

UNEDITED TRANSCRIPT

Will the Coronavirus Derail the Global Economy?

Featuring Chang-Tai Hsieh, Yanzhong Huang, Emily Landon and Eliza Barclay

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ZHIGUO HE: OK, good evening. Thank you all for coming here today for this event. My name is Zhiguo He. I'm a professor of finance at the Chicago Booth and a Fama-Miller co-director at Chicago Booth. It is my pleasure to welcome you to tonight, to the event hosted by BFI-China, "Will the coronavirus derail the global economy?"

As you may know, the Becker Friedman Institute for Economics serves as a platform for the 250-plus economists on the University of Chicago campus. In 2018, we launched BFI-China in order to bring the rigor of Chicago economics to the forefront of addressing the challenges that the Chinese economy and that the world is facing. This groundbreaking partnership between UChicago economists and the Chinese researchers and institutions will produce new insights on these critical policy challenges and aim to share these findings with the world.

Under the umbrella of a BFI-China, we are organizing today's discussion on a significant issue that is facing both China and the world right now. The rapidly evolving coronavirus outbreak has led to significant speculation in the media about the global economic and health implications of the crisis. One of our goals with this roundtable is to shed light on what we know and perhaps debunk some of the myths that are circulating around the potential epidemic.

We have a great panel today, experts joining us tonight. The full bios are in your program that are in your hand, but let me give some brief introductions. First of all, I would like to introduce a close colleague of mine, Chang-Tai Hsieh. Chang-Tai is a professor of economics at Chicago Booth as well as director of Chinese growth and economic initiative for BFI-China, and a co-director of BFI's development economics initiative.

Next to Chang-Tai, I would like to welcome Emily Landon, associate professor of medicine and executive medical director for infection prevention and control at the University of Chicago Medicine. Finally, I'd like to welcome back to campus the UChicago alum Huang Yanzhong. Yanzhong is a professor and the director of the Center for Global Health Studies at the Seton Hall University and is a senior fellow for global health at the Council on Foreign Relations.

To moderate our discussion tonight, we're very pleased to have Vox science and health editor

Eliza Barclay. We appreciate her joining us today-- tonight-- to lead this exciting discussion. With that, I hand this program over to Eliza. Thank you.

[APPLAUSE]

ELIZA BARCLAY: Thank you so much. I am thrilled to be here to moderate this conversation with this incredible panel. I'm going to start by pulling up this page. Is it there? Yeah, OK. Just to-- well, you guys can't see it.

EMILY LANDON: It's over there.

YANZHONG No, I'm OK.

HUANG:

EMILY LANDON: But we can see here.

ELIZA BARCLAY: Oh, there it is.

YANZHONG Oh, OK.

HUANG:

ELIZA BARCLAY: OK, yeah, so this just can help put this conversation in context. This is the data, real-time, generated from Johns Hopkins University. It's being pulled from a number of different sources. And we'll let the numbers just-- you can check them out there. I wanted to just set some context for this conversation by walking through a few ways in which this coronavirus outbreak is really unprecedented.

First of all, as many of you probably know, there has been unprecedented information spread. Some of it is misinformation, like the allegation that the virus escaped from a germ warfare lab in Wuhan. And then there is also an astounding amount of scientific information pouring out. There are dozens of clinical papers pouring out of China every day. It's unprecedented in terms of the scientific knowledge being generated and being shared about this outbreak.

The size of the quarantine in China is unprecedented. There are currently around 780 million people living under some form of travel restriction. The speed of the genome sequencing of this virus was unprecedented. Scientists in China sequenced the genome and made it available on January 10. So that was just one month after the first case was recorded. And

you compare that to SARS, it took several months to sequence the genome of that virus.

Also, we have a very unusual, although potentially not totally unprecedented, situation of the largest outbreak outside of China on a cruise ship anchored in Japan. There are currently over 621 cases of coronavirus out of 3,700 passengers who are on that ship. And it's turned out to be both a tragic, but also potentially useful, experiment, right? It's a way to test the quarantine measure. I think we'll hear more from Emily about how it's gone. But it's showing us-- this cruise ship situation is showing us that this virus is really challenging to contain.

So I want to ask a few opening questions of each of the panelists, starting with you, Chang-Tai. So while we don't yet know the full extent of how the coronavirus outbreak will affect China's economy and the global economy, what are the important early signs on that impact?

CHANG-TAI

HSIEH:

Thank you, Emily. So I want to stress that it's very early. And there's-- most of what we want to know, we still don't know yet. We still don't know yet. But this is what we're seeing on the ground. What you see is that big parts of the Chinese economy have shut down. So you think about the basics of getting workers to companies and companies getting their goods out, the travel restrictions is just making that very, very difficult.

I anticipate that this is going to-- that hopefully, the health issues get settled, and this is going to go back-- that this is going to go back. But I would say that the one thing that I would pay attention to is the following-- that is-- or the one thing that concerns me now is that it seems to me that what-- all the signs that I see is that the central focus of the local authorities is to try to do something, or appear to try to do something, about this. And that is the only thing that they are-- the only thing that they are focused on.

And the cost of that is that everything else goes to the side. So we see news reports about how people that are sick with other things, they don't get treated. So we've seen the news reports. And then the reason, I think, in terms of the economy, what one needs to be concerned is that the local governments have played the central role in explaining-- in creating the conditions for the growth of the private sector that we have seen, that for a long time, for the last two or three decades, this was one of their central focuses.

So the question-- so the thing to look at going forward is whether that focus is going to come back-- is going to come back. Or you are going to see the dilution of attention, the dilution of focus, going forward, towards other things. And we have seen a little bit of signs of this in the last five years, not because of the virus, but a bunch of-- but a bunch of other things. So

looking forward, the thing that I think I would keep my eyes on is, what is a local government-- what is local government going to be focused on two years from now?

ELIZA BARCLAY: And I wanted to also ask-- there was a report in *The New York Times* today that pointed out that there are some business leaders and economists who are now challenging the quarantine and saying, hey, you know, how long is this going to go on? This is a problem. And so I'm just wondering, what do you make of this growing tension around these measures?

CHANG-TAI HSIEH: Well, I'd like to know-- I mean, that's why-- I'd like to know, from people who know public health and doctors, how big of a risk this is. Because the way I have to think about it is that I want to trade off the benefits and the costs. I mean, that sort of comes with my natural--

EMILY LANDON: It's an economist thing to do.

