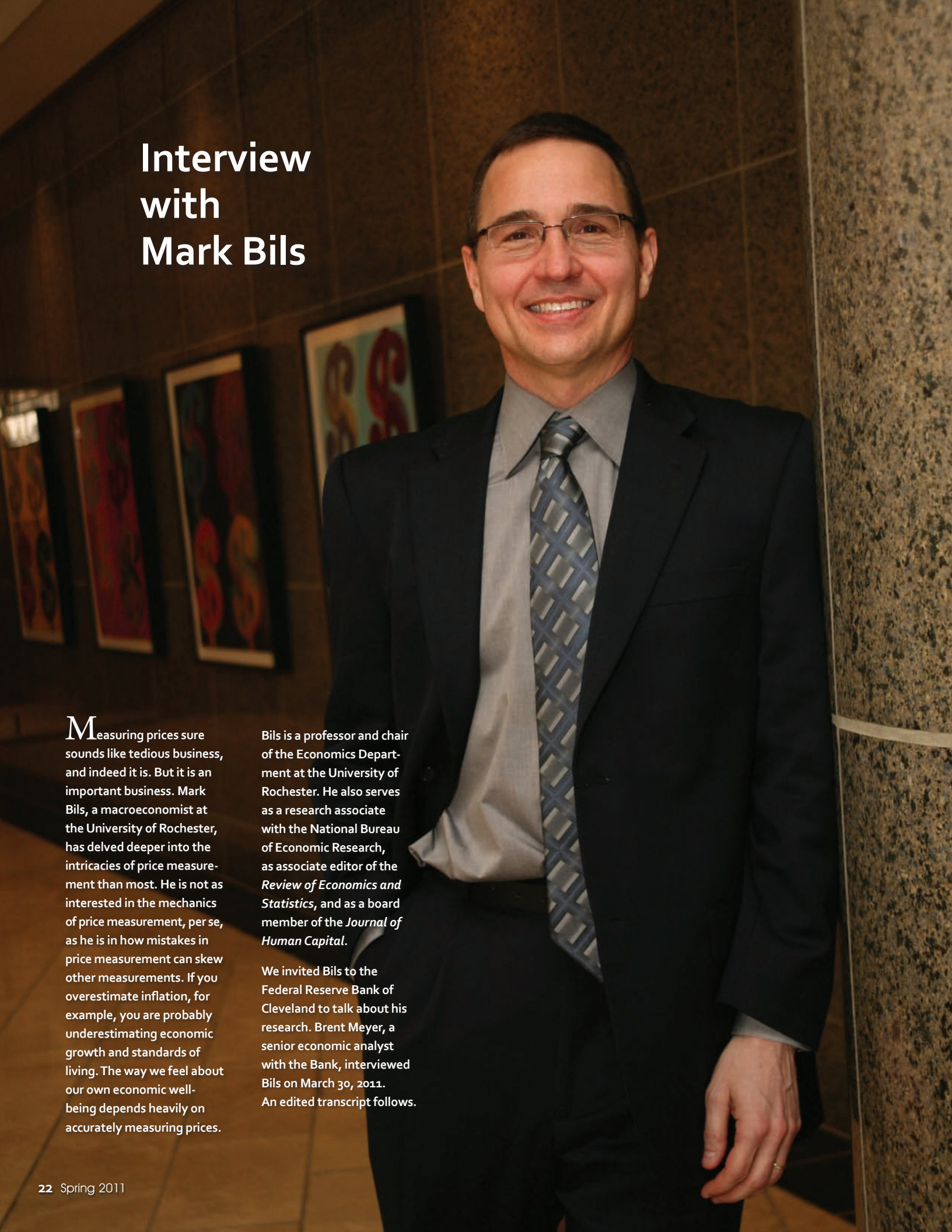
Interview with Mark Bils



Measuring prices sure sounds like tedious business, and indeed it is. But it is an important business. Mark Bils, a macroeconomist at the University of Rochester, has delved deeper into the intricacies of price measurement than most. He is not as interested in the mechanics of price measurement, per se, as he is in how mistakes in price measurement can skew other measurements. If you overestimate inflation, for example, you are probably underestimating economic growth and standards of living. The way we feel about our own economic well-being depends heavily on accurately measuring prices.

