

Economics

Department Alumni Newsletter

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Bob Stonebraker, editor

Graduation was a success. We booted another swarm of young innocents into a world of high unemployment and slow growth. The weather was great and our eminent Chairperson Don Walker regaled us with his normal assortment of economist jokes. Nick Karatjas, strikingly attired in a suit and necktie, was presented the Outstanding Faculty Service Award of the College of Humanities and Social Sciences; and Jerry Holt presented a diploma to his son Harry who graduated *summa cum laude* with a double major in Economics and Political Science.

The highlight for many was meeting Paul Samuelson, one of the most distinguished economists of the twentieth century. On campus to receive an honorary doctoral degree from IUP, he attended our department festivities, shared a few humorous remarks with our graduates and graciously joined in with the handshakes, family snapshots, and informal mingling.

Coincidentally, our graduation also marked his 78th birthday. While we mercifully spared him a musical rendition of "Happy Birthday" (*can you imagine a chorus line of thirteen economic professors.?*), we had him cut a cake and distribute pieces to the assembled guests. Although the cake was delicious, our campus caterers provided some inadvertent comic relief by topping the Nobel laureate's cake with a "Happy Birthday Professor Samuelson". We've asked for a spellcheck on future deliveries.

Class sizes are falling

For most of the past decade, economics students have endured the largest average class sizes at IUP. No longer. College of Business enrollment has slipped -- down twenty percent in five years -- and demand for our courses has eased back into the "manageable" range. *Sweet relief!* The trend away from business is national in scope, but is a bit mysterious. Certainly students have discovered that a business degree does not guarantee multiple \$30,000 job offers, but employment in other majors has slumped as well. IUP's College of Education is bursting at its seams, but employment prospects for new teachers are as bad as those for business majors.

Whatever the reason, we appreciate the respite. We're now able to cap our intro sections at 40 or 45 students rather than 50 or 60 and can experiment with new curricula. Our joint major with the Department of Mathematics should be up and running by next Fall, and we hope to develop new upper-level courses, including some in one or two-credit formats.

In the meantime, send mail. We enjoy your visits and learn from your ideas. *Keep them coming!* If you prefer e-mail to old-fashioned letters and phonecalls, I can be reached at bobstone@grove.iup.edu (internet).

Bob Stonebraker, editor

College in the Nineties

It was the best of times, it was the worst of times. . . it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us...

Those Charles Dickens lines, penned almost 150 years ago, might apply to college graduates of the 1990's. Education is increasingly important in today's technical markets. Employees without college degrees are often stuck in unchallenging, low-paid positions with little or no hope of advancement. The gap in average earnings between college and non-college graduates is widening at an increasing pace.

Paradoxically, while college degrees are more critical than ever in the workplace, recent graduates face the worst job prospects in decades. The rush to hop aboard the college bandwagon has created a graduate glut of unprecedented size. The number of new graduates rose eleven times faster than the number of new full-time jobs from 1988 to 1992.

Students who might have graduated with multiple offers in hand a decade ago can now face job searches of a year or more. One study estimates that 35 % of recent graduates will end up in jobs that do not require a college degree. Even graduates in traditionally "safe" fields such as engineering and accounting have been scrambling to find offers. As the economy recovers, prospects should improve, but the days of guaranteed jobs may be gone forever.

What should we do?

With job prospects so glum, students understandably clamor for "practical" education; something to give them an edge in the job market. How should we respond? Are we teaching the right subjects in the right way? Are we providing our students with the training and skills they need in an increasingly competitive market? Our current department evaluation has us reexamining our curriculum and programs.

We're not alone in raising these issues. Departments across the country are trying to define what an economics major should be. The traditional goal has been to teach students to think like economists. We see economics more as a way of thinking than as a collection of facts and theories. We tout cost-benefit studies, opportunity costs, and marginal analysis as the answers to problems in all walks of life.

