

# Universal Service

Why should governments try to spread broadband Internet services to more people?

Ben Franklin: it's necessary for democracy. Communication among citizens is important in a free society.

Al Gore: it will stimulate economic growth. It's the modern version of the railways or the Interstate Highway System (Gore's father was a major proponent).

(and a subtopic): it helps markets to work better by encouraging information flow.

Martha Stewart: it's a good thing

# Universal Service, seriously

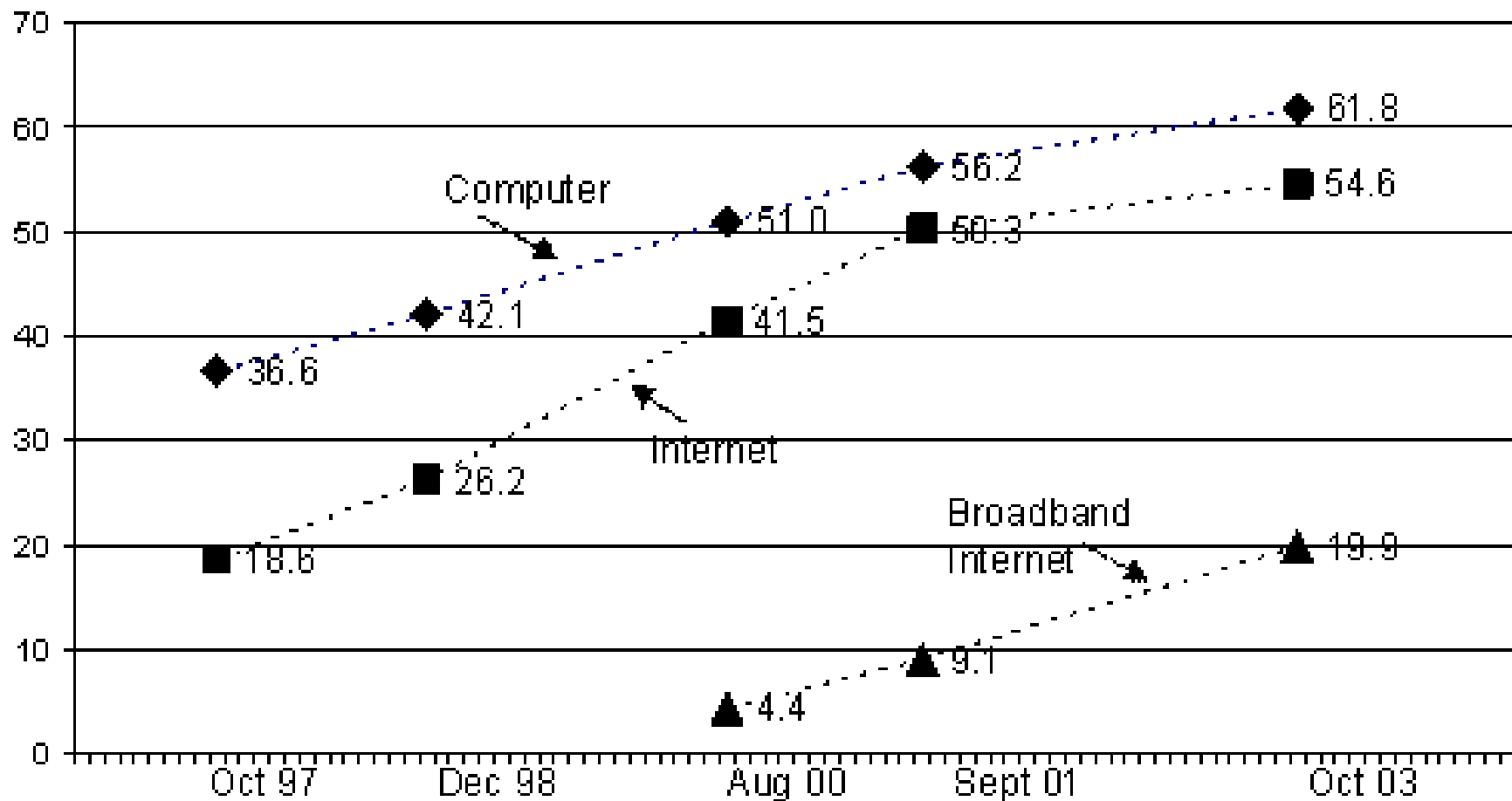
The Post Office has been justified as essential for freedom; in the early days a free press was all well and good, but without a mail service the results of the free press couldn't get anywhere. There is a belief that communication is important for democracy.

