THE BROOKINGS INSTITUTION

THE CREDIT AND INSURANCE CONSEQUENCES OF NATURAL AND MAN-MADE CATASTROPHES

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P R O C E E D I N G S

MS. LEE: Ladies and gentlemen, thank you for joining us here at the Urban Markets Initiative of The Brookings Institution. My name is Alyssa Lee, and I am the Assistant Director of the Urban Markets Initiative at the Metropolitan Policy Program.

The Urban Markets Initiative is really focused on how to use data and information to drive investment in urban markets, and our relationship around the issue of credit is very critical to understanding the individuals, the small businesses, and the neighborhoods that drive urban markets from our perspective. We have looked at the relationship of credit on unscorable individuals and unbankable individuals, with the Information Policy Institute as a deep partner in what we do. We have looked at this issue probably for about the past year around alternative data and credit scoring for individuals. We have also looked at the issue of small business credit scoring as it relates to underserved markets and minority entrepreneurs.

As we, about a year ago, sat and watched what was happening in New Orleans, and I received the phone calls from our family members who are located in New Orleans and Mississippi, it became clear to both Michael and I that the issue of credit as it related to catastrophe was completely an ignored issue and that many of the mental health issues and many other physical issues that related to victims of disasters are related to the issues around credit, credit scoring, and the capacity to be financially suited to have lives where they are able to get houses, start businesses, and send their children to school. These are all related to our understanding of credit and how it relates to folks affected by disasters.

The disasters that we are talking about aren't only man-made disasters. We are also talking about disasters that are intentional. A recent study by The Brookings Institution talks

about the relationship of 9/11 to the change in the composition, the socio-economic composition of the business community in New York following 9/11.

All of these things can be understood through the context or the lens of credit.

Today, we are very excited to have and thankful to have a wonderful panel put together of folks that look at the issues of credit and the relationship to many different issues. I will just go ahead and introduce who our panelists are today. First, we have Dan Meder who is with Experian Business Information Solutions. He is a Senior Director of Commercial Credit Risk Solutions, and he is going to talk to us a little bit about a study that they did right prior to the hurricane and what they found in terms of understanding small business.

Following up on that will be Michael Turner who is the President of the Information Policy Institute and, as I said, a very deep partner with us here at Brookings, and he is going to talk about an update that they have recently completed, Understanding Small Business and the Impact of Disaster on Credit.

Following that, we will have Chet Wiermanski who is with TransUnion, and his perspective is looking at how the data that are provided by his company and the unique analytic methods that have been designed to understand and track individuals and small businesses can be used to create a better understanding of what happens after disasters to both individuals and small businesses. We will talk further how that can relate to our policy implications, both private sector and individual firm policies as well as the public sector policy of those decisions.

Finally, we will have Eugene Gurenko who is with the World Bank, and he is the Lead Insurance and Risk Management Specialist of the Capital and Risk Markets group which I guess has been renamed recently to something that I don't know yet. Anyway, Eugene's

perspective is very interesting because, as we all know, the World Bank doesn't work in the United States, but the issue of credit and disaster and insurance is something that is very critical to his understanding and their understanding of how to look at the communities that are affected by catastrophe around the world. He is going to talk about a micro-market perspective, looking at individuals and businesses as a way to understand the implication of disaster for a nation, for a city, for a country.

And so, with that, we are going to have some presentations.

Excuse me, I apologize. I have missed the person that I probably should be most happy to have here because he actually helps us to understand credit capacity of cities and communities. I apologize. Alex Fraser is the Managing Director of Public Finance Ratings, and he is going to talk about what the impact of disaster has had for the Gulf Coast and will talk further about what the implications of that are in relationship to future ways in which we can look at bond ratings as it relates to catastrophes.

So, with that, I would like to hand it off to Dan, and we will have a brief PowerPoint presentation as our discussants speak, and we will also follow that with questions and moderated discussion. Thank you.

MR. MEDER: Thank you and good morning.

In November of 2005, we at Experian, on the commercial side, and when I say commercial side, a lot of folks know Experian as an outfit that collects information on individuals and applies that information. We also have a commercial database. So everything I talk about here will be in the context of the commercial database that we provide.

In November of 2005, we released a study that took a look at the impact of non-

financial obligations that were owed to the credit community. When I say non-financial, I am referring to things like inventory obligations, business service obligations, equipment obligations, and those types of things, not talking at all about loans or any bank, what you would traditionally consider bank-oriented obligations. These are more what we sort of generically call credit trade obligations. We wanted to see, with all the businesses that were so severely affected, what the impact would be on the business community at large because obviously there is a ripple effect within a supply chain if that number is large enough. If I can't collect my $50,000 from this company, that is $50,000 less than I have to pay somebody else and that is $50,000 less perhaps than what they have to pay someone else and on and on and on.

So what we wanted to do was take a look at the trade data that we have in our files and see if we could come up with some number that would give a sense of how much was actually outstanding at the time of the hurricane and therefore how much was at risk. In order to do that, we looked at 635,000 businesses that we found in the Katrina-affected areas as defined by FEMA. We were able to isolate that down to the zip code level and then match that against our database and bring all that data back, and we found 635,000 businesses that matched that geographic area.

We looked at the data that was provided by over 5,000 trade contributors that we have. Our data collection methodology for trade is to work with manufacturers and wholesalers and companies that provide credit and to get their accounts receivable files on a recurring basis. We load that into our files, and then we produce that and send it back in the form of our reports. So this is where we got the information from, and we took a look at all that data.

What we wanted to do was set a benchmark because obviously, at the time that the

disaster occurred, everything that existed before that pretty much went away. Michael and I were talking a little bit before about credit scores, and really, any score that any business had on that day is based on data that were already reported and of course everything changes from that day forward. So, really, the best we could do was set a benchmark at that time. There was a plan to do some future analyses, and we have now partnered up with Michael and the Information Policy Institute to expand that study, and Michael is going to be able to give some first cuts of some things that have been found. So that gives you an idea of the background of why we got into that.

In terms of the data that we had available, this is the various sources of data that we have at Experian. On the left hand side, you see is the commercial data that we collect: collection information, payment information, public record data which would give us things like new financing statements, any indication of new bankruptcies, corporate records, new corporate record details and that kind of thing. On this side, you will notice the business-owner link file which is at the bottom of the middle drum on the right hand side. That business-owner link file is a fairly important aggregation of data, if you will, for us because what it does or the way it is build anyway is it allows us to connect business owners with the businesses that they have. So if you look at the left side of the chart where we have got all our business information and the right side of the chart where we will have all our personal information from the consumer side of the business, our business-owner link file allows us to connect the two. If you have ABC Company, you can go right through the business-owner link file and very quickly get to data on the individual owners within that file.

The four million records that you see up there are exclusively around proprietorships or partnerships. We have also got a separate corporate business-owner link of another few

million records that allows us to connect corporations. Now, obviously, we all know there is a difference between the ultimate obligation on a partnership or proprietorship versus a corporation which is why we keep them separate. What we refer to here is the partnership and proprietorship database.

What were some of the observations we made? Looking at the affected areas, based on the information that we had and sort of extrapolating it, we saw there was a possibility of as much as $40 billion that was at risk at the time of the hurricane, and $7 million of that was in the most affected areas. I don't remember the color coding on the FEMA chart, but we took at a look at the red zone, if you will, and we estimated about $7 billion that was outstanding at that time. Now, that is a number that over time we expected to refine a little bit to see what the actual impact was because obviously we took the whole FEMA-defined affected area and some of those were outliers where the businesses really, they were either able to get up and running quickly or they weren't really that affected at all as opposed to all those, say, down in New Orleans where everything was just pretty much wiped out. So there is some opportunity perhaps to refine that number a little bit.

One of the things that we found, and I think this gives a lot of credit to the business community at large, is they actually asked us to freeze our reporting of payments for roughly the first six months after the disaster occurred because they didn't want it to negatively affect those businesses. So if someone was a certain point, let us say a prompt pay record or slow 30 pay record, they didn't want us to report anything negative about those businesses during that. I think it was roughly a six-month period. I think we released it and started reporting the actual trades again in either January of February, the earlier part of this year, somewhere in that vicinity. That obviously kind of hurt our ability to modify that $40 billion number a

little bit but obviously for a very good reason. I think the business community showed a lot of heart, if you will, in trying to work with the businesses in that area.

Industries that we found were hardest hit: business services, probably not a surprise there; healthcare services was a big piece of that. Also because there was so much tourism in that area, that would fall in that category as well. For those of you who are familiar with the SIC charts to whatever degree you might be, those in the 70 to 89 category, the two-digit SIC level, fall in the business services category. Again, that is the tourism type stuff like hotels and then also healthcare services and that sort of thing.

