

## **Surfside Condo Collapse and How to Improve Urban Life Post Covid What Happens Next 9.26.2021**

My name is Larry Bernstein.

What Happens Next is a podcast where experts are given just SIX minutes to present their argument. This is followed by a Q&A period for deeper engagement.

This week's topics include the collapse of the Surfside Condominium complex and the future of the city post Covid.

Our first speaker will be Martin Paull. Marty has been a lecturer at UCLA's architecture school for the past quarter of a century. He teaches a class in structures to a generation of architecture graduate students. He is the perfect expert to ask about the Surfside Condo catastrophe. I've read all the newspaper articles about the disaster, but I still don't really understand what the critical variables that preceded the downfall were. In complex systems, it usually requires several points of failure. Well, I plan on getting into the weeds and finding out what the likely causes were, what lessons are to be learned, and how safe it is to live in large condo buildings.

Our second speaker will be Edward Glaeser, besides being a good friend of mine, Ed is also the Fred and Eleanor Glimp Professor of Economics and the Chairman of the Department of Economics at Harvard University. Ed is the author of the recent entitled *Survival of the City: Living and Thriving in an Age of Isolation*. Ed is an urban economist and is an expert in the life and death of cities. Covid like any pandemic makes city living dangerous as proximity to others is problematic which outweighs economic synergies. Ed will be speaking about how cities will adapt and prosper post-covid.

During the live call, please feel free to email me questions at [larrybernstein1@gmail.com](mailto:larrybernstein1@gmail.com)

Let's begin today's program with our first speaker Marty Paull. I want to open with a quote from the mayor of Surfside which is "buildings like this don't fall down in America, This is a third-world phenomenon."

**Martin Paull:**

Hi. I was horrified when I first saw the video of the collapse of Champlain Towers. What could have caused such a significant structure to fail? Without an explosion, my first guess was a sinkhole. I've since watched many videos, read numerous news, no sinkhole. Many engineers have started to talk about weak concrete, congested steel, how rusting steel expands, and how awful salt water is in the cracks of concrete structures. These may all be true and may be contributory, even central to why the collapse happened that day. But the video of the collapse

says other things, too, things I don't hear yet in the discussion. I see a local failure in a parking structure, leading to a disproportionate response from an adjacent 13-story apartment building. This is classic progressive collapse.

Maybe the parking structured design and construction were built to code. Maybe they weren't. The investigations will tell us that. But code is not the good housekeeping seal of approval. Building to code is not an endorsement of the project. It's a level that says, "If you build below this, we'll stop you." Code is just the beginning. I'm concerned about the questions being asked by the investigators. Will they ask other questions, pursue issues other than strength of the material, sizes of the columns? Will they look at the philosophy of design, of the process? NEST, the federal agency doing the major investigation, is a very capable organization, but I haven't heard that risk analysis is a major part of the discussion yet. I hope it is. Design approach includes strength and risk. Strength asks, how to keep a structure up? Risk asks, what happens if the structure fails?

Surfside code requires re-certification when a building is 40 years old, but corrosion left to continue for three to five years can lead to disaster. It accelerates. Timing is a part of risk that needs to inform rules like this. Are these two buildings, the apartment tower and the parking structure, actually of the same type? They're both steel reinforced concrete, buildings of similar spans from column to column, sounds quite similar. But look at them from a risk point of view, which is more likely to be overloaded, an apartment house roof or an open plaza with room for new planters and trees being moved around with forklifts? Which is more likely to have corrosion from leakage continue.

If the apartment tower roof leaks, the tenants will scream bloody murder until it's fixed. In the parking structure, there's no such rush. Hang some sheathing from the ceiling to protect your car, but otherwise wait. These two buildings are very different from the perspective of risk. Why attach them to each other? Collapse of some of the columns of the parking structure means that some of the columns of the tower will also collapse. They're the same columns. Have separate columns to restructure, interrupt progressive collapse. Knowing what happened is important. Was the concrete the proper strength? Was the steel so densely placed so congested that the concrete couldn't bond to it? Were the drawings followed properly during construction?

But are other fundamental questions also being asked. Approaching structural design from a risk or performance point of view might not have allowed a rather vulnerable parking structure, poorly maintained and located where salt-water-driven corrosion could progress easily to be attached to an apartment building. In this case, it appears likely that the pool deck, the roof of the parking structure dropped from the columns, called punching shear, dragging some columns towards the center of the parking area, pulling them out from under the apartment tower. Could the slab connection have been designed to withstand the shear? Yes, but the final choices could have been motivated by risk control.

Should a risk analysis replace strength analysis? No, they're intimately related. Study failure modes in addition to success modes. Also, consider redundancy, group think, complacency and communication. We need to know how to prevent this type of collapse in the future. But we have another issue. What should we do with hundreds or thousands of existing buildings that are similarly vulnerable or vulnerable in other ways? Should risk analysis be included when re-certifying existing structures, even if, and maybe especially if it was not part of the original design?

Martin Paull:

This has been a central issue in California where earthquake resistant building standards and methods have changed enormously in recent years. It's a hot issue. When the space shuttle Challenger exploded in 1986, the Rogers commission did an extensive study of the disaster. Among other things, the rubber O-rings were found to have eroded and at low temperatures fail. Richard Feynman on the commission at the time criticized NASA's evaluation of risk and the internal and external communication about it. He insisted on writing an addendum to the report that ended with, "For successful technology, reality must take precedence over public relations. For nature cannot be fooled." Thanks, Larry.

Larry Bernstein:

Perfect. I want to go back first to the quote I gave you about that Surfside, mayor said, this was, "This doesn't happen in America. This is a third-world phenomena." First, is he right?

Martin Paull:

No.

Larry Bernstein:

And was it about the third-world that this is more common? What sort of failures do they have? What are they cheating on? Are they cheating on strength? Are they working with more risk? What's going on in the third world?

