

The Brookings Institution

Metropolitan Policy Program
Urban Markets Initiative



The Credit and Insurance Consequences of Natural and Man-Made Catastrophes

September 7, 2006

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***Urban Markets Initiative, Metropolitan Policy Program
The Brookings Institution***

Dan Meder
Experian Business Information Solutions

Hurricane Katrina

Accounts Receivable Impact Analysis

- Study designed to highlight disaster impact on outstanding payables
- Analyzed 635,000 businesses in the hurricane affected areas as identified by FEMA
- Data snapshot as of August 30, 2005 based on data reported by more than 5,000 trade contributors
- Initial study designed to set benchmark for future analysis



Experian Data Assets



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Credit and Insurance Consequences of Natural and Man Made Disasters -September 7, 2006

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Observations

- Estimate as much as \$40 billion in payables outstanding
- Most impacted counties and parishes estimate was \$7 billion in outstanding balances
- Industries hardest hit included:
 - Business services
 - Retail and Wholesale trade
 - Construction



Profile by Age and Business Size

Cumulative distribution

Employee size	Years on file						
	< 1	< 2	< 3	< 4	< 5	< 6	6 +
1-5	13.43%	19.55%	33.15%	36.12%	39.39%	41.81%	63.76%
6-10	14.86%	23.43%	40.48%	44.28%	48.61%	51.86%	83.78%
11-25	15.19%	24.99%	43.52%	47.67%	52.45%	56.06%	92.83%
26-50	15.32%	25.36%	44.42%	48.73%	53.73%	57.52%	97.06%
51-100	15.37%	25.49%	44.73%	49.10%	54.18%	58.03%	98.60%
101-250	15.39%	25.56%	44.90%	49.32%	54.44%	58.33%	99.52%
251-500	15.39%	25.58%	44.95%	49.38%	54.52%	58.41%	99.77%
501-1,000	15.40%	25.59%	44.98%	49.41%	54.56%	58.46%	99.90%
1,001-10,000	15.40%	25.60%	45.00%	49.44%	54.59%	58.50%	100.00%



Outstanding Balance by Industry

Industry segment	Standard Industrial Classification code range	Outstanding balance percentage
Professional and business services	70–89	22.02%
Retail trade	52–59	20.16%
Wholesale trade	50–51	14.67%
Construction	15–17	14.20%
Manufacturing	20–39	13.81%
Transportation and public utilities	40–49	6.39%
Agriculture, forestry and fishing	01–09	3.77%
Finance, insurance and real estate	60–67	3.70%
Mining	10–14	0.72%
Public administration	91–97	0.54%



Distribution and Outstanding Balances Size of Business

Employee size	Outstanding balance percentage	Percentage of businesses	Cumulative percentage of businesses	Cumulative outstanding balance percentage
1-5	31.13%	63.76%	63.76%	31.13%
6-10	16.78%	20.02%	83.78%	47.91%
11-25	10.59%	9.05%	92.83%	58.49%
26-50	13.73%	4.23%	97.06%	72.22%
51-100	7.74%	1.53%	98.60%	79.96%
101-250	7.87%	0.92%	99.52%	87.83%
251-500	4.37%	0.25%	99.77%	92.21%
501-1,000	2.73%	0.13%	99.90%	94.94%
1,001-10,000	5.06%	0.10%	100.00%	100.00%



Tracking the Recovery

- **Survival rate and status**
 - Account balance change
 - Days Beyond Terms change
 - Bankruptcy rate change - confounding variable here could be the change in bankruptcy laws
 - Collection rate change
- **Status of business owner**
 - Compare risk status of owner with business
 - Possible factor is whether the owner lives in the impacted region



Tracking the Recovery

- Change in credit activity
 - New trades established
 - Commercial inquiries
- New Business Startup Rate
- Change in Banking Activity
 - Age of newest commercial banking relationship
 - Total account balance for commercial banking relationships



Small Business Activity in the Aftermath of Katrina in New Orleans

Michael Turner
Information Policy Institute/PERC



Introduction

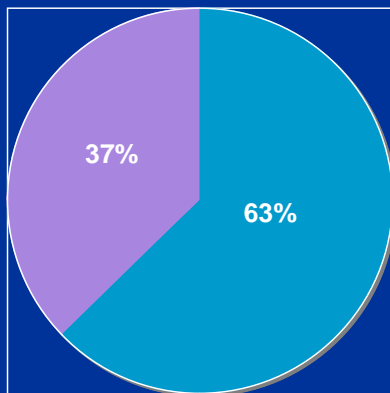
- Rationale for study
- Small business activity



Small Business Activity in New Orleans

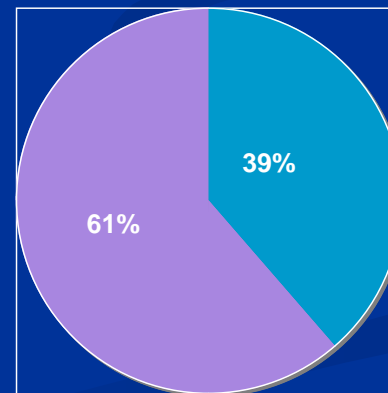
- For businesses in New Orleans, sharp fall in activity rates (using last reported trade < 1 month as proxy)
- 65% increase in small business inactivity
- Increase comprises nearly 1 in 4 businesses on file

