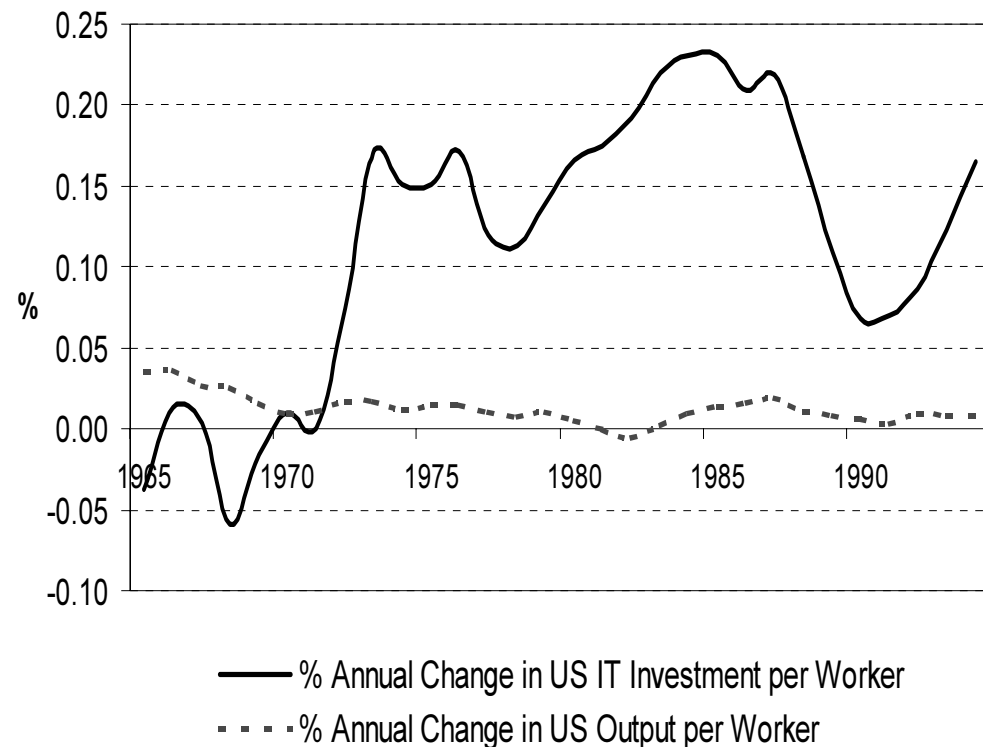
(i) The Productivity Paradox of Information Technology

“You can see the computer age everywhere but in the productivity statistics.”