Martin Paull:

Well, not everybody waits for permits, not everybody does inspect, and the neighbors don't necessarily care sometimes. It is not at all uncommon for a concrete frame building, say a three-story building, to be built. And when you see it, and then now it's finished, and you walk by and you see rebar sticking out of the top of the top columns. What are they there for? They're there because afterwards, the owner's going to add another one or two stories to the building, illegally. And the neighbors don't necessarily look at it and say, "Oh my God, this guy is making the whole neighborhood dangerous." They say, "He's a smart guy. He's going to be able

to rent out two additional spaces." It's a very different approach. In general, we don't do that in this country. But in general is much bigger than, what about this building?

Larry Bernstein:

Let's go to the topic of risk and reward. I'm in the finance business, and as part of that, in every decision every day, we have to evaluate the potential reward, the potential risk, and even the distribution of risk. Is it lopsided to the negative or the positive?? And we consider that in a portfolio context. Here, when you're doing architecture, there's no diversification of risk. It's not like you have a portfolio of buildings. We have to focus on the risk of collapse or disaster for each specific event. What is the current theory on how to apply risk in building structures and how should we think about it differently going forward?

Martin Paull:

Risk is being added more and more to our analysis. We look at minimal structures. There are structures, say, a roof over a sports arena of a complicated three-dimensional trust system that might be so optimized in this design that the failure of one member could bring down the entire building. And so redundancy becomes, for instance, in that case, something to be looked at and we do more of it than we used to, but it isn't that long ago, and there are loads of buildings still there, where this was not looked at. And it's not even generally a part of everyday discussion, which is part of what concerns me.

Larry Bernstein:

You mentioned salt water as being particularly corrosive, so let's start with saltwater as the first example. There were 2 major hurricanes in New Orleans, huge saltwater flooding. So is water corrosion, as an example, a flood really problematic or is it the constant salt in the air eating away at the concrete? How do we think about, an enormous percentage of America now lives on these salt water areas, how risky is it? What damage does it do?

Martin Paull:

It's really both. Here's the real problem. Concrete is a material that's great in compression and it's awful in tension, and tension is required in structures. And so we put steel in to take the tension and the two of them together are what give the building strength. But they need to be bonded to each other successfully in order for them to work. And when steel starts to rust and salt water rusts it faster, when steel starts to rust, two things happen. One is the rust flakes off the steel, so the concrete is bonded to the rust not to the steel anymore. And the other, which is even worse, is that rusting steel expands, and so it pushes out from the inside and explodes the concrete. And so rusting steel is a major problem and salt water does it even faster. So what sometimes happens, like in the case here, a concern is they were driving forklifts around or

things like that to put in the planters and so on, did that make for little micro cracks in the concrete?

Because concrete is not really impervious to water to begin with, but little cracks, make it worse. Okay, then water is getting into the steel even faster and salt water is just relentless. It's hard to keep it back and once it gets in there, a process will start. We've used in recent years, for bridges and stuff, there's epoxy-coated steel, which is having its problems because the epoxy cracks and so on. There's stainless steel that can be used. There's galvanized steel that can be used. The point is that it's such a recognized problem that we continue to work on how to fix it because it's a big deal.

Larry Bernstein:

The city has this 40 year certification process. The building was aware of that. They were cognizant of that. They were more cognizant of the 40 year certification than their own safety in many ways. They hired an engineering firm and the engineering firm came back with some suggestions, but it was expensive. The head of the board recommended doing some changes and she was yelled at, screamed at. She cried. She resigned. We have a situation where we have a group of non-engineers put in charge of evaluating a report from an engineer and then giving that report to people who also aren't experts. How are these communities supposed to evaluate these risks? Why were the reports written in a way suggesting that the building wasn't about to fall down? And how as a community should we make decisions in the context of both government and a board and a condominium community?

Martin Paull:

It's a major, major question. We don't have a specific method of dealing with issues like that, but take something like the 40 years certification. In this country, heart disease affects mainly men in the range of 40 to 50. That's when the numbers start to go up and it gets really significant, and everybody knows that. And so when you do your first examination of a male patient when he's 35 or 40, wouldn't you start much earlier because you can't necessarily reverse these things easily? And the problem with something like a 40 year certification is it gives permission to wait until the 40 years comes up. That's a real problem. It's not at all unusual that when you set a minimum standard it becomes the maximum result, that people won't do more than what the minimum calls for. It's hard to legislate that what should the minimum be, make it high enough. But part of engineering responsibility, part of human responsibility is to look beyond those things. And it's not an easy problem.

Larry Bernstein:

Going back to the board for a second, the board, I was on the board of my condo association, it's a 50 story building. There were no engineers on the board. We had an engineer who worked for the management of the building. He would provide an annual report, but the questions

were like, "How long was the useful life of the roof?" It was never a question of, does the sway of the building result in micro cracks that could result in the building coming down? How should non-experts in this area evaluate these questions and should they be more proactive or are they going to be afraid that if they are more proactive and they find something and they don't do something, now they can go to jail? I mean, where does ignorance play in this risk?

Martin Paull:

Well, take something like your situation in particular, I would want part of the responsibility of that engineer to be that on a regular basis, I don't know, three years, five years, or whatever, do exactly the kinds of questions that you said. He may not be capable himself of answering them, but he could do responsible for pursuing it and that, that would be an expectation that that's what the responsibility of the engineer is. He would deal with problems that happen as they happen. The front door broke, and how do we fix that? And then who do we call? But also, on a regular basis, worked out with him or others what kinds of big questions should be asked. Even if the consultant that comes in and says, "You don't have a problem here." "Great, thank you. See you next time." But we have to be purposeful about it.

Larry Bernstein:

If you were going to live in a community like Miami Beach, would you want to live in a condominium, or would you want to live in a single family home given the risks of massive flooding and hurricanes?

Martin Paull:

I would be reluctant to be in a concrete structure within, I don't know, a quarter of a mile of the ocean, or at least I'd like to know how it was built. And I don't mean someone tell me personally, but a real expert be looking at that. But also, how is it aging? And on a regular basis, I want to hear about it. If at the end of 40 years, we'll tell them the state and the city about it, that's nice too. But I'm not moving in unless I have some idea of what condition this is in beyond just somebody standing outside and saying, "It looks great to me."