August 2005



■ Active
■ Inactive

August 2006



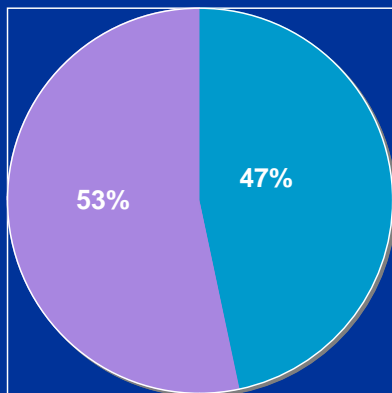
■ Active
■ Inactive



Established Small Business Activity in New Orleans

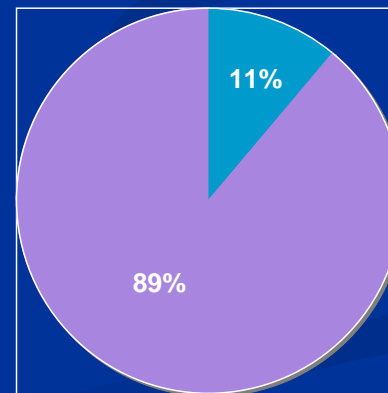
- For businesses that were established for over a year (i.e., before Katrina for Aug 2006), extremely sharp fall in activity rates (again, using last reported trade < 1 month as proxy)
- Nearly 9 in 10 small business that were active pre-Katrina have gone inactive