Retail and wholesale trade, probably not a surprise; in order for those businesses to thrive, you need people, and there were no people. Everybody had pretty much cleared out. So if a business did start up, any local traffic that might have been there to buy their stuff was pretty much gone. No surprise that we had some real concerns about that.

Then finally construction; there were a lot of obligations outstanding at the time. If I recall, at the time around November of 2005, there was a sense that there was going to be this construction gold rush that was going to occur, where everybody was going to rebuild and all that kind of thing. All of sudden, all these construction companies not only would be able to cover these older obligations but would probably thrive. I don't know if anybody here is going to touch on the slow rebuilding that has gone on, but my suspicion is that as the updated numbers come out, we may find that construction hasn't done quite as well as we might have originally thought six months ago.

The next few charts are going to be pretty data-intensive. So I want to try to get through them as quickly as possible but kind of give you a sense of what they are about. This first chart here shows the businesses in the affected area, the 635,000 businesses, arrayed by

size of business and age of business. Now, we have highlighted those businesses with fewer than 100 employees that have been around less than five years. The reason we highlighted that particular cell is because I believe the SBA definition of a small business is under 100 employees. We also highlighted five years and under because, even in the best of times, a business that has been around less than five years has a tough time getting by. There is a number out there that I think that only 40 percent of businesses survive past their sixth year and that is even in the best of times. So now you layer in obviously the disaster, and those small businesses — and more than half the businesses in the area fit that category — were at some substantial risk or at least that was our view going in. I know Michael has done some further analysis on that which he will be able to share with you later on.

The only other number that I think would be of some significance that I want to point out is on the far end, a cumulative chart. So if you take a look at the cells to the right –- I don't know if you can read that at all –- roughly 98.6 percent of the businesses in the affected areas had fewer than 100 employees. It is pretty obvious from these numbers that this was a small business issue right from the start. Unlike perhaps some other areas that might have a lot of major corporations, this is not one of those areas.

Running through some of the industry stuff — we talked about this a little bit — 22 percent of the outstanding balances we found in the business services category; another 20 percent in retail trade; another 15 percent in wholesale; and another 14 percent in construction. If you look at those top three categories again, that is a big problem area because a lot of those are contingent on a lot of people showing up in that region, and there just wasn't a lot going on. That was a lot of money that was at significant risk.

A few more numbers here; this is a cumulative chart showing the comparison of the

percentage of businesses in a category with the total dollars owing. The number I would like to point out again is for under-100 businesses, 98.6 percent of all the businesses were in the category. They also had 80 percent of the outstanding obligations. Again, I guess what you would call the most at-risk businesses anyway owed 80 percent of the dollars that were outstanding. So, again, if I am on the other side and I am looking to get money out of this area, perhaps I am a manufacturer and I sell and most of my clients are in that area, this is a troubling chart to me because 80 percent of the outstanding obligations at the time were with the most at-risk businesses, even in the best of times.

This goes back to November of 2005, going in, it looked like there were going to be some hard times ahead coming out of the region for anyone who did business with businesses in that region.

Tracking the recovery; again, this is going to be a little bit of a lead-in to some of the stuff that Michael has looked at and will continue to look at. Survival rate and status; the categories that we highlighted here comes from the data that we at Experian provide on the business side: things like account balance changes, days beyond terms change, looking for a possibility that people that paid within two or three days are now paying ten days late or whatever it might be, bankruptcy rate change, collection rate change.

Status of business owner; this is kind of an interesting combination where that business-owner link piece comes in handy. What is the connection, especially in those real small businesses, the under five employee businesses, between the status of the owner's personal credit and what their business is doing? A lot of times in those small businesses, that business was the sole source of income or primary source of income for a lot of these individuals. If that business isn't operating, what is happening with their personal credit?

Then finally the question is: Are they even there anymore? Are they in Houston now? Did they move to wherever they might be?

Changing credit activity; have there been new trades established? We tracked data of last credit activity so we can tell you has anyone started up recently. Maybe they were dormant for six or eight months, and now they are credit active again.

Commercial inquiries; is anybody inquiring on the business? If no one is inquiring on the business, odds are the business isn't there anymore, or it could be that there was no inquiry activity for about eight months and now all of a sudden, we have got five inquiries in the last month. That tells you they are starting to buy again and they are coming back to life.

New business start-up rate and then finally change in banking activity; what is the age of the newest commercial relationship? Has there been any change in that relationship? That type of information can be tracked.

With that, I would like to turn it over to Michael Turner.

MR. TURNER: Thank you all for coming this morning. As Dan mentioned, I am going to preview some preliminary findings from an analysis that we are hoping to do.

I just wanted to piggyback on some of Alyssa's comments. In the context of our coming together and running the op-ed that we released and then the impetus for the study, prior to Katrina, there were changes in the Bankruptcy Reform Act, and shortly on the heels of that, there was a doubling for OCC-regulated card issues of monthly minimum payments. When we saw some of the preliminary numbers from the Brookings Katrina index in terms of the delinquency rates –- remember, this is an environment of widespread uncertainly about reporting obligations, how to handle deferral policies, and so forth by lenders and justifiably so because some messages that were coming from the regulators were ambiguous –- we were

shocked at the spike, and we felt it really was fundamentally unfair that people were being penalized and their credit history will follow them around for seven to ten years for really living in the wrong place at the wrong time. As Alyssa mentioned, this was completely under-analyzed. It was the white elephant in the room that no one was talking about. So we wanted to bring attention to this issue.

We were initially focused on just consumer credit, but as we began to unpeel this issue, we found that it had implications on many different levels of analysis, and these levels of analysis, I think are represented by the people seated before you today. Now, our objective as a policy research organization partnering with Brookings on this is to capitalize on this rare opportunity to bring together so many different sets of data and perspectives and create a very fungible output, that is, meet unmet needs of various stakeholders as we understand them. We understand them only to them only to the extent that various stakeholders come to us, dialogue with us, and interact with us. Again, all these folks that are seated in front of you today, are in active dialogue with us, or are partnering directly with us on this project. It is an evolving project, and we would welcome interaction with any of you in this audience, who, after you hear this presentation today, may have something to add or may have needs that we could potentially address with this analysis.

I just wanted to topline some of the different applications we think this data will have and then get into the findings in the small business area which is just one of the components. We think that when we are looking at the different levels of analysis — individual, credit, and households which Chet Wiermanski will speak about; small businesses which Dan Meder has spoken about; communities which also Dan will talk about in terms of aggregate data on the county level, which present a different perspective on the credit data;

municipalities which Alex Fraser will speak about; and then the insurance issue which Eugene will speak about –- it is a very comprehensive picture, and they are all related systemically.

We think public policy applications; the data that we generate will help with the identification of needs and gaps and unmet needs, and then therefore the policy implementation. How do disaster relief agencies channel funds to areas that most need them? Then monitoring; are there programs? Are loans from a relief agency or a government agency actually making an impact in a measurable way in a community? This is what this data, the promise of this data, this is what we can measure.

Lenders, very similarly, will get a comprehensive picture in a very granular fashion of the vitality of various communities from zip plus four level up to counties, regions, nations. We can also enable benchmarking of loan portfolio performance for lenders in affected areas versus outlying areas versus unaffected areas. This will also help lenders, for example, better craft their loan deferral and foreclosure policies. Lenders don't know about foreclosing on slabs in the area right now. There is a huge amount of write-off or potential for write-off and loss that this uncertainty doesn't provide any clear answers to.

Insurers, we feel that with the data — and Eugene will speak to this more clearly — will be able to develop a vulnerability index and get some sense of risk based on discrete variables other than just crude geographic proximity to a fault line or a hurricane alley. We think that the composition of companies, the credit profile of individuals and communities will provide a more meaningful indices or metrics for the ability to recover from a catastrophe than anything that has been put out heretofore.

Ratings agencies, similarly, we think will benefit from our historical analysis. We are

going to look at data, in the case of individuals and households, 15 years back, and small businesses, 8 years back, and develop a severity spectrum of catastrophes by type in terms of their impact on the financial wellbeing of these different levels of analysis. Then a recovery cycle; how quickly do communities recover? Do they recover on the same level as the pre-impact date, or do they recover more strongly, or do they never recover to the same point they were prior to the impact?

Conversely, we feel that this study will benefit from the unique insights of all that is offered, where they have never really been brought together. This, of course, we see as the key benefit of working in the Brookings collaborative. Now, we also think that the media and the general public will benefit from this. All too often, issues like this that are under-analyzed don't result in any action. By bringing attention to very real experiences, we can stimulate, we hope, activity, whether it is from awareness or frankly from guilt or shame. We think that there are many different applications of this data, and it will be publicly available once we are actually officially up and running.

Our study will focus on the entire affected region. The historical data will look at different events, but the ongoing research will look at the Gulf Coast, will look at Katrina, Rita, and Wilma. For purposes of the presentation today, I narrowed the focus just to Katrina in New Orleans, just to give you a flavor of the capacity of our analysis, and we are only looking at small business, not the different modules that I discussed.