Larry Bernstein:

Millions of Americans live within a quarter of a mile the ocean.

Martin Paull:

Yes.

Larry Bernstein:

Millions. And I'm just wondering, we talked about risk earlier, there's all sorts of risks. Obviously, there's a risk of a building falling down and corrosion. There's also the risk your house can burn down or that you can be robbed and burglarized and murdered. So, how risky is it compared to some of these other risks that you take every day? Going back to the Mayor of Surfside, it doesn't happen in America. This is the only building we know of that's come down. Is it really once in a blue moon or is it something that is of real concern?

Martin Paull:

Well, first of all, it's not really true that these don't happen, because things like parking lots collapsing do happen. They're not that unheard of. The question is, in this case, being attached to an apartment house. It's not the apartment house that failed here, understand. It was really the parking structure that failed. But in terms of how risky, well, everything has risk. I get it. And it's hard to compare one risk to another. But there are those where you feel like, well, but this one I could do something about, and others maybe I can't do something about. Just nice to be knowledgeable.

Larry Bernstein:

Well, I mean, I've often heard every building will burn down at some point given enough time, as example.

Martin Paull:

Right.

Larry Bernstein:

But when I compare a single family home fire risk with a fire risk at a condominium, the fire risk, I think-

Martin Paull:

Well, let me back you up for a second.

Larry Bernstein:

Yeah.

Martin Paull:

The reason we have fire codes and so on is not to protect the building. It's to protect the people. So, when a building, a multi-story building, say a four-story building has corridors that

are fire rated for, say, one hour. That means they there's about an hour for people to get out of the building before the building is at risk of collapsing. The collapse of the building, the burning of the building that's between the insurance company, lawyers, and so on. The rules that we have are about protecting people. What you saw is in this case, the building collapsed in 10 seconds.

Larry Bernstein:

Yeah.

Martin Paull:

So, nobody's getting out. Right? But I want to know that in my house, I could get out of the building. Every bedroom needs to have an egress, needs to have a way to get out. Right? That's not protecting the building from burning. That's protecting the users of the building. So, you don't have to get the risk down to zero.

Larry Bernstein:

Right. We have a question from the audience. This is from Alan Herskowitz. He wants to know, do we have technology like a sensor that we can install inside the rebar so we can monitor the corrosion deep within the structure? Because it seems like how are we supposed to evaluate what's going on inside that?

If we send in a probe from the outside, are we making a micro problem itself like the Heisenberg uncertainty principle where we affect what goes on inside potentially to the worse? It's like a biopsy. And is technology getting better where we can start to see inside to find out what's going on? Because even afterwards it seems here, we still don't even know how much rebar was in there.

Martin Paull:

That's true. And it's a difficult problem. It's not a simple one to go inside and look. There are x-ray techniques and so on. You don't want to just cut whole all over the place exactly for that reason. But there's often some evidence on the outside. There are cracks. There are sizes of cracks. When steel starts to rust, you see staining.

Many times I'll drive past a project. On the freeway route, I'll drive past an overpass, and I'll see a chunk of concrete that's come off the top of... above me on the overpass. Years ago, I thought, oh, that's interesting. A truck that was too tall must have hit it and it knocked off some concrete. And now you can see the rebar starting to rust from the inside.

But no, it's the other way around. The rebar started to rust because of cracks, because of handrails that were improperly installed. And the rust started to expand and it pushed the



concrete out. So, you can see it. With a trained eye, there's a lot that you can tell from the outside about what probably is going on in the inside. A complete investigation, that would be very difficult.

Larry Bernstein:

I see often relatively new concrete buildings on their facades, you see cracks all over the place. And then you often see they've called somebody and they patch it up, and you can see where the patchwork has been done. What's going on there?

Martin Paull:

Well, first of all, concrete cracks, that's true. And it's not a material that can easily be patched from the outside. We sometimes try and fill the cracks with epoxy or other things like that, but it's difficult. But has corrosion started? Maybe. In that case, maybe you do want to do a little opening up to see going on. But I would also look at where is this. Is this spacing the ocean? Would I be more concerned with cracks here?

Martin Paull:

We have rules for how far from the surface of the concrete the steel should be. I'd probably like to review the drawings to be sure that that was done. We also more recently, we use as-built drawings we because changes take place during construction. And so, I'd like to know, well, what was actually built.

Larry Bernstein:

Okay.

Martin Paull:

But you can't get the risk down to zero, that's true.

Larry Bernstein:

I want to switch from water to wind for a second, because I was born in Chicago and it's more of a windy city. Recently, they put in some new buildings and they tested for wind and they decided it didn't have enough wind stability. So, they didn't build a couple of floors in the middle. There's a hole in the building, if you will, allowing the wind to go through. What do you think about that as a method of reducing the power of wind? And as buildings age, should large buildings consider opening up a floor to reduce the wind as its strength declines?

Martin Paull:

Well, let me answer the second part first. It's hard to go back to an existing building, especially against lateral loads of wind and seismic, and really change what their resistance is without doing really major work. It's certainly done, but it's not a trivial thing to do.

In terms of the first question, the problem of wind and earthquake at a certain level is that energy is being put into the building at an uncontrollable rate. And we'd like to use up the energy. And one of the things that uses up energy is letting the building sway, having the building move. The big buildings move a few feet on really windy days. That has to be a part of the engineering on some of the buildings, especially for wind-

Larry Bernstein:

And that's healthy, right?

Martin Paull:

... it's the seasickness, it's the comfort that gets to be a problem. The well-known one of Citicorp in New York that eventually had major problems. I won't go into the whole story. But their tuned mass damper on the roof, or at the top floor, was really there for comfort, initially, not for strength. They eventually decided they need to use it for strength, and so a whole bunch of things were done.

But the movement of buildings is... It would be worth it for someone to Google the Tokyo buildings in earthquakes and to see how much buildings move around. It blows me away. I show it to my classes. It's hard to imagine that big buildings are moving the way they move, but they do.