August 2005



■ Active
■ Inactive

August 2006

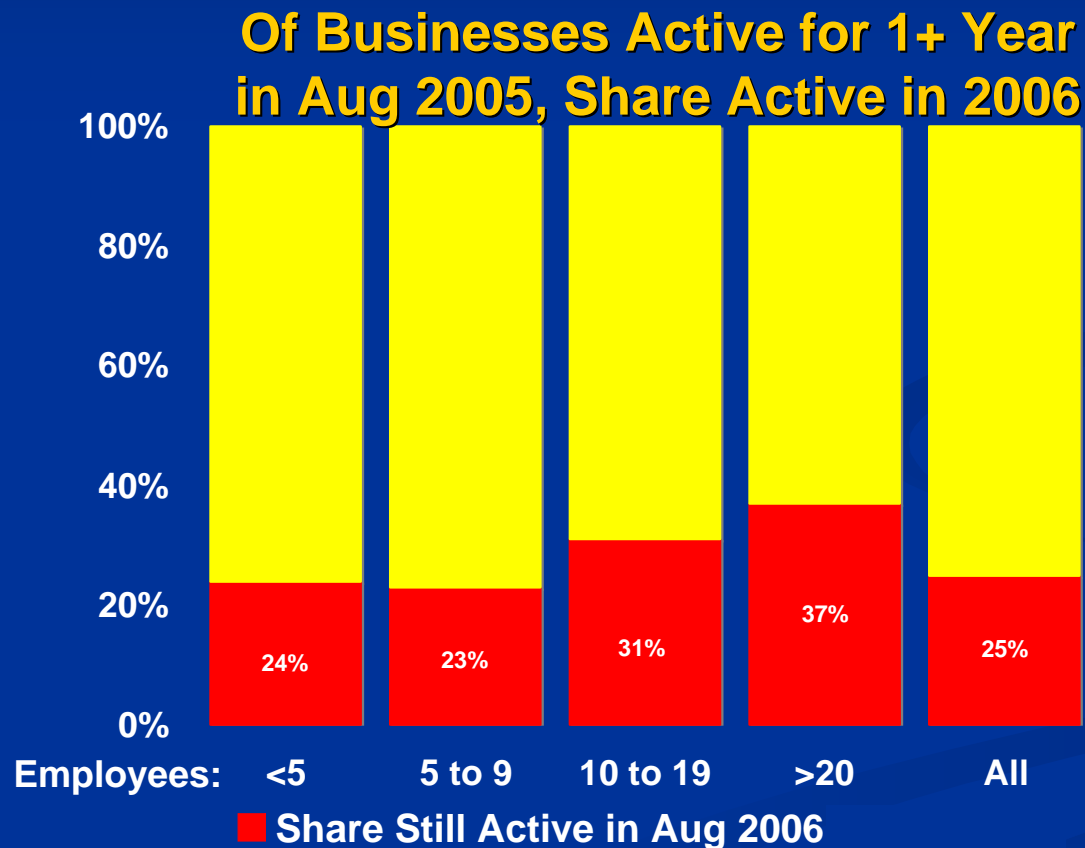


■ Active
■ Inactive



Small Business Activity by Employment Size

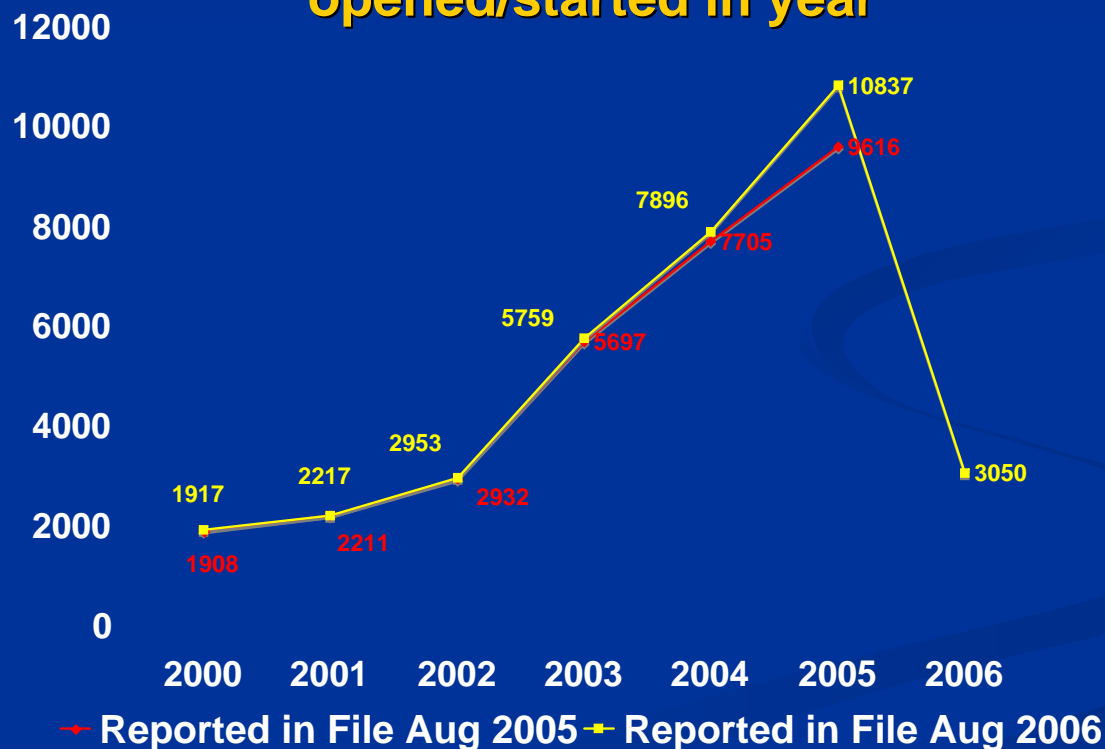
- Smallest of businesses hit hardest



Small Business Formation in New Orleans

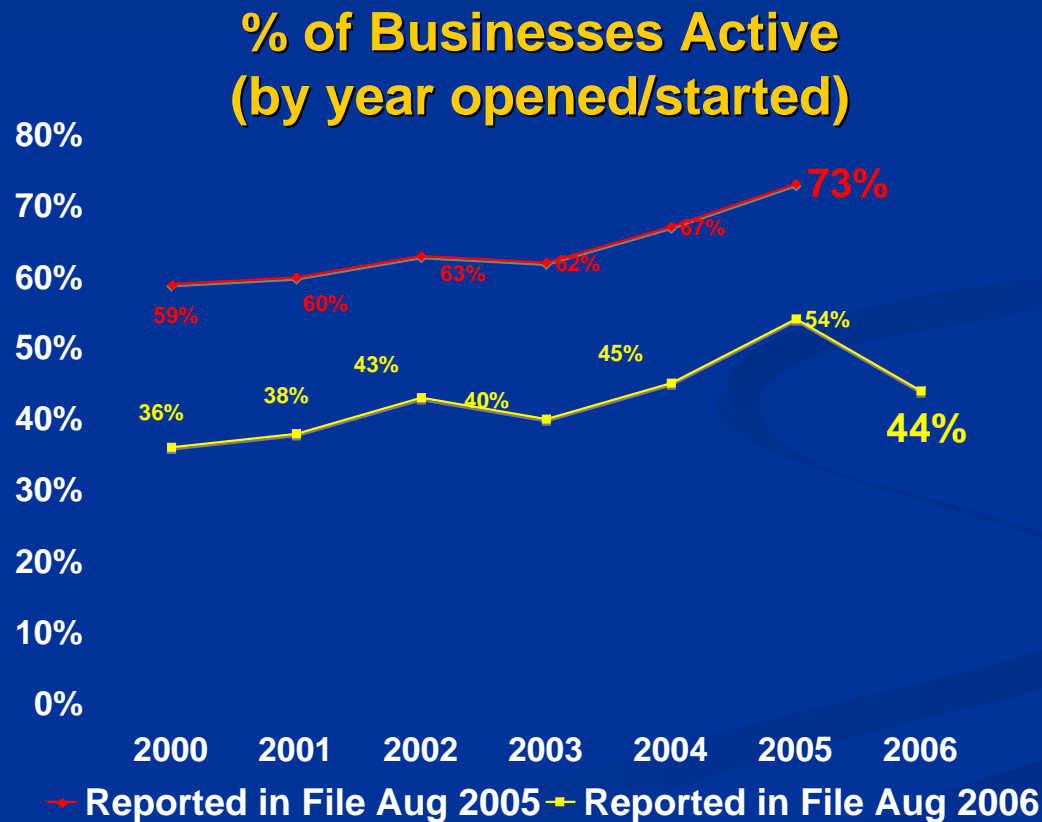
- Expected but drastic fall in small business formation

Number of businesses opened/started in year



Activity Rate of Newly Formed Small Business

- Sharp fall (29 percentage points) of activity of businesses started in 2006 for 2006 compared to businesses started in 2005 for 2005





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***Anonymous Credit Bureau
Information:
A Foundation for Analysis of Credit
Consequences Associated with
Natural and Manmade Catastrophes***

***Chet Wiermanski
TransUnion***

Agenda

- Overview of anonymous consumer credit information
 - Legal and logical applications and controls
- Aggregated credit time series analysis a community perspective
 - Measure the severity and recovery from natural disasters
 - Estimate the impact and recovery of future disasters
- Longitudinal analysis of consumers
 - Consumers residing in 2005 FEMA-declared disaster areas
 - Compare performance and availability of credit to the general population across demographic categories
- Challenges



