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Interview with Amy Finkelstein

MIT economist on health care spending, randomized controlled trials and efficient care delivery

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Standard economic theory long predicted that people with more insurance coverage will make more insurance claims.* Standard theory also said that markets for both annuities and long-term care insurance should be large and robust. Conventional wisdom held as well that geographic variation in U.S. health care spending was due mostly to supply-side factors—doctors' practices, technology, hospital management—not patient demand.

Not one of these "truths" is valid. But only after MIT economist Amy Finkelstein analyzed

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their empirical realities and theoretical flaws did economists understand why. Her gift for combining data and theory has revealed subtleties of economic behavior that long eluded the profession. And she's applied this talent to improve understanding and policy in health insurance—one of the most complex, expensive and contentious areas of public discourse.

Her contributions have been widely recognized. Calling her "the leading scholar in Health Economics and one of the most accomplished applied micro-economists of her generation," the American Economic Association honored her in 2012 with the John Bates Clark Medal, given to the leading American economist under 40. She received a similar award last year from the American Society of Health Economists. In 2008, she received the Elaine Bennett Prize for outstanding economic research by a woman at the beginning of her career. She's been honored was well by the Sloan Foundation, the Econometric Society and the American Academy of Arts and Sciences.

While insurance, especially health insurance, has been her nearly exclusive research target, Finkelstein's energy is now turning to health care *delivery*—its efficiency, organization and design. "How do we design health care systems to efficiently deliver the care we think should be delivered?" she asks in the following interview. "There's a lot we don't yet know about how to best design these systems, [making] it an extremely fun and exciting area." That passionate curiosity is at the core of her research, powering an intellect that promises new truths for economics, health care, policy and the public.

Interview conducted July 23, 2015

[*] *Moral hazard and adverse selection are the explanations. Moral hazard is the economist's term for people taking fewer precautions when they are insulated from loss by insurance. Adverse selection is when high-risk individuals—with dangerous jobs, lifestyles or health conditions—purchase more insurance than low-risk people.*

Multiple dimensions of information

Region: Standard theory says that because of adverse selection and moral hazard, people with more insurance coverage will make more claims. Yet the data don't always support that prediction. People with more auto insurance, for example, don't necessarily have higher claim rates.

In a 2006 paper with Kathleen McGarry, you developed an explanation having to do with multiple dimensions of information—in particular, differences among people in risk *aversion* as well as risk *type*. How does that distinction help resolve the ambiguous empirical findings?

Finkelstein: What I love about that whole body of work, which our paper is just a part of, is that it's a really, really nice interplay between theory and empirics. Seminal and influential theoretical work on this dates back to the 1970s, such as Rothschild and Stiglitz (1976). Their workhorse theory assumed that individuals differ only in privately known risk type. Their model generates the famous result that the private market may generate too little insurance coverage, and that there are potential welfare gains from government intervention. Models such as theirs and Akerlof's (1970) lemons model have been extremely influential in both academic research and public policy.

The empirical prediction of their model is that individuals with more insurance will be higher risk (that is, more likely to experience the insured

event or "accident"). Somewhat amazingly, the wave of empirical work investigating the predictions of this influential theory really only took off in the late 1990s and early 2000s. People like Pierre-André Chiappori and Bernard Salanié (2000) started actually looking at the predictions empirically. And some papers started to find that there were markets in which those with more insurance *weren't* actually higher risk.

We found that individuals with long-term care insurance were not more likely to go into a nursing home than those without it, as standard adverse selection theory would predict. In fact, they often looked less likely to go into a nursing home.

Region: Chiappori and Salanié found that lack of positive correlation in the French auto insurance market. There's no correlation between coverage comprehensiveness and frequency of accidents.

Finkelstein: What Kathleen and I realized is that it could be because the simple Rothschild/Stiglitz model, for tractability purposes, had people differing only on their risk type,[1] but, in fact, people differ also on their preferences: how risk averse they are, how worried they are, how cautious they are, et cetera.

Region: So the interplay between them—risk type and risk preferences—could be at the root of it.

Finkelstein: Exactly. Suppose you have people—in health insurance we often refer to them as the "worried well"—who are healthy, so a low-risk type for an insurer, but also risk averse: They're worried that if something happens, they want coverage.

Region: They will take out as much insurance as they can.

Finkelstein: Right. As a result, people who are low risk, but risk averse, will also demand insurance, just as high-risk people will. And it's not obvious whether, on net, those with insurance will be higher risk than those without.

So, you can have private information of the Rothschild/Stiglitz type—an individual purchasing insurance would know their risk type, but the insurance company wouldn't—and it can impair the functioning of an insurance market, but it *wouldn't* be detected by the standard test of comparing "accident rates" for people with and without insurance.

Our paper gave a proof by example.

We looked at long-term care insurance—which covers nursing homes—and rates of nursing home use. We found that individuals with long-term care insurance were *not* more likely to go into a nursing home than those without it, as standard adverse selection theory would predict. In fact, they often

looked *less* likely to go into a nursing home. These results held even after controlling for what the insurance company likely knew about the individual, and priced insurance on.

The standard interpretation of this result would be that there wasn't private information in the long-term care insurance market. But our data gave us a way to detect private information: people's self-reported beliefs about their chance of going into a nursing home. And we showed that people who think they have a higher chance of going into a nursing home are both more likely to buy long-term care insurance and more likely to go into a nursing home.

And, again, these results held even after controlling for what the insurance company would have predicted. In other words, we found direct evidence that individuals have private information about their risk of nursing home use and that people who thought they were higher risk than the insurance company thought were more likely to purchase long-term care insurance. That certainly sounds like the standard adverse selection models!

But if you just look at the cross-section data, you don't confirm the theoretical prediction that those with more insurance are more likely to go into a nursing home.

So we realized, as a basic econometric decomposition, that there must be some other characteristic of individuals that was positively correlated with long-term care insurance purchases, but *negatively* correlated with nursing home use. That was the only way to reconcile the facts.

Then we found some examples in the data that we broadly interpreted as proxies for preferences such as risk aversion, and we found that individuals who report being more likely to, for example, get flu shots, or more likely to wear seatbelts, were both more likely to buy long-term care insurance and less likely to subsequently go into a nursing home.

When you also have preference heterogeneity, the optimal contract that different people would choose may differ. Then, rather than the obvious theoretical solution—the mandate—you're in the world that I love to think about, which is one of a potential empirical trade-off. ... Is the welfare lost from adverse selection in the unmandated market bigger or smaller than the welfare lost when imposing a uniform policy through a mandate?

