



Community Decision Support to Local Governments in Budget Planning under Coastal Risk – Extension Program Manual

Community Decision Support to Local Governments in Budget Planning under Coastal Risk – Extension Program Manual - First Edition

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Table of Contents

Introduction.....	5
The Need for Local Government Financial Disaster Planning.....	7
Identifying and Preparing a Community for Financial Risk Resiliency Planning.....	9
Module 1: Identifying the Community and the Advisory Group.....	10
Module 2: Establishing a Foundation for Advisory Group Decision Making.....	12
Slide Show 2-1 Introduction of Project Example.....	15
Slide Show 2-2 Current Demographic and Economic Conditions Example.....	20
Slide Show 2-3 Introduction to Local Government Finances Example.....	30
Model 3: Representative Storm Analysis.....	35
Slide Show 3-1 Introduction to Local Government Financial Risk.....	37
Slide Show 3-2 Expected Losses from Tropical Storms on Local Governments.....	49
Model 4: Risk Profiling for Local Government Financial Disaster Planning.....	56
Slide Show 4-1 Identifying Risk Preferences for Financial Decision Making.....	58
Slide Show 4-2 Using Risk Profiles in Financial Preparation for Tropical Natural Disasters.....	68
Module 5: Identifying Financial Recovery Options from Natural Disasters.....	77
Slide Show 5-1 Using Risk Profiles in Preparation for Tropical Natural Disasters.....	79
Post Meeting Deliverables and Action Steps.....	94
References.....	95
Appendix 1: Steps in Executing a TurningPoint-enabled PowerPoint File.....	96
Appendix 2: Financial Ration Analysis Measures.....	97

Risk Resiliency Planning Introduction

This manual serves as a guide for Extension agents and local practitioners - those working through the process of educating governmental entities or a community's leadership in attaining a desired level of financial resiliency for communities vulnerable to tropical natural disaster events. When assessing the financial health of a community, potential risks and assets to be appropriated during a disaster and recovery are the central topics aligning communities with resiliency planning. Examples of local governments' fiscal condition before and after hurricanes during the 2005-06 and 2008 seasons will be used to show difficulties encountered. The local government of Tangipahoa Parish, La., serves as the case study used in this manual to show how to execute a participatory research-driven advisory panel process with constituents of a local government to generate policy alternatives to improve a community's financial resiliency to future tropical natural disasters.

Manual Highlights

The Extension program manual is broken into the following sections:

- The Need for Local Government Financial Disaster Planning
- Identifying and Preparing a Community for Financial Risk Resiliency Planning

Module 1. Identifying the Community and Advisory Group

Module 2. Establishing a Foundation for Advisory Group Decision Making

Module 3. Representative Storm Analysis

Module 4. Risk Profiling for Local Government Financial Disaster Planning

Module 5. Identifying Financial Recovery Options from Natural Disasters

Post-Meeting Deliverables and Action Steps

Each of the modules is laid out with a *Module Overview* and *Module Objectives*, which help both the facilitator as well as the advisory panel understand what educational or decision making information will be the outcome of the specific module. Also included is a list of the advanced materials needed and a proposed timeline for a two-hour meeting so that Extension agents or practitioners delivering the training know from past experience how much time they should be committing to each of the presentations, including questions and discussion periods.

Next, we provide a section titled *Suggestions* that provides key information elements for each module. Some of the suggestions actually serve as editing elements for the slide show templates provided for each module. Other suggestions serve to provide clarifying comments about the material and answers to common questions that have come up in past advisory panel meetings. As you use the manual for delivering your own financial disaster resiliency educational programming, we ask that you keep notes and send feedback to us, as we will be updating this manual over time with additional information from both best practices and regulatory and policy changes that affect educational outcomes. Finally, slides from our Tangipahoa Parish government case study example are provided in each section.

Thanks again for your interest in delivering financial disaster resiliency programming. If you have any questions or comments, please do not hesitate to contact us.

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The Need for Local Government Financial Disaster Planning

Disaster resilience for local governments is defined as “the capacity of a community exposed to hazards to adapt, by resisting or changing, in order to reach and maintain an acceptable level of functioning and structure.”

An easy way to understand risk resiliency is to look at individual household preparedness.

Recommendations for an individual household include having a disaster plan, generator, water, food and cash on hand for the short-term. Similarly, you might expect local government to have safe shelter, access to clean drinking water and a debris removal contract. However, typical upfront payment for these services requires advanced planning. Getting roads open for emergency relief efforts requires gasoline and chainsaws. A lack of electricity, for example, greatly complicates this process. Local pumps may not be accessible without electricity, and cash would likely be required for purchases. Additionally, costs for services like debris removal can increase appreciably from one storm to the next. This became most evident when local governments in South Louisiana tried to bounce back from Hurricane Gustav in 2008.

Case: Louisiana Parishes and Hurricane Gustav

Hurricane Gustav caused the heaviest physical damage in South Central and Southeast Louisiana and caught many local jurisdictions off-guard regarding the severity of impacts to the delivery of local services such as electricity, cable and sewer services. In addition to expenses incurred by public and private providers of these services, costs of clean-up such as debris removal were greater for many of these parishes than the costs following Hurricane Katrina (Lundin 2008, Colvin 2008, Anderson 2008). These expenses overwhelmed planning efforts of many parish (county) and municipal governments, which began to scramble to pay for such services.

A good example of the financial impact Gustav has had on parish and municipal governments is the case of Livingston Parish, an outlying parish of the Baton Rouge Metropolitan Statistical Area. and one of the fastest growing parishes in terms of population and housing in Louisiana over the past two decades. As a form of self insurance, the parish set aside \$2 million as a “rainy day” fund to cover such emergency expenses as recovery from a tropical event. Unfortunately, the total FEMA-reimbursable clean-up costs from Gustav parish-wide was expected to exceed \$15 million. Later, after it was found that a measurable percentage of the debris removed by contractors was “non-reimbursable,” the parish was on the hook for \$46 million (Ball 2011).

These costs create a burden of liquidity. FEMA, which typically reimburses between 75 percent and 90 percent of debris removal costs for the parish, does not typically pay a parish its cost-share at the time the bills are due for payment to contractors. As stated by Livingston Parish Finance Director John P. Gabel, III, “We do not expect to receive the off-setting revenues for these expenses until the last six months of 2009” (Harper and Dyer 2008). The lag time between payment to debris removal contractors and reimbursement by FEMA requires parish governments to cover 100 percent of the debris removal costs, or to request payment terms that increase the total costs to the parish.

The second burden is a solvency challenge. Local political jurisdictions were allowed 100 percent reimbursement of recovery costs after Hurricanes Katrina and Rita. While eliminating the complete financial burden of reimbursable recovery costs, such decisions potentially create expectations of similar

adjustments made to reimbursable costs for tropical events in the future. In this case, not preparing financially for covering the local cost share of FEMA reimbursable recovery costs can create damaging consequences to long-term local government finances.

This solvency issue was an acute problem for many parishes and municipalities when FEMA was requiring the statutory 25 percent local match. While the federal government reduced that match to 10 percent (Harper and Dyer 2008), the federal bailout of local jurisdictions did not generate the natural incentives that the 25 percent local match creates in having these jurisdictions prepare their annual budgets and balance sheets to align themselves with the risk they face from tropical natural disasters. As was stated by Livingston Parish President Mike Grimmer, when the local match was still at the higher rate and the out-of-pocket costs to the parish would be \$3 million, “that [the \$3 million] we don’t have.” (Harper and Dyer 2008). In fact, the proposed Livingston Parish budget for 2009 projected a two-thirds reduction in its ending general fund balance, leaving little room for variance between projected and actual expenditure going forward into 2009.

While growing parishes like Livingston have existing emergency funds and general fund surpluses to cover some of these costs, other parish governments and municipalities are less fortunate. Parishes and counties along the Gulf Coast have benefitted from several factors in the past that assisted in the recovery from the most recent tropical storm seasons (2004, 2005 and 2008): (1) the storms occurred in years during an expansionary national economy; (2) there were few additional expensive natural disasters to compete for federal funds during these storm years; and (3) leadership by coastal state representatives of the majority party occupied both legislative and executive branches of federal government during most of the period. The alignment of these conditions led to additional dollars through ad hoc add-ons to appropriations bills that softened the blow and created a greater safety net for local governments impacted by such storms as Ivan, Katrina and Rita.

Our approach to helping local governments prepare financially for future events uses a participatory research methodology to organize and apply tools to both learn about and identify optimal financial preparation in advance. The program objectives involve financial planning using human dimensions of resiliency by addressing two key priority areas: (1) improving planning for response to and recovery from coastal hazards and climate associated risks and (2) developing tools and information related to the human dimensions of resiliency (i.e., economic, social and cultural factors). This manual helps to guide Extension agents and local practitioners through the process in their own communities.