It is also believed that communication is important economically; that good information makes markets work.

There are also those who just think that people are entitled to communication as a necessity of life.

# Growth of broadband

Percent of  
U.S. Households



# History of Universal Telephony

Started as the idea that everyone should be able to afford telephone service. (But don't forget that the post office really came first; see Ben Franklin and Rowland Hill)

1907: Theodore Vail, "one system, one policy, universal service"

1934: Communications Act, "...to make available, so far as possible, to all the people of the United States, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges." (Conservative economists insist that this does not mean what it says).

Over time subsidies developed: money moved from urban to rural, from business to residence, from long distance to local.

# Lifeline Service

This was/is a set of particularly cheap rates offered to the elderly, with a political pitch that “people need to be able to call their doctors”. The telephone companies were placated with promises that they could charge a great deal for any significant number of calls, so that this would not replace regular phone service. However, businesses started getting lifeline service if they received many more calls than they made.

Later, we got “lifeline” cable rates, on the theory that they too were a necessity of life.

# Universal Service Fund: 1996

Once AT&T no longer owned the whole phone business, it wasn't possible to subsidize some people just by manipulating AT&T rates.

So now all long distance subscribers are taxed and the money used to reduce the phone bills of libraries, health care facilities, schools and rural customers. If you think this is all politics, you're right. There are even disputes over whether the fee may be itemized separately and whether it is called a "tax" or a "charge".

# An example of the formula

SCHOOLS AND LIBRARIES DISCOUNT MATRIX		DISCOUNT LEVEL	
HOW DISADVANTAGED?		urban discount (%)	rural discount (%)
% of students eligible for national school lunch program	(estimated % of US schools in category)		
< 1	3	20	25
1-19	31	40	50
20-34	19	50	60
35-49	15	60	70
50-74	16	80	80
75-100	16	90	90

# Is Internet service essential?

Is it important that Internet service be affordable to all?

Is this because

- (a) Communication is good for democracy;
- (b) It's a necessity of life;
- (c) It will encourage new industries and growth;
- (d) It will make markets better.

Or, following conservatives

- (a) People have plenty of ways to communicate,
- (b) Poor people would rather have food or housing,
- (c) The market will judge best how much Internet to make,
- (d) Adding resources beyond market demand is wasteful.

# The “Digital Divide”

This term refers to the idea that poor people and/or poor countries will have less access to modern IT technology and that this will leave them even further behind in the economic race.

Actually, the availability of computer technology in countries roughly tracks their average GDP; poor countries have less IT than rich countries, but not less in proportion to their wealth.

Whether you believe that giving poor countries or poor people computers will make them wealthier is less clear. You could easily find half a dozen papers on each side, but what you would learn other than that economists disagree is unclear.

# The \$100 Laptop

The MIT Media Lab is leading a project to build a laptop cheap enough that every child can have one: One Laptop Per Child. See "[laptop.org](http://laptop.org)" for details.



The expectation is that governments in developing countries will buy these for schoolchildren and revolutionize education. The money is probably there; Thailand, for example, wants to buy a million of the machines. Whether giving computers to children will have a big effect is less clear; it hasn't done so here.