CHANG-TAI HSIEH: That's what we do. Like, you know, we rarely think it's optimal to go to extremes-- to go to extremes. Or I'll just stick my head out there. That is, if we think about, say-- that is, I'll make a claim that you want to think about, how much is the optimal amount of crime? What I mean, like, that you can think about a society in which you view that crime is so costly that you're willing to do whatever it takes to bring crime down to zero, right? But that's going to be very, very costly. It's going to be very, very costly to bring crime down. And most societies don't do that.

In some sense, we tolerate some level of crime-- tolerate in the sense that we don't blanket a city with police. We don't keep people in their houses completely. So I would like to know about what the benefits are so that I can think about the costs. And then we can think about, what is the optimal balance?

And then it could be the case that, after we've heard from the medical experts, that this thing is so costly that if we don't take extreme measures, then life is going to end. That could be the truth. It could be the truth. Or maybe it's not. And then there's some other intermediate things that we could do in which there's just a better balance of the benefits and the costs.

And I think that that's what you are saying, that, basically, you have a bunch of the business leaders saying, look, this is extremely costly, right? This is extremely costly. So let's think, and so let's have a discussion about what these costs are.

EMILY LANDON: Do you want me to respond?

ELIZA BARCLAY: Sure, please.

EMILY LANDON: There's, like, 20 things to say. So I'm obviously not an economist. But I think that a couple of important things to say about epidemics and outbreaks are that, in the beginning, you don't know anything. And this has been, as you mentioned, Eliza, unprecedented, what we can know and how quickly we were able to know it. That said, there are still a lot of things about answering those key questions about how deadly it is, how dangerous it's going to be, and how human costly it's going to be. And that really depends on a lot of things that you can't know right away.

And I also think that-- so anyway, in the beginning, it makes sense, and most public health officials will try and do a cordon sanitaire, a quarantine, whatever word you want to use. They're going to try and contain the virus, or the bacteria, or whatever illness you're talking about. The best bet, in the beginning, when you have few cases, is to contain. At all costs, contain.

In fact, if you could have contained this really early on when it was 20 cases, you wouldn't see any cost. Only a very small number of people would pay a cost. And there gets to a point where it's not worthwhile to continue to try and contain if it is uncontainable.

Now, Dr. Fauci, Anthony Fauci, from NIAID has said that once we see four generations of transmission-- I think Dr. Messina is agreeing with this now-- when they see four generations of transmission-- so I'm sick. I make you sick. You make someone else sick who wasn't here tonight. And they make their family member sick. That's four generations of transmission.

And when we see that, then it will be no longer appropriate to try and contain the virus within the United States. And we should let it-- we should switch to a mitigation strategy. This sounds a little terrifying when you're talking about a virus that you've never heard of, that you've never seen, that's killing thousands of people half the world over.

But it's not. It's actually very much like what we're doing right now for influenza. We have vaccines. We have medications. We have treatment facilities. We try and keep people who are at higher risk of influenza away from people with influenza. We try and make sure that we're mitigating the damages that influenza does every single year.

But knowing when to draw that line is hard, especially when you're the first country that has it. Because there's also this sort of social issue of, if China is unable to contain it, it will spread to

the rest of the world. It will be seen as a Chinese problem, which it is not. Viruses don't care what you are or what country they start in. It's not anything to do with that. It's an unfortunate and unlucky event that happens.

And this virus appears, as you mentioned with the cruise ship, to be nearly impossible to control the spread of. And so many people in public health are also arguing that it may be time for us to think more about mitigation and less about-- and less about containment. But that's a very-- that's going to be a big shift for Americans, especially.

In the US, it's a big shift to go from this virus that I'm seeing all these memes about on Twitter and on Instagram, and now we're just going to let it run through our communities. And everything is going to be just fine? It's sort of a really, really big shift to make.

ELIZA BARCLAY: And what is it about the virus itself? Is it its high contagiousness that means-- that is the reason why it's been so hard to contain?

EMILY LANDON: Yeah, I think the methods by which one has to put in that cordon sanitaire, the containment plan-- in the beginning, no one expected this virus was going to be this contagious. Because even regular, old coronaviruses that we get from colds don't appear to be this transmissible. But based on what we see on the cruise ship, it's probably pretty bad. It's probably pretty easy to transmit.

Numbers of people-- there certainly are now, we can acknowledge, asymptomatic individuals testing positive, people with definite symptoms and definite exposures testing negative. So we have an inadequate testing situation. You can't actually be able to tell, quickly, who's sick and who's not sick it's difficult, then, to tell who's exposed and who's not exposed if you think you have to be within 6 feet of someone for 10 minutes. But then it turns out that a bunch of people got sick, and they weren't within 6 feet of someone for 10 minutes.

Then, all of a sudden, you have to change everything. And all your rules change. And so we have to be nimble. But it's really hard to wrap your head around your own personal health safety and being nimble about the risks that you face as an individual. It's different. And we do certainly do a lot of risk-benefit analysis in medicine too.

But it's always left to an individual person to decide what their risk-benefit tolerance is. And that's a little bit different here, because public health will be making the decision for all of us. And we don't usually approach things like that in medicine.

ELIZA BARCLAY: Yanzhong, you are an expert in public health in China and the government's ability to detect disease outbreaks. So do you think that the top-- now, as Emily said, this is an unlucky occurrence. It could have happened anywhere, perhaps. But do you think that the top authorities in China did too little too late, and for political reasons, potentially?

YANZHONG HUANG: Great question. Well, first of all, I have to admit-- confess that I'm not a public health expert by training. Actually, I graduated a political science department here at the U of C. And I saw my mentor, Professor Dali down there. But my dissertation actually was supervised Professor Yang's health politics in China.

So when we look at the-- I guess you are asking the question about the government response to the initial outbreak--

ELIZA BARCLAY: Yes.

YANZHONG HUANG: --and not after January 20. Now I think we have sufficient information. We can sort of connect the dots now, piece together all this information. It should be a more complete picture now, how the government actually responded to the initial outbreak. So according to the Chinese scientists, the outbreak probably began as early as November 2019.