Legal Considerations for Anonymous Credit Bureau Data

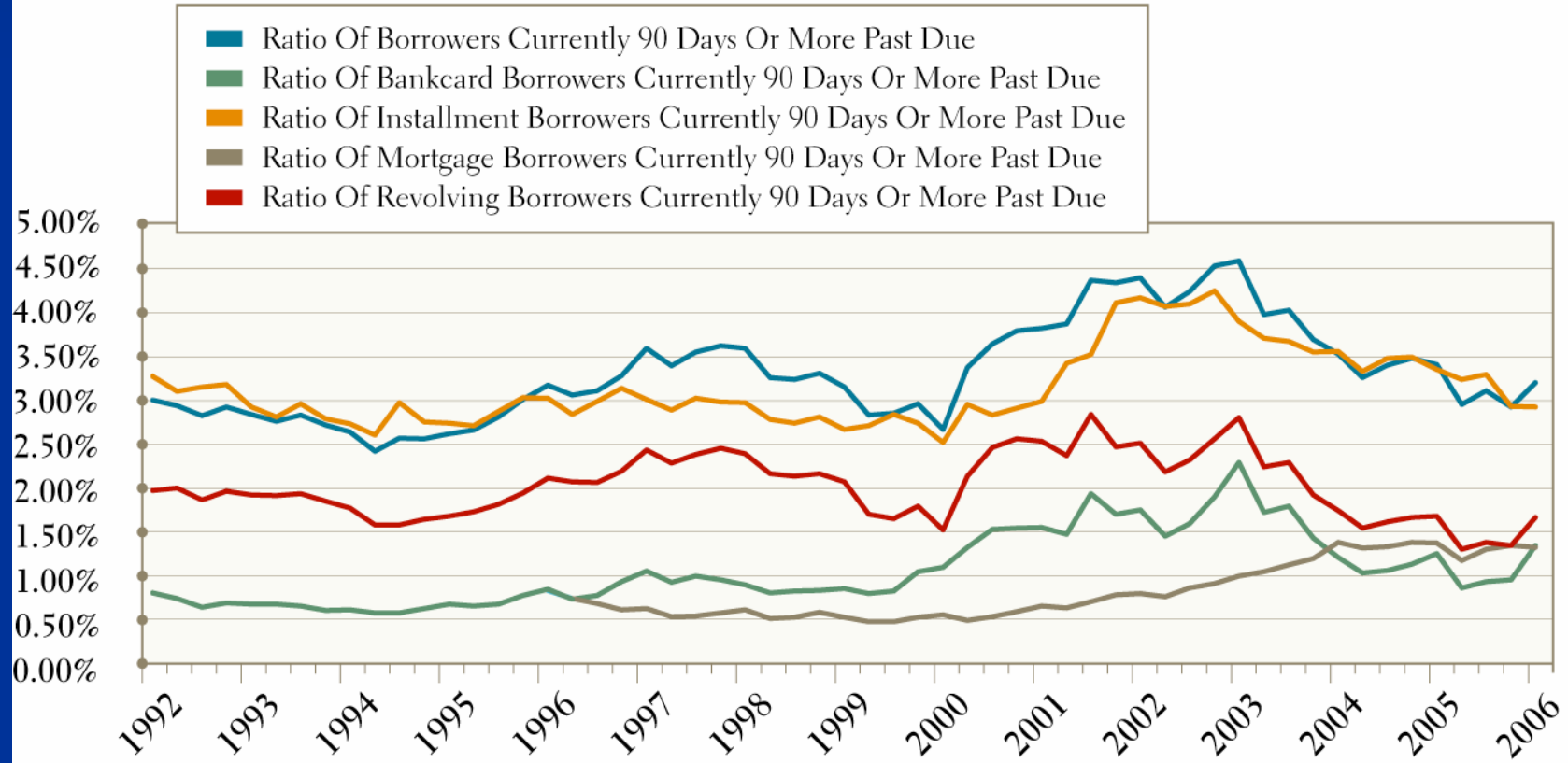
- **Must be a TransUnion subscriber**
 - Signed master services agreement and site visit
- **Appropriate Uses**
 - Validation of an existing credit models or data characteristics
 - Development of a consumer credit or insurance models
 - Review and validation of underwriting policies
 - Determination of the qualitative value of consumer credit information
- **TrenData Services Agreement**
 - Research requires written approval by TransUnion
 - Published research is subject to TransUnion's review and approval prior to release and is subject to TransUnion's discretion to correct misleading, false, or objectionable material

Overview of TransUnion's Aggregate Time Series Data Base

- Fill a void for fresh, reliable, and detailed consumer credit behavior
 - To assess current and future credit conditions at the anonymous borrower level
- Anonymous credit information organized and linked at the county level and higher
- Quarterly samples of 30 million randomly selected consumers from
 - Q1 1992 to present
- Over 200 credit dimensions including credit scores covering a wide variety of industries and product types

Delinquency Rates at the Borrower Level (Anonymous)

90 Day Delinquency Rate by Industry Per Borrower 1992-2006Q1



Community Perspective

- Measure the historic impact of FEMA disasters on the financial health of affected communities and gauge the recovery cycle across the severity spectrum
- The descent, ascent and plateau of county level credit metrics constitutes a “recovery cycle”
- Evaluate patterns of delinquency rates, changes in score distribution, liens issued and bankruptcy filings
- Analysis of recovery cycles may provide a basis to construct a continuum of natural disasters based upon their impact upon a community



Longitudinal Perspective

- Measure the impact of disasters on individual finances or credit worthiness, understand the length of time for individuals to recover and investigate possible disparate impacts among different demographic groups
- Control group of randomly selected consumer credit reports from non-FEMA disaster areas compared to a random sample individuals within FEMA-declared disaster areas as of August 2005
- Using a blind sequence number credit reports will be appended with demographic data: gender, ethnicity, income and age
- Delinquency, changes in score distribution, liens issued and bankruptcy filings will be evaluated to assess the extent of the financial devastation and disparate impact



Challenges

- Identify consumers that fled disaster areas now residing in new communities requires modified algorithms to match consumers to previous addresses
- Multiple relocation and address changes will make it more difficult to find consumers and may reduce file contents
- Name changes coupled with frequent relocations will reduce matches
- Separate blind process to append demographic data

Municipal Credit Impact

Alex Fraser
Standard & Poor's

STANDARD
&
POOR'S

Katrina's Magnitude

- One of the largest storms ever to hit the United States.
- The costliest event in history for the Global Insurance Industry.
- Rating actions and/or commentary in Public Finance, Insurance, Energy, Gambling, Airlines, Capital Goods, CMBS and RMBS Sectors.
- The first time that U.S. Public Finance has used CreditWatch in reaction to a natural disaster.
- \$9.4 Billion of rated Public Finance debt affected.