The mainstream approach, and the thrust of our preliminary evaluation report, is to involve students in "doing" economics; to help them develop the analytical and problem-solving skills to succeed in the variety of jobs they're likely to fill. Our strategy is to stress "active" learning that forces students into "hands-on" applications of economics through writing and research assignments, through computer projects, through statistical analyses, through internships.

Can we do it? Donald McCloskey, a well-respected economic philosopher at the University of Iowa, says not. According to McCloskey, "majoring in economics can teach about economics, but *not* how to do it." He agrees that the goal of helping students think like economists is laudable, he just doesn't think we can do it. Although some students are "naturals", most are not. Even most professional economists, himself included, typically take years to catch on. "As an empirical scientist," McCloskey concludes, "thinking like an economist is too difficult to be a realistic goal of teaching." Why? McCloskey continues:

Economics, like philosophy, cannot be taught to nineteen-year olds. It is an old man's field. Nineteen-year olds are, most of them, romantics, capable of memorizing and emoting, but not capable of thinning coldly in the cost-benefit way....A nineteen-year old has intimations of immortality, comes

directly from a socialized economy (called a family), and has no feel on his pulse for those tragedies of adult life that economists call scarcity and choice. You can teach a nineteen-year old all the math he can grasp, all the history he can read, all the Latin he can stand. But you cannot teach him a philosophical subject. For that he has to be, say twenty-five, or better, forty-five.

Is he right? Does it matter? Maybe not! What a student learns in college may be much less important than whether or not a student graduates. For example, while a college degree raises average earnings by almost \$20,000 per year, what a student studies has remarkably little impact. Over the long run, those who major in the liberal arts seem to fare about as well as those in more "practical" majors such as accounting or engineering or nursing. According to Stanford's Joe Stiglitz, graduation provides a signal. It signals that the potential employee has both intelligence and perseverance; qualities of considerable value in the modern job market. Stiglitz argues that "what students learn at college does increase their productivity;" but, in this view, the role of college is not so much to teach as to screen people with scarce abilities. In this view, "colleges simply identify talent."

What, then, should colleges teach? If production skills are less important, perhaps colleges should emphasize "consumption skills" instead. According to celebrated microeconomist Tibor Scitovsky, the real challenge of modern society is not to *produce* more intelligently, but to *consume* more intelligently.

In *The Joyless Economy* Scitovsky insists that we are restless and unable to use our leisure time in a constructive or satisfying manner; that we "are unskilled and unprepared for making enjoyable and socially-acceptable use" of the leisure modern civilization has afforded us. The real problem of our era "is boredom." Scitovsky is not the first to raise such a cry. More than 300 year ago, French philosopher/mathematician Blaise Pascal asserted that "all human evil stems from one fact alone: man's inability to sit still."

Many of us find ample challenge and stimulation in our day-to-day work, but others do not. Much work "is dull, monotonous, mechanical, undemanding, demeaning in its lack of challenge." Workers in such jobs must search for stimulation and excitement in other ways. The problem of boredom "is most apparent in old age and youth, when work is no longer or not yet available." Indeed, a major task of retirement homes is to ease the boredom of its residents; a boredom which can destroy the physical health as quickly as the mental health of its victim. The idle youth of America seem more successful in finding activities that provide excitement. Unfortunately, as media reports remind us daily, not all of them are constructive.

But, if stimulation and excitement are basic human needs, it behooves us to channel them in more beneficial directions. To Scitovsky, the most constructive and most satisfying ways to consume leisure fall under the rubric of culture. The contemplation of art, music, literature, history, *even economics*, can offer endless hours of potential joy and stimulation; *constructive* stimulation. But, they all require education. Those who have never studied painting will never be stunned by the National Gallery of Art; those who have never struggled with to produce music themselves will never appreciate the full power and beauty of a Bach Requiem; those who have never progressed beyond Danielle Steele will never be moved by the words of Albert Camus; those who have never studied macroeconomics will never be able to vote intelligently on deficit reduction plans.