The following modules guide users through the process of improving financial resiliency of local governments by identifying community needs, assessing options for increased financial solvency and presenting options to local government for positive change. Each module contains issues a local government may face, overlain with economic, social and cultural factors. Real-world examples are used to clarify the experiences of local governments.

Identifying and Preparing a Community for Financial Risk Resiliency Planning

Achieving financial resiliency can be accomplished using a participatory method comprised of the local government executive leader, a community advisory group and a facilitator – in this case local Extension agents or practitioners. Using the modules outlined in this section, Extension agents can help local governments identify community needs, assess options for increased solvency and present viable options to local government for positive change. Having the community leader on board will improve the success of this program, not to mention the benefit of having the highest ranking decision maker of the community open to program findings.



Top left: Fishing vessels stranded on the highway near Empire, La. (Hurricane Katrina). Top right: A delivery truck was deposited on a tree by the force of storm surge (Hurricane Katrina). Bottom left: Storm debris swept to the side of a street in New Orleans. Bottom right: A debris staging area in Cameron Parish self-combusted as organic material began to decompose (Hurricane Rita).

Photos courtesy Louisiana Sea Grant.

Module 1: Identifying the Community and the Advisory Group

Module Overview

The community you are working in will be best served by a diverse advisory group. In this module you will be identifying a community leader who will be the “cheerleader” for the proposed project. The community leader you identify will help recommend individuals he or she has worked with or knows as leaders in the community in order to make the outcomes of the advisory panel process a success.

Module Objectives

- 1) Develop community leader buy-in to the financial disaster resiliency program.
- 2) Identify a trusted group of community stakeholders to serve on an advisory panel.

Strategies on forming a successful advisory panel

- Obtain list of potential participants from community leader
 - 15 – 20 people
 - Civic minded
 - Diverse backgrounds
 - Potential for effecting community change
 - Establish contact with potential participants detailing commitment and obtaining availability
 - Confirm participation
- Once a potential participant list has been created, establishing contact and scheduling begins. Do not assume potential participants were informed about the program or they have been named by the community leader as a potential participant in advance. A verbal invitation to participate combined with a synopsis of the program, followed by written or electronic confirmation of participation will achieve the highest results for meeting attendance. Explain the time commitment participants should expect throughout the project. The program can take as many as five (5) two-hour meetings or as few as three (3) two-hour meetings. There is no time commitment outside of the determined meetings for participants. In addition to establishing communication, polling advisors for availability will reduce redundant communication.
- Advisory group participants should understand what the program is and how they fit into the process.

As a committee member in a participatory research framework, members will assist in identifying the highest financial health priorities for their local government; “ground truth” official statistics against personal experience and knowledge; and propose policies that safeguard the financial health of local government from future tropical disaster events.

□ *Meeting Logistics Tips*

- Arrange meetings on the same day, time and week of each meeting month.
 - Avoid public government meeting times, church services, holidays and weekends.
 - Meeting location should either be central for participants or in a local government facility.
 - Provide a light meal, since meetings usually take place during the normal dinner hour.
- Providing a meal for the advisory panel at the beginning of the meeting helps keep everyone on task and encourages relaxed conversation for participants. Light meals are suggested, but keep in mind that this meal will need to carry participants through the evening, as meetings can last well past the normal dinner hour. This social time allows participants to get to know each other and you as the facilitator.

Why a participatory research process? Is a community ready to participate?

The participatory research process suggested here has been called “Community Decision Support” (CDS) and has several advantages over alternative methods of research practice (Scott and Fannin 2007). Variations of this approach have been popularized in community service learning research and instruction such as action or participatory action research (Fannin and LeBlanc 2007). These approaches assume both the goals and objectives of the advisory panel are well-defined and the desired outcome is also well-defined. In CDS, the goal of the research is typically agreed on by the community, but the objectives may or may/not be well defined. When the community is in agreement on the goals and objectives, then CDS focuses on identifying the tradeoffs of alternative outcomes of various decision alternatives.

In financial disaster resiliency, having local community stakeholders in agreement that the local government should improve its financial disaster resiliency as a goal is the first step in identifying if a community is ready to participate. If a community is willing to agree on the objectives, to assess its current financial health, to identify how its financial health changes under a future tropical natural disaster scenario, and to evaluate the outcomes of financial decisions that improve financial resiliency to these scenarios, then a community is ready to receive the financial disaster resiliency Extension program.

A necessary condition for a community to participate is adherence to the goals and objectives set by the elected local government officials. In county (parish) settings, this is typically the presiding commissioner, parish or county president or police jury president. For municipalities, this usually involves the mayor. Many local governments do not have sole authority to undertake a participatory research process with an advisory panel without first receiving legislative authority. This typically involves approval of the entire county commission, police jury or parish or town council. In some cases, it is helpful for the Extension agent providing the training to attend such meetings to answer any questions of the council prior to their approval.

Module 2: Establishing a Foundation for Advisory Group Decision Making

Module Overview

A review of the current demographic, economic and fiscal condition of the local government is the platform to begin assessing financial resiliency. In this module, you will begin to engage the advisory panel in its first meeting. In particular, you will focus on engaging members' backgrounds about the demographic and economics of the parish (county) or municipality. With a brief overview of these statistics, an overview of the current fiscal health of the local government is presented using various financial indicators. These indicator topics serve as tools to assist in future decision making.

Module Objectives

- 1) Introduce advisory panel to Extension agents and the objectives of project.
- 2) Educate advisory panel about current demographics and economics of the parish (county) or municipality.
- 3) Educate advisory panel about local and comparative governments' financial health.

Advanced Materials

- Agenda – emailed one week in advance of advisory panel meeting
- Introduction of Project PowerPoint (Slide Show 2-1)
- Current Demographic and Economic Conditions PowerPoint (Slide Show 2-2)
- Introduction to Local Government Finances PowerPoint (Slide Show 2-3)

Timeline of Meeting (Assuming a 6:00 p.m. start time)

6:00 p.m.	Meal
6:20 p.m.	Overview of Agenda
6:30 p.m.	Introduction of Project
6:45 p.m.	Current Demographic and Economic Conditions
7:15 p.m.	Introduction to Parish Government Finances
7:45 p.m.	Questions and Feedback
7:55 p.m.	Schedule Next Advisory Panel Meeting
8:00 p.m.	Adjournment

Suggestions

- The initial meeting is designed to acquaint each member of the panel with other members as well as the Extension facilitator. During the introduction of the project, you as the facilitator should clearly define the objectives of Risk Resiliency Planning and identify what is expected of the advisory group. In particular, they need to know what the key objectives are from this proposal and how it will benefit the community at large. Please see “Slide Show 2-1 Introduction of Project” at the end of this module for an example. This PowerPoint presentation is included in your packet and can be edited to fit your specific community and project team.

- One of the biggest challenges with this project is the level of detailed financial data that are presented to the advisory panel. While in some cases these data are simply used for descriptive purposes, in most cases, the data are presented for the advisory panel to make decisions or define preferences.

- To engage the advisory panel, we recommend you use a remote response device that will allow advisory panel members to provide anonymous responses to questions you may ask during the presentations. This allows for an interactive advisory panel experience.

- The authors have used a product called TurningPoint® (www.turningtechnologies.com). TurningPoint® is an interactive response system that provides free software that integrates with Microsoft PowerPoint to allow for polling of audience members who have remote response devices. It simply requires purchase of a sufficient number of compatible devices for the advisory panel to use and a USB receiver that plugs into the laptop that has TurningPoint®-modified PowerPoint software.

- This technology is a fully interactive group response system enabling the speaker to collect instant feedback to the audience from polling. It gathers anonymous responses and immediately translates results into scores, charts and/or graphs. The data can also be saved for future reference.

- Please work with your program trainer regarding steps in creating, editing and executing a TurningPoint®-enabled Microsoft PowerPoint file. Specific steps on executing and saving results are included in Appendix 1.

- Both Slide Shows 2-2 (Current Demographic and Economic Conditions) and 2-3 (Introduction to Parish Government Finances) are TurningPoint®-enabled PowerPoint files. Please go to the Turning Technologies website to download the integrated software and follow the steps in Appendix 1.

- In the Current Demographic and Economic Conditions Slide Show (2-2), Slides 7-11, 14 and 16-18 will need to be modified to include your own parish (county) or municipality’s data. Your program trainer should provide you with the data needed to update these slides. In the future, an updated manual will include a spreadsheet from which you can select the specific parish, county or municipality and the year from which to obtain the data directly for your slides.