There are two snapshots. We are looking at business activity, those small businesses that reported activity within the previous month, August, 2005 versus August, 2006. Basically, in August, 2005, about two in three small businesses reported activity. You fast-forward that one year, and it is just the reverse; only one in three businesses are reporting any

activity. That is a substantial dropoff. That is about one in four businesses in the database stopped reporting activity or they were inactive for whatever reason.

The natural inclination would be to think, well, this is really just small businesses that were at risk, that are one year or less in age. We wanted to control for age. So we looked at basically established businesses, businesses that were at least a year old prior to Katrina. What we saw was about half and half: 50 percent were reporting activity and 50 percent weren't. It is a dramatic difference if we fast-forward that to August, 2006. Of those businesses that were a measly year old prior to Katrina, only one in ten now are reporting business activity. That is a huge reduction, and that is not a pretty picture for the vitality of the recovery a year out for Katrina.

We wanted to know whether or not, for example, business size made any difference. Here, the rationale is that the micro-businesses would be less able to cope with an exogenous shock like Katrina than larger and more well-established businesses, and this is fairly well borne out by the data. Basically, for companies that were smaller than five employees, less than one in four were reporting activity in August, 2006; comparably with those, five to nine, again less than one in four.

If we get to the medium size of the small businesses, let us say, those employing 10 to 19 staff, about 3 in 10 were reporting business activity in August, 2006. It sounds like a small difference, but it is actually about a 30 percent increase in business activity as you jump from 5 to 9 to 10 to 19.

Then also if you look at above 20 — again, Dan mentioned that about 98 percent of all small businesses in the database were less than 50 employees and this is the bulk of the small businesses here — slightly less than four in ten were reporting any business activity in

August of 2006. This is actually consistent with recent findings from Louisiana State University that were published by the *New York Times* last week where they said that about 60 percent of the businesses, the small businesses that they had contacted and they called these small businesses five times over, I think, a two-week period, weren't reachable, and they considered them inactive therefore.

What we are seeing, this is what you would expect. We have seen a market cut in half by an exogenous shock, and the profile of that remaining half is very different from the original population. You lose your market size, and then there are real cash flow problems. The government programs for relief and assistance aren't having the impact that one would expect, for whatever reason. In terms of the average, basically, only one in four businesses we saw were reporting activity in 2006.

Well, another way to look at this data is let us look at small business formation. This graph is very telling. What we see is that in the early part of the 2000s — we are looking here at the implosion of the dot.com and telecom bubbles and 9/11 and the recession — we had pretty modest growth in new business formation in New Orleans, but it was trending upward, noticeably. Right when the national economy began recovering, there was very robust growth in new business formation in New Orleans, and that is where we see a jump from about 3,000 to about 5,800, going up the following year to about 8,000, and going up to about 11,000. We see this number falls off a cliff. There is a precipitous decline in 2006. It is dropping from nearly 11,000 new businesses started to about 3,000. Again, this is a very distressing story for the revitalization and recovery act in New Orleans, given the significance of small businesses to this community. We don't know whether this number would be worse, but for certain relief and recovery programs, loans from the Small Business

Administration, for example, and we haven't dug that deep yet, but preliminarily, it is a very frightening figure.

We wanted to control for the age of the business. Dan talked a little bit about the survival rate of businesses, five or six years old or older. So what we did here was we looked at businesses reporting activity based on the year that they opened. What we see is that the two graphs are data from 2005 on the top and data from 2006 on the bottom. What this means is that in 2005, those businesses that indicated they were opened in 2000, about six in ten were reporting business activity. Now, in 2006, those businesses that said they were open in 2000, less than four in ten were reporting business activity. We see the same magnitude of dropoff for each year. It is about a 35 percent reduction in business activity across the board, regardless of the age of the company. It is worse, of course, as you would expect, from new companies. It is more than a 40 percent reduction for companies that were less than a year old. What this shows is really age doesn't impact survival rate. There has been about a 35 percent reduction across the board in business activity for small businesses.

That is basically what we have got for you from our preliminary analysis. As Dan had mentioned in his presentation, there are many different ways we can look at the recovery metrics. In fact, we have got, in the small business data alone, several hundred financial performance metrics that we plan on analyzing and an even greater number in the individual and community levels of analyses. So, again, in total, the picture of recovery, of economic vitality, of the impacts of varying policies that we can present is going to be almost, I think, unprecedented. I have never seen anything of this magnitude with respect or in the context of a disaster, natural or man-made. So we are very excited about this.

I would be happy to talk with any of you and field questions or talk with any of you

after the event about this project. With that, I will turn it over to Chet Wiermanski from TransUnion.

MR. WIERMANSKI: On behalf of TransUnion, I would like to thank the Brookings Institution for having the opportunity to talk about our involvement in this project. The application use of credit bureau information, consumer credit information is really starting to evolve. Obviously, the data is gathered and maintained for the use of risk assessment of individuals from a personal level, but as we start working with different Federal and state agencies and other organizations like the Brookings Institution and the Institute of Public Information, there is a burning desire to get a better understanding about how this data can be used to address some of the social issues that are out in the marketplace today.

What I want to do is just quickly talk about four points. One is just how anonymous credit bureau information can be used, some of the legal and logical applications of that data. Then I will talk a little bit about the time series that Michael was referring to on the analysis at the community level, where we are going to be measuring the severity of natural disasters and man-made disasters by looking at data to try and understand is there a recovery cycle, trying to gauge how severe that disaster was to the community. Then I will quickly talk about the longitudinal analysis that we are contemplating looking at performing, basically taking individuals that were residing in the 2005 FEMA disaster areas and looking at them one point in time prior to the catastrophe and then looking at how their lives have been affected throughout the course of a long period of time. Then I want to talk just briefly about some of the challenges that we face by working with this data.

Let us talk about anonymous credit bureau data in general. In order to have access and to work with this type of data, you really have to be a TransUnion subscriber. This requires

signing an agreement with TransUnion. We conduct an onsite visit to make sure that the entity is a legitimate business and just to understand what they are trying to do with the data. There are appropriate uses that we are regulated in terms of how the data can be applied and used. The Gramm-Leach-Bliley Act and the Fair Credit Reporting Act have been great in creating the parameters and the framework under which we can provide data.

There are four general uses of this type of information. One is to validate an existing credit model or data characteristics for credit or insurance underwriting. Another is to develop credit scoring systems or insurance models. We use this data also to work with lenders and communities now and governments to review the validation of underwriting policies. So we are now starting to take a look at what are some of the policies that institutions use in terms of modifying their credit, their extension, and terms that they provide consumers. It is under this umbrella or category that we believe the data can be used for this type of study. We also use it for determining qualitative value of consumer credit information.

There is also a different database. That is for individual use of an anonymous credit bureau information where we don't have any indicative information. We don't know who the consumer is. We just know some of the characteristics about that individual and their performance over time.

The community level data falls under a trend data services agreement, and I will talk a little bit more about this database, which basically requires an agreement with TransUnion and any type of research that we do with this data requires our written approval and any research that is published is subject to TransUnion's review to make sure that the information is not misleading, false, or incorrect. So those are kind of the guidelines that we impose on

it.

I will talk a little bit now about the aggregate credit information. This type of data, think of it; it is very similar to the information that is provided by the Bureau of Labor Statistics or the Census. What we are doing is reporting consumer credit activity at a geographic level. We developed this database because we felt there was a void in the marketplace for reliable and detailed consumer credit information about behaviors of consumers. There is a lot of data provided by industry organizations that will report information about account level. So delinquency statistics will be produced or will made available, talking about delinquency rates like dollars delinquent or number of loans delinquent. This database is looking at consumer behavior. What percentage of the consumers are being affected, are they delinquent, and with how many different types of accounts?

It is a different perspective altogether. This information is anonymous. It is linked at the county level and higher, so we can take this information in its core state at the county and build it up to any kind of geographic region. It is basically obtained by taking a random sample of 30 million consumers on a quarterly basis. The database has been in existence since the first quarter of 1992 to the present. So we are looking at, again, a variety of about 200 different credit characteristics and scores over time on a geography to understand what the credit dynamic within that locale is.

To give you an idea at a very high level, this is a delinquency chart. It just looks at the national level, but again this similar type of information is available at the county, MSA, and state level, where you can look at the ratio of borrowers that are delinquent, for instance, at any point in time. So this allows us to take a look at trends. By matching those trends from a

credit cycle to external events such as the macroeconomy and potentially at the smaller, at the county level, when these catastrophes occur, we can look at and get an idea as to what is the behavior of that county over time.