Region: This research has been very influential in the field; it's one of your most widely cited papers, I believe. And it's a great example of what you highlighted earlier, a productive interplay between theory and data. Could you talk a little bit about the value of conducting research that way?

Finkelstein: I'm an empiricist mostly, although I'm very motivated by theory,

and so the empirical work that I've done has gone in the direction of, "How do we design empirical tests that are robust to the fact that the real world is more complicated than the simple theory suggested, and how do we think about welfare in that context?"

I'm excited to see other researchers taking up the challenge of expanding and enriching the theory itself to model private information about risk type when there are multiple dimensions of heterogeneity. This type of interplay and conversation between theory and empirics is, I think, ideally how the field progresses.

This point was really underscored for me in an amusing experience I had in 2008, when I was asked to speak at a *festschrift* for Michael Rothschild. Of course, I was honored and thrilled to do so, and I talked about how influential the early work by Rothschild and Stiglitz had been, and how it had motivated a subsequent empirical literature.

Mike [Rothschild] spoke after I did, and his comment really stuck with me. After listening to my description of the empirical work trying to test his theory, he said something like, "Wow, honestly, when we wrote down that model, we never thought anyone would take it literally! It's a *model*."

Annuities and adverse selection

Region: You've done a lot of work on annuities and adverse selection, including some of your early work with Jim Poterba[2] and more recent work both with him and with others. The initial work provided important clues as to why the market for long-term annuities is so small when theory predicts that many people would benefit from purchasing them. What's your explanation? What did you find in that research?

Finkelstein: The work that Jim and I did showed that adverse selection exists in annuity markets. An annuity is a survival-contingent income product. So individuals who think they are likely to be long-lived are "high risk" from the insurance company's perspective.

We found that individuals who are longer-lived are more likely to buy an annuity and to buy annuities whose payments are more backloaded, meaning that adverse selection distorts not just the share of individuals with annuities, but also the annuity contract allocation.

We found that because individuals who have private information that they are likely to live a long time are more likely to buy annuities, annuities are priced higher than they would be if annuitant mortality was typical of the general population.

But Jim has done other work with Jeff Brown, Olivia Mitchell and Mark Warshawsky (1999) in which he shows that even with this price markup (or

"load"), most risk-averse individuals would still be willing to purchase annuities. This suggests that while adverse selection exists, it is unlikely to be the primary cause of the fact that so few people voluntarily purchase annuities.

Liran Einav and I, with Paul Schrimpf (2015), have done some related work estimating the welfare costs of adverse selection in the semi-compulsory UK annuities market and, using very different methods, we are finding results consistent with Jim's earlier work.

Region: That paper with Einav and Schrimpf indicated that the standard solution to adverse selection, a government mandate, actually might lower welfare.

Finkelstein: Yes. And it's exactly related to what we were just talking about in the work with Kathleen McGarry on preference heterogeneity. When you have private information about risk type, you get allocative distortions. Lower-risk people who would be willing to buy insurance at the actuarially fair price for them don't have that option and may end up inefficiently uninsured. A standard solution suggested by theory, and widely used and discussed in policy, is mandated insurance coverage.

But when you also have preference heterogeneity, the optimal contract that different people would choose if you got rid of asymmetric information about risk type, and each person faced prices that were actuarially fair for their risk type, may differ.

Then, rather than the obvious theoretical solution—the mandate—you're in the world that I love to think about, which is one of a potential empirical trade-off. On the one hand, market unraveling and allocative distortions due to adverse selection suggest that a mandate may be welfare-improving by counteracting the underinsurance that adverse selection generates. On the other hand, imposing a mandate, a one-size-fits-all policy, when some people would optimally choose different policies, may introduce its own allocative distortions.

So now we face an empirical question: Is the welfare lost from adverse selection in the unmandated market bigger or smaller than the welfare lost when imposing a uniform policy through a mandate? And if you are going to impose a uniform policy through a mandate, *which* policy should you mandate?

Geographic variation in health care spending

Region: In a recent paper with Matthew Gentzkow and Heidi Williams, you analyze the source of large geographic differences in health care spending across the United States shown by the Dartmouth research—the fact that the average Medicare enrollee in Miami spends 80 percent more than his or her demographic counterpart in Minneapolis, for instance.

Your goal was to understand whether those differences were driven by "supply" factors that might be amenable to policy interventions, like doctors' incentives or beliefs that could lead them to order excessive treatments, versus "demand" factors, such as patients in the higher-spending areas being less healthy or preferring more intensive care.

Would you describe this research a bit—your methods and findings?

Finkelstein: This is a very exciting new area of research for me. The work on insurance we've just been talking about is an area where—while there's obviously a lot more important work to be done—I'm starting to feel like I've gotten my head around the portion of it that I bit off to chew on 15 years ago.

But questions relating to the determinants of health care spending and practice are something I'm really just starting to think about. So it's a fun new area for me, and an extremely exciting research collaboration.

While it's new to me, the literature on the subject is, of course, quite rich already. There's a very well-known and influential body of work coming out of Dartmouth on geographic variations in spending, as you noted.

We estimate that about half of the geographic variation in health care utilization reflects something "fixed" about the patient that stays with them when they move, and about half reflects something about the place. ... One of our next steps is to get inside that and ask: What is it about the place? Is it doctors' beliefs? Is it doctors' past experience? Is it

Region: It's gotten a lot of publicity.

Finkelstein: Yes, especially in the debates over the Affordable Care Act. A lot of the debate and much of the research and academic discussion have been: The fact is that high-spending places don't get better health outcomes. Does that mean you could cut spending?

the number of MRI machines? We're going to investigate this by now looking at how doctors' practice styles change when the doctors move!

There's been a lot of good work on that.

Heidi, Matt and I came at this question from a different perspective, which is instead of asking what the *consequences* are of the geographic variation in spending, we tried to ask: What are its *causes?* We did this both because it's interesting in its own right and because different causes have potentially different implications for (a) whether we think the variation in spending is inefficient or not, and (b) if so, what policies would change things?

Matt has a previous paper in the *American Economic Review* with Bart Bronnenberg and Jean-Pierre Dubé (2012) that tries to understand differences in preferences for consumer brands by looking at how brand preferences change when people move across geographic areas with different consumer brand shares.