- In the Introduction to Government Finances Slide Show (2-3), all slides require using government-specific data including financial ratios. Your program trainer will provide these data to you for creating the appropriate slides. For comparison, include adjacent counties/parishes or similar municipalities to focus government.

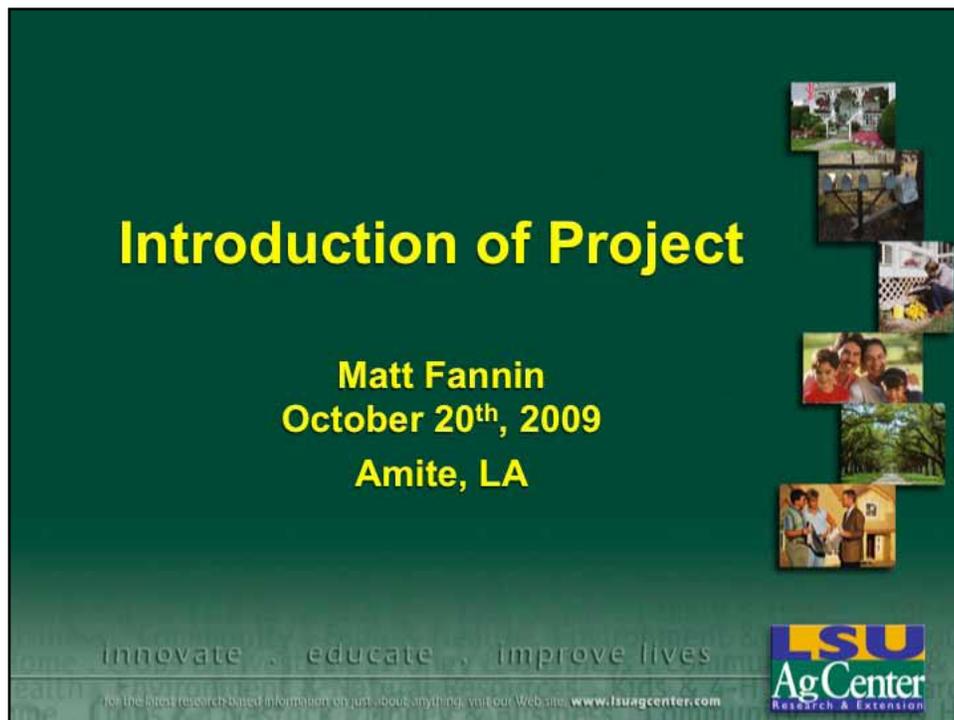
- If you did not take an accounting class in college, much of the data (including financial ratios) may be foreign to you. References such as Finkler (2010) provide a good overview of these ratios for interpretation and application to local governments. Facilitators should also ask questions of their program trainer to get better acquainted with each of these indicators of local government financial health. An example of financial ratio analysis measures is presented in Appendix 2.

- It is suggested that you attempt to make the interactive polling slides fun. Since the results come up on the screen (bar chart) with one click after the time clock has turned zero, then everyone gets a chance to see if they chose the correct answer. Keep in mind the results are anonymous; everyone can answer truthfully without being singled out. In some cases it can be fun to ask individual panel members in the audience to raise their hands if they answered the question correctly. Also, you may have support personnel from the local government (elected or full-time staff) that do not sit on the advisory panel but do listen in on the presentations. Sometimes it makes for a more lively presentation to ask them orally which answer they think is correct. You often find that those who should know the most about the community know less than you think.

- At the end of the last presentation, it is helpful to ask for feedback from the panel in terms of things they learned from the presentations that evening and questions they may have that were not asked during the formal presentations. In some cases, you may know the answer and can respond immediately. In other cases, you may have to go back to the office and look up the answer. Don't be afraid to let panel members know you will look up the answer and get back to them at the next meeting. This instills a level of credibility with the panel and shows that you are not trying to dodge questions. Further, it creates a level of engagement necessary for these meetings to be truly interactive and to obtain the necessary "local" information to improve the decision making process.

Slide Show 2-1 Introduction of Project Example

Slide 1



Introduction of Project

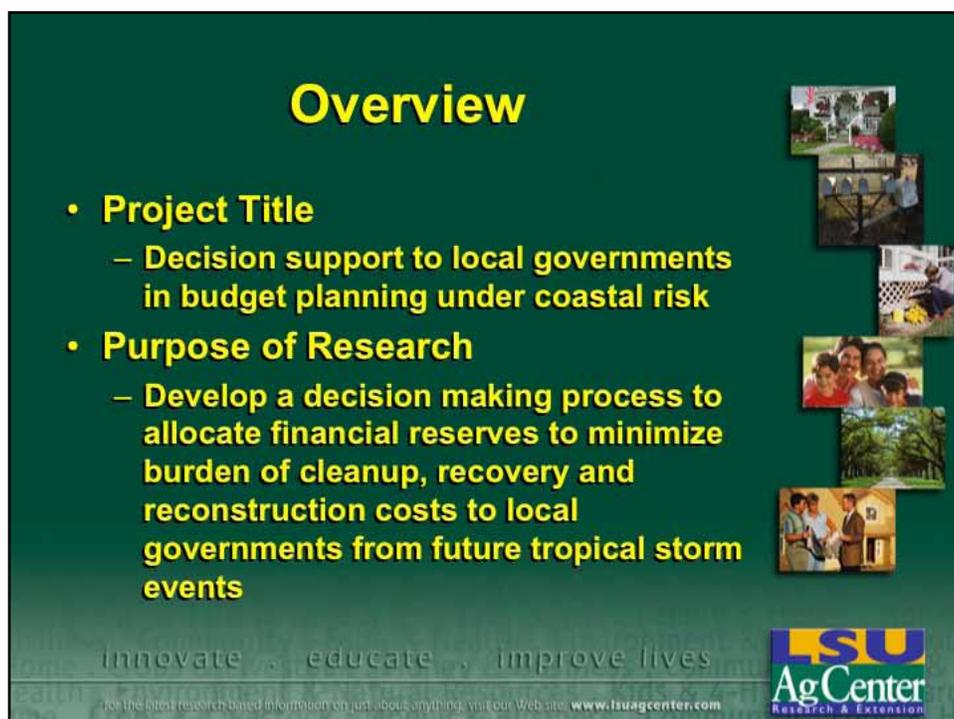
Matt Fannin
October 20th, 2009
Amite, LA

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Slide 2



Overview

- **Project Title**
 - **Decision support to local governments in budget planning under coastal risk**
- **Purpose of Research**
 - **Develop a decision making process to allocate financial reserves to minimize burden of cleanup, recovery and reconstruction costs to local governments from future tropical storm events**

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Overview

- **Funded by**
 - *Mississippi-Alabama Sea Grant*
- **Project Investigators**
 - *Matt Fannin, Asst. Professor, Dept of Ag. Economics and Agribusiness, LSU AgCenter*
 - *Carol Franze, Assoc. Area Agent, Southeast Region, LSU AgCenter*

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Objectives

- **Objective A**
 - **Measure the comparative financial health of coastal parishes through financial indicator analysis**
- **Approach**
 - *Apply financial ratio analysis to audited statements for selected SE LA parish governments*

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Objectives

- **Objective B**
 - Apply participatory method to analyze optimal financial reserves for cleanup and recovery costs of future tropical events
- *Approach*
 - Educate a parish advisory panel about future recovery costs and how they affect financial health; recommend proposed policy alternatives



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Objectives

- **C. Develop an extension manual for resiliency in local government financing under coastal risk**
- *Approach*
 - Take case study example from Tangipahoa Parish as a model for extending the education/policy analysis to other communities – document and formalize



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Role of Committee

- **As a committee member in a participatory research framework you will**
 - assist in identifying the highest financial health priorities;
 - “ground truth” official statistics against personal experience, and
 - propose policies that improve financial health of parish from future coastal events.

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Questions?