So with the study that Michael did, and we have provided some data to Michael and his organization, we are going to take a look at the historic impact of FEMA disaster areas on the financial health of communities. We are trying, again, to gauge the severity of the disaster as well the recovery cycle, if there is one, within that area. What we will be doing is basically identifying throughout this database which now has about 15 years of history, looking at identifying all the different counties that have been affected by the disaster in the database, as designated by FEMA, and analyzing that county's recovery period to give us a gauge as to how severe and extensive the catastrophe was. This type of information, I think, will help us get a better understanding when a catastrophe occurs to gauge the severity and the types of actions that lenders and organizations should be taking to assist consumers with maintaining their financial health, enabling them to continue with the financial health that they have experienced prior to the disaster.

Data has been provided, and with this type of database, as I mentioned earlier, this is a new type of application of the data. I think we are going to learn a lot about how our data is organized and how we would be viewing. I would anticipate that this is going to be a learning experience for TransUnion and those associated with it, where we may go in and manipulate the data to look at different characteristics and look at it from a different perspective. While we are working with this, this gives us an opportunity to really get a better understanding about how this data can be applied in this area.

On a different perspective in parallel with this project, we are going to be taking a look

at a longitudinal analysis of consumers. Here, we are going to be looking at individual level data, anonymous individual level data, where we are going to be measuring the impact of consumers randomly selected from a non-FEMA disaster area, our control group, and compare that to a random sample of individuals within the FEMA disaster areas as of August, 2005. We will take those individuals and by using a blind sequence number, we will take those names and addresses and send that to a third party to append demographic data. They won't have any access to credit information about those individuals, won't even know what the purpose of the study is, and they will append demographic data which they will then bring back to TransUnion. TransUnion will then use that sequenced number to append the credit information to that individual. Then we will strip off the individual information about where they live and who they are and send that to the IPI for analysis of looking at how those consumers performed.

This gives us an opportunity to look at the credit behavior of these individuals by different demographic categories and different socio-economic backgrounds. What we will analyze is we will be looking at delinquency rates and the changes in score distribution, their propensity or lack of propensity for filing liens or bankruptcy filings, and we will be looking at it over time. We will be looking at it on a quarterly basis or monthly basis over time, looking at how those consumers change and seeing if there is any disparate impact on the way that these consumers are being affected by these disasters, how they are being affected from a credit perspective.

As I mentioned, this is a new area, especially the longitudinal perspective. It presents some challenges from TransUnion's perspective. First is that it really is a challenge just trying to find. We can identify people where they lived prior to the disaster, but it is going

into the database and finding those where they live they now — they were scattered throughout the Gulf Region and beyond — and trying to match up where they live. This will be done by looking at their previous address when we go into a credit file, trying to append. Obviously, we will have to put some controls to make sure we are linking the right individuals. As this data ages, we are going to be faced with multiple relocations and address changes which is just going to make it more difficult to find these consumers as we go beyond. TransUnion maintains right now four previous addresses on our database, but if somebody moves beyond that, we will start having individuals fall out of our sample. Obviously, when you couple name changes — people get married or divorced –- that will impact us trying to find these individuals.

So this is something that we are going to have to work with and try to uncover, but I think it is something we believe we can provide to the Institution for analysis.

With that, I am going to turn it over to the next speaker.

MR. FRASER: Good morning, I am Alex Fraser. I am with Standard and Poor's. I work within our Public Finance Ratings group, and I am focused on state and local government ratings. I am based out of Dallas, Texas, and I have been covering the States of Louisiana and Mississippi for some time as well as the City of New Orleans and the surrounding credits. So when Katrina hit, I wound up in the midst of that and have been there ever since as far as our ratings group is concerned.

I was asked to contribute to the panel by providing some information about how municipal credits have been affected since the storm and provide a snapshot of before, the immediate aftermath, and then where we stand right now with each of those credits. I will get started.

Just to give you a little bit of perspective, Standard and Poor's has never placed any credits on credit watch or changed any ratings directly as a result or a consequence of a natural disaster before. We had become accustomed in the years prior to the storm hitting. Florida, for example, through Ivan and so forth, where there was obviously destruction and damage, and recovery was required, but as we are talking about recovery cycles, it seemed to be about a one-year perspective and many times, communities would wind up with additional economic activity at the end of that year. So although there were individuals that were greatly impacted in the aggregate, it was probably neutral or perhaps even positive, depending on the type of reconstruction that was put into place.

In the state and local government group in our municipal ratings business, all we are about is long-term. These short-term impacts weren't really of an immediate consequence to our ratings until, of course, we all were transfixed that weekend and came into work on that Monday, thinking is this something different. By the end of the day, we all agreed that it was something different, that we were going to take some rating actions. What was interesting was that even if I am working within public finance, a lot of my colleagues in other areas of the rating business — in insurance, energy, gaming, capital goods, and all over the place –- all of us were thinking the same thing. Is this something different? One by one each one of the groups chimed in and said, yes, this is a big deal.

In our case — and I will show you a slide of the communities that were affected — we took the step of putting those credits on what we call credit watch with negative implications. There was just so little information coming out that day that we felt it was important to signal to the capital markets that there would be potentially a long-term credit impact for these communities, and we are giving ourselves a three-month window to sort that out. As it turns

out, we needed every bit of that as the communities, we couldn't reach them. Telephones were down. Once the telephones were up, the last thing you wanted to do was inject yourself into their recovery efforts, saying how were your sales tax collections when it was really a pointless question at that point. Over the next couple of months, we began those discussions with the communities and came to some conclusions later now.

A total of $9.4 billion ultimately was affected with our actions. Again, it was the first time we had ever used a credit watch in the way that we did.

This is a very dense slide, but it gives you a perspective of the types of communities. That initial day, we had to sort through all of about 14,000 bond ratings to see where it was going, and we selected these as the ones that were at the most risk. It is in order of amount of debt outstanding, prior to the storm. The two states, the City of New Orleans, some related boards and authorities, and going down into Biloxi, Mississippi, which was also included, St. Bernard's Parish, et cetera. All of those ratings, which ranged from our BBB level, all of these were investment grade ratings. The scale goes from BBB as the lowest initial investment grade rating and went up to AA in the case of Mississippi at the state level. Our highest rating is an AAA. But all of these were solidly in the investment grade spectrum. Louisiana and New Orleans were a little bit lower than most comparable states or large cities to begin with due to economic issues but again still solidly in the investment grade category.

One more point, when we are looking at these and considering the long-term credit worthiness of a community or a municipality, we are thinking of four things primarily: the economy and that wound up being the primary indicator in this case, the financial position of the issuer and long-term track record of the financial history, the management that is in place, and the debt levels for each community. Obviously, we were just really focusing in on the

economy and in particular, New Orleans, because that was such a driver to the state.

We took all of these. In the left-hand column is what we did that first day, put all these credits on credit watch. We also included the port, the airport, and some of the transportation credits nearby, toll routes, et cetera. The right-hand column is the current rating, and many of those reflect actions we took in November of 2005, late November. So this was at the end of our credit watch window. We decided we had to take some action. One option would be to keep them on credit watch, but we needed to provide some additional information to the markets.

Also after that time, each state legislature had gone through a special session and done what they could to revise their budgets, make new revenue estimates, and make some refinements to outstanding law. In Mississippi's case, notably, they permitted the casinos that had been operating in Biloxi and Gulfport to no longer have to be located on water. Of course, those casinos were forced out of the Gulf and across the road and were completely destroyed. Instead, they could use the hotels that were on land and bring the casinos into there as they were rebuilding the casinos themselves. Actually, by the end of November, plans were in place for at least two of them to reopen before the end of 2005, and in fact, they did.

What did we do? We took the State of Louisiana. We downgraded it one notch from A+ to A, the first time we ever did that in response to a catastrophe like this. Mississippi's rating, we left where it was and actually returned it to stable. In their case, of course, they didn't have the flooding. There was devastation on the immediate shoreline, but enough diversity and economic activity already was being generated in Mississippi that we felt that its recovery cycle, as we were calling it, might be more common and within a one-year

period. In Louisiana, they were projecting revenue levels as low as half of what had been expected for the balance of the year. Taking that into consideration, we lowered that rating.

With the other locales, we took them down as low as B category. I will define that for you in a second and let you know that is very unusual for public finance. We are accustomed to investment grade credits. The B category is generally for companies that are just have a little more risk or a lot more risk attached to them. So there we are.

Here are the definitions. The B category is an obligation that is more vulnerable to nonpayment than obligations rated as BB — we are on a scale — but the obligor currently has capacity to meet its financial commitment on the obligation. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitment on the obligation.

That really reflected a lot of the uncertainty, the long-term economic uncertainty that is present in New Orleans. Even now, population levels are about half of what they had been prior to the storm. Looking at it, there is a bit of a plateau. The easy low-hanging fruit has been taken. People have come back as they were able. Some of the institutions are back. A lot of the businesses, as we are talking, have moved up to Baton Rouge and St. Tammany Parish to Houston, Dallas, Atlanta, or Memphis, all over the place, and nobody has been really able to locate each of them, nor determine whether or not they are intending to return.

