IlLUminate Blog Transcript: Chad Meyerhoefer on How Disaster Shocks Affect Farmers' Health Care

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ANNOUNCER: 00:03	This podcast is brought to you by ilLUminate, the Lehigh Business blog. To learn more, please visit us at business.lehigh.edu/news.
JACK CROFT: 00:15	[music] Welcome. I'm Jack Croft, host of the ilLUminate Podcast for Lehigh University's College of Business. Today is April 4th, 2025, and we're talking with Chad Meyerhoefer about his recent study on whether income shocks from natural disasters reduce farmers' access to health care. Dr. Meyerhoefer holds the Arthur F. Searing Professorship in Economics and is the chair of the Department of Economics in Lehigh's College of Business. His research focuses broadly on the economics of health and nutrition and involves the use of microeconometric methods to evaluate and inform public policy. Chad, thanks for joining us again on the ilLUminate podcast.
CHAD MEYERHOEFER: 01:00	Hi, Jack. It's nice to talk to you today.
CROFT: 01:03	Now, what was it that initially piqued your interest in looking at the question of whether natural disasters reduce farmers' access to health care?
MEYERHOEFER: 01:14	Well, I've been interested in the welfare of farmers for many years now. And one of the reasons for that is that farming is a risky profession. So farmers have higher rates of illness and disability than the general population. And so many countries have social insurance programs for farmers to compensate for that. And I've done some research in the past with Hung-Hao Chang at National Taiwan University on this topic. And one of the things that came out of our earlier discussions and papers we'd written in the past was how income shocks affect farmers' managerial decisions and how they affect their health and well-being. Taiwan has some nice features in that they have a nationalized health care program. They have a program that covers farmers specifically, and we are able to use those data to look at this question.
CROFT: 02:17	Now, you had mentioned that Taiwan has a nationalized health care program. And most of the farmers in Taiwan, as the paper notes, are enrolled in the Farmer's Health Insurance Program, or FHI for short. So how does that program work? And did it offer any benefits or obstacles in getting the data you needed to conduct the study?
MEYERHOEFER: 02:43	This is one of the differences between the U.S. and Taiwan and some other countries, such as countries in Europe. This nationalized health insurance program in Taiwan is a little bit more generous in its coverage of farmers than it is for the general population. And it includes some benefits like a pension, maternity leave, that are not components of the normal health insurance program. That's not the case in the U.S. So in the U.S., access to health care for farmers was, prior to the ACA {Affordable Care Act], somewhat difficult because they weren't part of employer groups. So they had to either buy insurance in the private market, where rates were very high, or form collectives to buy group insurance. Now, after the Affordable Care Act, that became easier because of the health insurance exchanges. In the case of Taiwan, farmers had that easier access to health insurance. But the one thing that health insurance doesn't cover is protection from income shocks. And that's kind of what this study focuses on.

So if you think about how health insurance works, it basically reduces your out-of-pocket costs when you go to seek medical care.

MEYERHOEFER: 04:05

So that does reduce your expenditure, but how large that reduction is depends on the size of the medical care bill. It's not linked to your ability to pay. So if, for example, you lose your job, that doesn't change your out-of-pocket costs for health care. It doesn't change your co-insurance or your co-payment amount. That's true in Taiwan. It's true in the U.S. and other countries as well. Now, in the case of farming, there are a lot of income shocks. And one of the reasons why we conducted this study in Taiwan is because they are subject to a large number of natural disasters, more than in many other countries. And that's just because of their geographic location. So they have a lot of typhoons. They have heavy wind and rain at times, and they get high temperatures. So all these things produce income shocks, and those reductions in income could affect access to health care in a way that the insurance program doesn't really account for. So even though the Farmers Health Insurance program in Taiwan is very comprehensive, like many health insurance programs, it doesn't protect against these income changes.

CROFT: 05:27

Now, how does Taiwan's agricultural disaster relief program work?

MEYERHOEFER: 05:32

This program is a little different than how programs in the United States work. In the U.S., we have a crop insurance program, which is a public-private partnership. And so farmers, essentially, they buy crop insurance from a private insurance company that's subsidized by the U.S. government. And they can choose two forms of protection. So there's the option of getting yield protection where if the crop is damaged in a hurricane, for example, or because of a drought and the amount that they harvest goes down, they're insured against that loss. There's also the option of revenue protection, where if the price for the crop drops significantly, the insurance policy will pay some of the difference between the expected price and the lower price. So that's the way crop insurance and farmers are protected from natural disasters in the U.S. There's no crop insurance in Taiwan. Rather, they have a disaster relief program. And the way it works is that after a natural disaster, if at least 20% of the crop is damaged, the farmer can apply to this program. And they submit a claim that indicates the number of damaged hectares or the amount of damaged livestock or livestock that are destroyed in the disaster, then a government official comes to the farm and they inspect the damage. And if their claim is approved, then they receive compensation for 50% of the lost production cost for that crop. So it provides some insurance, if you will, against the loss from the natural disaster. But it's only half of the lost value. So that's how the program works in Taiwan.