Bils is a professor and chair of the Economics Department at the University of Rochester. He also serves as a research associate with the National Bureau of Economic Research, as associate editor of the *Review of Economics and Statistics*, and as a board member of the *Journal of Human Capital*.

We invited Bils to the Federal Reserve Bank of Cleveland to talk about his research. Brent Meyer, a senior economic analyst with the Bank, interviewed Bils on March 30, 2011. An edited transcript follows.

Meyer: ***Why did price measurement become one of your areas of focus?***

Bils: My interest in price measurement really came out of discussions I had with [Stanford economist] Pete Klenow. Our interest was always less in thinking about inflation and prices. It was rather on the fact that whatever you mismeasure on prices affects how you measure real incomes and economic growth. We were working on growth-related issues at the time.

This is a roundabout explanation, but this is literally how we got involved in this: We found a huge explosion in the economics literature trying to explain growth. The things that people focused on were research and education. And these things exploded—huge increases in schooling worldwide and research—and yet economic growth rates came down! So, we had done some work where we argued that this impact of schooling couldn't be so great because it had gone up worldwide and yet growth rates hadn't gone up.

The hole in this issue, of course, is that maybe we have underestimated growth. Pete and I got interested in price measurement in the first place to think about what real growth has actually been. Because if you overestimate inflation by 1 percent, then instead of being, say, 1 percent per year real growth, it is really 2 percent per year. Well, that means the growth rate is doubled! Real income doubles in 40 to 50 years instead of 90 to 100 years. So if you overestimate inflation by 2 percent in one generation, real incomes double in one generation rather than in 100 years.

Meyer: ***What type of prices do you think might have been overestimated?***

Bils: Services and healthcare. When you look at healthcare expenditures, you see that inflation is extremely rapid, much more rapid than other inflation rates. But we have no idea what the inflation rates for health expenditures really are. We don't know! You can't measure quality of healthcare very well.

If I compare healthcare costs today versus in the year 1800, well, I could go out and buy a bunch of leeches today for almost nothing. And I could have the healthcare I had in 1800. If you had a certain condition and you had $10,000 to get treated at today's health prices, or $10,000 to get treated at 1960s prices with 1960s technology, I don't think it's so obvious that people would want to go back in time to get their important health conditions dealt with. In that sense, you say, I don't know if there's inflation. It's pretty hard to say that there's been a lot of inflation over the long haul in healthcare.

The thing that struck us was that you would see much faster inflation for healthcare expenditures, but also much faster real increases in people buying more and more [healthcare services]. We still haven't been able to explain this.

Meyer: ***So you do believe that health-care prices have been overestimated?***

Bils: Yes, the inflation rate for health-care prices has been overestimated. It relates to the work I did later on durable goods, like cars. When we get a new model car, the 2011 Camry versus the earlier model, the prices jump. Now, is that inflation, or is it a better model?

The same issue comes up with surgical procedures. If I have a new procedure for treating heart problems, how much better is it? If I look just at the expenditure, the cost of providing that, it goes up a lot. But if the treatments are better, if the bounce-back time to get back to work is faster, how to measure these things is hard to say.

And in practice a lot of that is being fed into inflation. This is a concern for almost all goods.

Education suffers from the same thing. You see all this increased spending, spending, spending on college. A lot of that is probably inflation—the government keeps subsidizing college, and so the colleges keep raising the price of the standard textbook. There could also be increases in quality, but how would you know?

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Meyer: ***This often seems a very difficult subject to broach with an average consumer, this hedonics or this quality-measurement thing. If I were speaking to a group of consumers, how would I explain hedonics to them?***

Bils: Probably the best thing to do in terms of explaining hedonics is to not explain it! First of all, it's not used for very many goods. It's used for computers, consumer electronics. It's really not used for prices in general.