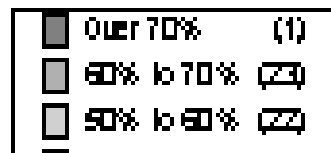
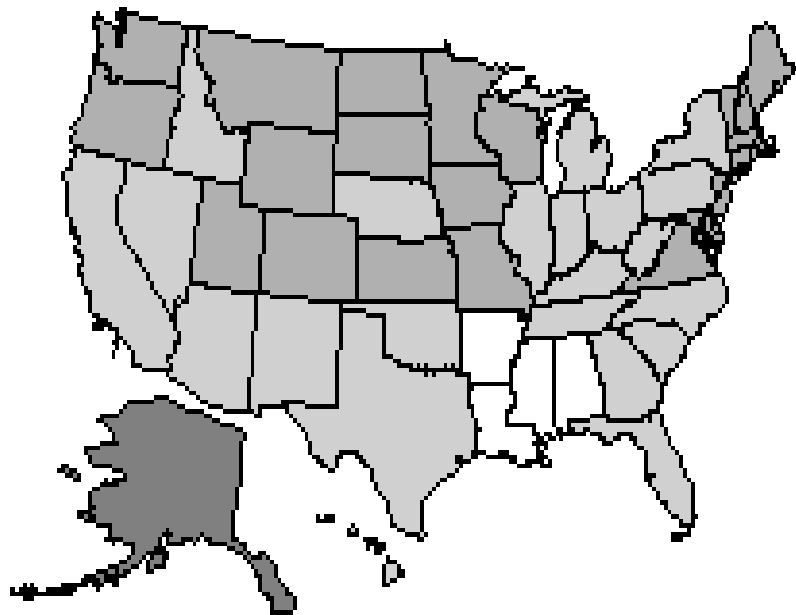
# Digital divide in the US?

Although poor people in the US have less access to broadband than wealthy people, there are confusing aspects of the numbers. For example, rural families in the West are more likely to have internet access than rural families in the South. Older people are less likely to have access than younger people, but older people have more access than you would think (remember that online shopping and email to grandchildren are particularly attractive to the elderly).

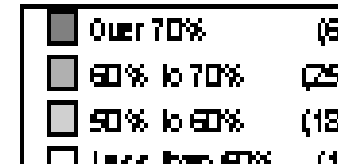
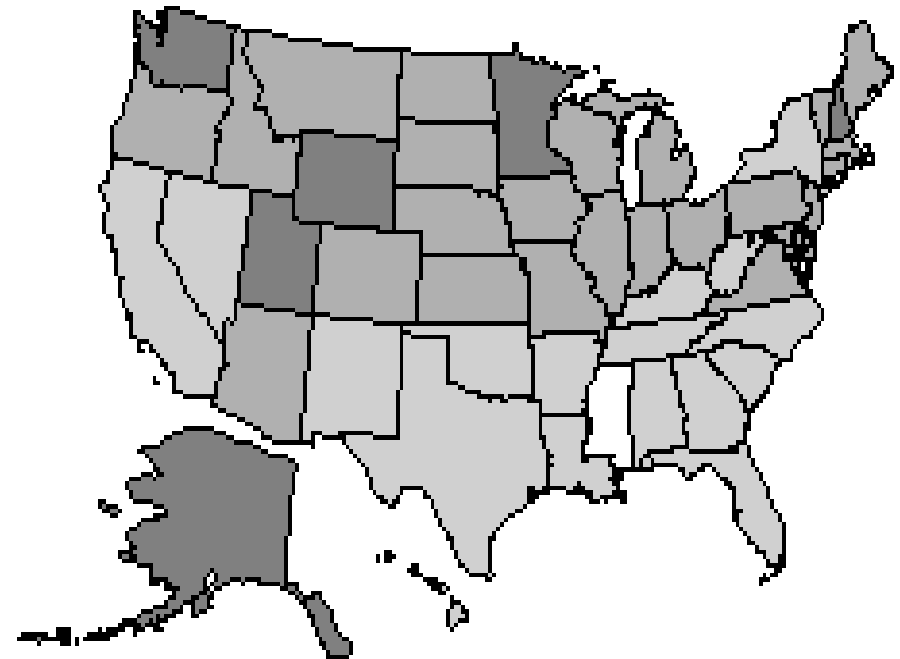
In fact most of the effort at curing the digital divide in the US is justified economically, not on social grounds. (You never hear about elderly people who need to email their doctor).