The same is true of the residents. The homeowners are only now getting access to some of the community development block grant money provided by the Federal Government through two state programs. The one in Louisiana is called the Road Home and is now just beginning to provide resources of up to $150,000 to certain homeowners under certain conditions. It is meant to bring people back into the state, back to their prior location,

and if they are working with their banks, provide for their relocation or return to New Orleans and to elsewhere. But there is still a lot of uncertainty, and we still have most of these credits at the B level.

Not on the slide but the other thing I wanted to define for you was our developing outlook. If you look back here, a number of the outlooks are developing. Usually, it is positive or negative. Developing means it might be positive; it might be negative. Again, it is very unusual for public finance to have ratings like this and reflects this unusual situation.

In terms of where our focus has been, the two states at most debt, over half of it, New Orleans and the related communities that either had sales tax, hotel tax, or property tax, secured bonds, about a billion. A little under a billion was related to the Super Dome and the convention center. Those are state-created entities and supported by hotel taxes. Again, really, everything was predicated on a thriving convention business and a very strong tourism-based economy, each of which remain in question.

Let me give you a couple of things we are looking at now and the status, and I will refer you also to some articles that are at the back of the room on the State of Mississippi and the State of Louisiana. We have one sort of a silver lining article on some of the benefits, perhaps temporary benefits, to some of the less damaged communities that are taking in some of the economic activity that has fled New Orleans. There is also just a one-year anniversary type piece we have there.

Our outlook on Mississippi right now is we have reaffirmed the stable outlook since last November. The session was completed in fiscal 2005, of course, which was completed before the storm. In 2006, revenue performance actually exceeded the estimates in the end, outperforming the original budget estimates. So far, in 2007, Mississippi is again

outperforming in terms of their revenues. This is a consequence of all the economic activity, the replacement of vehicles and long-term type consumer goods that were required to restore their lives. The special legislation on land-based casinos was very effective. Nearly all the casinos were back up and running within a year, and the revenues generated through the gaming have returned to the state and also to the localities. But still, the housing business activity is greatly affected, although there are signs of recovery and some rejuvenation in Biloxi especially.

In Louisiana, again, we had the downgrade. The outlook is stable. They had estimated a shortfall of up to a billion dollars in that original special session, did a great deal of budget-cutting, and allocated some funds from the rainy day fund of the prior years' operating surplus. In the end, fiscal year 2006 turned out okay for Louisiana. In 2007, due to the strong oil and gas receipts from drilling in the Gulf of Mexico and high oil prices, they were able to restore the rainy day fund to its full level, and up to a third of that is available each year by the legislature. So they are actually in okay shape, financially, and that was one of the strong reasons for returning that rating to stable.

Of course, New Orleans is 30 percent of the economy, at least, and its recovery will be essential to the long-term strength of the state's credit.

There are so many other unknowns that I think the people here are also focused in on. Do people have the resources to rebuild? Where will they rebuild? Are they finding lives outside of New Orleans and Louisiana now and then may not return? Again, a lot of unknowns; we are maintaining those ratings at that B level for the time being.

A couple of things surprised me recently about New Orleans. Overall revenues are coming in at about 75 percent of last year's levels. They had been projecting it to be as low

as 50 percent. You can either look at it as a 25 percent decrease or a 25 percent increase, however you choose to view it, but they are outperforming the most pessimistic estimates.

Even better than that, the property tax rolls were a mess after Katrina. Nobody knew whether or not their properties were worth anything and what would be the basis of their assessment. It took several months to reassess all of the properties and even several more months to set tax rates to pay debt service which is what we are focused in on. The last numbers I have heard is that those receipts are coming in at 80 to 85 percent of last year's levels, so even better than sales tax, better than hotel tax. It probably means that they did a good job in reassessing the properties. A lot of homes, particularly some of the lower value homes, would not have any property tax assessment on them in normal times. So, really, it is the businesses and some of the higher end housing that are paying most of freight with the property taxes, but they are coming in at sub-par levels but not bad. It looks as though they are going to come in at 85 or 90 percent perhaps before the end of the year. The process is in much better shape for next year. They have already begun the assessments for the upcoming 2007, and hopefully that revenue stream will be a little more normalized, starting now.

I want to just point out one other thing. Part of the Federal response was to pass the Gulf Opportunity Zone Act. There are a number of provisions listed here that were made to facilitate the recovery of businesses and return of people to the region, all kinds of different things. In terms of the municipal bond industry, there were provisions for new debt. On the next page, we have tax credit bonds.

The State of Louisiana issued $400 million of bonds in July. They were designed strictly to provide a fund for affected localities, for the funds to be held in trust for them to make debt service payments over the next two years. Each of the localities mentioned here

were beneficiaries of that: New Orleans, the Sewage and Water Board — the list is a little bit longer –- the Parish School Board, the Aviation Board, the Law Enforcement District in Orleans Parish, the Levee District in Orleans Parish, the Exhibition Hall Authority –- that is the convention center –- the Port of New Orleans, and the Regional Transit Authority, all have funds set aside for them for the next two years to make outstanding debt service payments. It is a very good deal. It is going to improve the liquidity over the next couple of years.

The State of Louisiana took on the obligation as a GAO which means that are going to pay it, no matter what, even if they don't get repaid themselves. They are making the commitment to repay bond holders. Repayment is scheduled to begin five years from now, from these localities. So it is going to be an additional burden. We are going to have to consider reviewing each of those credits, but there is potential for some forgiveness or perhaps an extension of those loans, but the state hasn't made any commitments one way or the other. For the time being, we are not immediately concerned about debt service for those credits, but the long-term prospects remain developing, and so they could go up and could go down.

I look forward to any questions that you have at the conclusion of the presentation and visiting with you afterwards. Thank you very much.

Following me is Eugene.

MR. GURENKO: Good afternoon. Before I begin, I would like to also thank the Brookings Institution on behalf of the Bank for getting us involved in what is going to be a very interesting and exciting study that will, in our view, hope to deepen our understanding of the impacts of natural disasters on individuals, businesses, and at the end of the day,

countries.

I think the question that most of you have is: What is the World Bank doing in this study which is taking place in the United States? This is a very good question. When Brookings approached us the first time, this is what I asked them, but over time, it became clear that I think there are several synergies between the Bank's overall agenda and the aims of the study.

So, just briefly, I would like to let you know that the Bank has been one of the largest post-disaster lenders in the world for natural disasters. Over the last 10 years, we have been trying to develop a comprehensive risk management approach to countries' ability to manage their risk of natural disasters. So far, most of our efforts have been almost very much micro, that is, we would look at how vulnerable the country is by writing rather scientific probabilistic assessment studies, and then we will try to advise the country on how to structure all kinds of risk financing solutions including insurance that will help the country address these financial vulnerabilities in the aftermath of natural disasters.

This was sort of a broad macroeconomic perspective that is very typical for the work that we are doing, but over time, it became clear that the impacts of natural disasters on societies are very multifaceted. What is really poorly understood by everyone, including governments and the Bank itself, is how natural disasters affect different strata of societies, how they affect different businesses, how they affect different communities. What is very clear is that each individual household, each business has a very unique risk profile, and this risk profile is ruled by many variables. This can include income, availability of liquid wealth, employment, industry, all sorts of things. What is absent at this state is a methodology and data that can validate this approach.

What I will try to do today is give you an idea of the broader approach that we will try to test during this study, thanks, of course, to the incredible wealth of data that no other country in the world, except for the U.S., has today. The objectives of the study, in my view and from the Bank's point of view, is how we can quantify the financial impact of natural disasters on different segments of society by (a) determining the key drivers of financial vulnerability to natural disasters and (b) developing a disaster financial vulnerability index for homeowners and potential businesses and communities. In this presentation, I will focus on individuals.

The idea would be then once you understand the financial risk profile of individuals, suggest financial safety net products such as insurance or potentially lending products that best address the risk management needs of these individuals or these homeowners and then, of course, recommend optical government policies in addition to these financial products that might be more suitable for low income classes of society. This is a picture, a flowchart, which attempts to give an overall conceptual perspective in a nutshell on how one can approach these problems. It, in many respects, follows the risk management or risk assessment methodology developed by modeling consultants for corporations and governments, but I tried to apply it to individuals and also to the assessment of loss in income.

This is how it goes: Typically, to understand how vulnerable an economic entity is, first you should really understand what hazard it is subjected to. There is a whole science about how to characterize and quantify difference hazards, from quakes to cyclones to floods. Those can deliver a statistical model. Then in the next step, what we would do, at least so far what we have been doing for countries, we would look at the exposure, that is, to look at

which assets or income flows are at risk. Then, of course, the idea would be to understand what happens to these wealths and to these income flows when the hazard applies, when the hazard hits. Of course, to arrive at the estimate of loss then, you have to understand what function actually, in what way the hazard translates into a loss. For this type of task, scientists or structural engineers on the asset side or the building side develop all sorts of physically vulnerability functions for assets. In other words, by having this curve, one can see what happens to a house if it is subjected to a quake or hit by a tornado and one can determine the amount of damage that will result, whether it is going to be full loss or 40 percent loss or 50 percent loss.