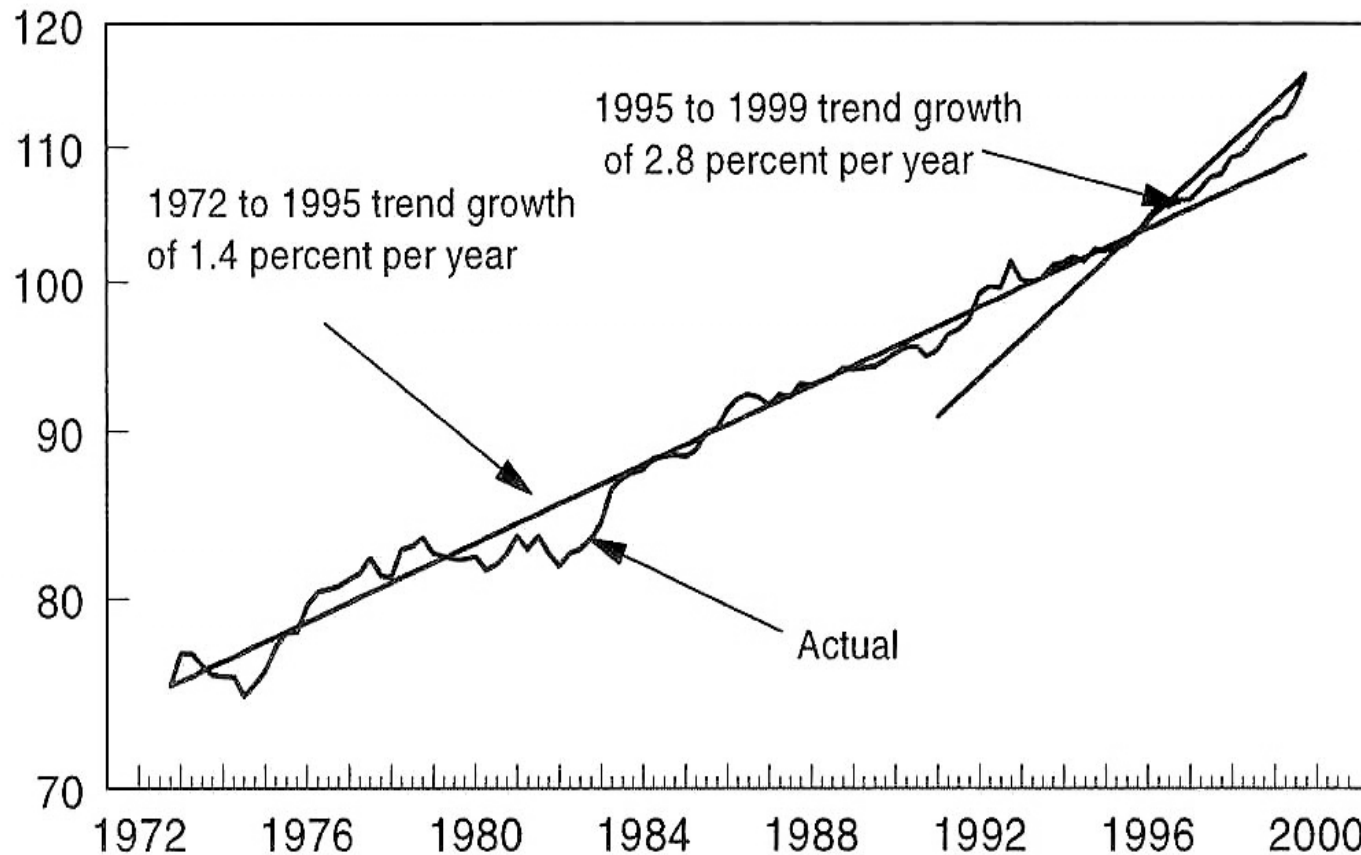
Robert M. Solow, New York Times Book Review, 1987

“My beliefs are shifting on this subject”.

Robert M. Solow, New York Times, April, 1999



(ii) Productivity Step-up in the US: The Trend Rate of Non-farm Productivity Accelerated After 1995
(index 1992 = 100, log scale)



Source: US Department of Commerce (2000), Digital Economy 2000,
<http://www.esa.doc.gov/de2000.pdf>