Coffee preferences, for example. I'm going to get the exact details wrong (I myself am not a coffee drinker), but in, say, Miami, people tend to drink Folgers and in Minneapolis they drink Maxwell House. The point is there are large and persistent geographic differences in brand market shares for consumer products.

Sounds very similar to what the Dartmouth Atlas was showing for health care —large and persistent differences in practice patterns.[3] And Matt and his co-authors have this *really* beautiful paper in which they try to look at the role of habit formation in explaining geographic variation in brand preferences: Is it that somehow what I used as a kid is what I stick with?

Well, if you think about what's going on in health care, the possibility that I stick with the style of treatment I get used to early in life has profound implications. It says that in dealing with rising health care spending, we're going to have a hard time changing anyone's current behavior; we have to change only new people's.

We started with the same idea as in Matt's previous paper: to look at people who moved geographically across areas with different patterns of health care utilization (i.e., high-utilization versus low-utilization areas) and whether their health care utilization changed. Originally, we were very focused on this issue of habit formation, which would suggest a very specific conceptual model and econometric specification.

But, as often happens with my projects, they don't go the way I expect. We found very clear patterns in the data on what happens when individuals move across areas that look nothing like what you'd expect in the type of habit formation model Matt and his co-authors had found for consumer brands.

With habit formation, what I did in the past affects me currently, although over time the importance of the past diminishes (depreciates, like capital does). In a model where habit formation is important, you would think if you moved from a high-spending place to a low-spending place, you'd be used to spending a lot on health care, so initially you would continue to do that. But over time, you might gradually reduce your health care spending as you adjust to the equilibrium in the new place.

Region: So if you went from Miami to Minneapolis, say, you'd reduce your spending eventually, but it would take some time.

Finkelstein: Exactly. They spend a lot per patient in Miami, but not in Minneapolis. So you would expect, in a model with habit formation, that maybe initially there wouldn't be much change in your health care utilization. But over time—whether it's because doctors would be urging you to do less or the people around you were like, "Why go to the doctor when you have a minor pain?"—you would gradually change your behavior toward the new norm.

But that's just not what we see at all. We have about 11 years of data on Medicare beneficiaries and about 500,000 of them who move across geographic areas. When they do, we see a clear, on-impact change: When you move from a high-spending to a low-spending place, or vice versa, you jump about 50 percent of the way to the spending patterns of the new place. But then your behavior doesn't change any further.

This is what I love about empirical research: I go into it with an idea—a question and an idea about the answer. But if I knew the answer, it wouldn't be fun to do it. And it certainly wouldn't be important if all we ever did was confirm our hypotheses. I have to have some idea to start, of course, but I often find myself radically rethinking it because it turns out just not to be right.

Region: And, in this case, you find that there's essentially 50 percent brand loyalty but a 50 percent shift toward the new location preference pretty much as soon as the person arrives.

Finkelstein: Yes. We estimate that about half of the geographic variation in health care utilization reflects something "fixed" about the patient that stays with them when they move, such as their health or their preferences for medical care. And about half of the geographic variation in health care utilization reflects something about the place, such as the beliefs and styles of the doctors there, or the availability of various medical technologies.

This gives you a very different perspective on how to think about the geographic variation in health care spending than the prior conventional wisdom that most of the geographic variation in the health care system was due to the supply side—that is, something about the *place* rather than the

patient.

If we think the geographic variation is all due to supply side differences—they just practice differently in Miami than in Minneapolis—then you might start to think about policies designed to make high-spending Miami more like low-spending Minneapolis in order to reduce health care costs.

But if half of the geographic variation reflects the fact that people in Miami are sicker or have preferences for more intensive health care treatments than people in Minneapolis, you might think about such policies differently.

Region: So *some* part of it is amenable to policy that addresses the health care system, but perhaps less than previously thought.

Finkelstein: Sure. The glass half full is that about 50 percent of the geographic variation in health care spending *is* due to the supply side. And, relatedly, the fact that we don't find evidence of habit formation suggests that if you can figure out what policies can affect the provider side, those should have a relatively quick effect.

I mentioned that this research is what I hope is the beginning of a long and fruitful collaboration with Heidi and Matt. One of our next steps is to look at the 50 percent of the geographic variation that we've found is due to "something about the place" and try to get inside that black box and ask: What is it about the place? Is it doctors' beliefs? Is it doctors' past experience? Is it the number of MRI machines? These are all things we want to look into. And, because we're a one-trick pony, we're going to investigate this by now looking at how *doctors'* practice styles change when the doctors move!

Dynamic incentives and moral hazard

Region: You've been looking lately at how consumers respond to pricing for health care. Your January 2015 paper with Einav and Williams on marginal pricing responses—in breast cancer treatment specifically—is one example. But I'd like to ask you now about another recent piece that looks at dynamic incentives and moral hazard, investigating whether people consider future prices as well as current prices when making decisions about health care. Would you describe that work, including how you were able to find data on that current/future price distinction?[4]

Finkelstein: Liran Einav and I, together with several different co-authors, have now, I think, three related papers on this topic.[5] We're looking at the fact that health insurance contracts don't create *a* price for medical care; they create a nonlinear budget set.

Typically, you start off in a deductible range in which you pay dollar for dollar for your medical care. After you've spent a certain amount, you move into some cost-sharing range where maybe you pay 20 cents on the dollar for your

medical care. And then, after you've spent enough, you hit some catastrophic, out-of-pocket maximum, at which point you pay essentially nothing for further medical care.

Now consider the classic health economics question: "How does consumer health care spending respond to the price of health care?" Well, *which* price?

The first question in thinking about that is: What do consumers do when they're making health care decisions? Do they say, "Oh, today I'm in the deductible range and, gosh, if I go get my headache treated, I'm going to have to pay every dollar for that"? Or do they think, "Well, it's January and, yes, I'm in the deductible region, but I have chronic diabetes and I easily spend way past the deductible every year and end up in the cost-sharing arm at 20 cents on the dollar. So, really, the marginal price of my going to get my headache checked out in January is not dollar for dollar, it's 20 cents on the dollar." So, which way do they think?

This is something we do too little of in economics[:] a replication study within the original paper. We have the same basic design but two very different contexts and, in both, we find that people are forward-looking; i.e., they take the future price of care into account in making current medical decisions.

Region: In essence, do they look at just the current price, or do they think about future costs as well in making a decision about what to do now?

Finkelstein: Exactly.