Larry Bernstein:

Yeah, I lived in Tokyo. I lived in Tokyo for a year and there were earthquakes all the time. Nothing major, just minor stuff. And you're right. You wake up and go, "Oh my goodness." And I guess sway, I think what you're saying is, is that allowing for sway is a benefit to the building because you don't have to require... it doesn't undermine the strength of that rebar and the concrete. It's moving around and the energy is being dissipated.

The John Hancock building in Chicago, which is one of the largest buildings there, it really sways a lot. And as a matter of fact, if you go up to the bathroom on top of the building, the water in the toilet is just moving. I mean, it could slap you in the ass.

Martin Paull:

Yep.

Larry Bernstein:

That really indicates that there's a lot of sway there, and I never focus as the sway as being a benefit.

Martin Paull:

Yeah, but assuming that, and I think that building was very well designed, but assuming that we're talking about a building that is well designed. When it's moving around like that, I don't expect people really to do this. But what they should be doing is saying, "Boy, am I glad this building is moving around, because that's using up a lot of energy. And that's the problem this building is having right now. And so, this is good news. Look, the building is moving. Also, I'm getting seasick, but that is the way it goes."

Larry Bernstein:

Let's change the subject to your example of multiple failure, that the collapse of one floor resulted in the collapse of a column and then the collapse of an entire building. And it brings to mind the World Trade Center as an example of failure. Now this was something obviously they didn't design it to withstand a major airline with all that jet fuel-

Martin Paull:

Well, they did, actually. They designed it to resist the physical force of a 707 airline. Not a 737 because they wouldn't exist yet, but it was actually designed for the impact of a 707. And the impact, other than local destruction, did not do major damage to the building. The building shuttered and then stopped, and it was okay. The problem was the fire. One of the problems with steel is that when steel gets to a thousand degrees, approximately, it turns into spaghetti. It just gets incredibly weak. It's not melting. Steel doesn't melt till 4,000 degrees, and the fire is not getting that high-

Larry Bernstein:

But it just lost its strength.

Martin Paull:

It loses its strength. In that case, the impact say, I'll just use these numbers, say the impact is on the 90th floor out of 110 stories, when the columns on that level lose their strength, a 20-story building from 90 up now falls onto the 89th floor, which is not prepared to have a building fall on it, and so it collapses. Now a 21-story building falls onto the 88th floor and so on. That's progressive collapse, where the initial event may be sizeable, but what ultimately happens is enormous compared to it. It came from one thing compromising the next, compromising the next and compromising the next. It's hard to interrupt that vertically.

Larry Bernstein:

Would you view that as a design flaw, the World Trade Center, or would you just say the World Trade Center was not designed to handle a 737 with a full tank of gas?

Martin Paull:

No, I think actually, it's a little different than that. It did resist the 737 in terms of the impact, and the tank of gas probably burned off in the first few seconds. The fire that ensued is what did the damage, and it is not easy to make a building today that it can't have fire. In this case, the impact probably blew out all of the fireproofing, the drywall and so on around the steel, so the steel was more vulnerable. It probably blew out whatever sprinklers would have been in the building to try and control the fire. It's hard to harden those things enough, though we do change the standards, and we have been trying to address that and make the buildings more resistant to things like explosion and so on.

Larry Bernstein:

I worked at 7 World Trade Center in the years before 9/11. I spoke to the CEO, Mr. Gutfreund, about it. He told me that they had put an oil tank in the basement to handle a situation where power was out in New York City for an extended period of time that Salomon Brothers could continue to operate. Then during 9/11, shrapnel from the World Trade Center hit 7 World, started some local fires. Everyone was able to get out of the building safely, which may be your point, is how it was designed, but sooner or later, the fire made its way into the basement and hit that oil tank, and the building collapsed.

I contrast that with there was a building that was built in the '20s, a brick building, very limited glass and steel, that was right next door to the 7 World Trade Center, and that building was perfectly fine. How do we think about these glass and steel modern buildings compared to the old brick buildings in comparison in terms of risk?

Martin Paull:

Well, this is not only the physical risk that we're initially talking about, but it's also sort of the economic risk. Can you really have a society that says, "We're going to only build completely fireproof buildings"? I mean, in Los Angeles, if you wanted to build only earthquake-proof buildings, they would be half-buried, concrete, one-story bunkers with no windows, and we're not going to do that. We're not going to have a society that way. We kill 30,000 people on the highway every year. We could reduce that to zero by just making the speed limit three and enforce it, but we're just not interested in doing that.

Larry Bernstein:

Right.

Martin Paull:

This is a balance. The risk needs to be evaluated. It needs to be looked at. We need to be conscious of it. It doesn't mean we're going to aim to zero.

Larry Bernstein:

One last question on the Surfside condo building. In the first couple of days, or maybe even the first day, there was discussions about the fact that the building had sunk by two millimeters or something. Everyone said, "Oh my God, that's a big deal." I kept saying, "Two millimeters. I mean, my god, that seems like nothing. Who would even know?" Was there anything to that?

Martin Paull:

Probably not. It's the differential. If the entire building sinks as a unit, it's a nuisance, but it's not necessarily a problem. The problem is differential settling, where one part sinks and another part isn't. On brittle materials like concrete, that introduces cracks into the concrete. It's the cracks that give you a problem.

Larry Bernstein:

Got it. As you know, we end each session at a note of optimism. Marty, what are you optimistic about as it relates to structures?

Martin Paull:

Well, this has to do with COVID and the discussion that, in general, is out there. COVID has been awful. I don't think we've handled it very well. I'm not going to go there. But the discussion has very much been about risk, and the word risk. The idea of risk is now a much more ordinary part of our discussion of the impact of something. The discussions about COVID are not, what's the mechanics of how one cell gets affected by another. There are people who do that, but the public is not looking at that, but we do look at risk. We'd look at what the rates of hospitalization are and so on. Having the discussion turn towards risk and become an ordinary part of discussion, I think, is ultimately going to be helpful to our society.