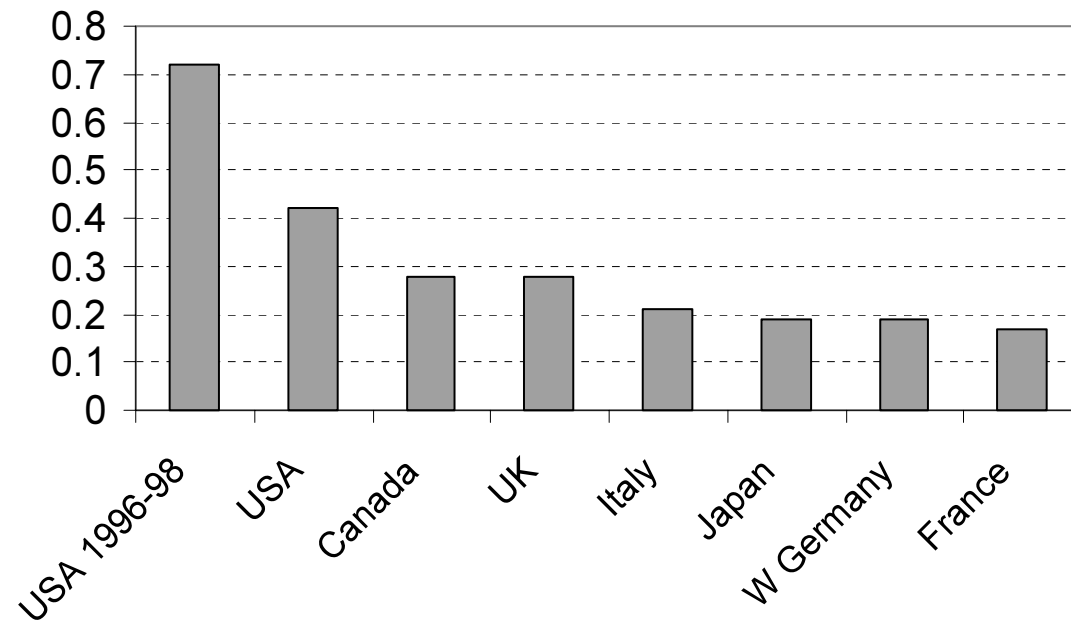
(iii) IT and Productivity

- Investment in IT is positively correlated with various measures of firm-level performance (e.g. labour productivity, stock market value)
- This correlation is stronger across firms than over time
- Capital deepening seems to be the dominant source of productivity increase; not much evidence for improvements in TFP
- Causality is difficult to prove
- IT reduces demand for unskilled labour but increases demand for cognitive and interpersonal interaction skills
- IT is complementary to innovations in workplace organization and to introduction of new products and services

(iv) IT and Economic Growth

- The contribution of computers to GDP growth is roughly between 10 to 30 per cent
- Growth contribution was larger in the 1990s than in earlier decades
 - because of networking and the Internet?
- IT investment and GDP per capita growth are strongly positively correlated in industrial countries

(v) ICT Contribution to GDP Growth, 1990-96
(Average annual rates of change, %; Source: Schreyer, OECD, 2000)



3.3 Impacts on the Structure of the Economy

E-commerce impacts on various distribution costs
(US\$ per transaction)

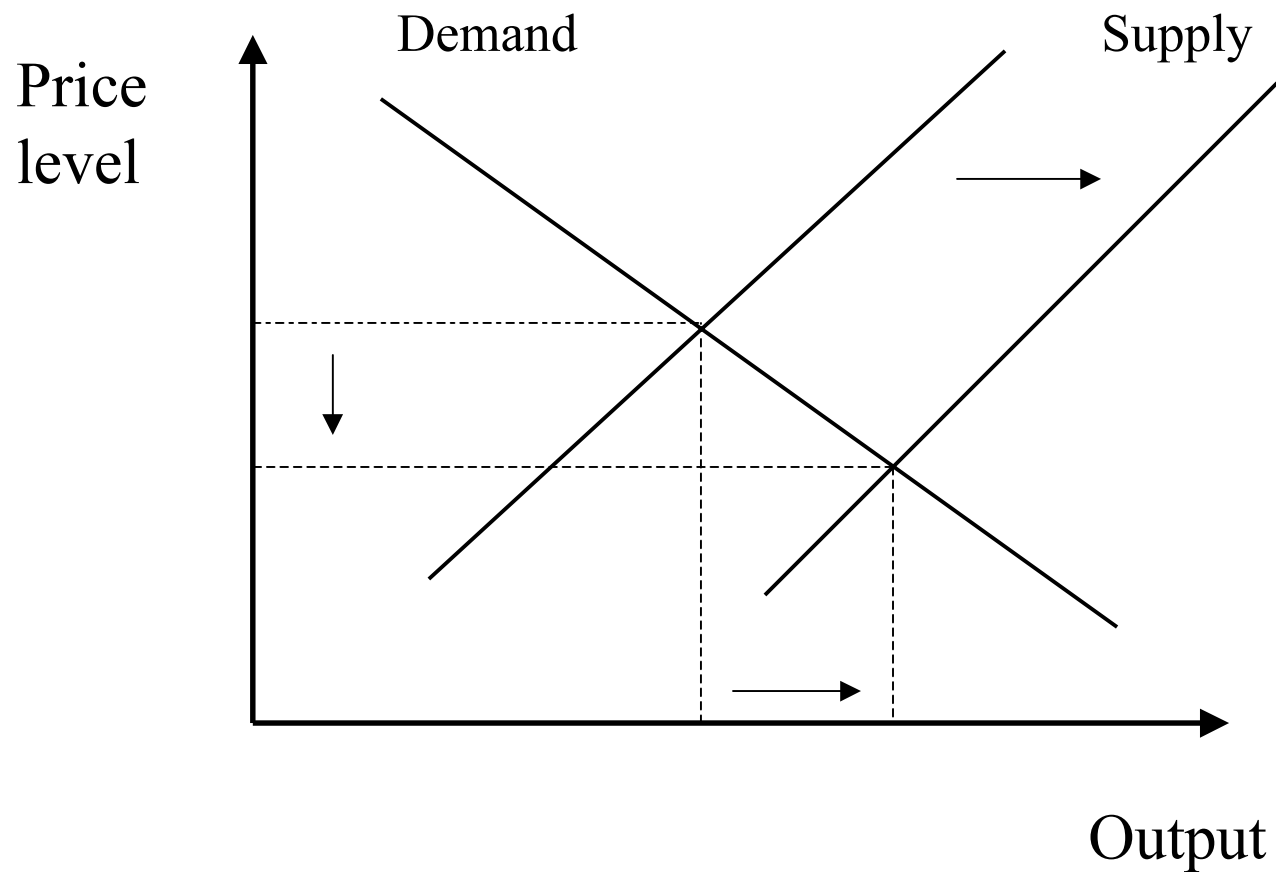
	Airline tickets	Banking	Bill payment	Software distribution
Traditional system	8.0	1.08	2.22-3.32	15.00
Telephone- based		0.54		5.00
Internet- based	1.0	0.13	0.65-1.10	0.20-0.50
Savings (%)	87	89	71-67	97-99