Affected Issuers' Status Prior to Katrina's Impact

	Debt \$Mil.	S&P rating
State of Louisiana	3,500	A+/Stable
State of Mississippi	3,100	AA/Stable
New Orleans General Obligation	530	BBB+/Stable
New Orleans Exhibition Hall Authority (Hotel Tax)	516	A/Stable
New Orleans Sewerage & Water Board (Sewer Bonds)	343	A/Stable
52 Public Housing Issues	224	Various
Louisiana Stadium & Exhibition Authority	183	A/Stable
New Orleans Pension Bond & Limited Tax G.O.s	155	BBB/Stable
New Orleans Aviation Board (Stand Alone PFC)	153	A-/Stable
Port of New Orleans Board of Commissioners	102	A-/Stable
Touro Infirmary	101	BBB+/Stable
Greater New Orleans Expressway Commission	67	A+/Stable
Biloxi, Mississippi	64	A/Stable
St. Bernard Parish (Sales Tax)	59	A/Stable
St. Bernard Parish School District #1	48	BBB+/Stable
New Orleans Sewerage & Water Board (Water Bonds)	46	A/Stable
New Orleans Sewerage & Water Board (Bans)	45	SP-1+
New Orleans Aviation Board (General Airport Revs.)	41	A/Stable
Orleans Parish Law Enforcement	37	BBB+/Stable
Plaquemines Parish (Sales Tax)	15	A-/Stable
Greater Baton Rouge Port Commission	9	BBB-/Stable
Plaquemines Parish Law Enforcement District	6	BBB-/Stable
St. Bernard Port Harbor and Terminal District	4	BBB-/Stable
Jefferson Parish Hotel Revenue Bonds	3	BBB-/Stable
TOTAL	9,462	

Impact of Katrina on Credit Ratings

	Post-Katrina Ratings	Current Rating
State of Louisiana	A+ Credit Watch Negative	A/Stable
State of Mississippi	AA/CreditWatch Negative	AA/Stable
New Orleans General Obligation	BBB+ CreditWatch Negative	B/Developing
New Orleans Exhibition Hall Authority (Hotel Tax)	A/CreditWatch Negative	B/Developing
New Orleans Sewerage & Water Board (Sewer Bonds)	A/CreditWatch negative	B/Developing
Louisiana Stadium & Exhibition Authority	A/CreditWatch	B/Developing
New Orleans Pension Bond & Limited Tax G.O.s	BBB/CreditWatch Negative	B-/Developing
New Orleans Aviation Board (Stand Alone PFC)	A-/CreditWatch Negative	BBB/Stable
Port of New Orleans Board of Commissioners	A-/CreditWatch Negative	BBB/Stable
Touro Infirmary	BBB+/CreditiWatch Negative	BBB+/Watch Negative
Greater New Orleans Expressway Commission	A+/CreditWatch Negative	A-/Stable
Biloxi, Mississippi	A/CreditWatch Negative	BBB/Developing
St. Bernard Parish (Sales Tax)	A/CreditiWatch Negative	B/Developing
St. Bernard Parish School District #1	BBB+/CreditWatch Negative	BB/Developing
New Orleans Sewerage & Water Board (Water Bonds)	A/CreditWatch Negative	B/Developing
New Orleans Sewerage & Water Board (Bans)		SP-3
New Orleans Aviation Board (General Airport Revs.)	A/CreditWatch Negative	BB/Stable
Orleans Parish Law Enforcement	BBB+/CreditWatch Negative	B/Developing
Plaquemines Parish (Sales Tax)	A-/CreditWatch Negative	B/Developing
Greater Baton Rouge Port Commission	BBB-CreditWatch Negative	BBB-/Stable
Plaquemines Parish Law Enforcement District	BBB-/CreditWatch Negative	B-/Developing
St. Bernard Port Harbor and Terminal District	BBB-/CreditWatch Negative	BB/Stable
Jefferson Parish Hotel Revenue Bonds	BBB-/CreditWatch Negative	BBB-/Stable

Selected Ratings Definitions

■ 'B' Category

An obligation rated 'B' is more vulnerable to non-payment than obligations rated 'BB', but the obligor currently has the 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.

Selected Ratings Definitions

- 'Developing' Outlook:

A rating may be raised or lowered over the intermediate term (typically six months to two years). It is used for those unusual situations in which future events are so unclear that the rating potentially may be raised or lowered.



Concentration in Region's Large Credits

Mississippi	\$3.1 Billion
Louisiana	\$3.5 Billion
New Orleans & Related	\$1.1 Billion
Stadium & Exhibition Authority	<u>\$0.7 Billion</u>

Total = \$8.4 Billion
(88% of Affected Debt)



Mississippi

- Rating affirmed at “AA”/Stable Outlook in late November.
- Special Legislative session completed in November.
- Fiscal 2005 and Fiscal 2006 revenue performance exceeded estimates.
- Special session did enact legislation to allow land-based casinos.
- Housing and business activity still greatly affected in the immediate area.



Louisiana

- Rating downgraded to “A” from “A+” November 30, 2005
- Rating outlook returned to stable from negative on August 24, 2006.
- Estimated fiscal 2006 \$956 million shortfall addressed with:
 - \$600 million in budget cuts.
 - \$154 million from rainy day reserve fund.
 - \$189 million fiscal operating surplus.
- Fiscal 2007 outlook:
 - Expense reductions not permanent.
 - Constitutional requirement to hold aside all unbudgeted oil & gas revenue.
 - Rainy day fund fully funded by the end of fiscal 2006 due to oil & gas “windfall”
 - 1/3 available for fiscal 2007
- New Orleans’ role in the State’s economy is significant.

Gulf Opportunity Zone Act

- Federal tax benefits to Gulf Opportunity Zone states & subdivisions.
 - Hurricane Katrina Disaster Area = Area that received major disaster declaration by the President before September 14, 2005.
 - Gulf Opportunity Zone = Portion of the hurricane Katrina disaster area determined by the President to warrant public assistance from the Federal Government.
- Tax credits for qualified community development entities.
- Qualification for private annuity bonds for displaced resident housing.
- Public utility disaster loss treatment. Net operating loss treatment.
- Expansion of Hope tax credit/increased deductible amount.
- Employer – provided housing provision exclusion.
- Changes certain qualifications for qualified mortgage bond tax-exemption.
- Depreciation level and rate for certain business properties.
- Changes rules governing annuity/retirement fund withdrawals (e.g. 10% penalty)
- Recontribution, loan provisions changed.
- Wage tax credits for employers in the core disaster area.
- Suspension of limitation on charitable contribution deduction
- ...20+ additional provisions

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GO Zone Bonding to-date

■ Tax Credit Bonds

- To provide for debt service assistance for up to two years.
- Louisiana issued \$400 million in July 2006 to benefit local issuers
 - New Orleans
 - New Orleans Sewerage and Water Board
 - Orleans Parish School Board
 - New Orleans Aviation Board
 - Orleans Parish Law Enforcement District
 - Orleans Levee District
 - Ernest N. Morial New Orleans Exhibition Hall Authority
 - Port of New Orleans
 - Regional Transit Authority
- Assistance will be repaid beginning five years from now.
- Mississippi and Alabama have not issued any.