Then you have this Dr. Li, right, that he noticed something that is dangerous similar to SARS. So he shared that information with his friends and relatives. Then he was disciplined, you know, for spreading the rumor, right? And of course, later, he was infected. And he used to his death, basically, to prove that he was not a rumormonger. That was a tragic story, of course.

By then, you have another doctor who, when she was treating the patients, like Dr. Chang, noticed that this is something really is going to be big, right, that we've got to report, right? So she insisted that they report it to the upper level health authorities. So the Wuhan Health Commission got that information, I believe, through that online reporting system. The national CDC also got that message.

That is why, on December 31, right, that the national CDC sent a team to investigate what happened in Wuhan, right? And there, I think their conclusion probably supports there is human to human transmission. So that is why China then shared that information with the WHO and the United States on January 3, right, that that time points to human to human transmission.

And President Xi apparently also got that message. So that is why, on January 7, he issued that directive on taking actions on the outbreak. But we don't know the exact content of that directive. But people suspect it was very likely like, you've got to do something on that. But in the meantime, don't ruin the atmosphere for celebrating the Spring Festival, right?

So for the national-- for the local governments, that was a very difficult decision to implement. And that was also compounded by these so-called two sessions, right, at the local level. Two sessions, that is, like, the most important political event at the local level and national level. Because the political consultative conferences and the People's Congress, they're electing new leaders. So that was between January 5 and January 11 for Wuhan, right?

So you saw that they standard to issue-- they closed down the seafood market on January 1. They also issued reports, on a daily basis, about the outbreak until January 5. Then they became silent until January 11. They, again, issued a report on the outbreak. But again, there was this two sessions at Hubei, the provincial level, right?

So again, you saw this silence, right, between January 11 and January 17. That's when the meeting ended, right? So there was both inaction, and then also, lack of risk communication with the public, right? People were completely unprepared for the outbreak.

You saw that when Dr. Jiannan Zhang announced, at that press conference, this is, indeed, human to human transmission. Hubei, the prov-- in Wuhan, there were still people celebrating, right, after this potluck event. Everybody shared dishes with each other. So that's, like, a fertile ground for the further spread of the virus. So essentially, like two weeks, if we count this January 7 as the-- when the virus already was spreading like a gangbuster, right, then there was lack of action at the local level until January 18-- actually until January 23. So essentially, at least two weeks was squandered.

ELIZA BARCLAY: And what do you make of the mass quarantine as it is dragging on now for weeks? Is it--

YANZHONG

HUANG:

It is very interesting that-- as we just talk about this, I found it interesting that despite this advancement in biotechnology, right, so far, we still believe that the silver bullet to containing the virus is still this centuries-old instrument, essentially, right-- cordon sanitaire, quarantine, right, the Lazarettos, if you will. "Quarantine" actually is derived from Italian. It means 48 days, right? That was actually the first time it was implemented by the city-states in Europe.

So the question here remains, how-- to what extent these measures are effective. If you

actually look at the SARS outbreak, the Chinese government like to say, well, because of their decisive measures, these mass quarantine measures, the virus died out. But that seems to be not that accurate if you look at the actual data. In fact, the reproduction number of the virus-- we call it R_0 , right-- actually already was below 1, right?

Because if it's below 1, that means that the virus lost momentum. It cannot lead to sustained transmission. It is all-- it was already below 1 before the government implemented mass containment measures. So in that sense, this containment approach may prevent the spread of the virus in unaffected regions. But will not lead to the factual containment of the virus, OK?

So for now, this one, again, you might make, actually, a strong case that, indeed, it prevent, or at least contain, the spread of the virus in unaffected regions, in regions other than Wuhan or Hubei provinces. But to what extent it actually contains the spread of virus in Wuhan or Hubei, I think that is a big question mark.

EMILY LANDON: I don't think it did at all. I think, basically, Hubei was like a giant cruise ship off the coast of Japan. I mean, it was this sacrifice of Hubei province. It said, we're going to just let everybody-- this can run amok in Hubei province, but we're not going to let it get out to our other cities. And if it does get out to our other cities, which it would inevitably do, we'll be able to contain it there with very few people isolated or by social distancing, which is a like quarantine light.

It's like, don't go to big, public events. We won't have big, public events. And don't, you know, do other things. Stand a meter away from other people. But you don't have to stay home, right?

So they said, well, let's-- then we can keep everything going by-- if the embers of the problem in Hubei get out, and they land in these other cities, then we can stop them from becoming fires by starving them of oxygen, by not letting the virus pass to other people in those areas with more limited quarantine. But that is not what's happening. And I think that a lot of that is because it's so much more transmissible than anybody expected.

I think, with SARS, as you mentioned, a lot of people did their own-- people automatically do their own social distancing. Like, they will protect themselves and stay home, even without quarantine, for a period of time until they're tired of it. And that helps. And it helped pull down that R_0 .

The R_0 is a fascinating number. It's the number of people that one sick person will infect. For

measles, it's 15 to 18. Measles is the most transmissible disease known to man-- if everybody is not vaccinated. Now if you're vaccinated, that's now way lower. But the R_0 matters. If it's over 1, it means your outbreak is still spreading. It is expanding exponentially, basically. Because every one person will infect two or three. Or even 1.5 is still a lot of spread.

But if the number is less than 1, it means that every infected person doesn't even infect another person, which means you're definitely coming down. The whole goal of quarantine and all of these things is not to prevent everybody from getting sick. Much as we, in the US, like to think of our health as being of the predominant, most important thing to everyone, and we must, at all costs, protect every single human being. That's not quite how it works in public health. Really, the goal is to get that R_0 below 1. And then, mathematically, the disease will burn out.

ELIZA BARCLAY: And can you remind us, where is it now?

EMILY LANDON: Yeah--

ELIZA BARCLAY: Where is the R_0 now?

EMILY LANDON: --it's hard to say. So there have been estimates between 2 and 6 probably, somewhere in there. And that's huge, OK? That is not an error rate-- a standard deviation that you want. It's, like, way too big.

YANZHONG The SARS was between 2 and 5.

HUANG:

EMILY LANDON: Yeah. But you can't really know right away, because the-- and then-- is this an OK time to talk about numbers?

ELIZA BARCLAY: Yes, please. I was going to ask next.