Source: OECD (1999), The Economic and Social Impact of Electronic Commerce

Implications for

- the structure and size of industries and firms
- the location of firms (New Geography)
 - the death of distance?
 - the death of cities?
 - the role of time-zones

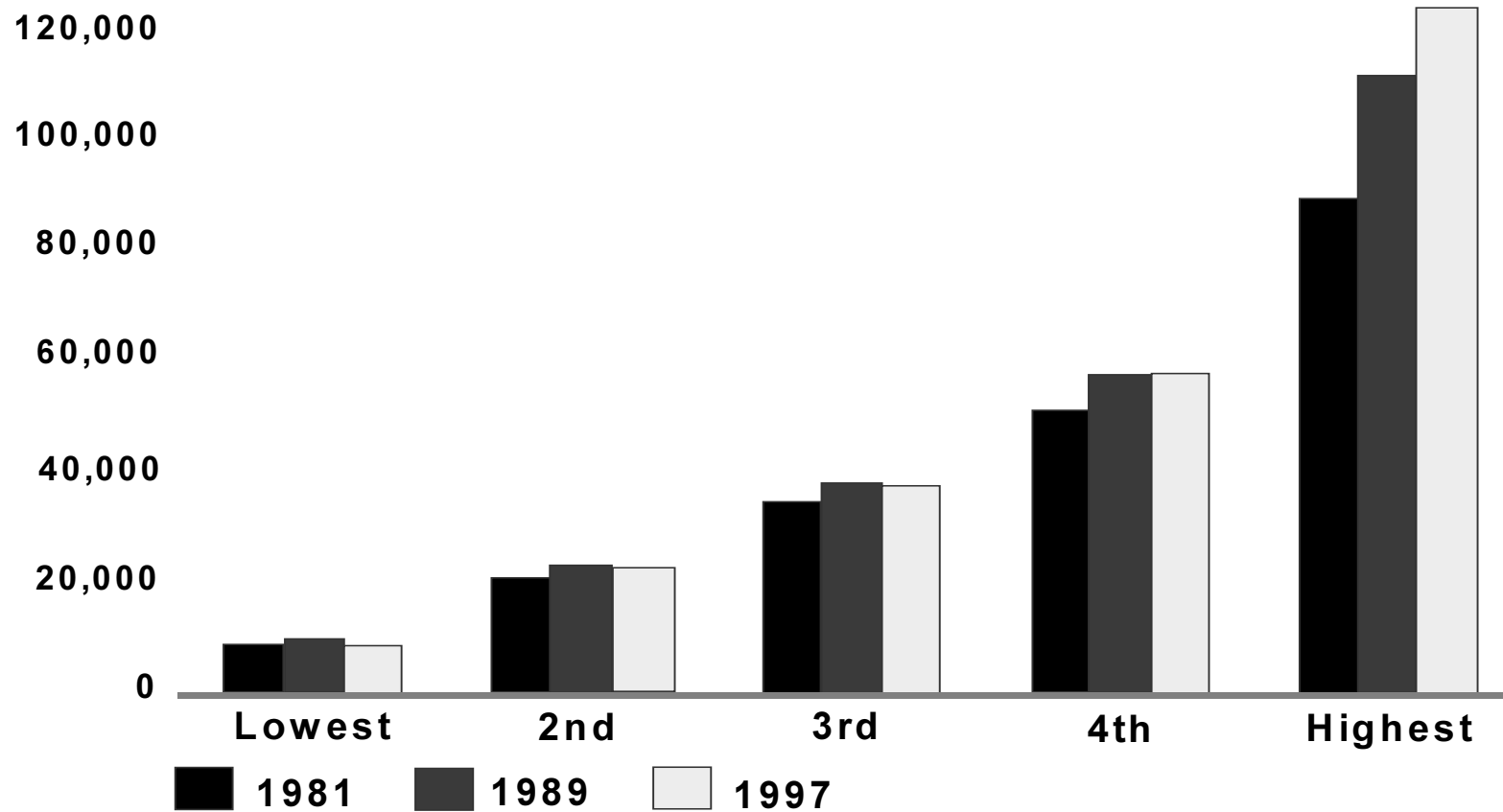
3.4 Impacts on Output, Inflation and Unemployment