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Slide Show 2-2 Current Demographic and Economic Conditions Example

Slide 1

Current Demographic and Economic Conditions – Tangipahoa Parish

Matt Fannin, PhD
October 20, 2009
Amite, LA

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Slide 2

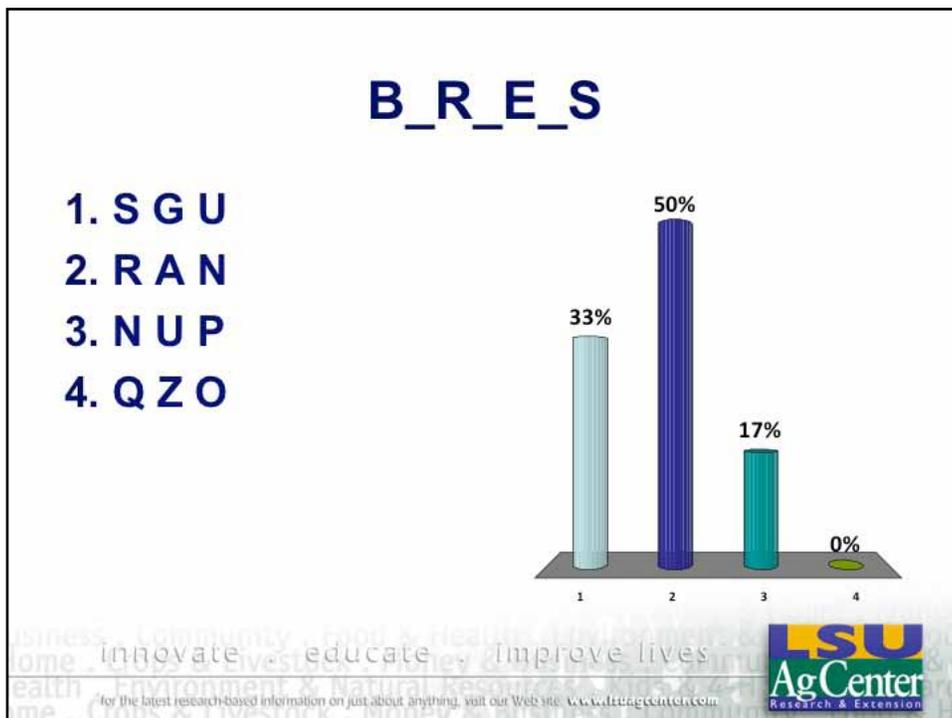
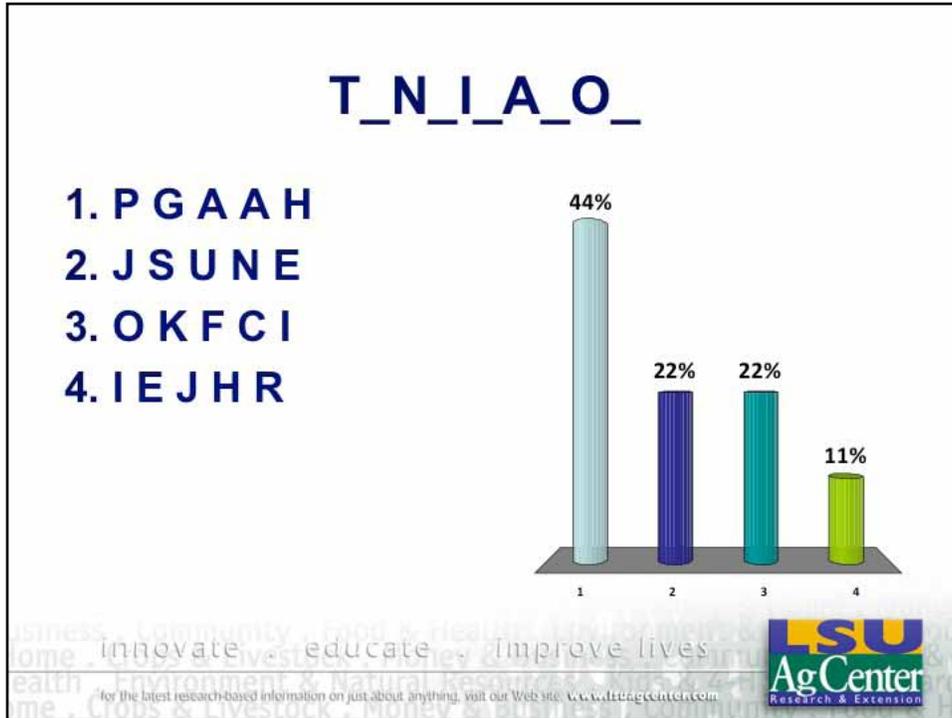
Ice Breaker

- **We will try the clicker devices on a few practice exercises**
- **You will be given a word with blanks. You will be given 4 options of letters that can be applied to correctly complete a familiar word.**
- **Once you identify the correct response, push that number button on you device for it to record.**

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Now, let's try some harder questions!

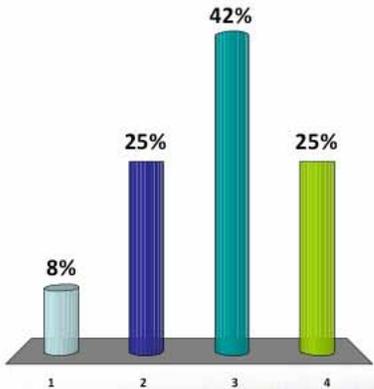
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What was the federal estimate of population in Tangipahoa Parish in 2008?

1. 117,001
2. 105,221
3. 122,743
4. 130,061



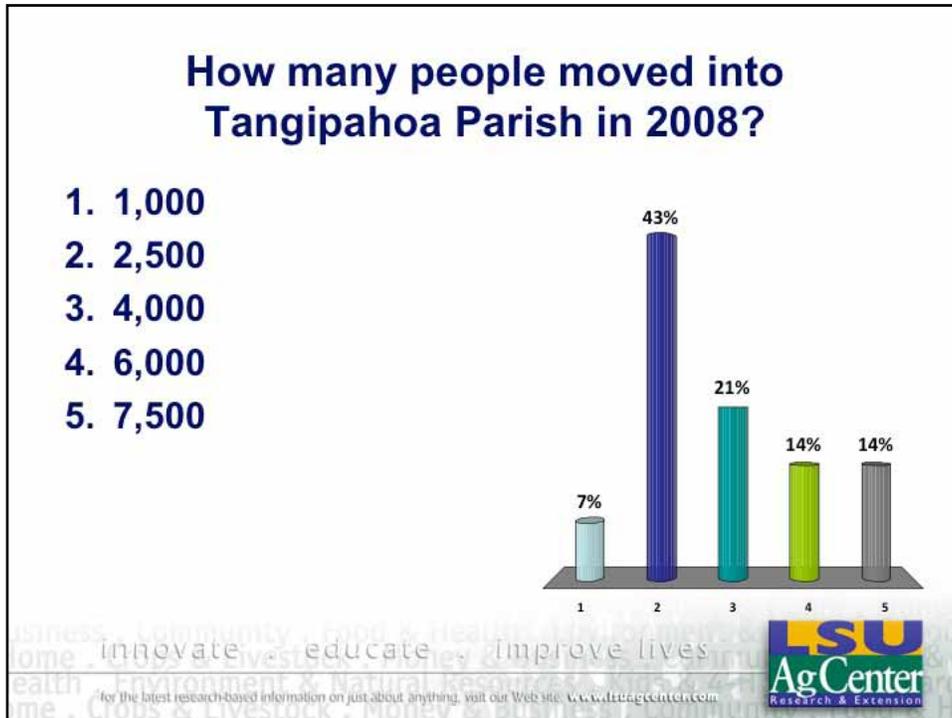
Option	Percentage
1. 117,001	8%
2. 105,221	25%
3. 122,743	42%
4. 130,061	25%

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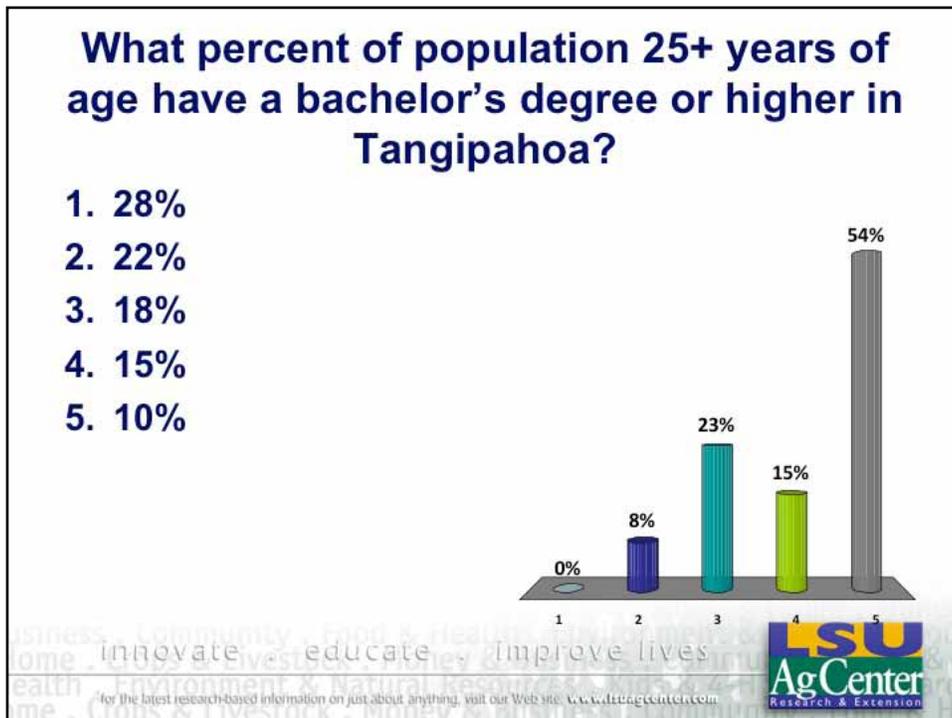
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Source: American Community Survey, 2008. factfinder.census.gov



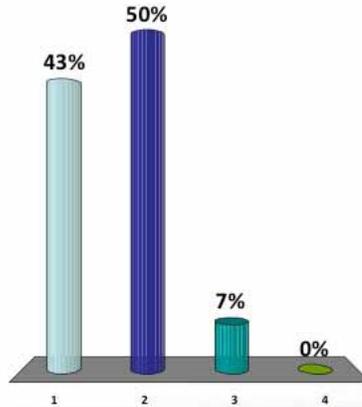
Source: American Community Survey, 2008. Actual number was 5,786 or 4.99 increase in 2007 ACS population estimate.