Larry Bernstein:

Marty, thank you so much.

Martin Paull:

Thank you.

Larry Bernstein:

Our next speaker on What Happens Next in 6 Minutes is Edward Glaesar.

Ed is the Fred and Eleanor Glimp Professor of Economics and the Chairman of the Department of Economics at Harvard University. Ed is the author of the recent book that was released on September 7th entitled *Survival of the City: Living and Thriving in an Age of Isolation*. Ed, please begin with your six minute presentation and that will be followed by a question and answer period. Go ahead.

Edward Glaeser:

Wonderful. Thank you, Larry. So, for most of my adult life, the basic narrative was one in which cities were triumphant, that after the very difficult period of the 1970s when the twin perils of suburbanization and de-industrialization had brought New York City to the brink of bankruptcy, cities like New York had recovered. Now, not all of them recovered, certainly, Detroit and Cleveland were still in difficulty, but they became safer. Some cities became safer, became far more prosperous, became more expensive, and it really seemed as if the future was assuredly as urban as it could possibly be. Now, all of that seemed like it came crashing down in March of 2020 when, because of COVID-19, we, in a sense, saw the rapid-fire de-urbanization of the world, because at their heart, cities are the absence of physical space between people. Cities are density, proximity, closeness.

I wrote this book because I was worried about the urban world. I was worried about the threat of pandemic disease. And I was worried, particularly as the pandemic rolled on about the threat of remote work, meaning that people abandon offices, abandon face-to-face contact, and abandon cities. I am still worried, but I am not worried about urban life as a whole, which I am confident will continue. But every city is vulnerable. It has never been easier for businesses and firms to uproot themselves and go somewhere else. And so the tendency of particularly those on the left in cities to see the rich as a piggy bank that can just be cashed anytime you want, to see firms as being something that are a problem rather than a solution to a city's needs, that's deeply worrisome to me.

And I think going forward, the policy parts of this book are both about fighting pandemic, which is vital for protecting our urban future, but also for providing possibilities of a world in which there's more opportunity in cities, in which is more affordability in cities, in which police treat every human being with respect and dignity, but also effectively fight crime.

So, the book begins with history. It begins by tracing thousands of years in which there has been a dance between death and urban life. From the plague of Athens that slew Pericles, to the plague that derailed the Emperor Justinian's attempt to bring the Pax Romana back to the Mediterranean world. Pandemics have been part of cities. Those plagues, Athens and Constantinople were fairly devastating to the civilizations that they struck. By contrast, for most of the past 650 years, our urban worlds have been quite resilient to pandemic.

And we do this in chapter three. In the 19th century, first yellow fever, and then cholera struck down our cities. And these didn't stop urbanization from occurring. In fact, our cities rallied. Our cities built the public health technology. Sewers, aqueducts that enabled them to become much safer, that enabled them to continue to grow without people dying. And in a sense, the process of pragmatic collaboration is exactly what we need now. In the 19th century, that world of aqueduct building was the moment in which governments of all levels transitioned from being overwhelmingly agents of death, which is what governments did prior to 1800, to being agents of life, that are agents that actually do good rather than doing harm.

Over the past 100 years, we've had a blissful century in which we forgot since the influenza epidemic of 1918, 1919. We forgot how much harm diseases can do to our cities. Now we hopefully remember. And we hopefully recognize not just that our bodies are at risk, but that our economies are at risk as well. Over the past 100 years, as automation and outsourcing have pushed people outside of factories into the great urban service economy, the face-to-face work, leisure, hospitality, retail, trade, where the ability to serve a latte with a smile was an employment safe haven from when the factory disappeared. But those jobs can disappear in a heartbeat when a smile becomes a source of peril, rather than a source of pleasure.

And so fighting to pandemic-proof our cities is not just about those cities. It's about all of the face-to-face urban economy, face-to-face economy everywhere. Because in fact, this airborne pandemic can strike the South Dakota's as easily as it can strike Brooklyn.

So, one part of the book is about why our health system failed so badly, because we never bothered to actually create a system that was about health. We created a financial system that was about insurance that led to a federal government that was willing to spend oceans of cash, but not actually to make decisions that would actually protect life. And simultaneously a need for a stronger international system, that involves monitoring the outbreak of pandemics, hopefully trying to do a little bit more in terms of getting quarantines to work effectively, doing more in terms of paying for sanitary infrastructure in the developing world, and then expecting as a quid pro quo for that, that there will be more restrictions on the types of interactions that can cause disease.

The impact of every natural disaster is mediated by the strength of civil society when it strikes. And America's cities were much less robust in 2020 than they were in 2001 when the terrorists struck the Twin Towers. They're much less robust because cities appear to have been doing a very poor job of taking care of their poor citizens. They appear to be doing a very poor job of making sure that the police treat everyone with decency, and they seem to be doing a very poor job of providing affordable housing for everyone.

So, in some sense, the book is a cry for a pragmatic agenda of making our cities effective at doing what cities are always supposed to be. They're supposed to be places where poor people can turn into middle class or rich adults. And that has been happening too rarely. And so we're really calling for more freedom, fewer limitations on the ability to build. Because only private

sector development can deliver the types of and the amounts of housing that we need for our cities to become truly affordable.

We need to actually take effective government more seriously. The right answer in 2021 is not more government or less government, but better government. At the local level, and at the national level as well. This requires actually finding out what works. In some cases, we have reasonably good solutions. So in the case of policing, we need something like a dual mandate, just like the Fed, where you have a mandate to both stop crime, a mandate to treat everyone decently. You need to have mechanisms that create incentives for that like regular surveys of people to ask them how they're being treated with decency. And then we need to fire police chiefs who don't manage to deliver on the dual mandate. But of course, I believe very strongly you don't get something for nothing. And if you want police to both be nicer to everyone and to stop crime, you've got to pay them more. You've got to go the opposite of defunding the police. And I think that's what pragmatism requires.

