

*Human Capital in Shrek Units
and Other...*

Tales of the Nobel Round Table



©2001 - DREAMWORKS LLC - ALL RIGHTS RESERVED

Continuing a tradition, Michael Milken chaired a roundtable discussion among Nobel Prize winners in economics at the eighth annual Milken Institute Global Conference in April. Herewith, the transcript, edited for space and clarity.

– Peter Passell



MICHAEL MILKEN: We're looking forward to a great exchange today. To start, we'd like you to introduce each other. Gary [Becker], why do you think Ed Prescott won that Nobel Prize last year?

GARY BECKER: Ed has been the most original practitioner of economics for the past several decades. He's a macro economist, but one who appreciates the importance of the "micro" foundations of the subject. One of his contributions was in solving the "equity premium" puzzle – why do stocks traditionally provide so much higher a return than bonds?

MILKEN: Now, Gary, you're only referring to government bonds – not high yield!

BECKER: Right. Another important Prescott paper – this one's more technical – is on what economists call the timing consistency question: you may plan to make decisions now, but the question arises whether, if you get no unexpected news, you will actually carry out these decisions. The issue comes up in the context of central banks, and in private decision-making as well.

NOBEL ROUNDTABLE

MILKEN: And Myron [Scholes], why did Gary win that Nobel Prize in 1992, and what makes him interesting to talk to now?

MYRON SCHOLES: Everyone likes to talk to Gary....

MILKEN: He's trying to butter you up.

SCHOLES: It's really true. In the past I have

MILKEN: Well, as we begin today, it is important to think in terms of measures we can all relate to. So I thought we could start with what I call the "Shrek unit." The movie *Shrek* was the highest grossing movie in the United States last year, making about \$450 million at the box office. So let's make one Shrek equal to \$450 million.

Michael Milken:



The movie Shrek was the highest grossing movie in the United States last year, making about \$450 million at the box office. So let's make one Shrek equal to \$450 million.

actually asked Gary to be involved with a group that discusses finance. One of the more important parts of economics is understanding human capital, and everyone looks to Gary on the subject.

MILKEN: Gary, when Myron won his award in 1997, I noticed one of the things that wasn't included in his Nobel biography is the fact he declared that he was a nudist at the University of Chicago.

BECKER: Everybody knows about Myron's contribution to finance, particularly as the co-creator of the Black-Scholes formula for valuing financial derivatives. So I'll skip right to his role as a nudist – this is a true story.

I first met Myron at a dinner party. I had heard that he was very good at minimizing his tax obligations. So when we started talking, I asked for tips. He said, "I act as if I only wear clothes because of my professional activities, and therefore I can deduct all my clothes from my income tax."

Later, I assured my wife that I wouldn't go that far to save money.

Now, the most powerful newspaper companies in the United States are Dow Jones and the New York Times. They've both been around for more than 100 years, and they've both accumulated a lot of assets. Today, in the marketplace, each one is worth about \$4.5 billion, or 10 Shreks.

Newer media companies, Google and Yahoo, have a value of 10 times that of the New York Times Company; that's 100 Shrek units.

Changing categories, Kevin Murphy and Bob Topel of the University of Chicago estimate that the value of curing cancer to the United States alone is about \$45 trillion or 100,000 Shrek units – a thousand times more than the value of Yahoo or Google.

Now, at the Milken Institute we've estimated the value of human capital in the United States at \$900 trillion, or two million Shrek units. The figure for human capital worldwide is four times as large, or eight million Shrek units. So, no matter how you look at it, human capital towers as an asset.

BECKER: I don't know if the numbers you mentioned are exactly right, but certainly the value of human capital is huge. I would break up human capital into three components: education, health and training.

The incentives to invest in human capital vary a lot between the categories and across countries. In the United States, for example, on-the-job training is left pretty much entirely to employers, who treat it like any other investment in a competitive market environment. I think they handle that very well.

With education, the picture is mixed. That's because education is run by government at the K-12 level and a mix of government and the private sector at higher levels. One big problem is the lack of competition at K-12. But a second problem is creating the proper incentives for the financial community to invest in the college- and postgraduate education of individuals. Under government loan programs, the banks have all their losses guaranteed by the government and their interest rates are controlled.

On the second category: We're already

human capital, in which market incentives will matter a lot.

We see a similar pattern with regard to physical capital. Corporate income tax rates are coming down throughout the world. Even the Germans and the British have reduced their tax rates recently. And Canada, I suspect, will reduce its rates soon.