EMILY LANDON: So numbers are tough in epidemics. Because the same people who are supposed to count the sick, the recovered, the exposed, and the dead are the same people who are supposed to make the rules about who has to stay home, and who has to be in this isolation room, and who can go out, and who can't, and who is at risk. And I told you earlier that everything changes every day as you learn more. And so the rules change. And then you got to go and re-educate all the people so that they can enforce the rules, so that you can make sure everybody is following the rules that you've put in place in order to protect people.

And then oftentimes, these are also the people who have to take care of the sick. And so the counting is hard to get done. And so you can never 100% rely on numbers that come out in the middle of an epidemic. They're just-- in the beginning, they're fine, right, the first hundreds-- few hundreds cases.

But once your health system starts to get overwhelmed, you can't afford-- there's not like a pile of epidemiologists sitting around, waiting for this to come up to do work, right? They're doing other things. You have to pull them off those tasks to do this. So then, someone else has to fill that job. And it just becomes unmanageable.

ELIZA BARCLAY: And so, Emily, are you saying that those numbers that look so solid are really not--

EMILY LANDON: They can't be right.

ELIZA BARCLAY: --solid?

EMILY LANDON: And it's not-- I think-- there's a possibility, of course-- there's a lot of chatter about the Chinese maybe making this look a little bit better than it is and not reporting. But I don't-- we don't even need to-- I don't know if that's happening. But I will tell you, they can't possibly count all the people who stayed home with a cold and didn't even bother going to the hospital. Because they didn't care if they had the flu or had coronavirus. They were just going to stay in their house, and get better, and only go if they got sicker.

And that's what I would do if I wasn't a doctor and an epidemiologist. But I mean, that's what a lot of people would do. So I think there are a lot more people in that denominator. The number of people who are sick is far greater. And the way to figure that out is by doing serological testing, to go back after everybody's done, and take blood, and say, do you have antibodies to this virus? Do you not? We're only now-- like, I think I saw the first tweets today about-- which I'm not sure are reliable-- about the first serological study-- tests being able to be even done.

So it takes a while to do those antibody tests. And so I think it's going to be a long time before we know, really, what they R0 was, what it is now. On that cruise ship, we can probably calculate it, though, which is what makes that kind of interesting.

ELIZA BARCLAY: But one day, it will be fixed, right? We will have a definitive--

EMILY LANDON: No.

YANZHONG Probably will still be a range.

HUANG:

EMILY LANDON: It's always a range. Because what you do matters, right? So in a tiny, little town in rural Illinois where there's one clinic, and one doctor, and most people live miles and miles away from each other, the R0's going to be very different than what it's going to be on a college campus here. I'm not trying to scare people. The university would be very unhappy with that-- but the point being that our human connections matter, and what we do to help prevent things.

You could also argue that the R0 could be lower on a college campus where people are paying attention and where we're going to put people into appropriate safe isolations or quarantines if needed in order to prevent spread, or at least scatter people, get them separated enough that they're less likely. Whereas there may be very little public health in a rural town. And so there may be-- everybody goes to church one Sunday, and then-- you know.

So it's hard to know. But definitely, our human interactions and our behavior matter for the R0. So it always be a range. But I think it looks like it'll come out between 2 and 6.

ELIZA BARCLAY: Chang-Tai, you mentioned, earlier, the local Communist Party officials. And I'm curious-- they're in a really tough spot. They've been in a tough spot this whole time. And this is a terribly challenging situation. What are the various incentives that they're facing? Can you help us see what they're up against?

CHANG-TAI Well, until a few days ago, it was clear that they had one objective, which is to get this down.

HSIEH: That was the only-- now, a few days ago, President Xi also made another statement-- and another statement-- that they also have to get the economy up and running without providing details on how that was going to be done. So I think it was Yanzhong or something who was saying about the conflicting--

YANZHONG Signals.

HUANG:

CHANG-TAI --the conflicting signals, right, signals. And I don't-- I would love to be able to see the internal

HSIEH: directives. I don't see them. I don't see them. But I don't know what, exactly, are the instructions on how that is to be-- how that is to be accomplished and what information, or what signals, they're getting from the party apparatus on how they're going to be punished

and rewarded for-- for example, if you're the mayor-- of what's that city that has this really large Foxconn factory? Shenzhen, right? It was the city of Shenzhen.

So that is a plant with 200,000 people. And now only a fraction of their workers are able to come back. Well, you know, if there's a major outbreak there, because the party-- the local party secretary heeded the second set of instructions to get the economy up and running-- and there's always that risk, always there. But he did get the plant up and running. What's going to be the-- what's the consequence of that?

YANZHONG

HUANG:

Yeah, just to follow up what you just said, when you are a local government official-- a mayor, for example-- you are being told, you need to improve your local economy. But in the meantime, you need to make sure there will be no new infections, right? The latter is apparently more quantifiable than the former, right? Because the local leaders, they are very strategic, right? They are only going to pursue or implement those targets that-- the objectives that are quantifiable, right?

So now I would expect that they are probably still going to focus on--

CHANG-TAI

HSIEH:

On health.

YANZHONG

HUANG:

--containing the virus, right? Because especially, when you are told, in some localities, if you find one more case, you're going to be in big trouble, right, they will certainly have no incentives, right, to promote a count. Because these two objectives, they're sort of self-contradictory in a sense.

CHANG-TAI

HSIEH:

Yeah, that's my point.

EMILY LANDON:

But they don't need to be. From a medical standpoint, they don't have to be. You can say, we're going to switch to mitigation. People who are over this age shouldn't come out. They should stay at home. And people who are well should bring them food and things. And they shouldn't come to work at the factories. But people who are younger and who are healthy should.

And we want to focus on not having any more deaths, not not having any more cases. Just let the virus burn its way through. I mean, look at the-- it sounds awful, but it's not. Look at children. So children-- the newest pediatric information that came out shows that a ton of

children are positive for this. But they're not getting very sick. And it seems age is the greatest risk factor. Certainly, that method wouldn't be 100% foolproof. But it would be more balanced.

YANZHONG HUANG: Can we say that it's actually going to-- in terms of impact on the economy, this is my hypothesis. And certainly, Chang-Tai, you could dispute that, right? It actually seems to be age, right? Old age is the biggest risk factor, right? You would expect that, in terms of the impact on the economy, the GDP per capita technically could increase. Because you have the-

CHANG-TAI HSIEH: That's brutal.

