Dynamo and Microchip

You might have expected that in this election year the economic report of the president -- a survey published each February -- would be a highly political document, eagerly claiming credit for our giddy prosperity. But say what you like about their boss, Bill Clinton's economists have always been admirably honest and evenhanded in their reporting. The self-congratulatory boilerplate is actually minimal, and the thrust of this report is that technology, not policy, is the main source of good news.

This is surely right. A technology-driven surge in worker productivity is directly responsible for about two-thirds of the acceleration in our economic growth from the 2.5 percent norm of the 70's and 80's to the 4 percent of recent years. The report plausibly argues that our unexpected ability to get unemployment down to 30-year lows without inflation is also an indirect result of the productivity boom. So there is no mystery about why we are doing so well: the microchip did it.

The real mystery is why now -- and not much earlier. After all, gee-whiz information technology is not new. The microprocessor itself was introduced in 1970. Digital faxes, video games and the personal computer all date from the late 70's and early 80's. Businessmen and politicians alike were excited by the possibilities. (Does anyone remember the "Atari Democrats"?) But until 1996 or so, there was simply no sign of a fundamental improvement in economic performance; there were recessions and recoveries, but no change in the trend. (Those are fighting words, but I'll take on the myths of Reaganomics some other day.)

And then, suddenly, the fancy technology started to pay off. What took it so long?

Well, after looking at the economic report, I dusted off my copy of a 1989 article by the Stanford economic historian Paul David, which made a big impression on me when I first read it. And "The Dynamo and the Computer" makes even better reading today.

Mr. David pointed out that although the light bulb was invented in 1879, the big economic payoff from electrification didn't come until after World War I. The problem was that simply replacing steam engines with electric motors didn't do much: businesses had to rethink the whole concept. Traditional factories were compact, multistory buildings -- the optimal design when power had to be conveyed via shafts and belts from a steam engine in the basement. Only when manufacturers realized the advantages of a sprawling, one-story structure, with each machine driven by its own motor -- in particular, the benefits of having plenty of room to move people and materials around -- did electrification really show what it could do. And this took decades.

The parallel is clear. Putting a computer on every desk didn't do much by itself. Only by changing the whole organization of work could business really reap the rewards of the digital age. It is simply Bill Clinton's good luck that America Inc. finally figured it out on his watch.

Is that it? Is the economic history of the United States these past two decades just a matter of technological determinism? To a first approximation, yes. Oh, some of the really bad policy ideas of the 80's -- the heavy-handed industrial policies urged by the Democratic left, or the return to the gold standard urged by the Republican right -- could have derailed us. But since such policies were never really on the table, politics had little if any effect on economic growth. Even if Jimmy Carter had been more likable, even if George Bush the elder had had the vision thing, the American economy would have ended up in more or less the same place.
What about the future? If the technology gurus are to be believed, there are more payoffs to come as the Internet goes wireless and all that. If they are right, then at least as far as the economy is concerned we don't need to elect a great man as president; all we need is somebody who won't do too much damage.

Given the likely choices, that is what I would call a reassuring thought.

In my Feb. 13 column I described the Internet Tax Freedom Act of 1998 as a legal impediment to sales taxation. In fact it only prohibits taxes on Internet service providers.

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