# West more users than South

September 2001

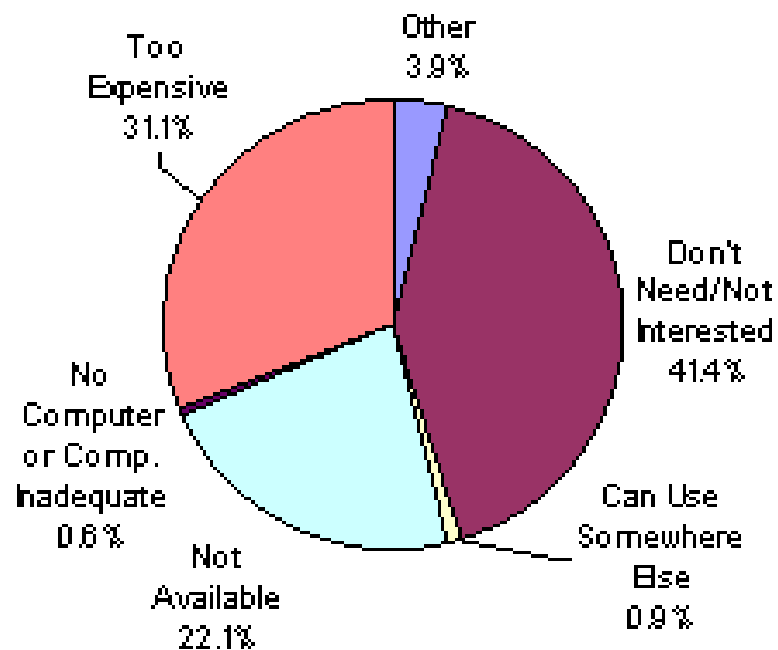


October 2003

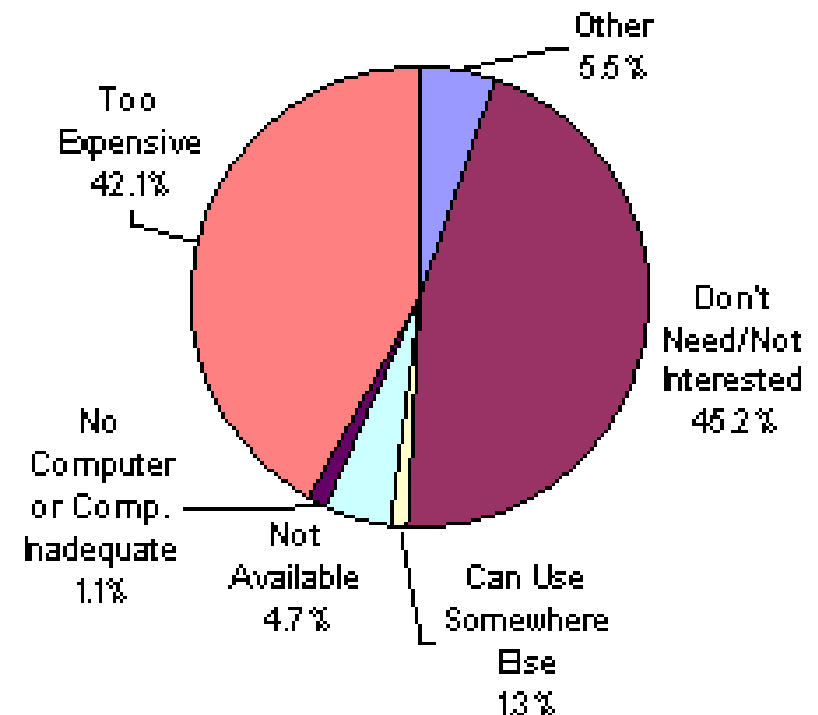


# Rural users can't, urban don't

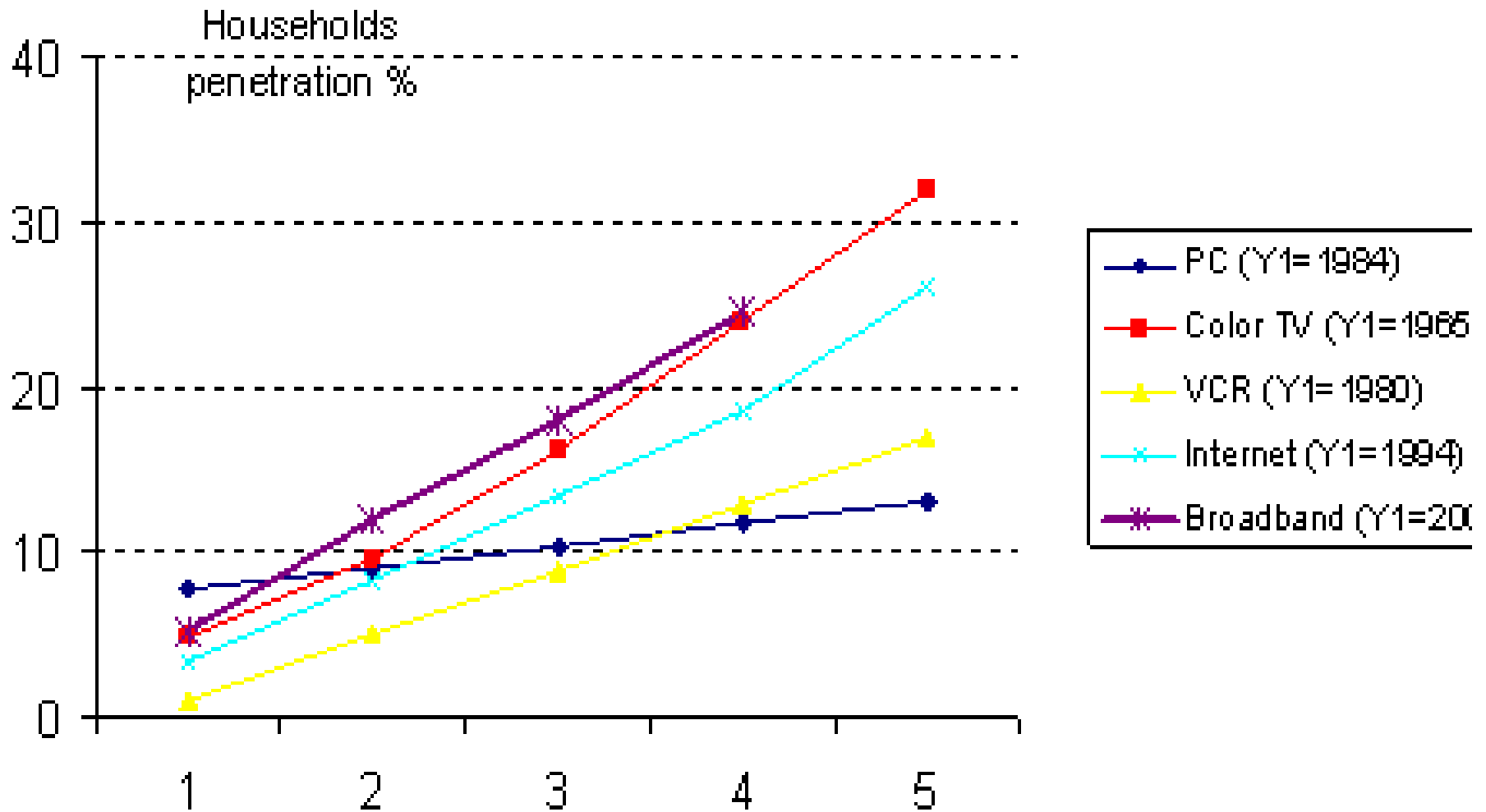
**Rural: 11.4 Million Households with Dial-up**



**Urban: 27.2 Million Households with Dial-up**



# Growth of technology



# Internet Users 2003

Men: 58.2%, Women 59.2%

Whites: 65%, Asians 63%, Blacks 45%, Hispanics 37%

Employed 71%, unemployed 43%

<\$15K family income: 31%; \$100K family income: 85%

Age 3-4: 20%

Age 5-9: 42%

Age 10-13: 67%

Age 14-17: 78%

Age 18-24: 71%

Age 25-49: 68%

Age 50+: 50%

# Economic growth

A number of countries believe that international competitiveness depends on Internet availability. So do many places in the US.