MILKEN: We've been very successful in securitizing mortgages for sale in highly liquid secondary markets. But we've never created securities to finance K-12 education. Why have we never addressed that issue?

SCHOLES: One of the most important functions of finance is to figure out ways to reduce information costs that impede the development of financial contracts and instruments. These costs are very high in education because of the problems associated with valuing intangible activities, as opposed to hard assets like machinery. If you can reduce the frictions, then you'll see more financing of these activities.

One proposal is to use tax money to finance public education vouchers, rather than directly fund schools. But half measures won't do. To have an efficient voucher system that creates competition in K-12, vouchers

Gary Becker:



It's universally recognized that higher education here is the best anywhere. Why? Because the market is highly competitive.

spending 15 percent of GDP on health in the United States. There are lots of ways to make delivery more efficient by changing incentives. A lot of those problems apply to other countries as well.

ED PRESCOTT: The key is competition. I think we're moving toward world markets in

would have to pay the full cost of education.

BECKER: I think it's instructive to look at the difference in performance in the United States between K-12 and higher education. It's universally recognized that higher education here is the best anywhere. Why? Because the market is highly competitive. There are

NOBEL ROUNDTABLE

roughly 3,000 colleges and universities, ranging from two-year community colleges to elite universities like the University of Chicago.

Now, in K-12 we have some elements of competition because the middle classes can move to other school districts. But the children in the bottom third of the income distribution can't do that. We need vouchers, charter schools and open enrollment across large geographic areas.

And if I can make a second point: China is training a lot of engineers, while we're training relatively few. In the past, the United States has been able to attract the most talented individuals for schooling and jobs, and we need to preserve that ability. Yet since 9/11, it's been increasingly difficult for graduate students to come to the United States.

PRESCOTT: The United States used to be pretty good at the K-12 level, but not any more. For good education, you need good teachers – and the teachers have to have support from society.

MILKEN: When we went to school, opportunities for women were quite limited. So the women who were in the top third of the graduating class often became teachers – and good ones. But as other opportunities have opened up for women, fewer of the top graduates have gone into teaching, leaving the bottom of the class to teach the country's children.

BECKER: And those teachers weren't unionized. I think that's an important difference. Unionization has narrowed the gap between the rewards to the able teachers and the less able ones. It's been a factor working against improved productivity and a disincentive to quality teaching.

On another subject: Many people in sciences feel they're losing the best and brightest students to economics, finance and business

– that we have a brain drain slowing progress on critical research areas.

BECKER: I'm all for having science attract able people. But it must compete in the marketplace. Economists are also important. In a world where governments are spending something like 40 to 50 percent of GDP and there's a lot of regulation, governments need good advice. How do we make this spending more efficient?

MILKEN: So you're saying we need more economists?

BECKER: I'm not going to say economists are more or less important than scientists, but they are extremely important to improving the well-being of the world.

MILKEN: One issue for economists is whether we're using up fossil fuels at an alarming rate, and in the process damaging the prospects for life on this planet. Is this a genuine concern – or is it like the population explosion 30 years ago, when people predicted that we would never be able to feed the world?

PRESCOTT: Economists have been quite successful in changing the world for the better in recent years. For example, we've created minimally obtrusive market mechanisms to reduce the amount of sulfur dioxide in the air. And in the process, policymakers found that it's a lot cheaper to reduce emissions by decentralizing decisionmaking.

I love exciting problems and their dynamics. The key is getting price signals right. That, in the end, is why policymakers in the former Soviet Union needed the West. They needed prices – how else could they make decisions?

So my guess is, economists are contributing a lot. I do not know if there's underinvestment in people who could make breakthroughs in science.

SCHOLES: I think we have to increase the number of economists because of the num-

ber of lawyers and regulators. You have to have a counterbalancing force.

Take the Securities and Exchange Commission, which used to be 50 percent economists, 50 percent lawyers. Now it's 90 percent lawyers, and they're making decisions that are absurd for corporate America. Compare that to what economists have been doing in terms of property rights with regard to, say, water rights in the West – how the laws induce farmers to grow rice in the desert, because if you don't use your water rights, you lose them. Without economists to educate society on using scarce resources efficiently, who knows where we'd be.

Ed Prescott:



Economists have been quite successful in changing the world for the better in recent years. For example, we've created minimally obtrusive market mechanisms to reduce the amount of sulfur dioxide in the air.

BECKER: Let me go back to the fossil fuels issue. If we separate the question of global warming and look only at the rate of extraction, I think we can see pretty clearly that forecasts about excessive use have been wrong.