Hedonics is where you look at the features of the models, and you say, this model has this feature, this one doesn't—how much more does it fetch at the market? There's a classic example for vehicles. If you look at gas efficiency, miles per gallon, everything else equal, people would rather get better gas mileage. There's not much question about that.

But if you're using a hedonic equation, and you say everything else that I observe, how much more are people willing to pay for better fuel efficiency? You actually get a negative number. If I take two vehicles, the characteristics I enter for them, plus miles per gallon/fuel efficiency, I'll see the one that gets better miles per gallon tends to go for a lower price.

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Meyer: ***Why is that?***

Bils: Well, there are very limited characteristics that we're entering about the vehicle. So all these unmeasured characteristics that people like in their cars tend to be in a luxury car, and we're not recording all those. They may not care so much about the fuel efficiency; they want performance of the engine.

So when I, as a price measurer, look just at this, I'll price fuel efficiency negatively. That means that if all the cars in the country got more fuel efficient, and we employed the hedonics literally, we would say inflation went up. Even with computers there are problems like this. These hedonic coefficients jump around a lot.

People in general are interested in real incomes and what's happening to their situation.

Meyer: ***How does all this figure in for people who are skeptical of measured inflation rates?***

Bils: There are two features of inflation. There's the one that I've focused on, which is what's happened to real incomes over long stretches of time. Do we have better products now? Do we have cell phones now? People wouldn't want to give up their cell phones.

And then there's the issue of stable products—a newspaper, milk, gasoline—what's happened to the prices of those. I think in terms of the Federal Reserve System—if it wants price stability, which is the price it should keep stable?

If I look at the price of a vehicle, the price of a car over the year, I'd see it dropped 4 percent. You could say the Federal Reserve has had deflation; it should be printing more money, so that I know that whether I go this week or wait a few weeks to buy my car, I'll need to have the same amount of money ready. Or if I look at computers, there was deflation of 20 percent. Should I have 20 percent more nominal price growth so that when I go to buy a computer I know I need a certain amount of money? I would say no; that would be crazy.

So there is an issue of what the Fed should target in terms of price stability. And then there's an issue of real income growth. The idea that there are new products and life gets better over time—the typical consumer is not going to project that on the Federal Reserve or the government. The consumer doesn't think that's something the Fed did or something the Fed should be worried about. They want to know what's happening to the price of this stable set of goods.

Meyer: ***Consumers are very concerned about recent increases in food and energy prices. When they look to see what the Federal Reserve is paying attention to, one of the main measures excludes food and energy—core, or underlying, inflation. Is there some way to square the two perspectives, consumers and the Federal Reserve?***

Bils: This comes back to the Federal Reserve's focus on inflation. Are we creating an inflation rate that is going to stay high, is going to create ongoing, permanently increasing prices? People in general are interested in real incomes and what's happening to their situation.

So if I take the food and energy prices (the energy ones are the most striking), you can look at these and say, well, the inflation rate for food and energy is not very persistent. When there's this big run-up in food and energy prices, that doesn't mean there's going to be an ongoing increase; we know this statistically. It goes up, and then it's going to level off.

From the perspective of creating this ongoing inflation, it's natural that the Fed is going to focus on something more like the core inflation rate. But when energy prices go up, while it doesn't mean that inflation is going to continue at this incredibly high rate, it doesn't mean that the price of gas and so forth comes back down quickly.

So the consumers are right! In terms of their purchasing power, that is a big issue. The prices of these goods have gone up and are likely to stay up, so from their perspective in terms of their purchasing power, that's a real problem.

Meyer: ***If the consumer is right, is the Federal Reserve wrong?***

Bils: In terms of whether we are creating this ongoing inflation, the Fed is right. There's been this big real shock of oil prices going up worldwide. It's a relative price change, and that's going to reduce purchasing power and it's going to stay high. That's just the matter of when you purchase more of something, the price goes up. I think the Fed has to be careful to keep in mind that they can't undo relative price changes.