Region: Would you describe how you managed to tease out the data on that—finding a way to distinguish between decisions on *just* current price and those on current *plus* future prices? Your method was ingenious.

Finkelstein: That was really challenging for us, and a lot of fun to work on. To understand whether consumers look at only the current price of care or also take into account future costs, the ideal would be to randomly vary the future price of care (or the expected end-of-the-year price of care because contracts are annual), holding the current price—the spot price—constant. That's hard because most of the things you think of that would change the future price usually also change the spot price.

But we realized that most insurance contracts are specified annually; i.e., you return to the beginning (the deductible) part of the contract each January. Yet people can sometimes join a contract at different points in the year. That generates people in the same contract with the same initial price, but facing different future prices of care because they have different durations in the contract.

We found two different institutional settings where we could look at this. One

was employer-provided health insurance. Plans are always specified annually, so the deductible is an annual deductible, and that deductible always resets January 1. But, obviously, people join firms throughout the year. So, what happens when you join in, say, September? Well, your annual deductible is going to reset in four months rather than in 12.

Now imagine someone who joins a firm in February, as opposed to September. They face the same initial or spot price of care. They both have a deductible, but they face a very different end-of-year price for care because one of them has much less time to go past the deductible.

Similarly, in Medicare Part D, which provides prescription drug coverage for the elderly, you can't join until you're 65. But people turn 65 in different months of the year and, again, it's an annual contract.

Region: So, in this one paper you look at both settings—employer-provided health insurance and Medicare Part D—and results from the second confirm those from the first.

Finkelstein: Yes, exactly. We were really excited. I think this is something we do too little of in economics. In some sense, we have a replication study within the original paper. We have the same basic design but two very different contexts and, in both, we find that people are forward-looking; i.e., they take the future price of care into account in making current medical decisions.

We then said, "OK, we tested the hypothesis that people are forward-looking. Now let's try to quantify it." Is it important? They could be forward-looking, but not very much. Or it might not matter because most health shocks occur once in the year or something. We looked into this in a separate paper with Paul Schrimpf.[6]

In the Part D context, we look at how people's drug purchases respond to the famed "donut hole"—that region of health care spending in which insurance suddenly becomes less generous on the margin and individuals have to pay dollar for dollar for their prescription drugs for a while. We examined what the effects will be of "filling the donut hole" in Part D—i.e., getting rid of that region where individuals face the full costs of their purchases—which is going to happen under the Affordable Care Act in 2020.

We see that a lot of the response is actually anticipatory. It's not just that people who end up in the donut hole spend more when you fill the donut hole and provide coverage in that region. Also, people who are *worried* about ending up in the donut hole and were therefore cutting back their spending earlier in the year to try to avoid reaching the donut hole are affected. In other words, when ACA covers the donut hole, we may find that is going to increase spending not just among people who end up in the donut hole, but also those who anticipate they will.

The Oregon Health Insurance Experiment

Region: You've done a lot of important work recently on interactions between public policy and health, health care and health insurance. I'd like to ask in particular about your work on the Oregon Health Insurance Experiment.[7] What have you discovered about the impact of Medicaid funding on those who receive it? You looked at everything from emergency room use to employment. And could you begin with some background?

Finkelstein: The Oregon Health Insurance Experiment is a randomized evaluation of the impact of covering low-income uninsured adults with Medicaid. In 2008, the state of Oregon realized it had enough money to cover some but not all individuals with its Medicaid expansion program—a program that covers low-income uninsured adults who are not categorically eligible for Medicaid. That is, they are not in a specific eligibility category such as receiving disability insurance or cash welfare. Think of them as low-income but "able-bodied" adults.

So the state had to decide the fairest way to allocate a limited number of health insurance spots. State policymakers felt that first-come-first-served actually wasn't fair because it privileged people who had their act together, those who were more in the know, better informed. They decided that the fairest thing to do was to run a lottery.

We realized that this created an unprecedented opportunity for a randomized evaluation of the impact of Medicaid. The "we" is important here—this was a huge team effort. My co-principal investigator, Kate Baicker, at the Harvard School of Public Health, and I worked with a large team of researchers, including other academics as well as individuals in the state of Oregon.

There's been a lot of conjecture that ... because Medicaid reimbursement rates to providers are so low, providers wouldn't want to treat Medicaid patients. ... Our findings reject this view. We find compelling evidence from a randomized evaluation that relative to being uninsured, Medicaid does increase use of health care.

We looked initially at the three major domains where you think health insurance might have an effect: health care use, financial security and well-being, and health. We looked at the impact of Medicaid in the first one to two years of coverage.

For health care use, we found across the board that Medicaid increases health care use: Hospitalizations, doctor visits, prescription drugs and emergency room use all increased. On the one hand, this is economics 101. Demand curves slope down: When you make something less expensive, people buy more of it. And what health insurance does, by design, is lower the price of health care for the patient.

On the other hand, there were ways in which these results were surprising. For Medicaid, in particular, there's been a lot of conjecture that while in general, health insurance would increase use of health care, that because Medicaid reimbursement rates to providers are so low, providers wouldn't want to treat Medicaid patients. There have been claims in the *Wall Street Journal* and other places that "Medicaid is worthless or worse than worthless." I read an article, I think it was in the *New York Times*, where someone said, "I have Medicaid, but it's a useless piece of plastic. I can't get in to see a doctor."[8] Our findings reject this view. We find compelling evidence from a randomized evaluation that relative to being uninsured, Medicaid *does* increase use of health care.

Another result that some found surprising was on use of the emergency room. There had been claims in policy circles that covering the uninsured with Medicaid might get them out of the emergency room …

Region: Because people would have greater access to preventive care that might lower the need for ER visits.

Finkelstein: Right. And we *do* find that Medicaid increases doctor visits. And it increases preventive care. For example, we find that Medicaid increases mammogram rates by 60 percent. But when we look at the emergency room, we don't find that Medicaid decreases ER use. In fact, we find evidence of the opposite: We found that Medicaid increases emergency room use by 40 percent. That's a really big effect. And it occurs across the board: Whether you looked by patient demographics or by type of care—on-hour care, off-hour care, people who'd had a lot of previous ER visits versus people who hadn't—in every subgroup, we find that Medicaid increases ER use.