This is not a question of economists versus scientists. One great economist, Stanley Jevons, wrote a book in 1862 called *The Coal Question*. Jevons argued that, by 1890, Britain would run out of coal, and in the process, destroy British industrial productivity. The book had one minor problem – it was wrong.

I'm serious. Jevons was very careful; he was aware of the possibility of technologi-

cal change. He went wrong where a lot of these forecasts go wrong, incorrectly assessing the way innovation would respond to price changes. As coal grew less abundant, it was partly replaced by oil and natural gas.

Last night, we heard Ray Kurzweil [the inventor] say that by the year 2020, we'll be able to harness solar energy to provide pretty much all of the world's energy.

MILKEN: He pointed out that we would need just three-tenths of 1 percent of the energy from the sun hitting the earth to provide all the energy the planet needs.

BECKER: I don't know if he's right. What we do know is that over time – at least since Jevon's time – we have found new fuels and made more efficient use of old fuels so that the real prices of these resources have not

risen. There have been spikes, but no upward trend.

MILKEN: Let's talk about another problem. We have discovered that lifestyle makes a considerable difference in life span and general health. But getting Americans to think about nutrition is no easier than it was to get doctors to think about cigarette smoking in the 1950s and 1960s.

We've seen a dramatic increase in obesity in the United States. In 1991, you maybe had three or four states in which 15 percent of the population was obese. Today, at least 15 percent of the people in every state are obese. How do we turn this around?

SCHOLES: I think it's partially a matter of

NOBEL ROUNDTABLE

learning what the costs are. And as people understand the cost of obesity, you'll see substitution toward healthier living. People will figure out how to exercise more or to eat well.

MILKEN: But most of our inventions are driving us in the opposite direction, making it harder to live a healthy life.

BECKER: It's cheaper now to get food that's going to make you fat. And the price of sedentary leisure has gone down with television, computers and video games. The typical family is either watching TV or in front of the computer six hours a day.

Now, there's third factor, and Mike, you're going to disagree with me on this one ...

MILKEN: I don't know; I haven't heard it yet.

BECKER: Now, maybe I'm just an economist gone wild, but people look ahead. Teenagers say, "Well, look, I hear from the scientists, I hear from Mike Milken, about all these fantastic innovations that are coming. We're going to be able to abuse our bodies and then get them repaired."

There's a certain rationality in engaging in behavior that is unhealthy, if you expect it to be reversible by medical progress. Take AIDS. Once the disease became controllable with drugs, a lot of the people went back to high-risk behavior.

MILKEN: So you're talking about the morning-after pill?

BECKER: Something like that.

MILKEN: Haven't Nobel Prizes in economics gone to psychologists in this area?

BECKER: That's right.

MILKEN: Right or wrong, we can assume there will be a tremendous increase in health care costs coming down the pike. What would you do about it?

PRESCOTT: Social norms have to be changed

through pressure from friends and colleagues. When I run into Europeans, they're still puffing away on cigarettes. That doesn't happen in the United States any more. Change is possible.

We've already seen some shifts in eating habits. You go to any restaurant, you can find menu items for low-carb diets.

MILKEN: To another subject. The declining cost of a telephone call has really changed the world. Back in the 1970s, a call to India cost about \$10 a minute. Today, it's down to 15 cents a minute. Maybe \$2 trillion was lost in investments in telecom capacity because investors didn't realize how fast and far prices would come down.

Myron, where do you see this leading?

SCHOLES: I'm on the board of the Chicago Mercantile Exchange, and one of the ways in which an exchange can grow is to provide sources of liquidity. Now, with electronic trading and cheap telecommunications, those liquidity pools can be anywhere in the world.

The broader possibilities are endless. My business group now has software developers in southern China because it is cheaper to link computers to China than to hire programmers in the United States. When I'm traveling, I make calls through Skype; I can use a landline from Russia for just 2 cents a minute. All this means you can produce more at less cost.

MILKEN: So you would agree that laying all these telecom cables – which, some people joke, amounted to foreign aid – has really propelled the world forward?

SCHOLES: It had tremendous unintended consequences.

MILKEN: Gary, you talked earlier about bringing the best and brightest from around the world to the United States. But some of the movement is in the other direction. A heart valve transplant in the United States

Myron Scholes:



As we reduce poverty I think we'll see that the countries whose populations are still growing rapidly will come into line with the rest of the world. It's largely a matter of empowering women.

last year cost about \$200,000. You can get a heart valve transplant in India for \$10,000, including round-trip air fare and a tour of the Taj Mahal. Last year, about 150,000 foreigners received medical procedures in India.