How people view these relative price changes is very different. The price of oil or gas goes up, a lot, we view that as a big negative. Whereas when house prices drop a lot, we don't view that as a big positive. There are good reasons for that.

For one, we import the oil so in terms of real income, that's a big negative. Whereas for the housing, we're not importing the houses; when the drop in house prices occurs here, it's a benefit for the people buying houses and it's a loss for the people selling the houses. So that's an issue with the Consumer Price Index also.

A consumer price index isn't an ideal measure of what's happening to real income. That's partly why I think that gasoline is a problem—because it's so much an imported good. When its price goes up, that's really a big loss in

real income. Whereas when it's a good that's produced here, the loss in real income is that it takes more resources to produce it. If our efficiency drops in producing food, and then the food prices go up, that's a real loss in income. If there's an upward shock in prices, then the farmers—the people selling the food—do at least get some benefit from the price increases.

Meyer: ***Are the cost of living and what the Federal Reserve would call inflation two separate things?***

Bils: They're related to the same thing. But there's a disconnect in the sense that inflation is the growth rate in the prices, and the cost of living is really the levels.

To go back to the gas station example, gas prices go way up, but then they're going to level off. That hasn't created an inflationary situation. But it has been an increase; it's a jump in the cost of living. The fact that you tell somebody gas prices are $4 a gallon, but we don't expect them to go up more—well, that's a little bit of a positive to them, but they're not going to lose focus on the fact that now it's $4 a gallon. But in that scenario, it's not ongoing inflation.

Meyer: ***So if it is a relative price increase, would it be fair to assume that if individuals can't or don't substitute out of driving to work, they have to make adjustments elsewhere in their consumption bundle?***

Bils: Yes, then it's a real income drop. They have to either find a way to increase their incomes—work more or take a job that they don't like as well to earn more—or they'd have to cut their consumption, if it's going to persist. If the prices were to come back down, then it's a drop in real income but at least it's a transitory one.

The reason I think it hits home to consumers is because it doesn't tend to be very transitory. These run-ups in food prices, energy prices, aren't that transitory. They *are* in terms of the inflation rate—the inflation rate goes up and then it comes back down. But the prices for these goods will be predictably higher for a long, foreseeable period. We're not going to see $1.50 gas in the near future.

Meyer: ***In some sense, it's important for the Federal Reserve to deliver on price stability to minimize the volatility that would happen if you get some sort of nasty shock, right?***

Bils: Well, if you have a nasty shock, you want some price responses so that people feel the cost of that shock. I think in terms of relative price shocks, they're going to happen no matter what the Fed does; that would be the bottom line. The Fed is not going to create a change in relative prices.

Now, if they want to create a smoothness in overall inflation, they would have to lean against the wind pretty heavily. And they have been doing that. There has not been much persistence in inflation rates over the last 20 years or so, so there is a sense in which the Fed has been doing more of this leaning against the wind.

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Meyer: ***Let's back up to prices. How do we actually measure prices?***

Bils: The idea is to get a broad-based measure of what people are consuming and where they consume it. That's actually done with three separate surveys. The Consumer Expenditure Survey asks people what they buy. That gives an idea of broad-based commodities—you're buying this much of men's clothing, women's clothing, jewelry, etc.

Then there's a second survey called the Point-of-Purchase Survey, where they call up households and ask where they purchase goods. Then there's a third survey where they actually go out to the retailers and collect the prices. Some people say I buy my books from Amazon, so some of those prices today are just collected online.

