Going cheap on the Net: Get your tradeoffs here

by
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Economics is about tradeoffs, mostly. When economic science has added most memorably and enduringly to public policy and debate, it has done so by taking a cold hard look at who has had to give up what for whom in return for how much. No free lunches. A wide-eyed approach to life of trying to be all things to everyone might make for good politics. It is almost never ever good economics.

Exceptions arise, of course. Take growth and inequality. A long-standing conventional wisdom on tradeoffs is that economies grow faster when inequality is higher. You then had your choice: Do you want to shake out the inefficiencies in the workings of your society, and watch the economy grow? And as a result face the possibility that incomes across individuals become more unequal, for those same inefficiencies had been hiding who was performing well and who wasn't? Or do you want to bump along the bottom, but with society strictly egalitarian?

Reality has turned out to be more nuanced. There are societies that have been able to grow rapidly, but at the same time have maintained equality across their inhabitants. There are countries like China, the UK, and the US that—at least in popular understanding—have seen rapid growth but with inequality risen dramatically. (To complicate the issue, it must also be said that even as Chinese society became more unequal through the 1980s, its high rate of economic growth successfully brought hundreds of millions of people—many times the population of the UK—out of absolute poverty.) And there are countries that not only have failed to grow but have had inequality increase as well—an outcome that smacks not only of profound

tragedy but of sheer carelessness.

In the previous column I remarked on greater information dissemination, and how that might be used to get around incentive difficulties in the production and distribution of knowledge-goods in the weightless economy. But if economics is about hard choices, where are the weightless economy tradeoffs?

On the one hand this, on the other hand that ...

One abiding myth about Internet and e-commerce development—parts of the weightless economy if anything is—is that they are indubitable good things. We worry only that there's not yet more Internet use and e-commerce; we fret about how to pay for further subsidizing their development: building public Internet kiosks, wiring up all the nurseries in the land, ensuring Internet access to anything that so much as fogs up a mirror held to its nose, whether or not that access is wanted. In this view, the infrastructure surrounding the knowledge-based, weightless economy is a classical public good, and we have nowhere near enough infrastructure.

Another abiding myth is that the opposite is true. All of the Internet, e-commerce, and software is just a waste of time. We were much more productive and better off hammering out heavy-metal technology, and we should have kept doing so. Software commodities and Internet use comprise a bill of goods foisted on us by vested interests—who have become grotesquely wealthy due to the ineptitude of the masses. (And this is not even to mention spiritual frivolities like Tomb Raider, Doom, or Webbie Tookay.) We don't like email and instant communications, and Web surfing just diminishes us. Whatever is valuable and endures should be done slowly with no more than pen and paper, or otherwise carried in heavy bags along the high street. Just look at how productivity worldwide trudged downcast for decades while software and information technology developments galloped on ahead.

Unless an economy has already been plain careless with its resources, any reallocation and adjustment brings costs and benefits.

(Have there been economies thus careless? Well, some economists seem to think that countries in the Far East and elsewhere that have undergone currency crises are in exactly such a state. How else could so many policy recommendations be so unequivocal?) The right view, in normal circumstances, isn't whether more Internet use and e-commerce development, greater software, music, and video entertainment proliferation are good things or bad things. The right question, instead, is where lies that tradeoff of costs and benefits? Where should the societies we live in choose to situate along that frontier of possibilities?

Unthinkingly repeating myths seems to me a pretty good way of never finding out answers to these questions.

Information, information everywhere

All the information that we generate, inadvertently, when we participate in the knowledge-driven economy can be used to help get around inefficiencies in the workings of the weightless economy.

This seems an unalloyed good thing. If anything, since there are likely associated positive network externalities, quite probably we are not sufficiently promiscuous with our personal data, and should be encouraged to reveal even more information. Perhaps, as some web-service firms now do, the government could pay everyone to surf the Web more, and openly so.

But does it raise issues on the other side of the tradeoff?

Stepping outside economics, social observers have no difficulty answering Yes to this question. In their view, information promiscuity ought to engender wide public concern and debate: loss of privacy, compromised national security, infringed civil liberties, surveillance by a (potentially oppressive) police-state. As recent events in Central Europe and the Far East have demonstrated, such fears are not unfounded.

These are large political and ethical questions, and an economic analysis of them would be appropriate. But this isn't the place for that. Instead, I consider here a much smaller, preliminary question

that when pushed might get us eventually to such an investigation.