YANZHONG HUANG: Speaking on technological terms.

CHANG-TAI HSIEH: That's the economics of the Black Death, right? Because right after the Black Death in Europe-

YANZHONG HUANG: Exactly, yeah, the Black Death.

CHANG-TAI HSIEH: --GDP per worker went up by--

YANZHONG HUANG: Exactly.

CHANG-TAI HSIEH: Can I push you a bit?

EMILY LANDON: Yeah. I am not an economist.

CHANG-TAI HSIEH: No, no, no, but you seem to be hinting that what is being done right now-- I mean, maybe you haven't even-- and you've said that what's being done, the massive quarantines-- the other think that I see is that the massive quarantine is not just there, but every city has been doing-- has been doing the same thing. So it's not just--

EMILY LANDON: No, it's not.

CHANG-TAI --that initial strategy that you mentioned of trying to contain the embers, that everybody is
HSIEH: doing the Wuhan strategy.

EMILY LANDON: By the US Public Health metric of four generations of transmission would make us want to reconsider and switch to a mitigation plan, if you were to apply that in China, then it's probably not appropriate to continue to have major quarantines. Now I want to be clear, this disease is-- it appears to be-- it's much-- the reason it was noticed is that it's worse than the common cold. It's not like influenza. It will come out with a death rate higher than influenza.

30,000 Americans die every year of influenza. We accept that as being part of the deal of the winter. And this would be like having another doubly bad, at least, flu season on the tail of our regular flu season. And it would affect more people. Because no one has any antibodies.

This is not an easy decision to make. But it doesn't appear to be containable anymore. And so at some point, you have to decide that you're going to maximize the resources to take care of the people that are the sickest and figure out a way-- I don't know whether it's possible, but I would say anything you could do to help keep the situation from ending up like-- in Wuhan, we suspect and believe that there probably are people dying because they cannot get to a hospital. There isn't a bed for them.

YANZHONG Well, actually, I fully agree with you on the need, probably, the transition to a mitigation-based
HUANG: strategy. In fact, 10 days ago, I published a piece in *China Newsweek* calling for this transition. But I think, at this time, it's politically not acceptable. Because you actually have people in China saying this US-- this implementation of the mitigation strategy during the 2009 H1N1 pandemic, it's indication of the US being weak, being incompetent in dealing with the--

EMILY LANDON: But it worked.

YANZHONG --H1N1.

HUANG:

ELIZA BARCLAY: And one point, just to clarify-- my understanding that a big driver of this economic impact, even though we don't know the full extent yet, is that there are so many migrant workers who are not allowed to travel back to their workplace, correct-- potentially a third. And so it's really-- it seems to me that at a certain point, right, China may have to decide, lift the roadblocks, let people travel again. And the question is, when?

Does anyone have any thoughts on when that could happen? Or what might be the driver?

Like, is it going to take WHO? Or is it going to be an internal decision?

CHANG-TAI

HSIEH:

I mean, Tsuiko was telling me, today, that you have lots of companies that are taking matters into their own hands, that they're sending out caravans. They're sending out charter planes to bring their workers back-- to bring their workers back. And I imagine a part of that is that you also have to negotiate these deals with the local party secretaries to make an exemption for these people.

So I imagine this is something that Foxconn can do and Alibaba can do. So powerful firms can do this. But the typical firm probably doesn't have the connections or the resources to make that happen, yeah.

EMILY LANDON:

Well, they're making-- they're allow-- they're putting people back to work to make personal protective equipment--

CHANG-TAI

HSIEH:

Yes.

EMILY LANDON:

--masks, which we can't get more. We're not short of N95 respirators. But we certainly can't get as many as we want. No one can.

YANZHONG

HUANG:

Actually, the facial-- speaking of masks, this is actually sort of a bottleneck problem in actually preventing the workers to resume working. Because China has a maximum mask manufacturing capacity of nearly 30 million a day. But look at the demand side. You need 1.8 billion a day.

So I have actually received calls from my relatives in China saying, we only have two masks at home. And we can't just even go outside. Because in this case, you either go out once every six days or use the same mask for six days, right? And now we already have heard there's cases across infection when workers soon return to their factory. Only, even though that might be isolated cases, there would be enough, actually, to send this wrong message, it's probably not a good idea to go back to work.

EMILY LANDON:

It'll take a couple weeks to know--

CHANG-TAI

HSIEH:

Yeah.

EMILY LANDON: --because of the doubling time.

CHANG-TAI I will say one more thing about the masks. So this is something I have looked into. I've looked
HSIEH: at into the masks. Production of masks is heavily locally concentrated.

YANZHONG In Xiantao, in Hubei province, actually.

HUANG:

CHANG-TAI And then what I think, partly, is going on is that the local authorities, they have every incentive
HSIEH: to try to keep the masks locally. So part of what I think is going on is that there's also what I'm
going to call a misallocation of masks. Some places have too many, and other places don't
have enough.

ELIZA BARCLAY: Emily, I wanted to ask, are you concerned about countries with weaker health systems? I know
that many people in your field are-- that if this starts to spread rapidly in some parts of sub-
Saharan Africa, it could be much more serious?

EMILY LANDON: The heroic containment efforts that China has been trying to do will certainly buy time for the
rest of the world to be prepared for this. And that is the greatest gift, I think, that can be given
from the suffering of the people that are in these quarantines, the difficult position that they're
in. That will buy time-- it has bought time for us. Those embers take time to grow into fire. But
there are countries that are reporting no cases, or one case, that obviously have far more.

I mean, you could look at the modeling from the airplane traffic. They have far more people
coming from China. There's no way that they don't have more cases than that. And there's--
without any sort of public health system, it can be really difficult to know exactly what's going
on.

People are asking me, now-- at the hospital, you have to reg-- you have to talk to me before
you travel anywhere, especially in Asia, so that I can tell you if you'll be able to come back to
work when you return. And a lot of people just ask. And it's spring break time coming. And I
get emails every day, I'm going to Japan. I'm going to Singapore. I'm going to Cambodia.

YANZHONG Not a good idea.

HUANG:

CHANG-TAI I'm going on a cruise in Asia, right?

HSIEH:

EMILY LANDON: Oh yeah, no--

CHANG-TAI That too?