In the case of upward mobility, schools are our primary channel. And here, I think we have to admit that we don't know what works. One of the things that we emphasize over and over in this book is that you need to have the humility to learn to effectively change the quality of government, to effectively fight pandemic. In the case of schooling, we fought from top-down schooling reform movements for the past 20 years, and have been fairly ineffective at moving the needle. For all the fanfare of No Child Left Behind or Race To the Top, they didn't really solve the problem of underperforming urban schools. They didn't really solve the problem of America as a whole under-educating its children.

So, I think we have to recognize that we need to have something more like an Apollo Program than a Marshall Plan where we don't just spend, but we recognize that we've got to learn what works here. My own personal preference would be to bypass the existing educational establishment entirely and do more with afterschool programs that are competitively sourced to train vocational skills like programming, or like plumbing. And then you pay for performance for the schools that do it.

I am fundamentally optimistic about the future of the city. There is just so much to like about face-to-face contact. There's so much to like about learning from one another when we're close to one another. That type of learning that has been powering urban miracles since Socrates and Plato bickered on an Athenian street corner. And I believe that the age of urban miracles is not gone, and the cities will continue to create the collaborative change of invention that have powered humanity's greatest hits for millennia. Thank you.

Larry Bernstein:

Ed, thank you. All right, let's start with Nicholas Bloom. We had him on What Happens Next a few months ago and he highlighted that he thought that using the office would still exist but would just change or adapt based on these new technologies. He thought that maybe what you



would do is come in three days a week, two days a week specifically with your own department and maybe a firm-wide one day a week. What's so interesting about that is that the needs for office space would radically change, and given the inelastic supply of office, it could result in radical changes in price, which if prices went down, it would make it more appealing to come to urban environments. How do you think about Nicholas Bloom's predictions?

Edward Glaeser:

I think he's exactly right, that what you're likely to see in expensive office markets is much more adjustment along the price margin than along the quantity margin, meaning that let's say we thought that there was a significant drop in demand for classic commercial space in Manhattan, prices could drop down by 10%, 15%, 20%, but the office towers are still going to be occupied. They might be occupied by slightly different businesses. So we might see a little bit less of well-established financial service firms locating there and maybe a few more scrappy startups. I think that the place where you're more likely to see real disruptions from this are in the markets where office rents were 20 bucks, 25 bucks a square foot to begin with, markets like Buffalo or Cleveland or Detroit. And in those areas, a drop in price could actually lead to significant vacancies, which would then ripple through the ecosystem.

Larry Bernstein:

In your book, *Triumph of the City*, you talk about the benefits of concentration of similar sorts of workers and I remember a discussion about Silicon Valley specifically. One of the great things about Silicon Valley is that if you are a computer programmer and live there, you'd get a higher wage, that geographical benefit of having specific skills in a certain area. But with Zoom, the employer and the employee can benefit from not being in Silicon Valley. How do you think about both the national and global aspects of being able to use talent in a much more efficient way?

Edward Glaeser:

So I think this is clearly a bonanza for highly educated people who don't live in Silicon Valley. That's entirely right. And it's a bonanza for many highly skilled, for example, Indian software engineers who are also fairly fully connected, but this only makes things better for them. It's interesting, in fact, what this means for the fortunes of Silicon Valley and for the San Francisco area more generally, because it does actually two things, one of which is, it levels the playing field with places like Austin, Texas. Because you can actually access the same information, but it also makes it possible for you to live further and further out on the edges of Silicon Valley and only come in two days a week or only come in three days a week, and the commute becomes somewhat bearable. So I'm not sure if Silicon Valley loses on net from this or actually wins.

Larry Bernstein:

Let's talk about education. How do you think the future of education will look like balancing online and being in person?

Edward Glaeser:

It's clear that there's huge demand during this pandemic for virtual courses. So there is a segment of population that really benefits from online education that's usually pretty energetic and interested in it. Face to face connection is a huge part of getting a kid who isn't highly motivated to pay some form of attention to what you're doing. And I include my own Harvard undergraduates.

Getting a 19 year old, no matter how bright they are, excited about mathematical economics is not always the easiest thing to do in the world, and it's certainly a lot harder over Zoom. Nothing beats the magic of face-to-face connection, whether in the workplace or in the classroom.

Larry Bernstein:

I want to switch topics to the CDC. What did the CDC do poorly? How can we improve upon it as an agency of the government?

Edward Glaeser:

It is clearly a huge mistake is our failure to protect the nursing homes, right? The fact that this is a disease that kills the elderly and the vulnerable, and we did so little to protect the elderly and vulnerable. And relative to the cost of everything else, relative the cost of various lockdown type policies for the economy, it would have cost a tiny fraction to just pay all of our nursing home workers double and triple time to get them to make sure that they basically stay at the nursing home, they don't bring disease from nursing home to nursing home. And we basically isolate and protect the oldest and the frailest.

Larry Bernstein:

All right, let's go in a completely different direction. In reading the Wall Street Journal review of your book, they focus heavily on land use. This is a topic that's near and dear to your heart. Can you give us a little background about the errors in government policy that have limited land use for new construction of homes and effectively driven up the price of real estate, particularly for young people?

Edward Glaeser:

So I see this as a 50 year change where America has become increasingly prone to protecting its insiders, and to ignoring its outsiders. And I think of this in light of Mancur Olson's Rise and Decline of Nations, which he wrote in 1982. And when I read that in graduate school, it tells a

tale of how stable societies are increasingly taken over by well-organized interest groups that basically screw over outsiders and lead to stagnation. That's this sort of epic sweep. When I read this in the early 1990s, coming fresh off of the Reagan revolution in America, it just felt completely wrong to me. Just felt like this is not the America that I know, which is full of sort of vibrant openness to entrepreneurs, to newcomers, all sort of people.