Mark Bils

Position

Professor of Economics, University of Rochester
Economics Department Chair

Current Professional Associations

NBER Research Associate, Economic Fluctuations and Growth

Associate Editor, *Review of Economics and Statistics*

Editorial Board, *Journal of Human Capital*

Advisory Board, Carnegie–Rochester Conference on Public Policy

Selected Papers

"Do Higher Prices for New Goods Reflect Quality Growth or Inflation?" 2009, *Quarterly Journal of Economics.*

"Some Evidence on the Importance of Price Stickiness," with Peter Klenow, 2004, *Journal of Political Economy.*

Education

The Ohio State University, BA, 1981

Massachusetts Institute of Technology, PhD, 1985

The Bureau of Labor Statistics (BLS) is very good about trying to deal with statistical measurement. They don't actually collect these prices everywhere; they collect them in about 45 cities. They collect in any given month on the order of 90,000 prices across all commodities. In a typical metropolitan area they'll be collecting about 2,000 prices; not a huge number. They'll collect the prices in Cleveland; in Rochester where I'm from they don't do it. They do it in Buffalo and Syracuse.

Measuring prices, and therefore real income growth, is difficult. But I do think most of the biases, the biggest ones that tend to be left out, are in the direction of *underestimating* the growth in standards of living.

Meyer: ***Have you seen a price collector in action?***

Bils: I went out in the field with a woman one morning years ago in Syracuse where she was collecting these prices. Very much in this notion is that price movements one place might not reflect well in the other place. So there's a very big focus on collecting the prices where people buy them. When they find that people tend to buy their goods more at a certain store, then they're more likely to sample that store than another store.

For instance, we went to a grocery store where it turned out we collected a lot of prices because a lot of purchases occur there. We also went inside an engineering firm to collect the price on one muffin from the vending machine because that happened to be on the survey where someone had said they made purchases. We had to go through security to go collect one muffin price, whereas in the same time we could have collected about 100 other prices at that grocery store.

If I was starting from scratch now, I think I would go a wholly different route. That's partly because technology has changed. I think it might make more sense to just make the consumers the sampling unit. I would contract with 1,000 consumers to keep track of all their purchases, give them some inducement. Have a debit card, with some small subsidy, which would record all the transactions and prices, at least for a lot of goods. And for the ones that doesn't work for, I might try to supplement.

For stable goods, like bananas, the process works very well. When the products are turning over, then it's problematic because you have to define the good. I can look at the new model year vehicle versus the old model year, but I have to decide, is this the same good or not?

Where things are really difficult is when there are wholly new products —the cell phone, the DVD players, before that VCR players, the microwave—as far back as you want to go. That's actually the hardest problem. And the surveys aren't well served for that.

The BLS recognizes this. It shortens the cycle of getting products through the system and introduced and spread, particularly for consumer electronics. They have always tried to get computers through quicker. I think they do the best they can. They take all these issues seriously.

The other issue for the BLS is that they can't be just switching their methods every year based on arguments or research that people are doing, because we need to have as consistent a series as possible for how they measure prices. They don't want to be reversing what they do.

I think it's just important to recognize that measuring prices, and therefore real income growth, is difficult. But I do think most of the biases, the biggest ones that tend to be left out, are in the direction of *underestimating* the growth in standards of living. We have these things like the cell phone that used to be infinitely priced that now are at a price where almost everybody who wants it can have it, and presumably gets a lot of consumer surplus out of it.

The bias is that we overestimate inflation in terms of the standard of living, but trying to say how much is difficult. You can see why the BLS wants to be a little conservative. You can see how the public reacts if you try to say that inflation is negative because we have all these new products—they have grown to expect that there will be these new products. These things are going to be there.

Meyer: ***How much does it really matter whether the government properly measures the cost-of-living index?***

Bils: I'll pick on the vehicles again because it makes such a huge difference in how you treat these products. If I look just at what people are paying, the unit price on a car over time, it grows. For the period I looked at, from the late '80s to around 2008 or so, the dollar amount spent on cars increased by something like 3 percent per year. But if I looked at holding it literally constant, comparing apples to apples, once a product is out there, it's clearly dropping in price by 4 percent per year.