HSIEH:

EMILY LANDON: --I draw the line there. And I'm trying-- but some of these people are going to see their family. Like, they're not going on a cruise. They're going home. And they want to make sure everybody's OK. And it is really challenging to know what to do.

We are probably-- in public health in America, in the US, they started out by just talking about Wuhan. And then it was Hubei. And then it was all of mainland China. And now we're at this precipice again, where the restrictions, and the quarantines, and the isolations, and all of that are being drawn around China. But we're obviously at a point where we're edging toward the next expansion of that risk area. And it's hard to give people advice about what's going to happen.

Because the rules for health care workers and in universities, as you all have seen in your emails, are more stringent than they are in other places. And so, certainly, I don't think we're going to have so many of our health care workers come back from trips to Asia in March and April that we can't function. But there really is a significant confusion about what to do in these areas. I'm not sure what else to say. It's very unknown.

ELIZA BARCLAY: Yeah, and I think you alluded to this earlier, but we really may be looking at the tip of the iceberg right here.

EMILY LANDON: Oh, there's an iceberg. I have no idea how much of it we're looking at. In different places, you're seeing different amounts of it. Singapore-- Singapore is amazing. If you want to read a really good epidemiologic survey of this, search for "Singapore coronavirus." And you will see, looking at *The Straits Times*, it's amazing. They'll report out every single patient by case number, who they had contact with, where they picked it up, which cluster they're a part of, what their address is, what you're supposed to do if you live there, if you think you might have known this person. It's amazing, right? We're not that good even.

But I still think that-- but they're still having ongoing transmission in communities, third and fourth generations of transmission. They're certainly getting-- they're doing their best to keep it under control. But it is-- it's hard. South Korea reported, I think, 50 new cases overnight last night. I can't imagine what happens when your country comes back with 50 new cases in one

area. That's just-- you obviously have an iceberg.

And there's a lot-- there's a lot of really challenging questions that China is facing right now.

And they're facing a lot of places. And we're not immune to them.

ELIZA BARCLAY: Yangzhong, I'm curious, what are your concerns around the-- we talked a little bit about this, but the social toll of the quarantine and the unintended consequences--

YANZHONG Yeah, well this is--

HUANG:

ELIZA BARCLAY: --in China?

YANZHONG So when you are doing the policy, effective analysis, right, this is essentially-- we compare the

HUANG: policy, the goals, right, to the actual policy outcome, right, whether you have fulfilled the policy goals, right? So to the extent that this is being-- situation's being stabilized nationwide in China-- and even in Wuhan, it seems that, now, situation is improving, although there's still this question of how reliable the data is, also complicated by these changing methods of confirming new cases.

ELIZA BARCLAY: Yeah, it seems to be-- yeah, it's confusing.

YANZHONG It's causing all the confusion.

HUANG:

ELIZA BARCLAY: It seems to have created a nice peak.

YANZHONG Yeah. But anyway, then, if you consider not just this cost-benefit thing, right, that when you talk

HUANG: about those unintended, undesirable consequences, all those top-down, mass-quarantine measures have created. It's a lot. Sometimes it's very hard to even say whether this is really worthwhile or justifiable. Because you talk about, certainly, economy. That's a big concern here.

Some people-- predictions vary. Some say it might-- the Chinese economy is resilient enough, right? You might have, still, more than 5% annual economic growth. Some more pessimistic would say China's economy is going to shrink this year. But this is why I'm not the economist. So I'll leave to Chiang-Tai to elaborate that.

But then you talk about other, right? There's these unintended consequences in other areas

like health care of conventional diseases, people. China, for example, has, like, 800,000 HIV patients. They need lifesaving medicines. These now-- actually, now, they are in danger of being-- the supply chain is being disrupted. They have challenges of accessing these lifesaving medicines.

There are also people-- China has NCDs, we call, non-communicable diseases. It is 7% of the fatalities in China attributed to NCDs, including cancer, cardiovascular diseases, respiratory conditions, diabetes, you name it. Just for diabetes, there's more than 100 million people. This is the world's diabetes capital. These people, they need, right, support with health care. They need the medicine, right?

But now this is all being interrupted. I have a friend who just told me that his father-in-law was sick. And his mother-in-law was taking care of him. But because of lack of health care, his mother-in-law was infected-- not infected, was sick, and then died. And then his father-in-law was in critical condition. I think these kinds of stories being repeated across China.

There's, I think, a hospital in Wuhan. They basically evacuated all these terminal cancer patients so that the beds could be vacated for those coronavirus patients. So this also raised a lot of those ethical questions, right? To what extent, right-- whose lives is worth more, the coronavirus patients or the cancer patients? So there are a lot of questions raised in terms of evaluating the effectiveness of this approach.

ELIZA BARCLAY: Thank you. Chang-Tai, I wanted to come back to you. We discussed, over email, a little bit, a interesting, provocative article by Ian Bremmer, CEO of Eurasia Group. He argued-- made several interesting points-- one, that a top-down system like China's makes a health care system more vulnerable. But he also said that China's reputation as a reliable trade partner may suffer in the wake of the outbreak. What do you think about that?

CHANG-TAI HSIEH: So I must say, I haven't read the piece. So I can't say. But let me take the two points. One is, I think it's-- I think it's commonly-- so it's an argument you hear commonly, very frequently, that China is a top-down system. I think that that is actually just a fundamental misunderstanding of how the Chinese system works, that it's a much more complicated thing. It's a much more complicated thing.

In terms of how the economy operates, I think, for large parts of the last three decades, it was very much a bottom-up system. It was very much a system in which it was what all these local

governments were doing to try to get-- to try to get businesses going in there-- to get in their local-- in their local communities. The second piece is on-- now, what you do see is that there are, sometimes, campaigns in which the-- it's not really the central government. That's not the way that I would put it. But it's-- the authorities of the Communist Party make it clear that certain things really are a priority, like the virus thing now. It's clear that there's really a priority.

Or six years ago, there was another big campaign that I haven't seen anywhere in the media-- in the media, which is about the crackdown on pollution. It started about five or six years ago. There was a massive crackdown on pollution that, for decades, local governments just ignored. But starting about five or six years ago, they took it seriously. They took it-- because now it was clear from-- and it's not the central government. It's really not-- the ministry is really not where the power is. But it's really where it was viewed that-- it became clear that this was a central-- it was a central priority.