30 years on, I think that there's a lot to like about Mancur Olsen's viewpoint, and a lot to dislike about how it's played out in America. And land use planning as a clear area. We used to be following standard common law traditions, that if you owned a plot of land, you could pretty much do what you wanted with that land, including building on it. Right? And gradually we ate away with that. Not insensibly with, let's say the New York Zoning Ordinance of 1916, which didn't actually restrict heights, but it did restrict the ability to cast a shadow. So the buildings had to get narrower as you rise to the sky, which gives us the ziggurat field that is so typical in buildings of that time period. Then you had Euclidean zoning in the 1920s, which tried to separate out buildings by usage. So you have commercial housing, which is separated from industrial housing, which is separated from residential housing, and increasingly, a different set of tools have been used by different groups to protect the status quo.

In the East Coast and cities, historic preservation, which started going in a major way in the 1960s, and great swaths of whole neighborhoods are now allocated to historic preservation districts in which basically nothing can be changed in those areas. In the west and outside of cities an environmental justification is often given, whether or not it's saving a San Francisco Bay or some other cause about protecting trees and suburbs. The irony about that often is that these alleged environmental reasons actually are somewhat counterproductive, environmentally. There's a lot to like about dense construction, close to city centers, in terms of being good for the environment in terms of reducing carbon emissions, because you have less driving, in terms of people's living typically in smaller houses, if you build up urban areas. And so, the environmental movement has often done harm to the environment in coastal California, which is intrinsically the greenest part of America because it's such a temperate climate. So the lowest carbon emissions by restricting the amount of development in, let's say the San Francisco Bay region drastically, they've ensured that there still is more development, but it goes on outside of Houston, Oklahoma, and Las Vegas and places that are much harder to cool, and often involving much more driving.

So small local organizations have basically figured out how to use the tools of local government to shut new building down. They're often depicted as heroes, and the greedy developers who want to build are often depicted as villains. But the amazing thing about the free market is often, people who may look like greedy villains, end up serving a larger social good, which is providing ordinary housing for decent Americans at a reasonable price. And you still get that in Houston and you don't get that in San Francisco. And that's because Houston ultimately is hued more closely to the older ethos of basically letting the people build. And that's proved to be much more beneficial for outsiders than the idea that you're going to just protect everyone

who is now in the cities, views and comfort, and if people can't afford to live there, then so be it.

Larry Bernstein:

So, using Olson as a backdrop, California and Massachusetts, both have been big users of land use regulation and Texas has not. And the result is an enormous boom in population in Texas and Florida, and much less population growth in places like Massachusetts and California. Is that just another way of saying this is how the market will work if you put in restrictions and jack up price? Young people will find themselves moving to Texas? And would that be a self-correcting process that it obviously takes place, or other enormous frictions related to people who are born and raised in California with desire and to remain there, and therefore accepting a lower standard of living?

Edward Glaeser:

Well, I think we should worry about Americans not moving to places that are more productive anymore. Throughout most of our history, the stone walls in the land outside of my home here, which were walls, this land was farmed in the 18th century. No one's farmed it for 180 years because its crappy land to farm, and the farmers went west to the Ohio River Valley, or they went further on to Iowa, or to Illinois. All of these things have been in America on the move, or most dramatically think about the Great Migration North of African-Americans freeing the Jim Crow South.

All of these things could happen because the receiving communities made room for these people. We don't do that anymore. We have migrations driven often by the availability of inexpensive housing. So that's fine, I'm glad that that inexpensive housing is available, there's a lot to like about Texas, for goodness sakes, but it seems problematic when Silicon Valley, New York, Boston, places which by most observable measures, some of the most productive places on the planet, they don't allow growth, and the country as a whole suffers in terms of its productivity, because of it.

Larry Bernstein:

How do you think about this 70-year period of populations moving out of the cities, and into suburban exurbia, and how do you see those trends changing?

Edward Glaeser:

We have always built our urban spaces around the transportation technology that was dominant in that era. Our oldest cities are walking cities with narrow streets, and often winding paths. Our 19th century cities are built around various forms of wheeled transport, street cars, then elevated railroads that enabled cities to stretch much further, but still meant you had to

walk from wherever that the train, or the streetcar drop you off to your final destination. In the 20th century, the car was completely dominant, and for totally understandable reasons. I mean the average commute by car in this country is typically about half the time of the average commute by public transportation, in part, because you don't have that 15 to 20 minute time fixed cost involved in walking to the train, waiting for the train and walking from the train. And so, we radically rebuilt our urban spaces around the car. And this was the big story from, let's say, 1950 to 1980, right? Totally dominant. And there's no sense that the success of cities after 1980 and coming back meant that the dominant population growth was not in the suburbs that continued to be so.

Larry Bernstein:

How should we think about the decision of African-Americans to move down South, reversing that African-American migration for reasons of employment, education and safety?

Edward Glaeser:

Well, I think that the story of the great migration North should be seen as very bittersweet by the African-American population. It was an amazing thing for people like Richard Wright to come to Chicago and in the 1920s and 1930s and experience a world that was completely shut off to them in the Jim Crow South; a world of employment, a world of ideas, a world of possibilities. That was utterly amazing. There were jobs there for them.

Now flash forward a generation or two, those same cities, especially after white flight occurred, ended up being fairly terrible places to have children, especially for the African-American community, partially that was racial segregation. Whereas for many of us, part of the great benefits of the city is the fact that we interact with huge numbers of different people, of different races, of different levels of education, of different occupations, right? The world of a segregated child is very different. If you wake up in a segregated housing project and you go to a segregated school, it's like you're in a village and you're not experiencing any of that.

Leaving these cities which once seemed so bright for someone else, unfortunately makes sense. It will make sense as long as cities fail. Even more than the failures in policing or the failures in affordable housing, is the failures of urban schooling to provide upward mobility for ordinary kids and especially for African-American children.

Hopefully they will find both short run employment, which of course they are finding, the Latino community, but hopefully those cities of 2030 or 2040 will do better for their children than the cities of 1970 or 1980 did for the children of the African-American migrants. But that's part of our goal in terms of vocational training, is to make that possible.

Larry Bernstein:

You talked about the demonization of our wealthiest city goers. Their property has been attacked. Many of them are planning to leave these big cities for low tax, safer places in the South.