- The Internet
 - has important disinflationary effects but does not imply the death of inflation. Inflation is, ultimately, a monetary phenomenon.
 - intensifies competition by lowering search costs and barriers to entry
- Standard labour market models predict
 - that technological progress does not have any long-run impacts on the structural unemployment rate (NAIRU)
 - but that the intensification of competition lowers NAIRU

3.5 Impact on Income Distribution

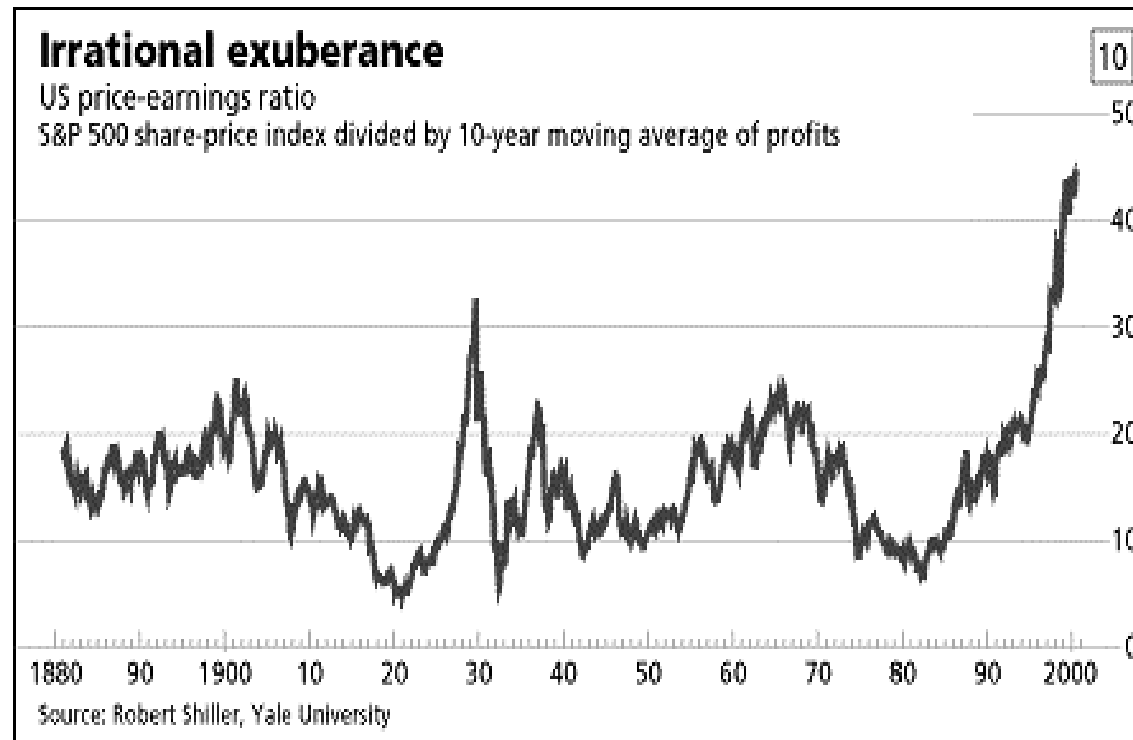
Mean Household Income by Quintile in the US



Incomes in Winner-Take-All Markets:
The Highest-paid Athletes in the World
(US\$ million, 1997)

1. Michael Jordan	78.3
2. Evander Holyfield	54.3
3. Oscar De La Hoya	38.0
4. Michael Schumacher	35.0
5. Mike Tyson	27.0
6. Tiger Woods	26.1
7. Shaquille O'Neal	25.4
8. Dal Earnhardt	19.1
9. Joe Sakic	17.9
10. Grant Hill	17.0