What hasn't been done so far is to do the same sort of analysis for the loss of income, that is, how one can determine what will happen to somebody's income or economic entities' income or revenue if it is a small business, if it is subjected, if it is hit by a natural disaster. So, how much of that income will be lost? I think to do that, one has to come up with some sort of resilience of income index to understand how well a certain income stream can stand exogenous shocks. I will talk about a little bit about the resilience of income approach a bit further.

Once you have the estimate of loss on the assets and income side, the view, of course, is to figure in, factor in the additional inflows that will come from all sorts of social safety nets including government unemployment programs, FEMA disaster programs, and, of course, insurance that will help individuals or businesses to restore some of that income. Once you factor that in, you arrive at the end net asset loss on the building side, on the asset side, whether it is houses or furniture, and then you also arrive at the net income loss once you factor in private government contributions that make up from either from income

insurance or government safety nets. When you then combine in some way the net asset loss the individual may suffer and the net income loss he may suffer as well, you will have a much better picture of the financial vulnerability of this economic entity.

To illustrate what I have done, I put together a stylized financial of a representative household before a disaster, thinking of the household or homeowner as an economic entity. What I did here is I did the financial with FEMA insurance, property insurance, and without FEMA insurance. I took for starters a representative, I would say, American household with an income of about $100,000, probably middle class, which amounts to about $6,000 a month net income, a family which owns a house which is $250,000 in which land is about half, owns some furniture, owns a car, has some bank accounts and some long-term savings, so about $20,000. Of course, the household has a lot of debt to finance some of those assets. It would probably have a mortgage with the amount of $400,000 which is about 90 percent of the value of the house. It will have some consumer debt. It will have a car loan. In other words, it will have lots of liabilities as well, just like a business. Then if you look at the household or homeowner from the perspective the business, you will discover that in this balance sheet actually, he keeps some sort of equity which amounts to the residual between the assets and liabilities. That is, in this case, about $72,000 of equity that my average typical household has before a disaster.

Then I looked at the income streams and compiled a formal income statement for this household to determine how much of net revenue or net income it generates monthly, given the employment income they get and some of the financial income they draw from the long-term savings and, of course, factor in their expenses on the mortgage and servicing the debt of all sorts and living expenses. What I arrived at is about $400; that is what my typical

household will be having in savings on top, in addition, after all expenses are taken into account. To the right, I put the same income statement but added the cost of insurance, FEMA insurance for both properties and contents which amounts to about $120 or $125, and that would leave the household with less savings which amount to about $300.

The question I then asked is: What happens to this balance sheet, this financial, this income statement once a disaster hits? Again, these are hypothetical numbers just to illustrate. On the left side, we have a household, which you remember, with no FEMA insurance for property or contents, and on the right, I have a financial with FEMA insurance.

What is interesting is that when you compare the balance sheets of the household, you will see that household with the FEMA insurance, although it loses its house, isn't in the red and value remains. The house is gone, say, by the wind, with the wind, and the furniture is wiped out as well. So it does recover from FEMA most of that loss except for the deductible, and therefore in the end, in terms of its equity, residual equity, it is pretty much neutral. It ends up with $71,500.

What happens on the red side of the balance sheet which is the household without FEMA coverage? For them, then it becomes a financial disaster. So they lose the house which they cannot recover, and they lose some of their assets which they cannot recover. So they are minus about $200,000. That is what they lose.

The question that then occurs is, well, there is an obvious difference between having insurance and not having insurance, no questions asked; it is true. But what happens on the income side with two different households, one with insurance, and one without? What is interesting is that because income insurance as a product is not very prevalent, in fact, it is not offered as far as I know by any insurance company in the United States except for some

living expenses that you may get from some coverages and those might not apply to natural disasters. So you see a middle income household, once hit by a natural disaster, a household which loses its employment income is really in trouble. It means that in these numbers, you will see that immediately from generating a surplus of $400, this household now is in the red, so making close to minus $6,000 of deficit generating a month.

Then I calculated, just to give you some sort of rough idea of how vulnerable this household is, the number of days to personal credit default. Inn other words, what would the household with such a negative income do and how quickly will it get to a point where it has no choice but stop paying its creditors? In this way, the way to calculate it was to take the liquid assets that household has, which is a banking account and long-term savings and mutual funds and life insurance, and divide by the number, by the daily expenses that they have monthly without having employment income. What you see is that if employment income is gone, this household, based on its liquid wealth, cannot sustain its debt service for more than 115 days.

That made me think about some sort of measures of financial vulnerability for homeowners which might lead to default which was described earlier. It could also be some sort of income resiliency index, whereby you can look at the income vulnerability from the perspective of location of employment, whether it is in a disaster-prone area or not. You can look at the type of employment, whether it is a construction industry versus service industry. As we saw from previous presentations, those have different vulnerability profiles as well. You can look at the size of the firm which is very important in terms of its recovery. You can look at geographical locations of the business, whether they have offices in different states, so sending money from one state to another to employees in trouble. It is also your

position in the company, whether you are a president or just a clerk.

Then you come up with some sort of income resilience measure which can be estimated probabilistically. In this case, I hypothesized and defined this probability of restoring family employment income to pre-disaster level, initially the first 12 months in the aftermath of a disaster. Employment income, of course, is very important because this is one of the most vulnerable points, drivers, one of the key vulnerability drivers for most homeowners. I picked up the *Washington Post* on August 27th. There was a big report on post-Katrina recovery, and they reported that the job base in the New Orleans shrunk by about 30 percent regionally and much higher in the city itself. So, therefore, my hypothetical household that loses employment income in the first months and doesn't get it to come back is pretty realistic.

Then what I have done is I thought that potentially one can bring together different measures of financial vulnerability of a household and come up with some sort of financial vulnerability index to define the optimal risk profile of a household. Those, to me, are fourfold. On the one hand, you have income resilience. As we discussed, it is really resilience of employment to local catastrophic events, which is driven by industry size, industry location, firm size, position in the company. Then, of course, you have personal liquid assets. If an individual is wealthy, he is likely to weather the storm much better; if he is poor or lives paycheck to paycheck, obviously, he is in trouble once his employment income disappears. Then, of course, it is access to social safety nets which means the effectiveness of government social safety nets in restoring household lost income, whether a government program is really there to help these individuals who lost their paychecks to come back financially. Finally, which is of most interest to us in this study, is the availability

of adequate and well-priced disaster insurance for assets and loss of income that can really bring households back to their pre-disaster level.

The last two slides will just illustrate how this type of analytics can help us sort out individuals in different risk vulnerability pockets. Here, I put together a chart which classifies individuals in terms of their liquid assets and resilience of their employment income or, in general, the resilience of their income. Then, based on this classification, it offers conceptually at least, the type of solutions that are needed to deal with this. For instance, if you take a group of individuals which have high liquid assets, conserve liquid assets, and pretty resilient income — let us say they work for a life corporation like IBM which is likely to continue paying people regardless of what happens — they probably do not need any income insurance or would not need government support, and all they need to deal with the disaster is traditional property insurance which is available from FEMA and commercially from some insurance companies. But if you look at another part of this chart and another part of the extreme, individuals with low resilience of income, let us say somebody who works for a small company with five employees in a disaster-prone area and has relatively low liquid assets, let us say very low savings. Then for those people, a disaster really becomes a financial catastrophe for the family because they no longer have employment income and they no longer have wealth to sustain themselves, and the only thing that can help them is government or some sort of income insurance which they may or may not have. Then an interesting category is people with low resilience of income but high liquid assets, and for them, again, although on a purely voluntary basis, they might consider buying some sort of income insurance too support themselves in case they lose their employment.

This is the chart which I envisage as the outcome of this study, the final, final product. Here, on the one hand, what I did here is I tried to draw curves, vulnerability curves for individuals, which effectively map out what happens to household income months over time after a disaster. In this case, I took months after a disaster. What I did, for instance, the low curve denoted was five stars. You start with zero before a disaster, 100 percent income. Then after the disaster, months later, when your employment income disappears, it drops dramatically, let us say by 80 percent. If employment isn't recovering, you see that you are staying at a fraction of your income over time until economic recovery takes hold in the community. Gradually, you start pulling out of this financial hole that the disaster brought you into. In this case, of course, you have no insurance or access to safety nets. This is what happens to you.

The question is how we can come up with insurance products and to a certain extent, advise government on designing adequate safety net policies that can move the individual from the lower curve to the upper curve whereby this precipitous drop in their income is mitigated by an inflow of funds from either insurance cover or a government social net which has to be calibrated to the individual risk profile of the household we are dealing with. This is, in general, the methodology that I thought we would try out in the study, and of course, this will be a great opportunity for us to fine-tune it as we go along.