In your opening remarks, you mentioned that we can't throw these guys out because they provide so much both human and physical capital to the cities and cultural capital as well.

Edward Glaeser:

Yeah.

Larry Bernstein:

Why are the wealthy under such attack by progressives right now, and what can be done to encourage these individuals to stick around and encourage the growth of the cities?

Edward Glaeser:

That was one of the things that motivated the book, was this deep worry about the fact that cities seemed to have forgotten that the rich and businesses are mobile and they've only become more mobile thanks to Zoom, thanks to remote work.

I think the reason why this comes up is, is a real frustration with the pace of progressive change by many people on the left and an understandable frustration with the inequality of American society and the lack of upward mobility in cities. Cities have always been on equal places, right? It was Plato who wrote 2400 years ago that every city with whatever size, in reality is two cities, one, a city of the rich, the other, the city of the poor, and they are perpetually at war with one another.

In fact, urban inequality is not something that cities should be ashamed of. Cities attract the rich by being relatively pleasant places to be rich, and they attract the poor by being relatively tolerable places to be poor. That's not something that's an urban problem. Those are urban assets. But that level of inequality is only tolerable if cities are continuing to do their historic job of turning poor children into rich adults. Unfortunately, the Opportunity Atlas data of Raj Chetty and his coauthor shows that cities are really not doing a very good job of this in lots of different dimensions and lots of different ways.

That combines with frustration at the police, frustration about the high cost of living and frustration with national politics as well, which until the election of Joe Biden was something which certainly infuriated many people on the left. Local politics seems like an outlet, but if you want to tax the rich and give to the poor, the right level of government to do that is the federal government because it's much harder to run away from America than it is to run away from Chicago or to run away from Seattle.

You really should not be using local government to redistribute. You should be using local government to try and solve the core tasks of local government.

If you do decide that this is something where the real goal is to demonize the wealthy and treat them poorly, then they will leave and cities will be much the worse for it.

Larry Bernstein:

The economist that you hold dear to your heart is Jane Jacobs. What is about her work that you think has most relevance today?

Edward Glaeser:

Jane wasn't an economist. Jane didn't have a college degree. Jane is just a peerless urbanist. She just had eyes that saw clearly what was functioning in cities.

The fantastic things about Jane, which are in *Death and Life of Great American Cities*, it's her observing the ballet of the sidewalk, as she discusses it, understanding the ways that people who live in cities interact with the streets around them, understanding the strange and unpredictable things that happen in cities and how things that look inefficient in cities actually produce sort of remarkable long run benefits.. There's always something inefficient about being in the office relative to being home and at Zoom. But surprising things happen at the office that enable us to learn more from each other and to actually just have more fun. And I think that's part of what she was recognizing was that cities, despite their seeming inefficiencies had hidden strengths that led to long run creativity and long run vitality.

Larry Bernstein:

One of my favorite segments from that Jane Jacobs book was the description of a grandmother's... I think sitting on a balcony on a second floor walkup in the Village and making sure that there was no trouble in the street. And if there was trouble, she would have quickly called the police. How do you think about that observation about how to control crime and misbehavior on the streets?

Edward Glaeser:

It's funny, I wrote a whole paper that was inspired by that, looking at victimization data. People who live in high rises are much more likely to be victimized on the street, but much less likely to be burgled than people who live in low rise dwellings in cities. So it really did seem to support Jane Jacobs' notion that being too separated from the space on the ground made it difficult to observe those people. It doesn't mean high rises are bad, but it does mean you have a larger public safety problem to deal with when people actually can't monitor the streets.

I don't know how many neighborhoods actually look like what she described, which was a sort of typical New York neighborhood of the 1950s, where you have a bunch of people in these walkup units, where there's nothing all that entertaining to do anywhere else, so you're looking at the street, you look at your kids playing on the street. It's a wonderful description of a time period. I'm just not sure how much it persists.

But the view that streets are safe when there are people using them is certainly true. And that continues to be the case that eyes on the street are what creates a sense of urban safety.

Larry Bernstein:

We end each session on a note of optimism. What are you optimistic about as it relates to your topic, broadly defined to be the economics of cities?

Edward Glaeser:

Cities have shown a remarkable ability to survive much worse than this. And I think that the value of information rich environments that promote some degree of opportunity for young people who are outsiders, the demand for those spaces is not going to go away. And cities provide the space in which we can really make our future, in which we can learn from people around us. And I will say personally... So I've been back in the office since mid-August. And it has been just such a source of not just joy for me, but I think joy for everyone just to be around each other again, and to remember how much we gain from connection to other human beings. And that completely makes me optimistic.

Larry Bernstein:

Ed, thank you very much.

That ends today's session. I want to make a plug for next episode.

Our first speaker on October 3rd will be Allen Guelzo. He is Director of the James Madison Program Initiative on Politics and Statesmanship at Princeton University. Previously, he was the Henry R. Luce Professor of the Civil War Era at Gettysburg College. Allen spoke previously on What Happens Next about the monuments controversy, and he will be back next week to discuss his new book which will be released later this week which is a biography of Robert E. Lee. Needless to say, Lee is a very controversial historical figure, and I hope to get into detail about the leading general for the confederacy.

Our second speaker is Eliot Higgins who started an organization called Bellingcat that works with volunteers to solve war crimes using open source video and data. They have successfully exposed some of the major atrocities of the past few years including proving that a Russian missile shot down a Malaysian airliner over the Ukraine as well as the Russian agents using a biological weapon to kill a target on British soil. I hope to learn from Eliot how he has put



together an organization with 1000s of volunteers that successfully solves crimes faster than the best law enforcement organizations.

If you are interested in listening to a replay of today's What Happens Next program or any of our previous episodes or wish to read a transcript, you can find them on our website [Whathappensnextin6minutes.com](http://Whathappensnextin6minutes.com). Replays are also available on Apple Podcasts, Podbean and Spotify.

I would like to thank today's speakers for their insights. I would also like to thank our listeners for their time and for engaging with these complex issues. Please stay tuned next Sunday to find out What Happens Next.