How do we understand these results? The point is, Medicaid doesn't just make the doctor free, it makes the emergency room free. And when something is cheaper, we expect people to use more of it. So that's one reason ER use should go up. The hope that ER use would go down comes from the belief that doctor visits are substitutes for the ER, so when the doctor also becomes free, you go to the doctor instead of the emergency room. Maybe this is the case (or maybe it isn't), but on net, our results show any substitution for the doctor that may exist is just not outweighed by the direct effect of making the emergency room free. On net, Medicaid increases use of the emergency room, at least in the first one to two years of coverage we are able to look at.

First and foremost, health insurance is designed to provide financial security. Like fire insurance; fire insurance doesn't prevent your house from burning down. But if it does, insurance provides you with

The second set of results—which to me are the most important in the sense that they get too little attention in public policy discussion—is the basic economic or financial security aspect of

money to either rebuild your house or move to another house. It's the same with health insurance. It's nice if it improves your health, but its first purpose is to smooth your consumption so that when you have these big medical bills, you don't have to forgo food, housing, utilities, et cetera. ... Our results show that the low-income uninsured do face out-of-pocket costs for medical care and that Medicaid substantially reduces this financial risk exposure.

health insurance. First and foremost, health insurance is a financial product. What it's designed to do is provide financial security. Like fire insurance; fire insurance doesn't prevent your house from burning down. But if it does, insurance provides you with money in exactly the state of the world in which you need resources to either rebuild your house or move to another house.

It's the same with health insurance. It's nice if it improves your health, but its first purpose is to smooth your consumption so that when you have these big medical bills, you don't have to forgo valuable food, housing, utilities, et cetera.

There was a question, though, with a very low-income population like ours, of whether there is really any financial risk of medical events, even when they are nominally uninsured. Maybe, in fact, all their care is paid for by ex ante or ex post charity care—that is, charity pays for their care before or after they get sick. However, our results show that the low-income uninsured do face out-of-pocket costs for medical care and that Medicaid substantially reduces this financial risk exposure. For example, we find that Medicaid virtually eliminates catastrophic, out-of-pocket medical spending. So it definitely has this financial security element.

The third set of results are the impacts on health. Here our findings on the impacts of Medicaid are more mixed. On mental health, we find substantial effects. We find that Medicaid lowers the risk of probability of screening positive for depression by 9 percentage points, or 30 percent off baseline. We also find that Medicaid improves self-reported health.

However, we did not detect statistically significant effects on the physical health measures we studied: blood sugar, cholesterol and blood pressure. Now, on the one hand, we picked those measures because they are things that clinical trials have shown are responsive to medical treatment within a short time frame unlike, say, weight loss, which is very hard to move around. So you might have expected them to have an effect. On the other hand, we're only looking one to two years out. Long-run effects could be different.

Another issue is that for some of the health measures, like blood sugar (a marker of diabetes), our results just lack statistical precision. We found that Medicaid increases diabetes medication use. If you look in the clinical trial

literature at what reduction in blood sugar you would expect given the increase in medication we saw, we can't rule out that that reduction in blood sugar may have occurred. We simply lack the statistical power to reach a conclusion here.

But for others of our health measures, the "null" findings are informative. For example, our results for blood pressure. There was earlier quasi-experimental work on Medicaid in the 1980s suggesting that Medicaid reduces hypertension. The confidence intervals on our estimate of the impact of Medicaid on blood pressure allow us to rule out the magnitudes found in the previous quasi-experimental literature. So I think here we update negatively on the likelihood that Medicaid will reduce hypertension.

Region: You also looked for impact on labor activity and found none.

Finkelstein: Yes, we found no impact on labor market activity on employment or earnings, and there we can rule out reasonably sized effects.

Measuring the welfare impact

Region: In your recent paper with Luttmer and Hendren, you took an overall look at the welfare impact of Medicaid based on the Oregon Health Insurance Experiment results and found, I think, that the range was about 20 to 40 cents on a dollar of government expenditure in terms of direct benefit to a recipient.

That indicates that Medicaid may not be a worthwhile program, in a sense. But then you found a substantial *indirect* effect. Would you explain what you found there?

Finkelstein: This paper has been a long time in the works, and it's been very fun working with Nathan [Nathaniel Hendren] and Erzo [Erzo F. P. Luttmer] on it. In the papers I've written with the Oregon Health Insurance Experiment team of researchers, we deliberately steered away from trying to do any welfare analysis. The experimental results themselves are straightforward experimental analysis—clear, easy to explain, and (I think) very compelling.

Welfare analysis is much trickier and requires the researcher to make a number of assumptions. For example, how much do you value a statistical life? How risk averse are people? You can do a better or worse job on that—and Nathan and Erzo and I certainly tried our best!—but by necessity welfare analysis adds a layer of complexity and assumptions to the clear-cut empirical results. So we wanted to keep those distinct.

But then having been careful not to do any sort of casual, armchair welfare analysis in presenting the experimental results, it was very striking that the public didn't shy away from doing so. The media and the public policy world were eager to jump to welfare conclusions—often wildly different ones,

depending on which results they focused on. Conclusions in the media based on the Oregon results ranged, for example, from "Medicaid makes a big difference" to "Medicaid doesn't actually help the poor."

So Erzo and Nathan and I asked: Can we say something more systematic and objective? And the first answer we came to is: It's hard because this is not a good that's traded in the market; it's a publicly provided good. Economists' standard way of doing welfare analysis is to look at demand.

The nominally "uninsured" are not really completely uninsured. They have substantial implicit insurance. ... A lot of spending on Medicaid is going to a set of people who, for want of a better term, we refer to as "external parties."... So, in terms of the total welfare impact of Medicaid, you have to grapple with the transfers Medicaid delivers to these providers of implicit insurance. Is the ultimate incidence to Medicaid recipients and their families? Does it accrue to hospital CEOs?

Region: Right: "willingness to pay."

Finkelstein: Yes, but what's demand for [government-funded health insurance]? This isn't a traded good where individuals face prices for Medicaid and you can observe demand, or willingness to pay. So we take a variety of approaches and, in each one, we do a bunch of sensitivity analysis to the inevitable assumptions.

Region: And this is why you present a range of welfare estimates?

Finkelstein: Yes, and our central estimate is that the value of Medicaid to a recipient is about 20 to 40 cents per dollar of government expenditures. A priori, you might have thought it would be much larger than a dollar because there's a value to insurance, or it could have been smaller because of issues such as moral hazard.