Source: American Community Survey. Actual percentage is 21.7%. Percentage with associate's degree is 3.7%. Percentage with some college, but no degree is 19.4%.

What was the average wage per job in Tangipahoa in 2007?

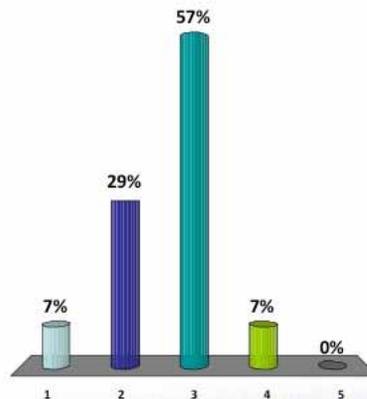
- 1. \$28,000
- 2. \$34,000
- 3. \$38,000
- 4. \$45,000



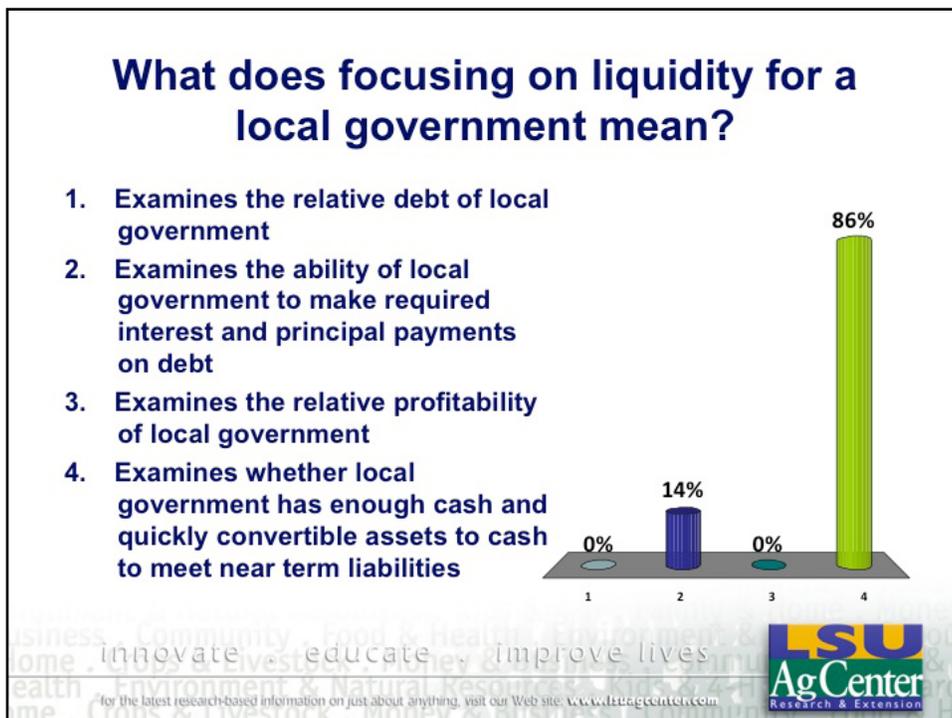
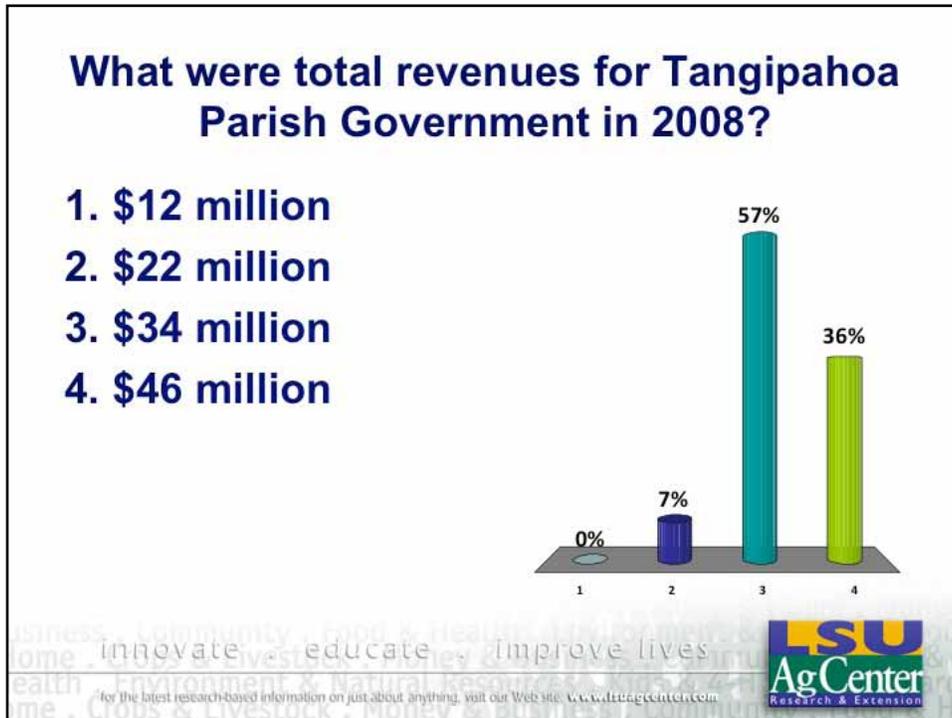
Source: Bureau of Economic Analysis, Local Area Personal Income Table CA-34. www.bea.gov. The state average is \$37,586 and the nonmetropolitan average is \$31,803.

What were the total value of assets for Tangipahoa Parish Government at the end of 2008?

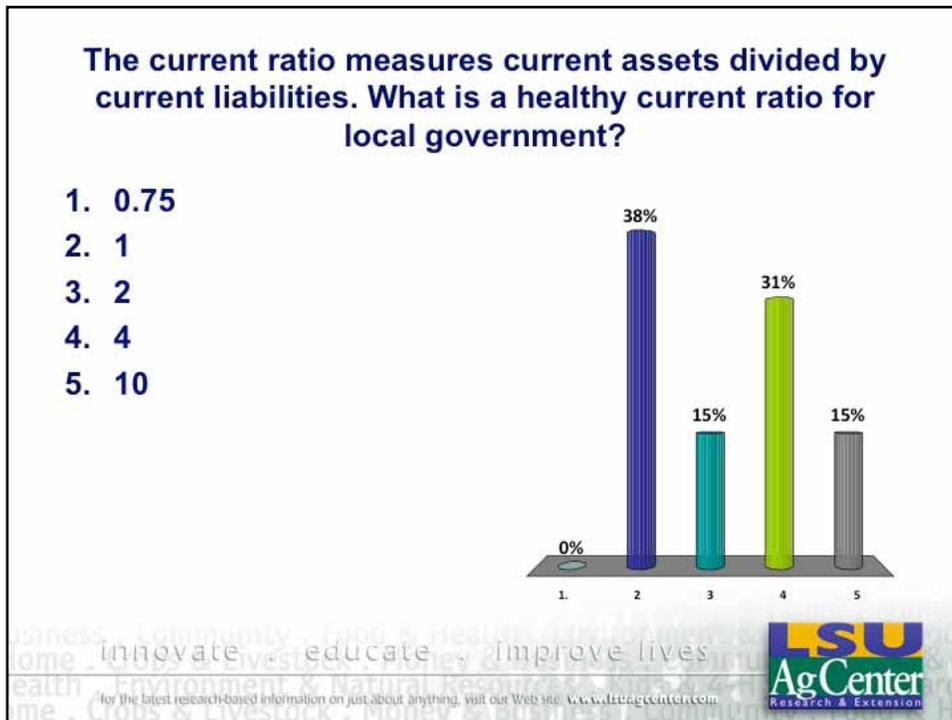
- 1. \$40 million
- 2. \$160 million
- 3. \$240 million
- 4. \$400 million
- 5. \$800 million