How do I explain that? It must be the quality is actually growing like 7 percent per year, if I literally treated the right index as following that same model car over time. The BLS doesn't do that. They treat a lot of these new-model price changes as inflation. They wind up with a much more conservative measure of quality growth. But if I say real quality growth of cars is a couple percent per year, versus 6 or 7 percent per year, I am going to have a very different picture of, certainly, productivity growth in producing cars, but also the real income side of consuming cars. The same holds for any good.

For some goods, again, like bananas and milk, there is not this product turnover, so it's not going to be important. But for virtually all durables and many services, this phenomenon is there, with the nature of the products changing. So it can matter a great deal if you're thinking about what the standard of living is today versus the past.

We can make an argument for cars similar to the medical example. Maybe there's been no inflation in medical care, in the sense that if I gave you a certain amount of money, and a certain condition, a heart problem to deal with, I'm not sure you wouldn't rather have today's technology at today's prices rather than old technology and old prices.

My first car was a 1983 Accord, which cost $9,600. It was a great car, but it didn't have any of the safety equipment that you have today. It didn't have power windows. It didn't have air conditioning. It didn't have many features. If you took that same car—it did get good gas mileage, actually—and you tried to sell it as a new car today, I don't think you would get $9,600 for it, if you had to compete with what's out there.

What does that mean? That means that people can do better now than they could do then, which means there's actually been deflation. If I'm correct—it's a thought experiment, but if I'm correct—then there's actually been deflation for vehicles rather than inflation as the official statistics would show. Over time, these things build up dramatically in how we interpret standards of living. How do you judge one economy versus another? What's growth been like over the last 30 years compared to the 30 years prior to that?

Meyer: ***Why did you become an economist, and who has influenced you the most?***

Bils: I grew up on a farm, and I was pretty clearly not very good at it. And I didn't have a very clear idea of what I wanted to do at college. My second quarter at Ohio State, I took a course with Professor Howard Marvel, and he was terrific, dynamic, and very enthusiastic. He was very good at showing how basic economics lets you understand lots of things going on in the world. I always liked talking about policy-related things. When I took that first economics course, it was clear that first day that I'd had no idea what I'd been talking about, and that was very inspiring, actually.

I can remember the first assignment. Professor Marvel would do these Chicago tradition questions: Consider the following, true, false, uncertain, and justify your answer. Can you put a price on a human life? I thought at first, no, you can't. Of course, the reality is you do all the time. People take riskier jobs; they cross the street. And we got a lot of similar questions. The argument that oranges would be worse for consumers in Florida, for example.

The argument is that oranges that stay and are consumed in Florida will be worse than the ones that ship out because the shipping cost adds less relatively to a good orange than a bad orange. So there's all of these thought experiments that made me realize how little I knew and how relevant it was for things I like to talk about, and that there actually are logically, economically correct arguments, but not the ones I had been making. That was inspiring.

Another professor I had at Ohio State who had a big impact was Steve Sandell. At Ohio State they have a Center for Human Resource Research where they collect the micro-labor data. After my first year, I went to Professor Marvel—I had been working in the cafeteria—and I asked if there were any research assistant jobs. He got back to me and said Steve Sandell works at this center where they use survey data from households, individuals, on their labor experience, and he'd be interested in having me work with him.

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I met with Steve Sandell and he said he had work for me. At the beginning, he set me up very simply, just setting up tables. He was talking about cross-tabs—years of schooling in one dimension, wages in another. I thought he meant setting up real tables, setting up surveys on tables! I said, 'That's fine.' It paid $0.10 more than I had been making in the cafeteria. That was my introduction to research. I got there and I had an office with three other research assistants, which was really a windfall! I could see then that the easy work was in economic research. You didn't have to set up real tables at all.

Meyer: ***And that prompted you to become an economist?***

Bils: That was part of it! Also, he gave me good advice. I was still interested in policy and thinking of various things. Steve said that if I was to go on I should go into economics because if I did want to do something policy-oriented, I could move that direction with an economics degree; but if I went with a public policy program it would be hard to move back. ■

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