The *other* key finding is that the nominally "uninsured" are not really completely uninsured. We find that, on average, the uninsured pay only about 20 cents on the dollar for their medical care. This has two important implications. First, it's a huge force working directly to lower the value of Medicaid to recipients; they already have substantial implicit insurance. This gives me a lot of confidence that our central welfare estimates of a value of Medicaid to recipients of about 20 to 40 cents per dollar of government spending are "real"—that is, they are not just driven by our inevitable assumptions, but are coming pretty directly from the data.

Second and, crucially, the fact that the uninsured have a large amount of implicit insurance is also a force saying that a lot of spending on Medicaid is not going directly to the recipients; it's going to a set of people who, for want

of a better term, we refer to as "external parties." They're whoever was paying for that other 80 cents on the dollar.

Region: So, a relative, or the health care system itself.

Finkelstein: Right. And, in fact, there's a paper being presented here[9] tomorrow by Craig Garthwaite, Tal Gross and Matt Notowidigdo (2015) that suggests that a lot of the incidence of Medicaid is actually on uncompensated care by hospitals, so it's actually hospitals that serve the poor that benefit [from Medicaid].

Region: They write, "Each additional uninsured person costs local hospitals $900 each year in uncompensated care." That's a lot.

Finkelstein: Right, and I think that work is very complementary to ours. Matt is a co-author of mine in other work, and we have joked that it's good we wrote these two papers separately, because they complement each other so well. If we had written them together, we would have been accused of colluding!

The fact that so much of the health care costs of the "uninsured" are borne by people other than them is incredibly important for thinking about our welfare results. Welfare benefits to Medicaid *recipients* are only 20 to 40 cents per dollar of government spending, but whoever was providing the implicit insurance to the previously "uninsured" are also getting large benefits.

So, in terms of the *total* welfare impact of Medicaid, you have to grapple with the question of the ultimate economic incidence of the transfers Medicaid delivers to these providers of implicit insurance for the uninsured. Is the ultimate incidence to Medicaid recipients and their families? Does it accrue to hospital CEOs?

In some sense, our paper raises as many questions as it answers. The clear next step is to think about the ultimate economic incidence of these transfers to external parties. How much of it is accruing to low-income, sick individuals or their families? How much is it accruing higher up the income distribution?

Thinking about our own work and other related work over the last year, my view of what it means to be "uninsured" has changed. The "uninsured" are not as uninsured as we might have thought.

Now, that doesn't mean there aren't benefits to insurance. Some people respond to our results by saying, "This insurance isn't as valuable as real insurance. You might wait to go to the doctor," et cetera, et cetera. The results from the Oregon Health Insurance Experiment allow us to quantify these potential benefits. What are the health benefits of substituting this implicit insurance for formal insurance? What are the financial benefits?

Expanding randomized controlled trials

Region: One thing that makes the Oregon Health Insurance Experiment so valuable is that it is a randomized controlled trial (RCT). Would you discuss that aspect in particular?

Finkelstein: There have been literally hundreds of studies on the impact of Medicaid. I think the reason the Oregon Health Insurance Experiment gets a lot of attention in the media and in public policy speaks to the power and credibility of randomized controlled trials, not just in academia, but the broader public, which really understands and values it.

But the truth is, what we did in Oregon was not rocket science. And in my mind, that's a feature, not a bug. Unfortunately, one reason the Oregon experiment gets so much attention is that randomized trials on important domestic health policy questions are too rare.

Region: But you and your colleagues are addressing that—trying to expand their use in the United States.

Finkelstein: Yes. When I saw the attention the Oregon Health Insurance Experiment was getting, I realized that some of it is because it's a very exciting experiment and we hopefully did a good job analyzing it. But a lot of it, as I said, is because it's rare to have these randomized trials domestically on questions of how health care services are delivered.

And then I just looked down the hall at MIT, and my colleagues are running dozens of experiments around the world, through J-PAL, which is the Abdul Latif Jameel Poverty Action Lab. It was founded at MIT back in 2003, and J-PAL has been promoting randomized trials on a wide range of antipoverty programs.[10] They've had an enormous influence on changing the norms in the field of international development to doing more randomized evaluations and helping policymakers understand—and act on—the results.

They've been working in a host of countries for years, with regional offices around the world: J-PAL Africa, J-PAL Southeast Asia, J-PAL South Asia, J-PAL Latin America, J-PAL Europe. And it's like, "Gee, which continent is missing there? Not Antarctica, but North America."

So, two years ago, together with Larry Katz at Harvard, I founded J-PAL North America. It's J-PAL's newest regional center, also based at MIT, and is designed to support, encourage and promote randomized trials on important domestic policy issues. Over the past two years, we've expanded J-PAL's network to include many of the leading academics who have been pioneering the use of randomized trials in the United States, across a wide range of sectors, like education, energy, housing or employment.

Region: You and Sarah Taubman (2015) just wrote a paper that makes a strong case for broadening the use of randomized controlled trials in U.S. health care delivery and suggests a number of ways to design RCTs to overcome cost and ethical issues that sometimes stand as obstacles. Could you tell us about that?

Finkelstein: When we looked at the data, we discovered that 80 percent of intervention studies on medicine in the United States are randomized.

Region: Is this just drug trials?

Finkelstein: No, not exclusively. And even if you leave out drugs, about two-thirds of medical intervention studies were randomized. This includes intervention studies on medical devices, surgical procedures, et cetera. Whereas, if you look at *health care* interventions, it's less than 20 percent.

Now, a lot of dollars and efforts are going into health care policy and issues of how we deliver health care, not just the medical side of it. So it seemed to us unfortunate that it's so rare.

Region: But you also discuss reasons for that scarcity, that there are objections to carrying them out having to do with ethics and cost. And you propose potential solutions to both of those problems. Would you elaborate on that?

Finkelstein: Sure. On the ethics side—that actually relates to what we were just talking about in Oregon—it's unethical to do a randomized trial when you know one policy or intervention is better than another, *and* you have the resources to give it to everyone.

Often in health care policy, there *is* equipoise; we don't actually know which form of health care delivery is better. But more to the point, even when we have a sense that Medicaid or something else helps people (even if we don't know exactly how or how much), resources are often very limited. The Oregon Health Insurance Experiment, as I said, came about for fairness reasons. Usually, policymakers running programs are constrained, for logistical reasons and often for financial reasons, so they're effectively rationing care,

or rationing insurance.