So what you do see is that there's been massive cleanup. I mean, that's what you see. And I also think that there have been very costs, very big economic costs of the crackdown on pollution. But the air is cleaner in all kinds of-- all the indication.

In terms of being a reliable trading partner, I guess it comes back to the answer I gave to the first question. It depends on whether-- on what you see two years in the future. I mean, what you see-- my sense is that everybody understands that there is an epidemic right now. And you can't-- and things-- and you can't fulfill your contracts. There are certain things that you can't do. I think that everybody-- it's like, you know, a hurricane hits Houston. And certain things, you just can't do. And I think that everybody-- everybody that's sensible-- understands that.

The question is, what do you see-- once this disease environment goes down, what are local governments doing? And that, again, I guess we just don't know.

YANZHONG

HUANG:

But now that Chang-Tai brought up the issue of their environmental governances, I actually have a book coming out from Cambridge entitled *Toxic Politics-- China's Environmental Health Crises and the Challenge to the State*. So now it's just up on the website. So if you are interested, actually answered-- partially answered your question. If you are interested, feel free, actually, to pre-order it.

ELIZA BARCLAY: Thank you so much.

YANZHONG I'm sorry, doing this shameless self-promotion.

HUANG:

CHANG-TAI Can I ask-- can I ask the two of you a question?

HSIEH:

ELIZA BARCLAY: We do have to move to audience Q&A now.

CHANG-TAI OK, fine.

HSIEH:

ELIZA BARCLAY: I'm sorry. But maybe you can work it in.

CHANG-TAI OK

HSIEH:

ELIZA BARCLAY: Please-- and when you-- there will be microphones circulating. And please identify yourself, and ask a question. Thank you.

AUDIENCE: I'm Dali. I'm in the political science department. I have a brief comment, and also a question. The comment is this-- and I want to build on what Chang-Tai mentioned, actually. China actually developed one of the most extensive CDC system for reporting infectious diseases. But that system did not function for this. In fact, in December, none of the-- simply, the doctors at the local hospitals did not input the data into the system.

So in many ways-- I have a short essay coming out, actually, that discusses some of this. There were other mistakes that were also major, to follow, just from a technical perspective, without dealing with politics. Although there is politics, definitely, there. So the question is for Emily. What's your assessment for a vaccine?

EMILY LANDON: Oh, it's going to be a good, long time before we'll get a vaccine. I'm hoping it'll go faster than it usually does. And it appears as though some labs have already had vaccine candidates, that they're ready to try testing in animals. But the process of testing for safety and efficacy is long. It's long because you want it to be long. You want to know that when you get that vaccine, that nothing bad is going to happen to you, and that it's going to do what you expect it to do. And so unfortunately, I don't think they're going to be able to stress it any faster.

It was so nice with H1N1 in 2009, because it was just a flu. And we make a flu vaccine every

year. And so it was just changing out the antigens. That could go pretty quickly. But this is not going to be as simple.

YANZHONG Yeah, it took one year to develop a vaccine for SARS. But when it came out, already, all those cases were gone. So you can not even put into the clinical trial to test how effective it was.

ELIZA BARCLAY: Some questions down here.

AUDIENCE: Hello, I'm Martin. And it's a great pleasure to meet you again, Dr. Emily. So the WHO has done a lot of controversial moves regarding the coronavirus, about the timing of their actions as well as, perhaps, a naming issue of the virus. And some people speculate that the WHO is under the influence of certain political powers as well. So after this coronavirus issue, should we re-evaluate our trust in the WHO people, and that they are politically neutral, or whether they are scientifically sound anymore? It might be a little bit too--

EMILY LANDON: I think this is my question too. I think-- I think-- I think we have to let them make the decision about when it's a public health emergency of international concern whenever they want to. And I think that they made some really good points about, it's really hard to go from red-- green to red, you know? Like, maybe we need a yellow. And I think that that's fair.

About the naming, the name's dumb. COVID-19 is stupid.

AUDIENCE: It is very dumb, very dumb. I agree.

EMILY LANDON: It doesn't have to have "Wuhan" in it. I'm fine with that. I think it's OK to not name viruses after the locations that they come from, although we kind of have done that for a long time. But this name's dumb, that's all.

YANZHONG Well, I would say it's not that creative.

HUANG:

EMILY LANDON: Well, I don't think it's going to stop people from calling it "Wuhan pneumonia." It just-- I think it's like, it doesn't serve the purpose.

YANZHONG They could have just refined a bit. To answer your question, that happened to have done the research on WHO reform, WHO needs to reform. When Margaret Chan became the WHO director general, she kicked off the WHO reform process. That was 2010. But unfortunately, that didn't work out in terms of fixing the funding structure, and fixing this before this decision-

making system that is the member-state-driven process.

So we have to keep in mind, WHO is not the super national organization, that actually, it has to listen to what members tell them. Especially with some bigger powers, unfortunately, that you would expect, in an ideal world, as a technical authority, they will respond to the development in the biological world, right? But in reality, right, in their decision-making, that has to also respond to developments in the political world. I can only say--

EMILY LANDON: I think that history is going to give us a lot more-- in the future, we're going to be to look back on this with a lot more understanding of what happened. But it's really hard to make a lot of judgments now. It makes sense that China would have had the most influence. They were the ones with the infections. But did they have too much? Hard to say.

ELIZA BARCLAY: There was one question here, and one here, and one here. First?

AUDIENCE: Hi-- Irvin Shendell. I was just wondering, what is been the level of cooperation between China and the US CDC? Because I keep hearing, on the news, that the CDC wanted to offer a team to go into China, and they were refused.

EMILY LANDON: I've heard the same thing on every CDC press call-- on every CDC and public health call, but nothing more, and nothing less.

YANZHONG HUANG: Actually, I was asked the same question this morning from a reporter. In a disease outbreak like this, it's certainly-- well, now it's been declared public health emergency of international concern, which means you need international cooperation. So when the US CDC offered aid to China, I would expect that China accepted that, right? But unfortunately, now, in this case, while this is all unfolding, the bigger background of the deteriorating US-China relations, this lack of trust, right, misperceptions are now actually political-sized, that decision on whether to accept the US offer.

And that also explains, probably, why, even though now, finally, US experts joined the WHO team in China, they are not going to visit Wuhan, to my knowledge.