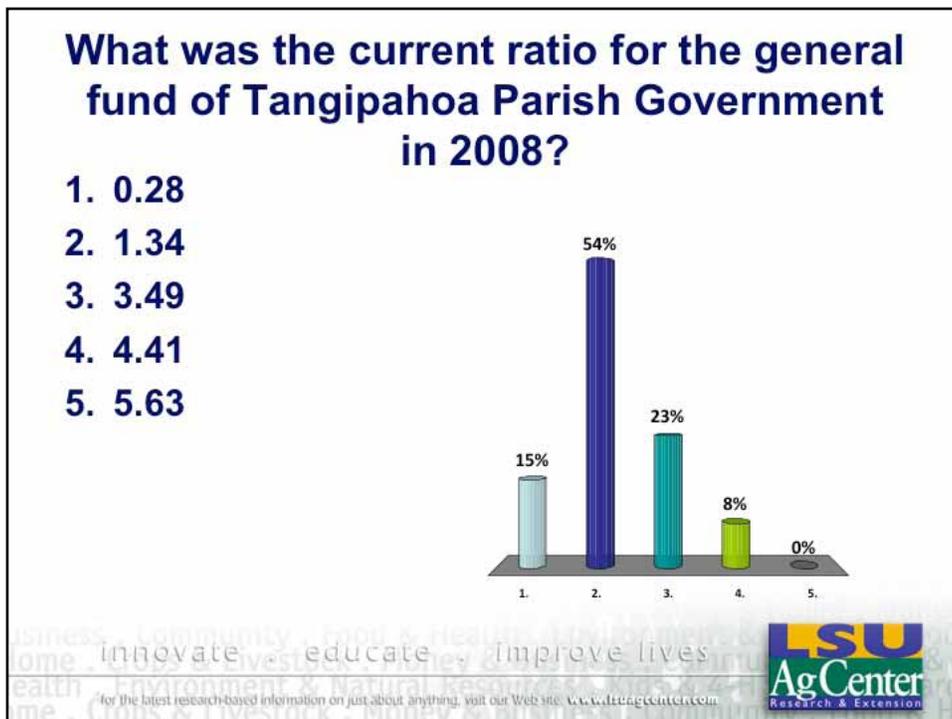
Source: 2008 TPG Audited Financial Statements, SONA.



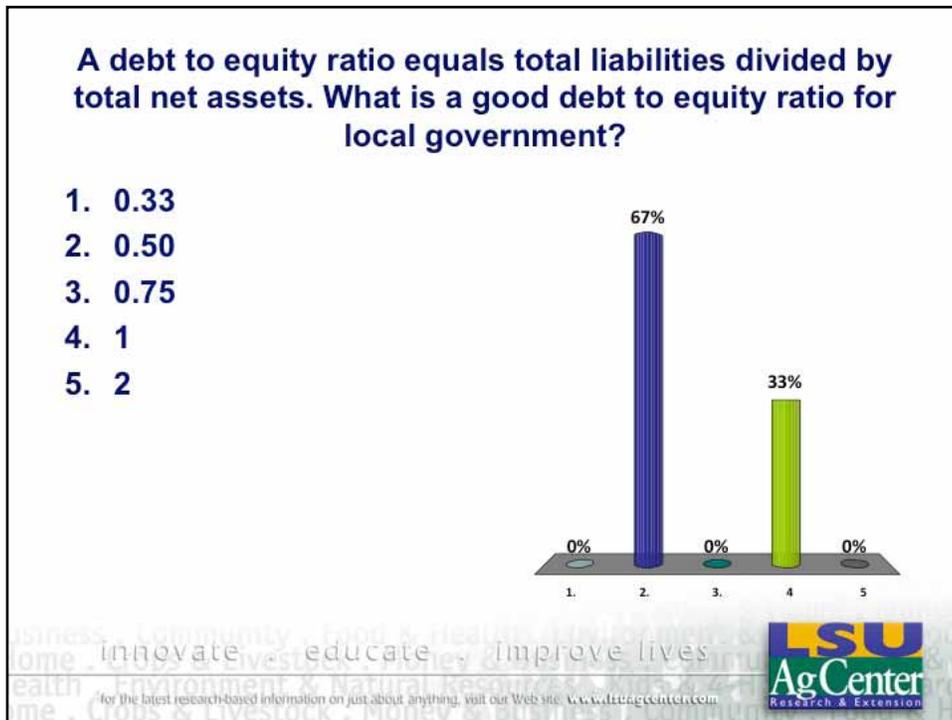
Source: Finkler, Steven. (2010). *Financial Management for Public, Health, and Not-For-Profit Organizations*. Third Edition. Prentice-Hall: Boston, MA.



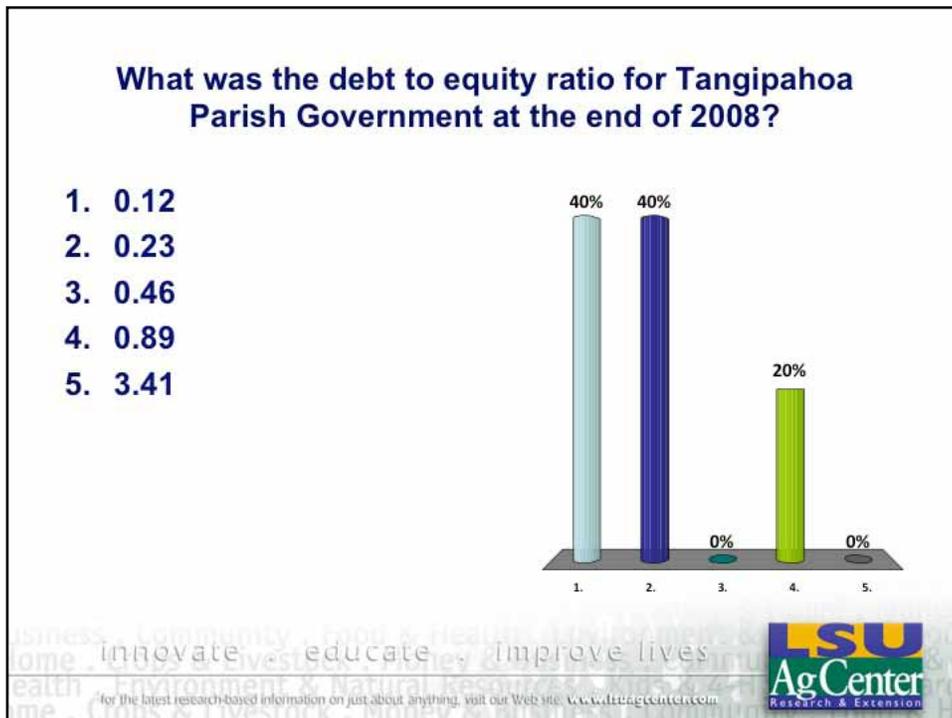
Source: Finkler 2010.

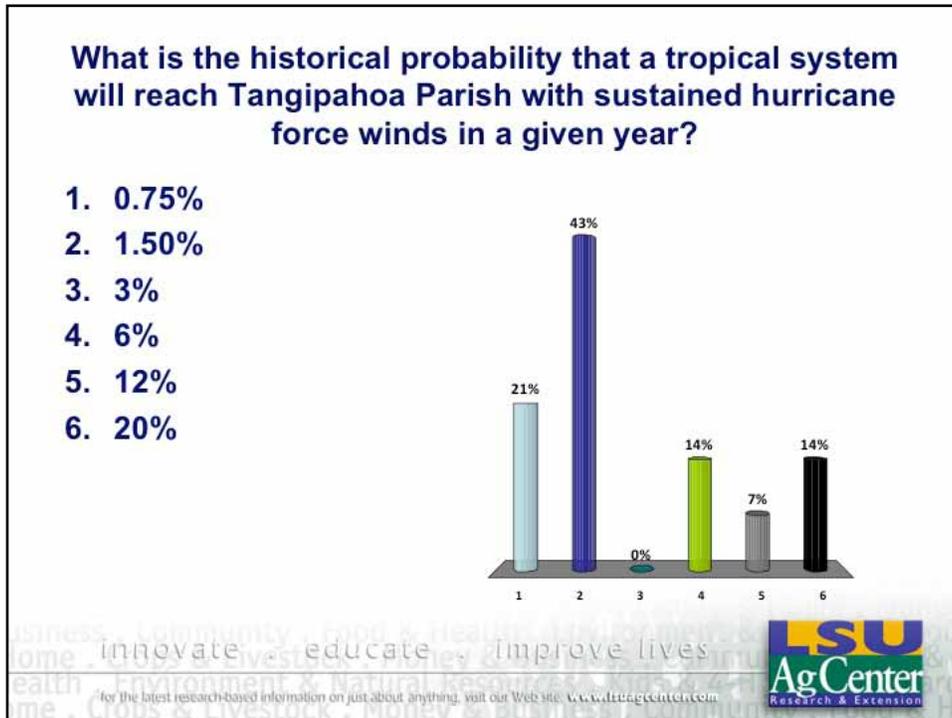


Source: TPG Audited Financial Statements 2008, SONA. Calculated as (cash and cash equivalents + receivables) / (Accounts, salaries, and other payables)