Unfortunately ... randomized trials on important domestic health policy questions are too rare. ... Historically, randomized controlled trials on health care delivery have been conducted the way medical trials are done, which is extremely expensive, in terms of both time and money. ... To address the cost obstacle to RCTs in health care, another proposal was to realize the vast and largely untapped potential of administrative data, which allows for essentially costless follow-up on a census of individuals with extremely rich, detailed data.

Region: Oregon's policymakers had a limited budget and wanted to spend it wisely, and fairly.

Finkelstein: Right. They had to decide the fairest way to allocate a limited number of Medicaid spots.

Region: Various pundits have mocked such plans, referring to them as "gambling for health" or "health care lotteries."

Finkelstein: The truth behind that joke is that if you had the funding to cover everyone and you withheld it from half the people simply to run a research experiment, that clearly would be unethical. But if you're going to be allocating scarce spots in an ad hoc manner, why not make it *systematically* ad hoc?

Relatedly, one of the new randomized trials I'm doing on health care delivery is with Dr. Jeff Brenner of the Camden Healthcare Coalition in Camden, New Jersey, an extremely low-income area. He's been written up in *The New Yorker* by Atul Gawande (2001) for his extremely innovative health care intervention —health care "hot spotting" —where they target the super-utilizers of the health care systems. These are people who have been to the hospital two or more times in the last six months, have two or more chronic conditions, use five or more drugs.

They try to reduce the risk of these individuals returning yet again to the hospital. Their intervention is based on the very plausible theory that when you're going to the hospital that much, yes, there is an underlying medical pathology, but something else has broken.

Their intervention is a post-discharge intervention involving a health care "team"—a social worker, a nurse, a health coach, et cetera. They enroll you while you're still in the hospital and follow up with you post-discharge for 30 to 90 days. They try to get you in to see your primary care physician right after the hospitalization. They try to make sure you understand which medications you are supposed to be on and that you're taking the right medication. They connect you with social support services and so on. They try to break that

cycle of repeated hospital readmissions.

And Dr. Brenner is an extraordinary individual. He's gotten a lot of publicity for this intervention, all very positive. He's gotten major grants to expand it to other sites around the country, and he won the MacArthur "genius" award for his work. But when we approached him, he saw the value instantly of a randomized controlled trial. He's said, "I think what we're doing is working, but you're absolutely right. There's a huge amount of mean reversion in this population. They're very, very sick people. We're selecting on that. Statistically, of course, they are likely to be less sick in the future. We need a rigorous study to see whether our intervention is actually reducing readmissions."

And, again, going to the ethics issue, they don't have the money, despite all of his success, to serve everyone in the Camden population who meets the eligibility criteria for the intervention. They were kind of catch-as-catch-can and missing about half the eligible population due to scarce resources. So what we did is to work with him to make access to the intervention literally random rather than merely ad hoc.

Region: In addition to ethical concerns, there are often cost concerns about randomized controlled trials—not just the cost of intervention, but of the *research* itself.

Finkelstein: Historically, randomized controlled trials on health care delivery have been conducted the way medical trials are done, which is extremely expensive, in terms of both time and money. You individually recruit people, get their consent and then follow up through primary data collection of additional surveys. The follow-up is not only extremely expensive, but runs into methodological issues since you can't always find the people on follow-up, and it may be easier to find the people who are in the treatment arm of the experiment because you've been having more contact with them.

So to address the cost obstacle to RCTs in health care, another proposal that Sarah Taubman and I made in that *Science* piece, drawing on our experiences in Oregon, was to realize the vast and largely untapped potential of administrative data, which allows for essentially costless follow-up on a census of individuals with extremely rich, detailed data.

All of the work we're doing in Camden, New Jersey, is off the administrative data, so that the incremental cost of this randomized controlled trial is one additional recruiter to do the randomization and talk people through the consent form. We don't incur the costs of primary data collection.

I think there's real potential for more RCTs in U.S. health care delivery. J-PAL North America is working to help realize that potential in a number of ways. For one thing, we have some very generous funders who have given us money to allocate to researchers in our network who want to do RCTs to improve the

efficiency of U.S. health care delivery. In addition, we do a lot of matchmaking. J-PAL North America staff have many conversations with practitioners who are trying to improve health care delivery—be they a health care system, a state government, an employer or an insurer—and learn which problems they want to solve. J-PAL staff then connect those practitioners with researchers who want to study these questions.

Beyond this, we provide support for researchers and practitioners so they don't have to reinvent the wheel for each study. We also create and share research "public goods," such as tips on how to design a study's recruitment and consent, examples of data use agreements and help with many of the other small hurdles that may otherwise delay or derail a promising research opportunity.

Methodology

Region: You're somewhat unusual among economists in that you use both experiments and semistructural econometric techniques in your research, with great success. What guides your choice of one approach versus the other, and what are their relative merits?

Finkelstein: One of the fun things about research is getting to learn and use different techniques as appropriate. In terms of my use of both "reduced form" experimental techniques and "structural" techniques, the most important thing to emphasize is that I view these techniques as complements rather than substitutes.

So-called reduced form methods—be they literal experiments or quasi-experiments—are invaluable for providing transparent and compelling estimates of causal effects. But often the use of economic models and modeling techniques is important in translating the experimental "treatment effects" into economic objects that can be used out of sample.

I'll give you an example from the paper we were talking about earlier on prescription drug purchase decisions and health insurance contract design. Liran, Paul and I focused on Medicare Part D, the program for prescription drug insurance for the elderly, and especially on the famous "donut hole," where insurance suddenly becomes less generous on the margin, with people jumping from paying about 30 cents on the dollar to about 90 cents.

We show very clear visual evidence of a response to this increase in price: A graph of the distribution of annual drug spending shows that a lot of people "bunch" right at the donut hole—that is, they stop buying drugs once they enter the donut hole, where drugs suddenly become a lot more expensive for them. This is pretty compelling evidence that there *is* a behavioral response to insurance: When consumer cost-sharing goes up, people buy fewer drugs.

So, this reduced form evidence of "bunching" is useful in rejecting the null of

no behavioral response to insurance in a simple and clear way. That's statistics jargon. When I say "rejecting the null of no response," I mean being able to reject a hypothesis that nothing occurs and conclude, rather, that there *is* a response to price change.

But we wanted to go beyond this "rejecting the null" to actually quantify the spending response. For example, we wanted to try to forecast how drug spending would respond to contracts we don't see in the data, such as the requirement under the Affordable Care Act that the donut hole be "filled in"—that is, that cost sharing *not* increase—by 2020. Well, to do that you need a model—both an economic model of behavior and a set of additional econometric assumptions to estimate it—that allows you to take the reduced form evidence of a behavioral response and use it to make predictions.