Catastrophe Risk and Insurance in the Aftermath of Katrina: A Micro Risk Management Perspective

***Eugene N. Gurenko, Ph.D., CPCU, AIA
World Bank***



World Bank Group



World Bank Role in the Study

- Natural disasters and ability to cope with them have become an important driver of countries' economic and social development.
- Disasters affect different countries and various strata of their societies differently based on their physical, social, and economic vulnerabilities.
- There is growing (although still anecdotal) evidence that the poor are affected most.
- Micro-social and economic impacts of natural disasters are poorly understood by the development community and government policy-makers.
- The data wealth of the study presents a unique opportunity to hone our approach to developing effective financial safety nets for the poor and providing credible policy advice to governments.



Estimating the financial impact of natural disasters on homeowners, business, and communities: A proposed methodology

Objectives:

- Quantify the financial impact of natural disasters on different segments of society by:
 - Determining the key drivers of financial vulnerability to natural disasters;
 - Developing a disaster financial vulnerability index for homeowners, businesses, and communities.
- Suggest financial safety net products (insurance/lending) that can best address risk management needs of different vulnerability groups.
- Recommend optimal government disaster safety net/disaster compensation policies for different vulnerability groups.



Quantifying financial vulnerability of businesses and individuals to natural disasters





World Bank Group

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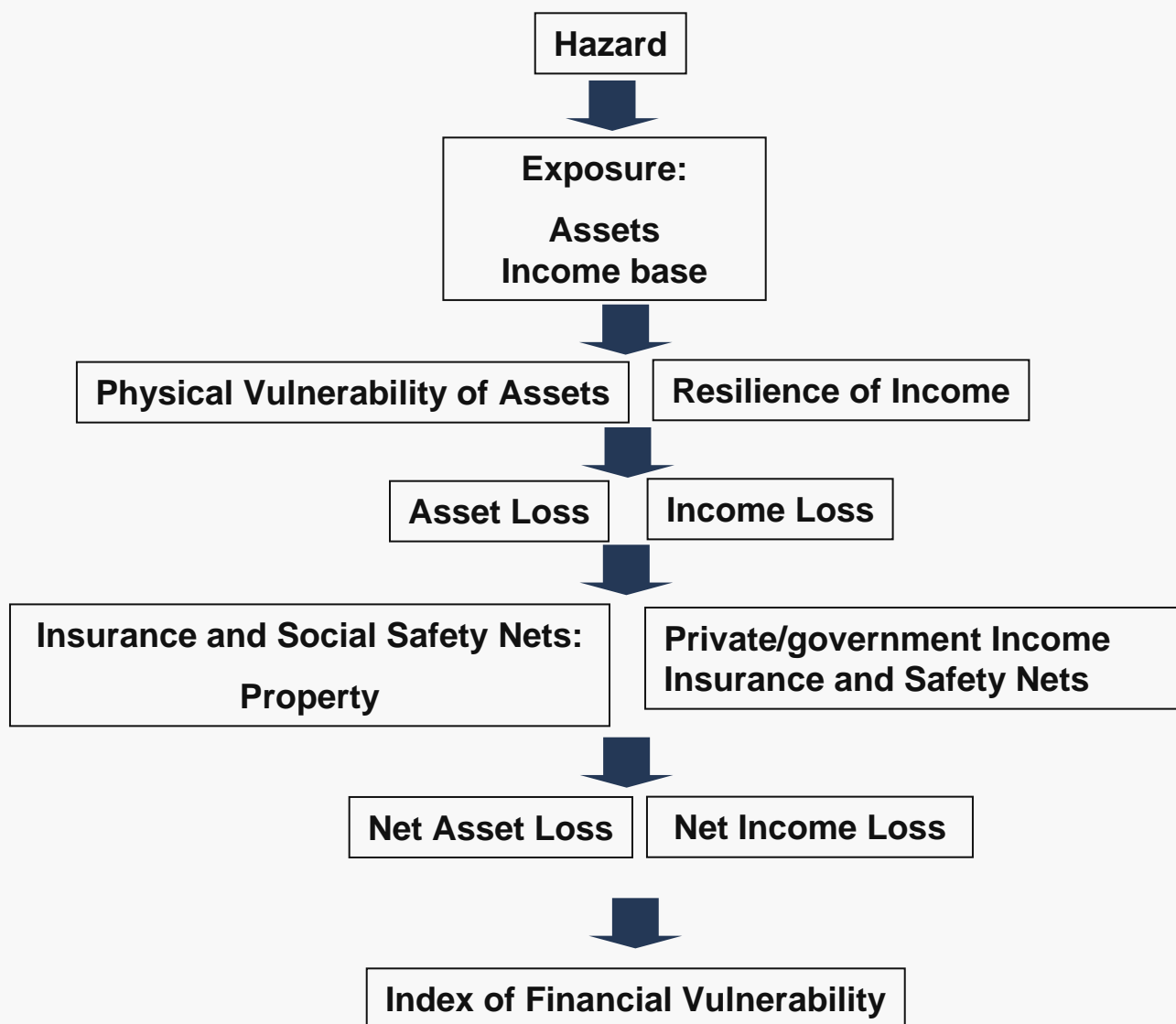
Estimating the financial impact of natural disasters on homeowners, business, and communities: a proposed methodology

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Quantifying financial vulnerability of businesses and individuals to natural disasters





Stylized financials of a representative household before a disaster (with and w/o FEMA insurance)

Balance-sheet

Assets

Home	450,000
Furniture	20,000
Car	25,000
Bank accounts	2,000
Long-term savings	20,000

Liabilities

Mortgage (@6%, 30y, fixed)	400,000
Consumer debt (@10%, 3y, fixed)	20,000
Car loan (@10%, 4 y, fixed)	25,000