If we expect people to consume leisure intelligently, we'd better start teaching them the necessary skills. Consumption skills do not occur naturally and, according to Scitovsky, people who are "devoid of those skills tend to restrict their choice to sources of stimulation and excitement that require no special skills, such as sex, rape, drugs, violence, and crime." Not a pretty picture.

NAFTA: Boom or Bane?

Few political issues of recent years have generated as much hysteria as NAFTA. Yet, as Yaw Asamoah explains below, its impact is likely to be minimal.

The North American Free Trade Agreement (NAFTA) is a dream that would include Mexico in the recently-created regime of duty-free trade between the U.S. and Canada. NAFTA would encourage freer trade and promote a smoother flow of investment; but will it help or hinder the U.S.?

The benefits of NAFTA

The Clinton administration, backed by every former president and U.S. Nobel laureate in economics alive, argues that the NAFTA treaty will make both the U.S. and Mexico better off and should be signed. According to neoclassical trade theory and the principle of comparative advantage, the increased competition triggered by NAFTA should lower prices of goods and services, increase productive efficiency, and offer greater economies of scale which would increase prosperity for all three neighbors.

Mexico's gain would arise from the improved efficiency associated with the restructuring and liberalization of its domestic markets, and the removal of tariffs and other import restrictions. In addition, a restructured Mexican economy would attract a large volume of investment from U.S. manufacturers wanting to take advantage of Mexico's low wages. These gains should translate into higher Mexican incomes which, in turn, would increase their demand for imports.

Since the U.S. provides about 70% of Mexico's imports, increased investment in new plant and equipment means more orders and jobs for U.S. equipment manufacturers. Granted, under NAFTA, the increased Mexican competition in industries which rely heavily on unskilled and semi-skilled labor (*e.g. footwear, apparel, and automobiles*) will cost some jobs. But, these losses should be more than offset by the increased output, employment and income in the higher- technology fields in which Mexico cannot compete with the U.S., and which will certainly expand under NAFTA. In any case, argue pro-NAFTA forces, if these jobs have to be lost at all, it would be better if they moved to Mexico, where the income so derived is more likely to be recycled back to the U.S., than to Singapore, Malaysia, Thailand and Indonesia.

Clyde Prestowitz of the Economic Strategy Institute argues, "[t]hose who are rightly concerned about jobs should remember that the United States has a \$5.4 billion trade *surplus* with Mexico, while its trade *deficit* with Asia is over \$75 billion. This means the [U.S.] is gaining jobs as a result of trade with Mexico while losing nearly 2 million jobs in its trade with Asia."

Furthermore, say NAFTA supporters, it is in our national interest that Mexico find future prosperity in free markets and closer association with the U.S. Herb Stein, once Chief Economic Advisor to Richard Nixon, argues that "the best thing that the industrial world ... can do to assist in [reforming the Eastern European economies] is to open [our] markets to these struggling countries. What kind of message do we send to Europe if we cannot eliminate our barriers to trade with our neighbor, Mexico? ... If we cannot rise above the level of spurious bean-counting about jobs to take a step that is so clearly in our economic and political interest as Nafta, the prospect for dealing wisely with the world's greater problems will be dim."

The costs of NAFTA

Arrayed against NAFTA are parties as disparate Ross Perot, Ralph Nader, and organized labor.

They argue that NAFTA will cost jobs and impose a heavy burden on unskilled workers. They warn that traditional economic theory understates the dangers of NAFTA and exaggerates its benefits; that the neo-classical predictions of free trade benefits may not materialize.

While economic integration in the European Community (EC) has been successful, the lessons can't necessarily be applied to NAFTA. The EC integrated countries with similar standards of living and evolved slowly with a wide social safety net for displaced workers. Not so with NAFTA. The wide gap between U.S. and Mexican wages might prompt huge capital flows across the Rio Grande that would drain investment and jobs from the U.S.