These approaches are complements, not substitutes. Without the bunching evidence, I wouldn't be confident that there is an underlying behavioral response. But without the additional modeling assumptions and estimation, I wouldn't know how to "use" that bunching in an economic sense.

Future work

Region: Let's jump to the future. You're very active here at the National Bureau of Economic Research in health care and also with Raj Chetty on public economics.[11] What do you see as some of the most pressing issues in those two arenas and some of the promising research avenues?

Finkelstein: Well, there are many important and active areas of research in both public economics and health care. I won't pretend to cover them all. But I can mention where I see my own research heading—which, by revealed preference, I presumably view as some of the most pressing and promising avenues!

As I mentioned, a lot of my work has been focused on insurance, particularly health insurance. There is naturally a lot more to learn here. But for myself, I feel like I'm starting to hit diminishing returns in that area. I feel myself pivoting—and it may be a subtle pivot to anyone except me—from health insurance to health care delivery: thinking about issues related to the efficiency of health care delivery, different organizational forms of health care delivery, different ways of designing health care systems.

I watched as an outsider—I was not involved in the policy process at all—the discussions around the Affordable Care Act. The act was intended to do two things. One is cover the uninsured, which we kind of know how to do. There are more or less efficient ways of doing it, and we know a lot about that now, thanks to a number of health economists who have done a lot of work on that question.

The other thing the

The Affordable Care Act tried to slow the growth of health care spending. That's a much harder problem. There's both a lot of overuse of unnecessary procedures and a lot of underuse of low-cost, effective things. How do we design health care systems to efficiently deliver the care we think should be delivered?

Affordable Care Act tried to do is slow the growth of health care spending. That's a much harder problem. We think that there's both a lot of overuse of unnecessary procedures and a lot of underuse of low-cost, effective things. How do we design health care systems to efficiently deliver the care we think should be delivered and reduce use of the care we think is unnecessary?

At the micro level, I'm eager to start a bunch of randomized controlled trials to look at specific interventions that try to improve the efficiency of health care delivery. For example, as we discussed, we're working with Dr. Brenner and the Camden Coalition to see if we can reduce hospital readmissions among super-utilizers of the health care system. We're doing another RCT with Mt. Sinai Healthcare System in New York City looking at whether clinical decision support software can help reduce overscanning. I'd like to do more studies like this!

In addition to studying the impact of particular interventions at the micro level, I'm also interested in thinking about questions that are more systemwide: How do we design public insurance and different types of incentive structures to try to get more efficient health care delivery? In other words, to try to get the market to adopt the most effective interventions and designs. These are hard questions! But hopefully we can make some progress.

What excites me about this whole set of questions on health care delivery is that it's an area that, to me, is at that sweet spot for research of being both an incredibly important set of issues and ones where we don't already know the answers.

There are areas of economics that are incredibly important and the policy world has not caught up, but where the *economists* are mostly in agreement on what the optimal solution is. But what's exciting to me about this work on health care delivery is, well, if you made me king of the world, I wouldn't actually know what we should do.

The constraints in health care delivery aren't just constraints of the political process; there are a lot of real intellectual constraints. There's a lot we don't yet know about how best to design these systems, and that makes it an extremely fun and exciting area to work in and to advise students in.

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ENDNOTES

1 "We make the bald assumption that individuals know their accident probabilities, while companies do not. Since insurance purchasers are identical in all respects save their propensity to have accidents, the force of this assumption is that companies cannot discriminate among their potential customers on the basis of their characteristics" (Rothschild/Stiglitz 1976, p. 623).

2 See **interview with Poterba**, June 2008, *The Region*.

3 See the **Dartmouth Atlas of Health Care**.

4 See Aron-Dine, Cullen, Einav and Finkelstein (Forthcoming).

5 See Aron-Dine, Einav and Finkelstein (2013); Aron-Dine, Cullen, Einav and Finkelstein (Forthcoming); Einav, Finkelstein and Schrimpf (2015).

6 See Einav, Finkelstein and Schrimpf (2015).

7 See **www.nber.org/oregon** and **www.povertyactionlab.org/publication/insuring-uninsured**.

8 See Pear (2011).

9 Interview was held at the NBER Summer Institute in Cambridge, Mass.

10 See **interview with Duflo**, December 2011, *The Region*.

11 See **interview with Chetty**, December 2014, *The Region*.

MORE ABOUT AMY FINKELSTEIN

Current Positions

Ford Professor of Economics, Massachusetts Institute of Technology, since 2012; Professor of Economics, 2008-12; Associate Professor of Economics, 2007-08; Assistant Professor of Economics, 2005-07

Co-Scientific Director, J-PAL North America, since 2013

Co-Director, Public Economics Program, National Bureau of Economic Research, since 2008; Research Associate, since 2007; Faculty Research Fellow, 2001-07; Visiting Scholar, Demography of Aging, 2001-02

Previous Positions

Visiting Professor of Economics, Booth School of Business, University of Chicago, 2010-11

Junior Fellow, Harvard Society of Fellows, 2002-05

Staff Economist, Council of Economic Advisers, Washington, D.C., 1997-98

Professional Affiliations

Associate Editor, *Journal of Economic Perspectives*, since 2014

Member, Executive Committee, American Economic Association, since 2013

Member, Panel of Health Advisers, Congressional Budget Office, since 2013

Study Section Member, Social Sciences and Population Studies, National Institutes of Health, since 2010

Fellow, TIAA-CREF Institute, since 2009

Honors and Awards

ASHEcon Medal, 2014

Arrow Award for Best Paper in Health Economics, iHEA, 2013

Fellow, Econometric Society, 2012

John Bates Clark Medal, 2012

American Academy of Arts and Sciences, elected 2012

Institute of Medicine, elected 2009

Presidential Early Career Award for Scientists and Engineers, 2009

Elaine Bennett Research Prize, 2008

Alfred P. Sloan Research Fellowship, 2007-09

Publications

More than three dozen research articles and working papers, particularly focused on health care spending, health insurance markets and policy analysis

Education

Massachusetts Institute of Technology, Ph.D., economics, 2001

Oxford University, M.Phil., economics, 1997

Harvard University, A.B., *summa cum laude*, government, 1995

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