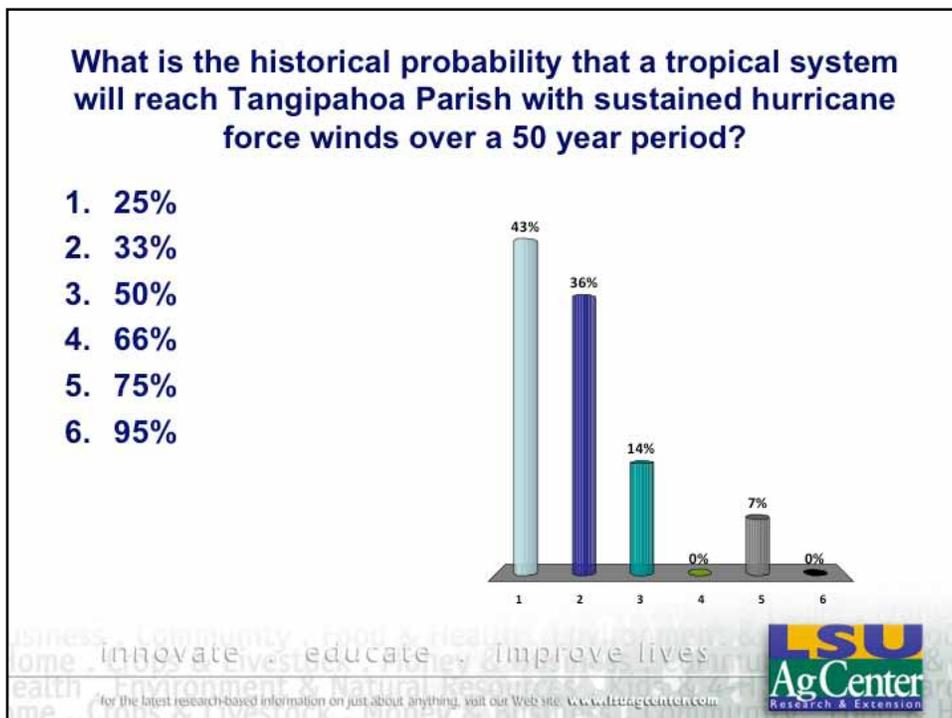


Source: Finkler 2010





Actually 0.80%



Slide Show 2-3 Introduction to Local Government Finances Example

Slide 1

Introduction to Local Government Finances

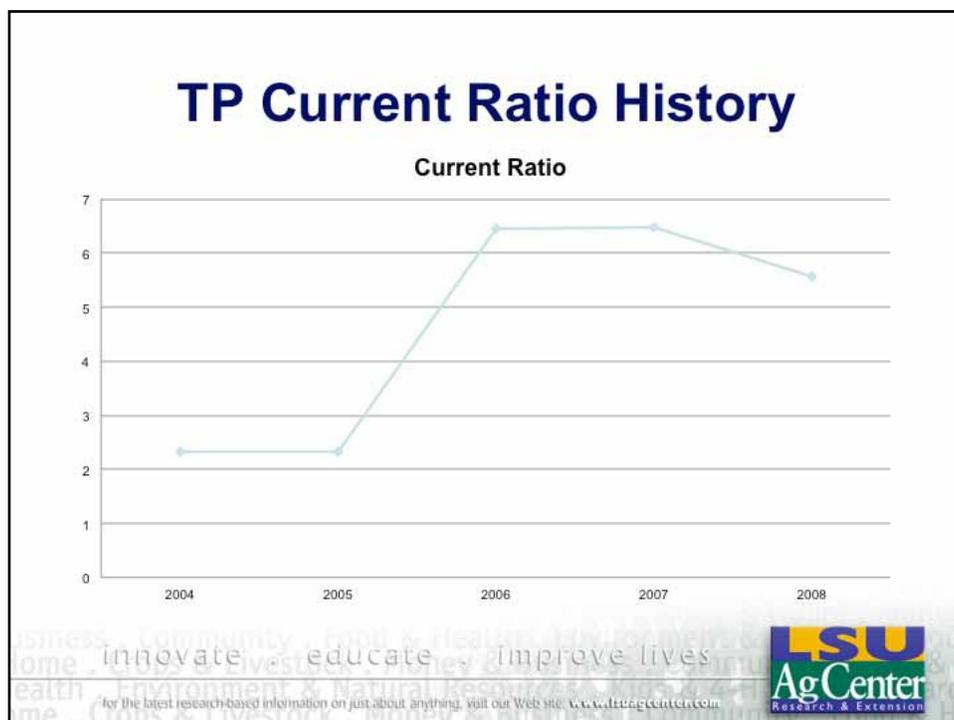
J. Matthew Fannin
October 20th, 2009
Amite, LA

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Slide 2



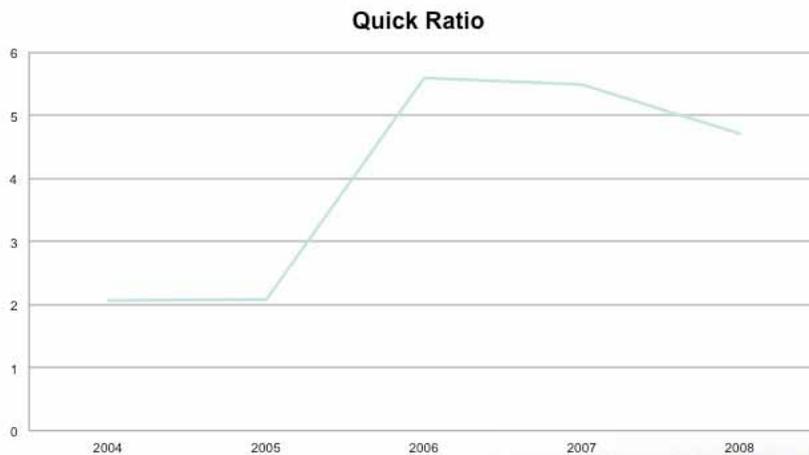
Current Ratio Comparison

Parish	2004	2008	% Change in Ratio
Tangipahoa	2.31	5.56	140.50
Livingston	4.51		
St. Helena	8.40	14.69	74.84
St. John	1.11		
St. Tammany	2.37	2.77	16.60
Washington	1.19	1.04	-12.86

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TP Quick Ratio History



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Quick Ratio Comparison

Parish	2004	2008	% Change in Ratio
Tangipahoa	2.06	4.71	128.30
Livingston	2.85		
St. Helena	8.08	11.11	37.52
St. John	0.91		
St. Tammany	2.37	2.71	14.35
Washington	0.84	0.80	-4.29

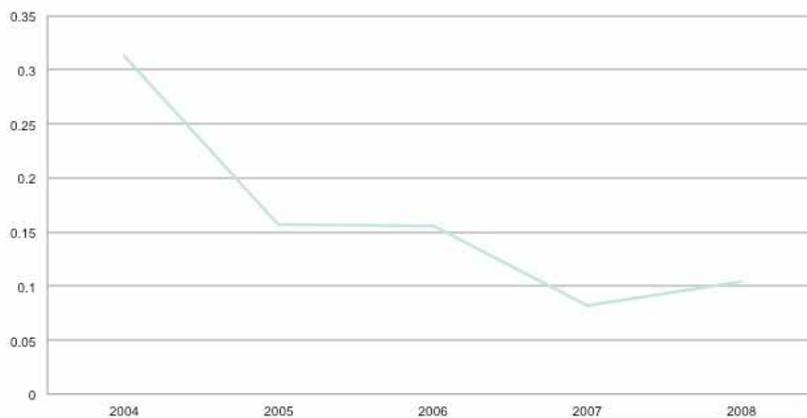
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TP Debt to Asset History

Debt to Asset



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Debt to Asset Ratio Comparison

Parish	2004	2008	% Change in Ratio
Tangipahoa	0.31	0.10	-66.61
Livingston	0.24		
St. Helena	0.17	0.20	19.10
St. John	0.85		
St. Tammany	0.24	0.27	9.22
Washington	0.42	0.39	-8.58

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Debt to Net Asset Ratio

Parish	2004	2008	% Change in Ratio
Tangipahoa	0.45	0.12	-74.37
Livingston	0.32		
St. Helena	0.20	0.25	23.94
St. John	5.49		
St. Tammany	0.32	0.36	12.55
Washington	0.74	0.63	-14.03

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Debt Burden (Dollars Per Capita)

Parish	2004	2008	% Change in Ratio
Tangipahoa	141.26	145.54	3.03
Livingston	138.03		
St. Helena	125.21	335.99	168.34
St. John	1,331.84		
St. Tammany	372.80	660.19	77.09
Washington	501.96	501.51	-0.09

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Module 3: Representative Storm Analysis

Module Overview

In Module 3, a discussion of representative storm analysis will show you how to guide the advisory panel through the process of risk-based decision making. Using the objectives below, the advisory panel will gain a better understanding of local government risk and what that risk means in real and potential cost for government budgets.