As previous columns have emphasized, a constant tension in all activity that produces infinitely-expansible information is the tension between ex-ante incentives and ex-post efficiency. Formal organizations for intellectual property—patents, copyrights, trade secrets—acknowledge this, and settle on some transient ex-post inefficiency, through monopoly operation, in exchange for some ex-ante incentive provision.

When we generate information by leaving electronic footprints through websurfing or DNA traces through medical examination, the activity is, in essence, also creation of intellectual property. That information can be, practically effortlessly, gathered together and systematized in a giant database. We might not have to strain as hard as scientists in a genetics research laboratory or a mathematician developing a new encryption algorithm, but that is irrelevant. (And who knows, they're probably having fun as well doing what they do.) Recognizing the positive benefits of our handing over that private information is, in one sense, the same as acknowledging the social efficiencies that would materialize from weakened intellectual property rights. Where relevant, the same economics should apply.

Our collective heritage?

A poster child for these weightless-economy tensions can be seen in the pattern of ongoing developments in DNA and genetic research worldwide.

If there is doubt that the latter are, indeed, part of the weightless economy, consider the following. Whatman PLC is a firm that specializes in "separations technologies". In June 1999, its market value doubled in three working days, and has since continued to rise. The reason for this? The firm had applied for patents on how genetic material is stored; more specifically, it had perfected a reliable technology for storing human DNA—our constant companion, an instance of the ubiquitous weightless-economy bitstring—on a piece of paper. Previously, the most widely-used method involved blood samples in

large refrigeration units, an expensive and irrelevant technology when what is essential is the underlying information sequence. As throughout the previous columns, it is not the storage container that provides value; it is the encoded weightless data.

Genetic information matters because, more and more, fresh commercial development of drugs and pharmaceuticals relies on accessing chemical landmarks in a map of human DNA. Many common but recalcitrant illnesses—depression, Alzheimer's, diabetes, arthiritis, breast and prostrate cancer—are either suspected or known to have underlying genetic causes. Cataloging the genetic variation across people is then useful on at least two fronts: In the small, medicine can be personalized, with greater effectiveness due to treatment being tailored to particular individuals. In the large, understanding the linkages between specific individuals within an entire population allows insight into the genetic causes of specific ailments. When an average product in pharmaceuticals costs US$500m in R&D to bring to market, and creative destruction relentlessly reduces the effective duration of monopoly power, every little competitive edge helps.

An immediate parallel with software production becomes apparent: Users and producers meld. People who draw on the expertise of the drugs-producing sector supply back their genetic information for subsequent improvements of the product. Users of commercial and GNU software provide in return data on likes, dislikes, proclivities for further refinements on the current release.

But just as scientists, researchers, and other weightless-economy produce generators seek compensation for their activities, shouldn't the general public be similarly rewarded? Societies have constructed formal intellectual-property institutions for the former; what compensates the latter? What are efficient ways to organize this generation of information, genetic or otherwise?

One view is that inadvertent serendipity engenders no explicit reward. A research scientist or a software engineer consciously makes a choice to do something other than become a financial analyst. If society did not provide appropriate incentives, we would run out of such knowledge-economy producers. On the other hand, the DNA informa-

tion in an individual or across a population, the estrogen boosters in plant roots in Thailand, fertility hormones in the urine of European nuns, contraceptive agents in wild Mexican yams, are all there by accident—no one gave up a well-paying job to generate them. They should, therefore, form part of the collective heritage of humanity. There should be no tradeoff between ex-ante incentive and ex-post efficiency when we exploit these.

To be clear, this is not an issue of being fair or unfair, merely one of economic efficiency. This analysis just gone through is practically identical to that justifying the ex post taxation of windfall profits.

This reasoning might be fine as a first organizing principle, but the practicalities of plundering that common heritage do require messy apportioning of property rights and rewards. No one sits quietly by while what they consider theirs is taken away from them.

Iceland has now become a justly-famous example. The natural experiment that is the genetic makeup of Iceland's relatively homogenous population allows medical insights, unavailable elsewhere and otherwise, into illnesses and cures. Pharmaceutical companies and researchers want that national database set up and accessible. Some want monopoly rights over those data, in return for collecting and processing; others might prefer a joint venture, possibly with government involvement, that then releases those data for widespread use. A number of Icelanders worry about the firesale on their individual privacy and their national heritage.

What is an appropriate, i.e., economically efficient system of rewards in such a situation? In all the arguments over the loss of Iceland's national identity, individual privacy, the ethics of state versus individual rights on information—arguments that will be repeated in altered form as such weightless-economy activity becomes more and more pervasive—we need to have the economic tradeoff clarified and explained to all.