NAFTA foes agree that free trade will pressure firms to cut costs, but argue that producers might choose to reduce costs by cutting pollution control, worker safety, and health care; not by increasing efficiency. Just as we frown on cutting cost through the use of prison labor, we should guard against the lower environmental and social standards which NAFTA may unleash.

Does it matter?

The fierce opposition being mounted against NAFTA can be better understood in the context of our current sluggish growth and heightened economic insecurity. As economist Robert Kuttner points out, technological changes in computers and telecommunications have facilitated a dramatic decentralization of manufacturing activity. This "globalization of production and trade" has enabled unskilled workers in the less developed countries to compete more effectively with their counterparts in the industrialized world, thereby undermining the employment opportunities for unskilled and semi-skilled American workers.

However, if globalization is technology-driven, NAFTA isn't likely to cause much change. Defeating NAFTA will not stem the decade-long drift of U.S. manufacturing jobs overseas. Nor will the passage of NAFTA noticeably speed the process up. U.S. firms are already free to relocate to Mexico if they wish, and the tariffs on Mexican goods coming into the U.S. are already very low; less than 5 % on average. Cheap labor does not confer an automatic competitive advantage to a producer. As the popular saying goes, if cheap labor were the key to manufacturing growth and employment, Bangladesh would be an economic superstar. Labor productivity, proximity to raw materials and markets, the availability of supporting services, and the existence of transportation and communications facilities are all critical factors.

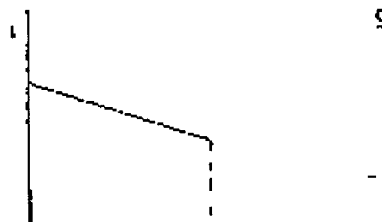
According to Herb Stein, the effect of NAFTA on employment in the U.S. will be trivial, and the solution to our jobs problem lies in a better management of our fiscal and monetary affairs. Similarly, Cleveland Fed President Jerry Jordan believes that Mexico's present prosperity stems from its recent measures to fight inflation, privatize government-owned monopolies, and expose its economy to greater foreign competition. Therefore, while he strongly supports NAFTA, Mexico can continue to grow whether or not NAFTA is ratified.

In light of all these considerations, is it too outrageous to suggest that the whole NAFTA hullabaloo is *much ado about nada*?

Porno-graphy Puzzler

by Dr. Graphman

Willard W. Radell



Pitt Is It as the Ship Comes In!

It took a year, but there is an undisputed winner of last year's puzzler (reproduced to the right):

The winner is Robert L. Snyder, whose correct reasoning appears below:

"For a given demand curve:

$$P = a - bQ$$

that is, $a = -(1/b)(P - a)$ giving a Q-intercept = a/b

Now, from (1):

$$TR = (a - bQ)Q = aQ - bQ^2$$

$$\text{and } MR = dTR/dQ = a - 2bQ$$

or: $Q = a/2b - MR/2b$, giving a Q-intercept = $h(a/b)$.

That is, Q-intercept of D = 2(Q-intercept of MR) and the \$-intercept for both is "a".

By tracing your graph and adding the remainder of the "less elastic" MR and its corresponding demand, I get {reproduced to the right}:

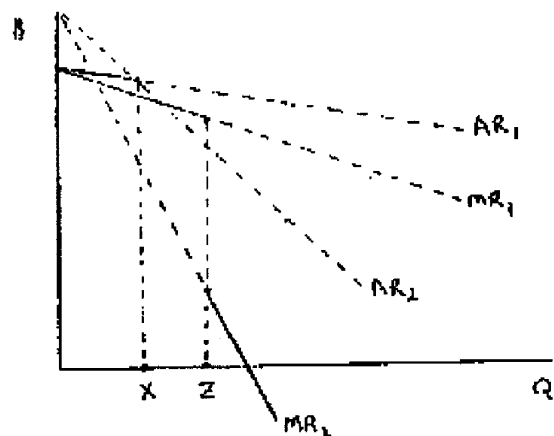
Given this, it is not possible for the "kink" in the demand curve to correspond to the dis-continuity in the MR curve."