ELIZA BARCLAY: They're not. Question over here?

AUDIENCE: Hi, my name is Peter. Just looking at that diagram up there, I don't see North Korea on there. Is anything known about the situation there?

ELIZA BARCLAY: Is anything ever known--

YANZHONG It's a paradise.

HUANG:

ELIZA BARCLAY: --about the situation there?

EMILY LANDON: There's stuff on Twitter about it. But I don't think any of that's-- I wouldn't count it as reliable.

YANZHONG Well, North Korea shut down the land border with China immediately after the outbreak was

HUANG: reported in the country. And I think-- or they currently-- well, officially, they have this virus-free, I think.

EMILY LANDON: Officially virus-free.

YANZHONG Right. Rumor has it that there was-- a official who visited China returned without reporting. He

HUANG: was immediately executed.

EMILY LANDON: That's what I saw on Twitter.

YANZHONG This is a rumor.

HUANG:

EMILY LANDON: No idea.

AUDIENCE: OK.

AUDIENCE: Hey, so Mike Haas here. I'm a graduate student at the Booth School of Business. And so I have two questions. The first is, as a total layperson, can you help contextualize why this is such a global issue at the moment? Because Emily, I know you mentioned earlier that, for example, the flu, in the United States, kills, every year, maybe 30,000 people. And so looking at a number like 2,000 currently, it doesn't seem like it's this global health issue, maybe not at the moment.

And then maybe it's because it's more of, from an economic perspective, that China is such a large economy, it has the opportunity to kind of cripple that. And then the second question is, it's February 2021. Can I travel to China?

EMILY LANDON: I will say, in answer to your first question about epidemic, why it's a big deal. It's really transmissible. And you have to do some math in your head in order to understand. But there's

only about a quarter of people that are actually susceptible to flu any given year because of your past immune history, and whatever, and the vaccine, and all this. It's 100% for this.

And so if you do the numbers, you can read, all these different people model what it's going to be. And it comes out being, like, millions of millions of people infected and then some proportion of them dying. But if you have-- 30,000 people die of influenza every year. It's going to be way, way more. Because way, way more people will get sick, including all those asymptomatic people and the children.

And we don't know yet, because I can't tell you the case fatality ratio, because I don't know. And so it has the potential to be really bad. Plus, the other piece is that it's a really long illness. So people get sick for a week, and they're doing OK. Then, in the second week, they realize they're sicker. They need oxygen. They have to go to hospital. Then by the end of the second week, they're on a ventilator. Then they're on a ventilator for another week and a half, maybe. And that's a small proportion of the people.

But if everybody's susceptible, that's more people than we have ventilators on ventilators for longer than people are usually on ventilators. It becomes a math problem of, we don't have a system-- if those predictions are true, the more serious predictions that you see of, like, where you look at, like, 30% of Americans infected. Of those, 20% need to be hospital-- we can't do that here. There's not enough ICU beds or ventilators to handle that. So slowing it down, buying time, and figuring out what medications will help fix people earlier through the trials that are ongoing in China make a huge difference-- huge difference.

YANZHONG HUANG: Actually, to answer your question, there's a political science theory. Basically, when you talk about this, it's actually two different types of diseases. Seasonal influenza, this is something, we got used to it.

EMILY LANDON: It's predictable.

YANZHONG HUANG: It's predictable. We developed the risk that is actually close to, actually, what the risk actually poses. But for unknowing, potentially life-threatening disease like coronavirus-- a novel coronavirus-- people is going to develop this exaggerated risk, right? This is what we-- different type of risk, what we call dreaded risk. Because they don't know what that value is.

Still, we don't have a lot of unknowings about that, right? So they tend to exaggerate the risk. And so for this type of this disease problem, it's an acute disease outbreak. The World Health

Organization would consider that part of what we call global health security. So that disease is subject to what we call securitization. That requires measurable beyond normal political procedures. But that's for the seasonal influenza.

ELIZA BARCLAY: Last question.

AUDIENCE: Thank you so much for the inspiring discussion, at least compared to what's on the internet. My name is Rey. I work at the economics department with Ari. I have an iceberg of questions, but the tip off it is, do you think-- or I'll kind of two-fold it. Do you think the panic that is seen among the public is rational or justified? For example, when there was, like, two cases in the US, my friends, who don't even look Asian was on the bus. And she cleared her throat. And she was shunned by people in the bus.

And you look at all these reporting and panic on the internet. Do you think it's rational, justified? And what contributed to this? How we could do better? That's part of it. The other is, do you think the media's attitude, every day, towards what's happening is rational and justified, and it's unbiased? Because the thing is, hindsight is 20/20. But they did not have that.

And if, say, the WHO says, oh, they're doing an OK job, then people think, oh, they're rigged. So do you think that is justified? Or is there some biasedness in some factors at play there? Thank you so much.

EMILY LANDON: I'll just say that I think panic is never a good idea. Like, it's not going to help you get better, or avoid getting sick, or anything. And currently, in the United States, the risk to everyone today is extremely low from everything that we know. And even if the virus does come here and make many, many people sick, the vast majority of people are going to be just fine after they're done with their illness. It may put a huge strain on our health care system to get everybody to just fine, but the vast majority of people are going to be just fine.

And I think that the media can be really cruel. I think it's really hard-- I want to be really kind to these people who are responding to this outbreak. Because if it does come here, and I'm in my hospital doing my very best to make sure every health care worker doesn't get this virus-- I'm going to work really hard. And we're going to do everything we can. But we might not do it all right. And so it's really hard to see a conspiracy theory-- or a conspiracy situation-- when I know that it's really challenging, this situation.

So I'm not willing to go along with that conspiracy stuff right now. I just don't think that we need

it. It's bad enough without that. We can deal with that stuff later.

YANZHONG Panic is always bad for the economy, right? According to a study conducted by the World
HUANG: Bank, 90% of the losses during the outbreak was caused by panic-driven, uncoordinated,
chaotic response.

ELIZA BARCLAY: OK, I think we are out of time. Thank you so much to all of you.

EMILY LANDON: Thank you.

ELIZA BARCLAY: Fantastic--

CHANG-TAI Thank you.

HSIEH:

ELIZA BARCLAY: --discussion.

[APPLAUSE]