Equity

Liquid assets	22,000
Illiquid assets	50,000
<i>Total equity</i>	<i>72,000</i>

Income statement

(monthly, w/o FEMA coverage)

Household's net employment income	6,000
Household's financial income (@5%)	83
Household's living expenses	-2,000
Households's mortgage service	-2,398
Household's consumer loan service	-645
Household's car loan service	-634
<i>Net household income</i>	406

Income statement

(monthly, with FEMA coverage)

Household's net employment income	6,000
Household's financial income (@5%)	83
Household's living expenses	-2,000
Households's mortgage service	-2,398
Household's consumer loan service	-645
Household's car loan service	-634
Property cover premium (250,000 limit, zone A)	-107
Contents cover premium (20,000 limit, Zone A)	-19
<i>Net household income</i>	280



Stylized financials of a representative household after a disaster (with and w/o FEMA property insurance)

Balance-sheet (with FEMA property/contents cover)

Assets

Home (land value only)	200,000
Furniture	0
Car	25,000
Checking/savings bank account	2,000
Long-term savings (mutual fund/life insurance)	20,000
FEMA insurance recoverable (dwelling)	249,500
FEMA insurance recoverable (contents)	20,000

Liabilities

Mortgage (@6%, 30y, fixed)	400,000
Consumer debt (@10%,3y, fixed)	20,000
Car loan (@10%, 4 y, fixed)	25,000

Equity

71,500

Balance-sheet (w/o FEMA property/contents cover)

Assets

Home (land value only)	200,000
Furniture	0
Car	25,000
Checking/savings bank account	2,000
Long-term savings (mutual fund/life insurance)	20,000

Liabilities

Mortgage (@6%, 30y, fixed)	400,000
Consumer debt (@10%,3y, fixed)	20,000
Car loan (@10%, 4 y, fixed)	25,000

Equity

-198,000

Income statement (monthly, FEMA coverage)

Household's net employment income	0
Household's financial income (@5%)	83
Household's living expenses	-2,000
Households's mortgage service	-2,398
Household's consumer loan service	-645
Household's car loan service	-634
Property insurance premium (250,000 limit, zone A)	-107
Contents insurance premium (20,000 limit, Zone A)	-19
Net household income	-5,720

Income statement (monthly, no FEMA coverage)

Household's net employment income	0
Household's financial income (@5%)	83
Household's living expenses	-2,000
Households's mortgage service	-2,398
Household's consumer loan service	-645
Household's car loan service	-634
Property insurance premium (250,000 limit, zone A)	-107
Contents insurance premium (20,000 limit, Zone A)	-19
Net household income	-5,720

Number of days to personal credit default = 115



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Exploring the concept of financial vulnerability for households and businesses

Financial Vulnerability Measures:

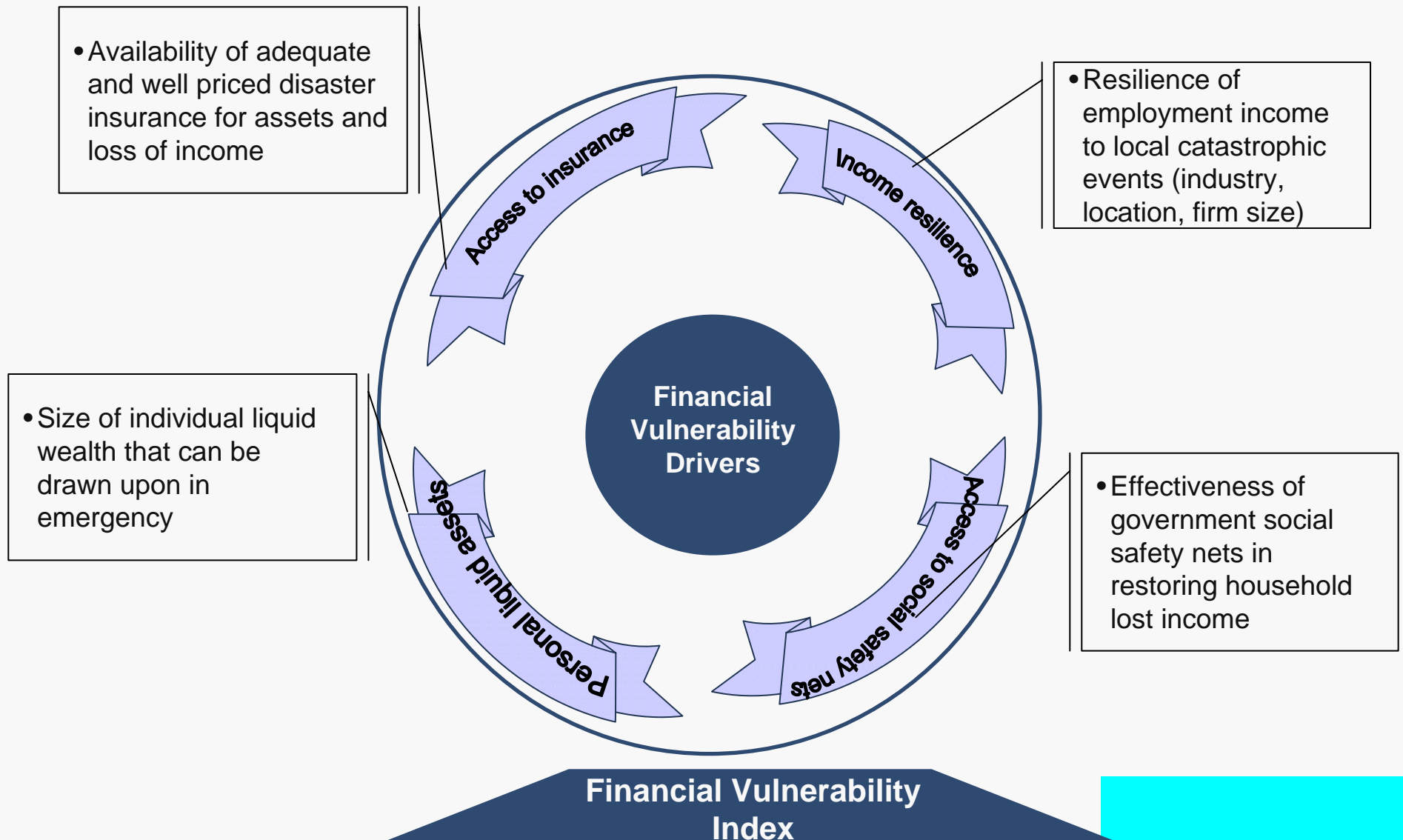
- Days to default = (Liquid wealth + post-disaster employment income)/Daily household expenses
- Income Resilience Index = F (Location of employment, type of employment, size of firm, geographical diversification of business, position in the company, etc.)
 - Income resilience – probability of restoring family employment income to pre-disaster level in each of first 12 months in the aftermath of a disaster, e.g., $IR = P1 \cdot I1 + P2 \cdot I2 + \dots + P3 \cdot I12$