3.6 The Stock Market



Source: "The New Economy", The Economist, 23-29 Sep 2000

4. Mitä uutta on uudessa taloudessa?

4.1 Economic Properties of Digital Goods: Products Behave Like Knowledge

- Infinite expansibility
 - copies of digital products can be distributed at low cost over the Internet or on CD's
- Inherent unknowability
 - digital products are experience goods
- Ranking priority and nonadditivity
 - they may be costly to produce but are cheap to reproduce (fixed costs are high, marginal costs low)
 - the upfront fixed costs of production costs are sunk
- Winner-take-all characteristics
 - in principle, even one firm can supply the entire world market
- Demand-side externalities of scale
 - positive network externalities = the value of a product to one user depends on how many other users there are

4.2 Implications for Market Structure

- The industrial economy was
 - driven by (supply-side) economies of scale
 - populated with oligopolies
- The digital economy
 - is driven by demand-side economies of scale, i.e. by network externalities of network effects
 - creates strong incentives for growth: the value of business-to-business e-commerce increases with the square of the number of firms
 - is populated by temporary (?) monopolies
 - cannot be perfectly competitive because for information goods $\text{price} = \text{marginal cost} = 0$
 - displays strong winner-take-all characteristics

5. Millä toimin uutta taloutta voi tukea?

5.1 Is there a New Economy in Europe?

- On average, Europe is 2-3 years behind the US in adopting IT, the Internet and e-commerce
- The Nordic countries (especially Finland and Sweden), UK and the Netherlands are the leading European countries; Estonia is catching up
- ICT's growth contribution has doubled in the US in the late 1990s; no signs of a productivity step-up in Europe yet
- The Internet and networking of computers may explain the increase in the contribution of ICT to economic growth

- Are there any second-mover advantages?
 - declining costs of IT
 - learning from corporate restructuring
- Europe lags behind the US in adopting the Internet and e-commerce, but the US trails behind Europe in mobile communications
- Europe will take the lead in **m-commerce** -- electronic commerce conducted on mobile phones
- But will m-commerce become the next big Internet development?
- Experiences from WAP technology have not yet been very encouraging

5.2 Economic Policies for the New Economy

- Lawrence H. Summers:
 - “The New Economy is built on old virtues: thrift, investment, and letting market forces operate”
- What else?
 - Proper macroeconomic policies
 - Well-run financial markets
 - National technology policies