Thank you.

MS. LEE: I would like to thank all of our panelists. What we have done here today is try to give a comprehensive view of an issue as it relates to many different organizations, many different types of public sector and private sector issues. We have talked about some findings as it relates to small business and as it relates to the bond capacity of cities and

municipalities affected by disaster. We have also talked about methodologies and some ways in which data are available and how those can be used to help us better understand both policy for public companies as well as public sector and private organizations.

With that, I would like to open up the floor to some questions at this time. Yes, sir, there is a mic coming for you.

QUESTIONER: Thank you.

I would like to ask a question about the financial vulnerability index that you just mentioned. I am wondering if you have or if you could factor in neighborhood effects. What I am thinking, for example, is if the local school has been wiped out, a family might have to start thinking about private school, or if they didn't have a car and they relied on public transportation that no longer works, that is another expense. If the hospital shut down or if the police services aren't what they used to be, they are more vulnerable to theft, which means their homeowner's insurance is going to cost a little more. A lot of these are really community costs that might not be reflected in an individual balance sheet, and those are very real costs, obviously, in this kind of disaster. Are they reflected at all in the vulnerability index?

MS. LEE: Could you identify yourself also for the audience?

QUESTIONER: I am Greg Squires. I am Chair of the Sociology Department at George Washington University.

MS. LEE: Thank you.

MR. GURENKO: I think it is a very good question, and this wealth of facts have to be captured in one way or another because what I sketched a few minutes is really a very rough and quick profile which is driven by, I would say, factors that are easy to quantify, income

streams which can be obtained from different databases. So to get at the factors which you mentioned, you have to certainly be more of a sociologist than our more straightforward economist which captures only black and white trends.

Well, this is Brookings. I think this is certainly a great addition or additionality to this type of work. The question is how you can find a niche for that type of work on the study.

MS. LEE: I think from our perspective at The Brookings Institution, what we really are interested in at the Urban Markets Initiative is understanding the impacts on a variety of different levels but clearly understanding the impacts for individuals and families and children as it relates to these particular issues. That is something that is of very much interest to us.

QUESTIONER: I am Storm Cunningham with the Revitalization Institute, and we are working down in New Orleans as well as some other recovery situations in Africa and Eastern Europe.

I am wondering; cities and regions, after a major catastrophe, often get into a typical chicken or egg situation where their tax revenue base has disappeared, property, sales tax, and they want to help rebuild business. Outside of simply receiving a chunk of money from some outside entity, I am wondering if any of you have seen any key factors, anything that a city or region can do that has been particularly effective in restarting that revitalization cycle and getting that tax revenue base rebuilt at either the property or the sales tax level.

MR. FRASER: I will take a stab at that and also perhaps add something to the last comment. In terms of the neighborhood revitalization, the restoration of services, I can tell you anecdotally in talking with some of the issuers, how important they felt that was to keep people in the area. Given the timing of this disaster, it was the beginning of school. It was

the first week or so of school. People had to make a decision real quick on whether or not they were going to stick it out and try the school year here or go to Houston, go to Atlanta, go to wherever they might have had friends and family. As an example in St. Tammany Parish, immediately north of Lake Pontchartrain, they made a considerable effort to and sort of an audacious goal of reopening the schools by October, and they accomplished it by cleaning out the schools and getting new materials in place. Many people bought into that and stuck it out and were able to resume their lives because in most cases, they had a place to stay but it was really do you have the institutions around you to make a go at it over a longer period of time. So for a lot of families, it was school that was the issue.

In New Orleans, it is school. Right now, I think they are down 40 percent in terms of classrooms versus what it had been a year ago. Hospitals are down by half, and all those other institutions that you count on which are down are going to be down flat for a while. So there are a lot of considerations there.

As far as revenues, that is the biggest issue that we are facing right now. A lot of assumptions were made about New Orleans as a thriving convention destination, as a tourism destination. When they are making plans to expand the convention center, for example, they are tracking the history of growth of the taxes and securing the bonds. The goal there is to maximize the amount of construction money that you can get out of a bond issue. So they are making assumptions that maybe out of four dollars, three dollars will be used towards debt service. There is not a lot of margin for error, particularly in a disaster of this magnitude.

There will have to be a fundamental rethinking of what is affordable, at least for now, and perhaps that will allow the reset, will allow them some time to rebuild elsewhere and

bring back some of those other institutions, but so much of their funds are already committed to paying debt servicing. It might be a one time infusion like those go-zone bonds gave them a little bit of breathing room, but two years is going to go by really quickly until they can get the rest of the institutions up and running.

MS. LEE: Michael?

MR. TURNER: That is a great question, and it is one right now we think is largely unanswered. Certainly, we hope to, through our historical analysis, look at varying past natural catastrophes and man-made in the case of 9/11 and lower Manhattan and Washington and Northern Virginia. We can control for similarities and look at differences, particularly differences in policies if the information is publicly available or to the extent that we can communicate with organizations like yours and identify varying policies that were applied, and we can actually try and measure what impacts, in any, they had in terms of the different outcomes that would really help us in the explanatory power of our analysis.

Now, moving forward, that is precisely what we are hoping to accomplish. For example, Peter Jackson is here from the SBA. One of the things that we would be able to do is look at the difference that loans to small businesses are having in the affected area but not only that. It is not just throwing a chunk of money at the area. It is help target those loans based on the known vitality of very granular areas, neighborhoods. We are partnering with organizations like Social Compact that have alternative metrics for measuring the net worth of neighborhoods that could really help us understand where there is economic growth and revitalization and help investors make decisions about allocating scarce resources to maximize the recovery. That is the promise of this analysis.

MS. LEE: Other questions?

QUESTIONER: Thanks; George Gavolar (?) with GARP.

I wanted to ask Mr. Gurenko. What do other countries do in terms of assuring that insurance is affordable and accessible? One of the things that we are seeing from our members is the fact that in many of the states now, they cannot either renew their policies or they are seeing massive rate increases. What do other countries do to try to mitigate that problem?

MR. GURENKO: This is an excellent question which actually goes to the very heart of what I do and have been doing over the last eight years. The post-Katrina fact that you have is very typical for pretty much every part of the world where you have a natural disaster. The real rationale, the real reason behind these considerable hikes in the rates is because reinsurance capacity that actually becomes scarce when it is destroyed by disasters and therefore new capital that flows into replace it requires considerable return for them to be attractive to replace the destroyed capital. That is what you see whether private market provides pure private market solutions covering catastrophes which, in many respects, cannot be covered by pure private capital because losses can be exorbitant.

There is a great debate going on, pretty much everywhere, particularly in the United States, whether you do need public sector participation in providing insurance coverage at least to stabilize the rates and at least to provide some of the reinsurance capital when such large events come. There are no clear-cut answers to this because you obviously always run into problems distorting the market when the government comes in and starts offering capital, and there are plenty of examples of how government botched the insurance solutions, catastrophe insurance solutions by providing poorly thought out or designed schemes. There are some good examples in Florida. But it does not mean that by the fact that some of the

schemes are insolvent or poorly designed that the government should stay away from this and let the insurance market provide pure insurance market solutions because those are not optimal as well.

So the short answer to your question is in the developing countries, we have been trying to help governments build national pools for catastrophe risk that can then act as stabilizers of rates for the reinsurer which is the global market. Then by building domestic capital capacity that is used to absorb some of that risk, you can certainly reduce the dependence of the domestic primary insurance rate on the volatility of the global insurance market. That was very successful. The example I can give you is Turkey where despite all the disasters, the Turkish catastrophe pool at the bank actually helped to create and has been able to keep the rates for earthquake coverage pretty constant over the last six years, despite 9/11, despite the Katrina event.

QUESTIONER: Stuart Pratt with Consumer and Industry Association.

Maybe just a couple of observations, Michael, about the big picture of what you are trying to do: One, you are looking at New Orleans which had a confluence of flooding and hurricane damage, and it was even Standard and Poor's that was suggesting there has been some difference in the experience in Mississippi versus uniquely what happened in New Orleans because of the longitudinal effect of the flooding and having to rebuild and then, of course, the more severe damage. Why isn't your study going to take on more of a comparative review of, for example, Mississippi flooding, looking at flood plains?

I draw this from my own personal experience, my grandparents who lived on the Mississippi. There were communities. In fact, the U.S. Government has even moved communities to higher ground to avoid the same kind of effect. You just can't do that in

New Orleans. You can't lift the entire city. One, so are you going to try to control and set your study into that kind of context which would seem to be more apples to apples than, say, looking at the 9/11 event in New York which was an exogenous effect but a very different one, perhaps?