**“New Orleans region has shrunk to 437,000 jobs, off about 30% from pre-storm levels, and within the city, the percentage is considerably higher”
Washington Post, August 27, 2006**



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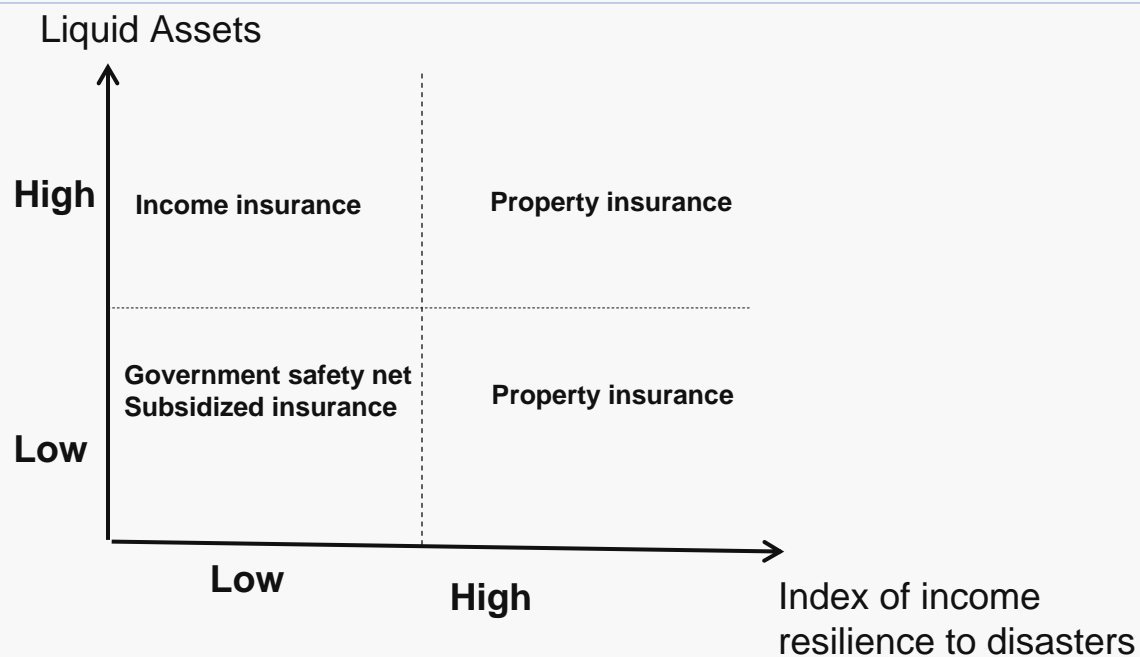
Exploring the concept of individual overall financial vulnerability to natural disasters





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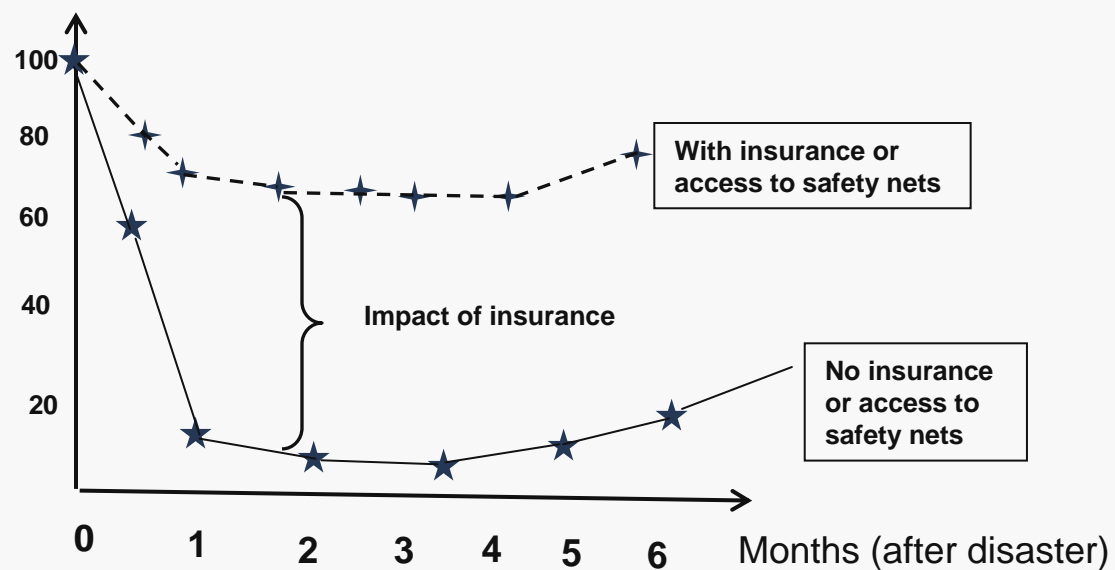
Determining importance of insurance and social safety nets for groups with different financial vulnerability profiles





Testing the effect of new insurance products and government safety nets on households with different financial vulnerability profiles

Household income (%)



Questions?

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