CROFT: 07:30

One of the points that your study looked at was the role that politics plays in the allocation of who gets the agricultural disaster payments. And what did you find there?

MEYERHOEFER: 07:45

Right. So I think this is very interesting. And I didn't realize before I began this study how important politics was to the receipt of this type of aid, both in Taiwan and the U.S. and other countries. So the way it works in Taiwan is that the government sets a budget for this disaster aid at the beginning of the year. And under regular circumstances, when a disaster occurs, the farmer submits a claim, and if the aid is approved, all farmers who submit a claim that's approved receive the payments. But there's another type of aid that's called emergency aid. And with that emergency aid, the farmer doesn't need to submit a claim. The administrator, the manager of the township, submits the claim. So they basically submit the claim on behalf of all farmers in the township. And then if that is approved, all those farmers in the township receive payments. But in that case, for emergency aid, it may not be that all affected townships receive the payments. The government creates a priority ranking of townships, and then they give payments to the townships with the highest priority, and how many of those they supply aid to depends on their budget. And this township priority ranking also comes into play for non-emergency aid if the government's initial budget is exhausted. And so they have a natural disaster, but they've already spent their reallocated disaster funds.

MEYERHOEFER: 09:26

So in the end, 50% of aid is emergency aid in Taiwan, and 50% is regular aid. And then some of that regular aid occurs after the exhaustion of the budget, which means over 50% of the aid allocations are based on this township priority ranking. It turns out that townships who have a larger number of supporters of the ruling party are more likely to be ranked higher than townships that have fewer supporters. So there's a previous study that's been done that's shown this, it's proved this empirically that in townships where they're more politically aligned with the ruling party, they receive preferential placement in that ranking. And there have also been studies that show that this is true in the U.S. So for example, there's a study that showed that over 50% of FEMA aid relief is subject to political manipulation and that some of the emergency agricultural disaster aid in the U.S. has gone to areas where there is a congressperson who's in charge of the committee that determines those aid allocations. So both in Taiwan and the U.S., the bottom line is that if the place that's affected by the natural disaster has more supporters of the ruling party, they're more likely to get the aid.

CROFT: 11:00

Without getting too deep into the weeds here, if you could talk a bit about the various data you analyzed to conduct the study.

MEYERHOEFER: 11:10

Right. So we compiled a lot of databases. So we have data on health care use and expenditures from this Farmer's Health Insurance program. And then we looked at or we obtained data on these disaster relief programs that we merged into those data at the township level. And then we also looked at this agricultural census survey to investigate after natural disasters people compensate by working more off the farm or changing their labor supply. So we can actually use this disaster relief program data to figure out in each township how much damage there was. What we do is we link that amount to-- we sort of link the amount of the damage and look at the time period before the payments receive the disaster aid. So essentially, when the disaster occurs, there's a delay before they receive that aid. And it's about 52 to 67 days, so about two months. And so we essentially look at what happens to their health care use in the two months following the disaster. Because at that point, their potential income has gone down quite a bit, and they don't necessarily know if they'll receive the disaster aid. So they behave as if they've lost that income. And then we also look at what happens after they get the aid, if that reverses their behavior. That was essentially how we went about the analysis.

CROFT: 12:52

Looking at all of that data, what were your main findings? Do natural disasters reduce farmers' access to health care in Taiwan? And if so, how?

MEYERHOEFER: 13:05

We found that they do. And the extent to which they reduce use of health care services is similar to the very limited evidence we have from other countries. So one of the challenges here in looking at how changes in income affect use of health care services is that there are very few instances where income changes are random, so you can't really isolate the causal effect of a change in health care use due to a change in income. So there's very limited evidence, but the general conclusion is that health care use is not very responsive to changes in income. Some studies have shown there's really no effect. So when people maybe lose their jobs or they lose money in the stock market or by some other mechanism, they don't reduce their health care that much. But then in the higher quality studies that really look at random changes in income, they find that they do. And so what we find is that farmers do reduce their use of health care services after these disasters. And it's essentially like if their income drops by, say, by 1%-- well, if their income drops by, say, 10%, then they reduce their use of health care services between 1.1 and 3.2 percent. So it's not like super responsive, but it does respond to the income drop. So they do use fewer health care services.

CROFT: 14:51 Are there implications for policymakers in Taiwan as a result of your study?

MEYERHOEFER: 14:58 I think there are. And one of the main policy issues here is that if you have people that are taking prescription drugs regularly or using preventive care, and they forego investing in those health care services or maintaining their compliance with their prescription drug regimen, then it will typically have negative adverse consequences in the future for their health and for health care costs. So a lot of studies have looked at what happens to hospitalization rates and hospital costs when people experience a drop or something that increases their cost of outpatient health care or their cost of prescriptions. And they generally find pretty big offsets, meaning that if they stop spending money on outpatient visits or drugs, then they end up having to spot-- either they or their insurance company has to spend a lot of money on hospital costs because they end up in the hospital due to the failure to prevent some condition that is expensive to treat. And so we actually simulated if this drop in health care occurred in Taiwan after these disasters and it persisted for a little while, what effect would that have? And so using our results and those of other studies, we determined that the average reduction in income after these disasters would increase downstream hospital costs by about 2.7% because of the fact that farmers have less income and go to the doctor less, fill fewer prescriptions after these disasters.