Explaining why it is not possible to posit arbitrarily discontinuous MR pairs that are consistent with the mathematically derived AR functions from those pairs is a bit tricky. Incorrect renderings of kinked MR that posit impossible combinations of MR-pairs stem from the erroneous belief that graphic derivation of kinked AR from kinked MR is simply the reverse of the derivation of MR from AR.

Just as it is not possible to reconstruct an avocado from guacamole, derivation of consistent kinked AR from arbitrarily kinked MR is not possible. When beginning with any linear kinked AR, MR can be determined by drawing two functions that share the two AR intercepts, each of which bisect the horizontal line segments from AR to the vertical axis. The result will be MR with a discontinuity at the same quantity at which the kink occurs in AR. But if an arbitrarily discontinuous MR function is posited, only extreme luck will prevent a fiasco. Attempting to reverse the process by selecting the same intercepts and halving the slopes (doubling horizontal line segments from MR to the vertical axis), will lead to AR with a kink at a different quantity than the discontinuity in MR.

To see that, look at last year's puzzler with the AR functions implied by the MR functions traced in (to the right). You see that the kink in AR occurs at $Q=X$, while the kinks in MR occur at $Q=Z$.

The reason is relatively simple. For every arbitrarily posited kinked AR, there are almost infinite quantities at which the consequent MR pair could be kinked. Thus, it is a simple matter to select the one that matches the kink in AR. When, instead, we begin with arbitrarily discontinuous MR functions, there is only one quantity at which the kink in AR will happen to line up with the arbitrarily selected discontinuity in MR. The shaded area in the figure to the right shows some of the



possible segments of discontinuity in MR that might be arbitrarily selected. It is unlikely that any of the arbitrarily selected discontinuities in MR would be the one that is correct. In a sense, once you have selected your MR functions arbitrarily, you have no degrees of freedom left to arrive at consistent kinks between AR and MR without abandoning the arbitrarily posited discontinuity in MR.

This irreversibility problem shows up at all levels, having appeared in a principles text by Schiller, an intermediate book by Maddala, and in the New Palgrave section on kinked oligopoly.

Most of you didn't recognize Bob Snyder's name and wondered what class he was in at IUP. Wonder-no more. Bob went to Shippensburg University and borrowed the newsletter from IUP grad Bob Sinclair. Bob & Bob are both graduate students at Pitt. Congratulations to Pitt, Ship, and editor Bob Stonebraker for wide circulation of the newsletter (what, another Bob?). Thanks also to Bob Sinclair for passing the newsletter on. {From Bob to Bob, from Bob to Bob ...!} We need more activity from you non-Bobs out there.

For new readers I will explain what a "pornograph" is. Just as "pornography" is defined as prurient distorted material lacking redeeming social value, a pornograph is defined by Dr. Graphman as a distorted graphic lacking redeeming educational value. The pornograph to the right is from a leading intermediate text published in 1978. It stands out because it has at least 5 things wrong with it. Send your cards and letters with one or more of the things wrong to: Dr. Graphman, Economics Department, 143 Keith Hall, IUP, Indiana, PA 15705.

Deficits and Healthcare: Can Clinton Deliver?

With a Democrat back in the White House, one conclusion has emerged...*Democrats are just as stupid as Republicans.* In the grand tradition of American politics, President Clinton has promised far more than he can deliver. His rhetoric pledged a vigorous economic recovery with low inflation, rapid job growth and significant deficit reduction coupled with universal health care and a middle-class tax cut. Don't hold your breath.