(i) Macroeconomic policy

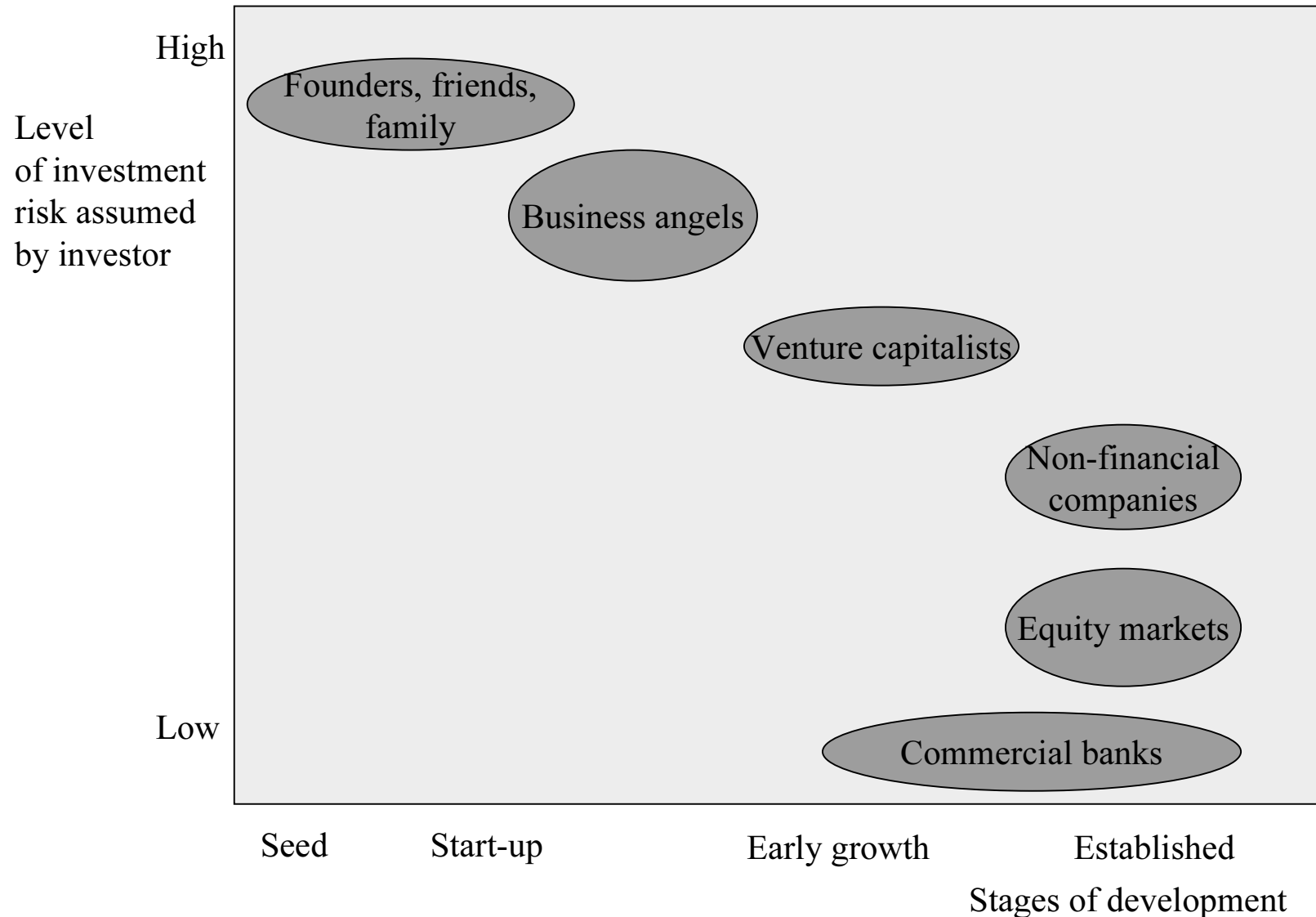
- Monetary policy should not choke demand needed to sustain investment in the New Economy
- Demand matters more for IT than for previous technologies because IT products are experience goods
- Example: 14th century China

(ii) Financial sector preconditions

- Conventional view:
 - active venture capital industry +
 - liquid domestic stock market
- Development of high tech firms:
 - financing is highly reliant on own funds, families and friends
 - in the US and UK, initial external equity financing generally comes from business angels
 - fewer than one in a thousand new venture have an IPO in the UK although although 70 % believe that a public stock offering was “highly likely” or “probable”

- control structures change more rapidly in the new than old economy firms
- access to stocks markets helps to expand through acquisition
- the New Economy requires a high degree of diversity in institutions, investment and forms of control
- Europe has opted for high levels of investor protection and low levels of diversity; this balance may have to change

The Development and Financing of Entrepreneurial Firms



The Financing of Amazon.com (1994 - 1999)

Time Line	Price/ Share	Sources of Funds
1994 - July to Nov	\$.001	<i>Founder:</i> Jeff Bezos starts Amazon. Com with \$10,000, borrows \$44,000.
1995 - Febr to July	\$.1717	<i>Family:</i> Founder's father and mother invest \$245,500.
1995 - Aug to Dec	\$.1287-.3333	<i>Business Angels:</i> 2 angels invest \$54,408.
1995/6 - Dec to May	\$.3333	<i>Business Angels:</i> 20 angels invest \$937,000
1996 - May	\$.3333	<i>Family:</i> Founder's siblings invest \$20,000.
1996 - June	\$2.3417	<i>Venture Capitalists:</i> 2 venture capital funds invest \$8 million.
1997 - May	\$18	<i>IPO:</i> 3 million shares issued raising \$49.1 million
1997/8 - Dec to May	\$52.11	<i>Bond issue:</i> \$326 million bond issue.

Source: Smith and Kiholm (2000)

5.3 Technology Policies

- **Supply-side policies:** institutions for allocating resources to the New Economy
 - conflict between ex ante and ex post efficiency
 - patents & copyright vs government funding
 - open vs closed standards
- **Demand-side policies**
 - consumers' participation in the information society is important
 - digital products are experience goods
 - access costs should be low

The Diffusion of the Internet in OECD Countries, 1995-99

(source: Pohjola and Kiiski, 2000)

Impact of the Internet Access Cost