Are you going to try to control for just general trends, for example, small business activity? You talked about a 75 percent increase in inactivity over a single year period of time, but how does that compare to inactivity levels of small businesses in similar demographic regions of the country that did not have that exogenous effect on them, so that you get a real incremental measure of what the disaster itself meant versus just what happens in general to small businesses? I am hopeful you are going to do that.

To what extent did Louisiana lose the economy or to what extent did New Orleans lose the economy? What extent, for example, did the small business formations migrate to Baton Rouge? Are you going to control for that and try to account for that? That would seem relevant as well because that would show some economic resilience in terms of the region in which the disaster occurred or the economy in which the disaster occurred. The U.S. economy might be able to absorb and move those same people into different areas.

To what extent was small business migration to Baton Rouge because small businesses have markets outside Louisiana or outside the local market of New Orleans? Those are just some general observations about which I am sure you are accounting for to try to develop, to the extent that you have data to work on that.

Then at the end of the day when you produce this study or these studies, what do you think the public policy effect of this is? I guess that is the one question more so that I hope you can address. What do you hope for out of this, all of this work?

MR. TURNER: Well, there are four questions, and the short answer to the four is yes, yes, yes, and significant. The longer answer is, in fact, I only put up the data on New Orleans because these are just preliminary, if you will, back-of-the-napkin findings to highlight the capabilities we have for the broader study.

Our intention for the broader study, there are really two components. There is a historical analysis, and we will be looking at as many natural and man-made catastrophes as are viable, given the budget and time considerations. Certainly, there will be some filtering in terms of getting a representative sample: mudslides, wildfires, earthquakes, tornadoes, et cetera. Floods in the Mississippi Delta or the flood plain would certainly be captured in the historical analysis to the extent that they were, of course, declared as disasters by FEMA.

Beyond that, we are not just going to focus on New Orleans. We are focusing on, in this case, the entire Gulf Coast region. So it is not just Katrina. It is Katrina and the tornado in February, Rita, and Wilma. We hope we will capture some very pronounced differences in the impacts in the region from those three or four catastrophes, depending on how you measure them. For example, to something that Dan mentioned, in the individual analysis, TransUnion will be developing a matching algorithm that will challenge in terms of following, for example, the Louisiana Diaspora to varying states and matching them to a previous credit history and seeing how they are faring. We will be able to see the impacts of varying public policies. For example, the State of Texas had been subsidizing the Louisiana Diaspora since Katrina, but that is about to run out. We will be able to capture the impact that makes on their lives and on those communities because we can, between the combination of the individual profiles and the aggregate county level.

In some sense, again, this is a learning by doing process. We have never done

anything like this before. It may make sense to look at concentric circles, look at the impact on areas, look at affected outlying areas, and scope out and see whether that makes any difference, geographic proximity. Another way to look at it would be looking at the composition of small businesses by size, whether they are part of a larger company or network, where their markets are, and whether that makes any impact.

We will be looking at any number of discreet variables on any number of levels of analysis for the region. So I think it will be fairly comprehensive in its scope. Because of that, and again to the initial point I was making, we really hope this data is very fungible. We are hoping that there will be a variety of stakeholders, particularly public policy organizations that will be able to use this data and again identify areas in and around New Orleans that are best for targeting investment for small business loans or for disaster relief assistance or that are best just left green. Those are decisions that policymakers are struggling with right now, and they may not have the type of data that this project promises to bring to bear on that decision-making process.

Certainly, we think there are a number of Federal level agencies that are active in the area that could benefit from not only the historical analysis and the real-time monitoring, but on the externalities or the offshoots that we hope to develop is a monitoring prototype, so that for future catastrophes, we will have a set of indices that we can apply to a catastrophe in real time and help varying stakeholders understand what they can expect and therefore adjust their policies accordingly.

We understand right now that a number of lenders are looking at the recovery and revitalization in the Gulf Coast in the context of a long-term recession based on some internal analysis. Maybe that is right; maybe it is different. We don't know. We think this is

unprecedented. I can't say what the results will bear, but we think that the difference expertise that we are collecting and bringing to bear on this project will yield interesting and novel insights to policymakers, to lenders, and to the public alike.

MS. LEE: And those insights would be data-driven, I think is one of the more important points, most important point out of what Michael just highlighted. It is important that we understand data in relationship to how it can systematically change the way that we understand how we make our policy decisions and also help us to monitor how we have made policy decisions in the past and what those impacts have been

Chet, did you have any comment on this particular question?

MR. WIERMANSKI: No.

MS. LEE: Great. Sir?

QUESTIONER: Good morning; Dave Snyder with the American Insurance Association.

I want The Brookings Institution and everyone involved for some studies that I think put a face on the financial losses. We have all seen the faces of the human loss from natural catastrophes. I think this in a way puts a numerical face on the financial losses, and they are obviously huge and devastating. I think, as well, it points to the absolute importance of doing everything we can to mitigate and prevent the loss in the first place.

And so, my question ultimately is: How can this research be used perhaps to do some cost-benefit analyses of if we had fixed the levees or made them right in the first place, if we had done other infrastructural things or we had a better response and recovery program, if we, for example, had better building codes or land use controls? What would be the potential savings from that versus the payouts at the end from the response?

I would finally conclude with a comment which is that with more than 90 percent of the homeowners' claims settled in the Gulf Coast area and with the importance of insurance being underscored, I think, by Eugene's work, I think the prevention and mitigation is linked to insurance in several ways, not only compensation but also the extent to which insurance has allowed the price for risk which can be a tremendously useful tool in the prevention and mitigation that I think this research helps demonstrate the importance of if we close the loop. When you talk about stability of rates, that suggests the possibility of subsidizing the very unsafe practices that led to the huge losses in the first place. That is of continuing concern to us.

I do want to return to the fundamental comment which is it is very important and interesting work. I know we will be watching the results very closely. We thank you for it.

We would also ask if there is any intention to move forward then to link this work to what does it say to public policymakers about what we can do to mitigate and prevent these losses and what the cost-benefit analysis would be if we did so?

MS. LEE: A wonderful comment and question; who would like to comment?

MR. GURENKO: Well, I guess this is more of a comment than a question, but I would like to tell you that indeed risk prevention is something that should be taken into account. We are not considering that because we never discussed this angle, but this is a very important one, to see what risk prevention would have done to reduce the economic and insured losses to everyone involved. This is a very important part of the study, and again we can certainly discuss whether this is something that you want to take up because initially it was more of a study, in my view, at least the way I understood it, that was supposed to determine how the catastrophe effects individual lives and the business operations of small

businesses and communities, but it was never a risk management assessment or risk management study which in many countries, this is exactly the type of question we are trying to address. While this is the angle that you want to pursue as well, this is entirely up to Brookings and Michael who I understand is setting the agenda.

On the stability of rates, I just want to make sure that you understand me correctly because I never suggested that the rates are subsidized. What I said is that it is important for homeowners to have some sort of certainty that coverage will be there, at least at prices which can be affordable. Again, in many respects, affordability is a bad word because it is always perceived in the context of government subsidies, but it doesn't necessarily have to be the case. For instance, if you think of some mutual solutions where there is some mutual capital involved that absorbs some shocks and can be used to reduce the volatility of rates, that is also a way to go. Pooling is one way to do it, and pooling does not necessarily invite government subsidies, but what it does is it reduces the volatility by having many risks combined in one portfolio and therefore reducing the overall cost of capital needed to support this risk and, in fact, resulting in lower rates.

MS. LEE: We have time for about one more question. Sir?

QUESTIONER: A quick comment; I would like to suggest a slight change in terminology. I think we should not be referring to Katrina as a natural disaster. The failure of the levees, the race and class impacts which left the concentration of poverty and segregation of neighborhoods were clearly far more the result of a range of social, political, and economic decisions than they were economic forces or natural forces.

Chester Hartman and I have just edited a book called There Is No Such Thing as a Natural Disaster: Race, Class, and Katrina. All the royalties are being donated to a relief

agency, so I shamelessly promote the book.

But I think we do develop a better understanding of what we are facing if we understand that it is not primarily natural forces that we have to come to terms with. I think the previous question about the importance of loss mitigation, for example, reflects the kinds of things we need to be thinking through. The more we see this as a natural disaster, the more we lose sight of the kinds of human decision-making that gave us the human cost of Katrina.

MS. LEE: Thank you. I guess that was a comment.

I would like to thank our distinguished guests for coming here today — Dan, Michael, Chet, Alex, and Eugene –- and their respective organizations for their boldness in participating in a study where we can actually look at things and answer questions that are much broader than individually we could answer alone. I would also like to thank the Living Cities Initiative which is our funder at the Urban Markets Initiative who has helped us to be able to understand these question and be able to participate in studies like this where we can work with private data organizations, with policy organizations, with international organizations, so that we can, again together, create solutions that will address what really is needed in terms of moving forward our discussions around these issues.

Thank you very much.

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