MEYERHOEFER: 16:57 So that 2.7% increase in hospital costs, that's about 10% to 20% of the amount of the disaster payments. We looked when the farmers receive those disaster payments or the farmers that do receive those disaster payments, that compensates for that income loss. And so what we find is that's enough to essentially restore their use of health care services. And one way of looking at this is that if those payments are given, the full cost isn't what you see in the data. It's actually 10% to 20% less than that cost because you're saving money on future hospital costs that would occur if you didn't provide these payments. So even though this disaster relief program is not designed to ensure access to health care or to reduce health care costs, it does do that. From a policy standpoint, it means that if you don't take this cost offset into account, this disaster program is going to look more expensive than it really is to the government. That's one thing. And then the other implication is that if you want to-- even if those disaster payments are given, it takes two months for farmers to receive them. For some people, that failure to use health care services over that two-month period could matter to their health status. And so if you want to-- if you want to prevent that drop, then you could think about changing the design of the Farmer's Health Insurance plan to be something like, "Well, after a natural disaster, you have no out-of-pocket costs." You basically eliminate the out-of-pocket costs for that temporary period of time, which will hopefully keep farmers from-- reduce that drop in health care demand.

CROFT: 19:11 Now, you've talked about some of the differences between Taiwan and the U.S. and other countries. But I'm wondering if there are implications for policymakers in the United States or other countries that policymakers may want to consider.

MEYERHOEFER: 19:30 So I think we can draw some more general conclusions from this study. And those are relevant for the U.S. and other countries. And the more general conclusion is individuals that are subject to income shocks, whether they be farmers or they be wage workers, when they experience that income shock, it will reduce their access to health care services. And health insurance is not-- there's nothing about the way health insurance is designed that compensates for that. So out-of-pocket costs and cost sharing do not change based on how your income fluctuates. The only exception would be if, for example, somebody had private insurance and then they experienced an income drop that was large enough so that they qualified for a public insurance program that was maybe more generous than their prior insurance or equally generous, but they maintain their coverage. So that would be the case in the U.S., for example, if somebody lost their job and then they qualified for Medicaid, then that would compensate for that reduction in income. But there's many cases where that income shock, it's not sufficient for that to occur. There's several conditions associated with enrolling in Medicaid, which is a public insurance program in the U.S. Depending on the state you live in, even if your income drops to zero, you may still not qualify because the eligibility criteria is based on not just the change in income, but it's also based on whether you have children or if you're chronically ill or if you're disabled.

MEYERHOEFER: 21:22 The lesson here is that if we want to do a better job of ensuring access to health care services, then we have to think about ways that out-of-pocket costs in health insurance can be modified when people experience these large income shocks. And there's various ways of doing that. You can have a supplemental insurance that's sort of attached to health insurance that provides benefits or a supplemental income assistance that's triggered when you experience a large income shock, like when you lose your job or if there's a natural disaster or some other event. And that would be beneficial because it would reduce the likelihood that people essentially stop going to the doctor when something happens and they lose some of their income. That's important, especially for people who have chronic conditions that require regular access to health care services. And things could be more subtle. Sometimes it's not necessarily a loss in income. It's an increase in costs. For example, if something happens to oil markets and home heating oil costs increase significantly, it's the same thing. It's essentially a reduction in real income. So those are things that we need to think more carefully about and think of ways that we can kind of protect people from those unexpected risks.

CROFT: 22:52 Now, I know we've covered a lot of ground concerning this study, but I do want to give you a chance if there is anything else that we haven't discussed that you think is important for our listeners to know about your latest research?

MEYERHOEFER: 23:08 I think the main point is that we need to do more research on these income-based insurance mechanisms. That's something that would be very beneficial. And so more broadly, I think that the way-- obviously, providing people access to health insurance is the most important thing because it significantly reduces their cost risk of accessing health care services. But going to the next level where we optimize or fine-tune those policies to account for a broader set of income shocks would be where we need to head in the future. And so I'm hopeful that we can do more research on this and this can help everybody because it can be deployed in public insurance programs as well as in private insurance programs.

CROFT: 24:04 Chad, thanks again for joining us on ilLUminate today. And as usual, your research is very helpful and gives us some other things to consider.

MEYERHOEFER: 24:17 Thanks, Jack. It's been great talking with you.

CROFT: 24:20 Chad Meyerhoefer's research has appeared in top field journals in economics and information systems, such as the American Journal of Agricultural Economics, Information and Management, the Journal of the American Medical Informatics Association, and the Journal of Health Economics, as well as leading journals in health policy, medicine, and dentistry. Chad's research also has been supported by the National Institutes of Health and the Agency for Healthcare Research and Quality. This podcast is brought to you by ilLUminate, the Lehigh Business blog. To hear more podcasts featuring Lehigh Business thought leaders or to follow us on social media, please visit us at business.lehigh.edu/news. I'm Jack Croft, host of the ilLUminate podcast. Thanks for listening.