BECKER: This is part of the outsourcing issue. Instead of skilled workers migrating to the developed world, some of their customers will go to the source.

I think that's a good thing overall. The issue for the European Union and the United States is not that we have insufficient numbers who want to emigrate. It's how to change immigration policy to take advantage of this great pool of human capital.

Some Americans will go to India for surgery. But as India gets richer, as China gets richer, a lot of their people are going to come the United States for their medical care because the most difficult types of operations are still done better here than in India.

PRESCOTT: This is an old story: trade allows these things to sort themselves out, allowing societies around the world to grow because of that division of labor.

SCHOLES: This sort of "product ladder" movement that has gone on in the world for hundreds of years. As countries develop, they move up the product ladder and the poor countries take over activities at the lower end. And today, it's not only in textiles and the like – it's happening in automobiles.

BECKER: General Motors apparently came out with its earnings statement today, and it

didn't look very good. And partly, that's because the United States has lost most, if not all, of its comparative advantage in automobile production.

PRESCOTT: You have to be careful in thinking about old industries as opposed to new industries. Countries just starting out in automobiles use the latest technology, so you'd expect them to take the lead for a while. But as old factories wear out and are replaced in the United States, you might expect us to make a comeback.

MILKEN: I'd like to switch subjects. Of the 6.3 billion people on earth, a billion are living on less than \$1 a day, and about 2.7 billion on less than \$2 a day. We've seen enormous progress in China and we are seeing some movement in India. Yet 40 to 50 percent of the people in the world are still very poor. Do you see this as a large destabilizing force in the world?

PRESCOTT: It's nice, at least, to see the size of the poor population shrinking. There's a huge amount of variability in income between provinces within China – much more so than between the states in this country. But now you read they're short of workers in Shanghai and the other coastal industrial cities. And businesses are starting to locate plants in these other poorer provinces where wage rates are lower. This will bring down the rural poverty rate very rapidly.

MILKEN: Imagine if you were the prime

NOBEL ROUNDTABLE

minister of China and you had 600 million people living on less than \$2 a day – along with an explosion of millionaires.

SCHOLES: By keeping the value of the currency low to stimulate exports, China has created an asset bubble that is making the difference between the haves and have-nots all the more apparent. This could be quite a destabilizing force. And it's not obvious how they're going to deal with it.

MILKEN: When we talk about income and wealth disparities, we usually focus on the United States. But obviously, other countries face these issues, too.

BECKER: Still it makes sense to focus on the enormous progress that has been made in the last 15 years. The fraction living in poverty, no matter how you define it, has declined enormously.

The single most important factor in reducing world poverty has been growth in India and China. The per capita income of China has been growing at 6 to 8 percent a year; in India, maybe 5 to 6 percent. The challenge facing the world is how to make it possible for countries in sub-Saharan Africa to match the experience of India and China.

In the late 1970s, we doubted that either China or India would make it. Their success against the odds suggests that Africa can also turn around if countries put more emphasis on individual incentives, reduce regulation and open markets to trade. There's nothing really magical about it.

MILKEN: In closing, let me ask you to predict what we're going to see in the way of population growth and how it will affect the world's economy.

PRESCOTT: The dramatic decline in population growth since the 1970s caught demographers by surprise – the economists, oh, maybe not quite as much. Current projec-

tions suggest that population will stabilize at a level that will not put an excessive burden on the Earth.

SCHOLES: As we reduce poverty, I think we'll see that the countries whose populations are still growing rapidly will come into line with the rest of the world. It's largely a matter of empowering women.

BECKER: I think forecasts for India greatly overstate its future population growth; fertility will come down very rapidly. And if the African nations can emulate India and adopt some of the same policies, you'll see the same phenomenon there.

Let me ask one last question myself: Is it good or bad to have more people? The Chinese based their one-child policy on the assumption that any population growth was bad. But now, many people in China are worried that a relatively small number of young people will be left to take care of the old. Similarly, economists are beginning to appreciate that population growth interacts with economic growth in less-than-obvious ways.

Take health care. If there are a lot of old people, the for-profit sector spends more money on curing diseases because there's a bigger market for treatments. It's an old theorem in economies that the division of labor (and, by analogy, add research and development) is limited by the extent of the market. So we have to be careful about not overemphasizing the negative aspects of a larger population and not seeing the positive aspects.

MILKEN: One of the things we discovered at the conference is that 60 is the new 40. Maybe in a few years, we'll find that 80 is the new 40.

Thank you all very much.

M