Actually, presidents may have little or no real impact on economic variables. Monetarists contend that presidents are impotent; that government tax and spending fiscal policies are irrelevant and that only *money*, which is controlled by the independent Federal Reserve Board, matters. Much current research is dominated by New Classical economists who ridicule *both* monetary and fiscal policy. In their view the economy moves to a long-run equilibrium that depends upon supply factors largely beyond the sphere of government influence. Keynesians still believe that taxes and spending matter, but even they admit that wars, droughts, population shifts, technological discoveries and oil prices might all overwhelm the effects of presidential politics.

Nonetheless, it's interesting to take a look at the historical record of past presidents -- all of whom promised us health, wealth, and a chicken in every pot.

Average Annual Rates

| President | Real GDP | Unemployment | Inflation | Federal Deficit (%) | Investment (% of |
|-----------|----------|--------------|-----------|---------------------|------------------|
|-----------|----------|--------------|-----------|---------------------|------------------|

| | Growth | Rate | Rate | of GDP) | GDP) |
|------------|--------|------|------|---------|-------|
| Eisenhower | 2.0% | 4.9% | 2.3% | 0.3% | 14.7% |
| Kennedy | 4.7 | 6.0 | 1.8 | 0.4 | 15.0 |
| Johnson | 4.6 | 4.4 | 3.9 | 0.5 | 15.9 |
| Nixon | 2.4 | 5.0 | 6.7 | 0.8 | 16.5 |
| Ford | 2.4 | 7.9 | 7.4 | 3.6 | 14.5 |
| Carter | 2.8 | 6.5 | 8.6 | 1.6 | 17.1 |
| Reagan | 2.8 | 7.5 | 4.4 | 3.9 | 16.5 |
| Bush | 1.1 | 6.2 | 3.7 | 3.5 | 14.0 |

Should we blame Carter for the high inflation? Reagan for high unemployment and deficits? Bush for anemic economic growth? Draw your own conclusions. After all, you were economics majors!

Will the Clinton economy look much better? Maybe not. Thus far, the new administration seems more characterized by paralysis than decisive action. Despite the prolonged political weeping and gnashing of teeth, the recent budget bill is a bust. With Democrats reluctant to slash spending and Republicans resisting new taxes, bite-the-bullet advocates proved no match for their business-as-usual colleagues. Those who feared budget cuts and taxes might abort an already-anemic recovery were pleased, but those who expected substantive deficit reduction were not.

The rate of increase in some spending programs will be slowed, but no significant programs have been axed. Entitlements long criticized by economists and politicians alike remain intact. We'll still be paying farmers to grow crops that no one will buy; we'll still be subsidizing water projects that allow Californians to fill their swimming pools at below-market prices; we'll still be financing empty Amtrak trains in areas where free-market buses are cheaper and more effective.

The tax side looks similar; more wind than weight. The new gas tax has raised prices a few pennies, but pump prices remain low by recent standards. Taxable family income in excess of \$140,000 will be assessed at a slightly higher rate, but the two or three percent of Americans in this bracket will still be paying marginal rates well below 1986 levels. More social security benefits will be subject to taxation, but only for senior citizens with above-average incomes. Since most are receiving social security benefits worth several times the value of what they paid into the system, it's difficult to justify why these benefits were tax-exempt in the first place.

The new budget does promise \$500 billion of deficit reduction, but only if its tenuous assumptions about future economic growth and rates of interest prove accurate. If growth slows or interest rates rise, actual deficit reduction could be much less. Even if the estimate proves accurate, the \$500 billion is a mere drop in the long-run bucket. The National Debt will still be growing, just not as fast. Instead of growing by \$1.7 trillion over the next five years, the National Debt now will grow by *only* \$1.2 trillion. At the end of the period we'll still be facing annual deficits of \$200 billion a year.

Healthcare reforms

Healthcare reform is closely entwined with deficit reduction. Unless Medicaid (for welfare recipients) and Medicare (for senior citizens) are reined in, federal debt will continue to surge. But what reforms are needed?

No one doubts the current system is a mess. The system is beset by inequities and inefficiencies.