"IT-producing industries ... between 1995 and 1998, contributed on average 35 percent of the nation's real economic growth." *The Emerging Digital Economy II*, US Department of Commerce, 1999

"Potato chips, semiconductor chips, what is the difference? They are all chips. A hundred dollars' worth of one or a hundred dollars' worth of the other is still a hundred dollars." (Michael Boskin, chairman of the Council of Economic Advisers, Bush I administration) [Quote later denied]

# Cities believe in Internet

“The city of Rio Rancho, which is home to an Intel Corp. chip plant, also views its planned 103-square-mile hot zone as an economic development tool, according to City Manager Jim Palenick. Rio Rancho wants to be known as a city with 'cutting-edge technology' to lure new businesses, including high-tech film and television postproduction studios seeking state of New Mexico funding and tax incentives for movies and TV programs, he said.” - *Computerworld* 2004. [The “hot zone” is free WiFi]

There are many more examples, including places like Philadelphia and New Orleans. Local phone companies tend to strongly oppose these ideas.

# Market efficiencies

The Internet makes it easier for people to find out prices & conditions in their markets, or to choose among suppliers, and thus should improve market efficiencies. For example, students in Europe can buy textbooks from whatever source is cheapest; it's sometimes cheaper to buy them at amazon.us and have them shipped than to buy them locally. People without discount stores can order online.

This is particularly important in developing countries which start with poorer communications and, often, more exploitation of rural farmers.

# India and small farmers

Bagadi village, Dhar (Madhya Pradesh): “Farmers were getting Rs. 300 per quintal from local traders for potato crop within local market, but KO (Kiosk Owner) services revealed the current rate in Indore Mandi to be Rs 400. Timely information motivated them to shift their potato produce to Indore Mandi at better prices.” (Cybermedia News, Kishore Kumar).

“ITC e-Choupal web portal brings real-time information on weather forecasts and customized knowledge on better farming practices to the farmers’ doorstep to improve his crop management. ITC e-Choupal supply chain brings good quality farm inputs at competitive prices to increase his farm yields,” S Sivakumar, chief executive (Agri Business), ITC.

# Productivity and computers

There is a long-running argument, started by Steven Roach (chief economist, Morgan Stanley) saying that investment in computers was not helping productivity; banks which spend more on computers don't show higher profits. The other side is led by Erik Brynjolfsson (MIT); trucking companies that buy computers do better than trucking companies that buy trucks. (oversimplified)

If you believe the economists who say that computers and communications don't help economic growth, then it doesn't matter whether poor countries have access to them.

# No agreement

There are lots of people saying that broadband is essential for economic growth. Gartner: correlations of production and communications suggest that pervasive broadband in California could raise total state production by \$376B by 2010 and create two million jobs. Lehr, Osorio, Gillett & Sirbu: communities with broadband have 1% greater employment growth and 0.5% greater growth in the number of firms.

But then Charles Kenny suggests that the Internet will have little effect on growth in less developed countries (and, by the way, in a footnote suggests that the railways had no effect either).

# Internationally

A number of countries, most notably South Korea, have made access to broadband services a national priority. In countries like South Korea and Japan, broadband prices are lower than in the US; there is less regulation of new providers; and national policy encourages rollout of broadband. There is also a “network effect” in that the existence of many consumers with broadband access encourages new services that make use of it and then give more consumers a reason to sign up.

For example, in 2002, Japanese consumers paid \$0.09 per second per 100 kbs, while US consumers paid \$3.53 (ITU; sounds impossible to me). Europe also devotes public funds to encouraging broadband and limits regulation.

# So where are we?

Hard to prove that broadband or the Internet encourages economic growth, but everyone wants to believe it.

Can we bring about democracy by introducing broadband?  
Seems unlikely.

It is rare for poor people to march for broadband.

And is it yet a question of fundamental fairness? I would think not yet, but schoolkids might disagree.

Politically (and unlike in 1934) we won't get broadband unless the economic argument is believed (whether it is true is less important).