U.S. healthcare expenditures are well above those in the rest of the world, but we're not measurably healthier than citizens in many other countries. Those without insurance avoid physicians whenever possible, only to transform easily-treated minor ailments into expensive ones requiring extensive hospital care. Those with insurance often "overconsume" medical care. Facing a marginal price of zero (after all, the insurance company will pay), we tend to clog the local emergency room with our jammed fingers and earaches.

Physicians, entrusted with the health of their patients, are loathe to withhold treatment even when the costs are excessive and the likely gains minimal. The Hippocratic Oath fails to mention cost-benefit analysis. Of course, by prescribing every possible test and procedure, they can pad their wallets and protect themselves from malpractice claims as well. When physicians propound "do no harm," they're referring to medical rather than financial damage.

Although the symptoms are evident, the cure is elusive. The easiest way to control costs is to ration access to healthcare, but Clinton has promised to control costs and increase access. The details of his plan are fuzzy, but he will rely on "managed competition" to reduce costs. Cost savings would then be plowed back to provide care for those currently uninsured.

Will it work? Probably not; at least not in the long run. Competitive problems might be responsible for high healthcare prices, but not for rising prices. Think back to micro principles. If a competitive industry is monopolized, price will jump to a new and higher equilibrium. But, the new equilibrium is stable; it won't keep rising. Monopolization will beget a one-shot increase in price; but not a continual one.

The root cause of the continual price increases is not poor competition, it's *technology*. Healthcare costs keep rising because new technology keeps providing physicians with increasingly sophisticated, and increasingly costly, ways to keep people alive. MRI's, chemotherapy, multiple transplants, AZT, triple bypass surgery; all expensive, all increasingly common. Unwilling to withhold treatment on the basis of ability to pay, we adopt and prescribe each new technology for all comers. And the costs rise.

Even if Clinton can convert the U.S. healthcare sector into a competitive marvel, the long-run prognosis for medical costs may not change. An injection of new competition and better incentives can provide a one-shot cut in prices; but, in the long run, the relentless march of new and costly technologies will drive them back up again.

Pessimists point to rationing as our only hope. By insisting on all possible care for all possible patients, they assert, medical care becomes a bottomless pit that will devastate the economic landscape. Only by deliberately withholding care; by refusing access to potentially useful technologies can we ever hope to control costs. An ugly scenario, but a very realistic one....unless technology can cure what technology has caused.

In the early twentieth century, polio was a "cheap" disease. Victims succumbed to paralysis, could no longer breathe, and died. There was no cure, there was no treatment. You got it; you died. Then, in 1928 medical researchers created the iron lung, a massive cylindrical machine that enabled victims to breathe. The new technology could not cure or prevent polio, but it could treat the symptom. Patients placed in the machines could survive attacks that lasted for weeks, months, or even years. Almost overnight, polio became a treatable, but expensive disease -- so expensive that some less affluent victims allowed themselves to become sideshow freaks at carnivals and county fairs, lying in their iron lungs while ogling spectators filed past and dropped contributions in a bucket. Luckily, technology struck again with the discovery of the Salk and Sabin vaccines in the 1950's. But this technology was different. This technology didn't treat the symptoms, it provided a preventative cure. This technology didn't

increase costs; it cut them. No more polio; no more polio costs.

Optimists recognize the problem, but hope for different types of technology in the future. Most technologies are now in the "iron lung" stage. They treat symptoms, but are rarely preventative. Perhaps, as researchers learn more, technologies can evolve into the more effective, and cheaper, "preventative" stage. technology. Current AIDS treatments are an example of an iron-lung technology. They prolong the life of AIDS patients at great expense, but can neither cure nor prevent the disease. However, if research can develop a vaccine to prevent AIDS, what now looms as an unprecedented medical and economic disaster will be averted.

Can we do it? If we can't, we're in deep trouble. Without new types of technologies, medical costs will continue to soar unless we start rationing care and denying access to life-saving procedures. And all the managed competition in the world won't stop it.

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