Module Objectives:

1. Identify the role of risk in decision making.
2. Quantify the “cost of risk.”
3. Measure risk for local government from tropical storm events.
4. Quantify the “cost” of tropical storm event risk.

Advanced Materials

- Agenda - emailed one week in advance of advisory panel meeting
- Slide Show 3-1 – Introduction to Local Government Financial Risk (No Clickers)
- Slide Show 3-2 – Expected Losses from Tropical Storms to Local Governments (No Clickers)

Timeline of Meeting (Assuming a 6:00 p.m. start time)

6:00 p.m.	Meal
6:20 p.m.	Overview of Agenda
6:30 p.m.	Introduction to Local Government Financial Risk
7:00 p.m.	Expected Losses from Tropical Storms on Local Governments
7:45 p.m.	Questions and Feedback
7:55 p.m.	Schedule Next Advisory Panel Meeting
8:00 p.m.	Adjournment

Suggestions

Slide Show 3-1

- The second meeting in which you present Module 3 will begin with the Introduction of Local Government Financial Risk. This presentation serves as a refresher from the discussions presented in Module 2 on risk. Your objectives from the presentation of this slide show are to:
 - Remind the panel of what “risk” is in general.
 - Remind panel members how they manage “risk” in their daily lives (through products like insurance).

- Remind the panel how risk can be incorporated to identify “expected loss.”
 - Talk about the differences between covering expected loss and an individual’s “risk preference” toward impacting his or her willingness to pay to avoid risk.
- Slides to be customized in Module 3-1 include:
- Slide 7 – Insert case study parish (county) with two comparison parishes (counties) from Parish (County) Probability Excel Spreadsheet.
 - Slide 8 – Adjust first bullet to desired probability for case study parish. Apply CatA and CatB summed cost from Parish Loss Estimates by Storm Spreadsheet. Multiply probability from first bullet and loss estimate of second bullet to show expected loss.
- All other slides remain the same.
- One of the keys you should highlight about slide 18 “Measuring the Odds for Tropical Storms – Selected Parishes” is that these are the probabilities of one storm with sustained winds passing through the parish (county) over the given timelines presented. For areas closer to the shoreline within a parish, these probabilities are likely greater than for those areas farther away from the shore. Data are not available to identify sub-parish probabilities.
- However, sub-parish grid data from the national hurricane center can identify sustained wind speed estimates for all tropical storms that made landfall for the past 20 years.
- You should transition between PPT Slide Show 3-1 “Introduction to Local Government Financial Risk” by stating that one can combine these storm probabilities with actual losses from historic storms to identify the “expected losses” from future tropical natural disaster events. This is the focus of PPT Slide Show 3-2 “Expected Losses from Tropical Storms on Local Governments.”

Slide Show 3-2

- Slides 6-11 will need to be customized, based on the spreadsheet provided by your program trainer from your specific parish, county or municipality.
- When presenting Slides 8-10, remind the panel that “expected losses” are not “actual losses.” If a future storm the size of Katrina passed through your geographic area and your debris removal costs were the same as Katrina, your actual losses would be your “eligible losses” plus any additional costs that FEMA deemed non-reimbursable.
- It should be noted that the unreserved general fund balance is typically a more liquid fund than a local government’s unrestricted net assets. It is more likely that without additional information from the local government, evaluating the percent of the unreserved general fund that would be consumed from future tropical natural disaster costs would be most appropriate to determine if the local government was financially prepared for the next tropical natural disaster of a given size.
- You should transition to PPT Slide 4-1 “Identifying Risk Preferences for Financial Decision Making” by stating that just like an insurance company attempts to identify the level of risk tolerance in determining an insurance premium for your auto or homeowner’s insurance, a community (through its local government) should assess the risk tolerance of its citizens to determine what the community average risk tolerance is in order to identify the optimal planning resources to set aside for the next tropical natural disaster.

Slide Show 3-1 Introduction to Local Government Financial Risk

Slide 1

Introduction to Local Government Financial Risk

Matt Fannin, Ph.D.
November 10th, 2009
Amite, LA



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Slide 2

Objective

- **Identify the Role of Risk in Decision Making**
- **Quantifying the “cost” of risk**
- **Measuring risk for Tangipahoa Parish from tropical storm events**
- **Quantifying the “cost” of tropical storm event risk**



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Risk in Decision Making

- Did you ever hear one of these types of finance tips prior to the current economic recession?
 - If your mortgage rate is 6% and the average return on stocks is 10-12% historically, then you should invest extra savings in the stock market rather than paying on extra on your mortgage

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Risk in Decision Making

- The “spread” on the interest rate suggests you earn 4%-6% more on your money by investing in the stock market
- BUT
- The “return” on your stock investment is “uncertain”
- However, if you pay early on a fixed rate mortgage, the return is **guaranteed!**

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The “Cost” of Risk

- Imagine you have the opportunity to play a lottery by flipping a fair coin
 - If the coin lands heads, you win \$10,000; if the coin lands tails, you lose \$1,000.
- What is the expected value you would receive from playing this lottery?



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The “Cost” of Risk

- The expected value of a lottery is basically the summation of the value of each potential outcome of the lottery times the probability of that outcome
- In our example
$$0.50 \times \$10,000 + 0.50 \times -\$1,000 = \$4,500$$



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The “Cost” of Risk

- **Would you be willing to play this lottery? Or would you be willing to pay someone to avoid playing this lottery?**
- **If so, how much? \$50, \$100, \$500?**
- **If you are willing to pay, you are considered being “risk averse”**
- **The additional amount you are willing to pay to avoid playing the lottery is called the “risk premium”**

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The “Cost” of Risk

- **Suppose you play a different lottery**
 - **You have a 5% probability that you lose \$20,000, and a 95% chance that you lose nothing.**
- **How much would you pay not to play this lottery?**
 - **If you pay more than \$1,000, then you are risk averse**

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Risk Aversion

- In the first example, if you were sufficiently wealthy, you might be willing to play that lottery – even if you are risk averse
- On the other hand, you may likely choose to pay someone else to play that lottery for you – this is typically called in purchasing insurance



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Risk Aversion

- When you can't afford for the negative outcome of a lottery to come up even after one flip, then paying someone to play makes sense to avoid the risk aversion



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Risk Aversion

- **If you are sufficiently wealthy, and are allowed to play the lottery several repeated times, you can either make money or pay out less than if you purchased insurance yourself. This is called “self-insuring”**



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Measuring Financial Risk from Tropical Storm Events

- **Measuring financial risk to a tropical storm is like playing a lottery**
- **First, you need to identify all possible “outcomes” and then assign odds to those outcomes**
- **We’ll deal with identifying the second question first – How might we assign odds to tropical storms?**



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Measuring Odds of Tropical Systems

- **Adopt US Landfall Hurricane Probability Project Approach**
- **Developed by Philip Klotzbach and William Gray, Colorado State Univ**
- **This is the same Dr. Gray that makes annual forecasts for the number of hurricanes to make landfall in the US each year**

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Source: Klotzbach, P, and W Gray. 2008. "United States Landfall Probability Webpage." Tropical Meteorology Project, Colorado State University. Online at <http://www.e-transit.org/hurricane/welcome.html>. Accessed December 18, 2008.

Measuring Odds of Tropical Storms

- **They estimate probabilities of two types of events**
 - **The probability that a tropical system with sustained winds of a tropical storm, hurricane, or major hurricane will make landfall in your county, and**
 - **the probability that a tropical system with threshold wind gusts of similar speeds will make landfall in your county.**

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Measuring the Odds of Tropical Storms

- This is simply calculated by identifying historical (over the past 127 years) the number of storms that make landfall in specified regions of the Gulf and Atlantic seaboard
- The number of storms over that period attributed to your county is attributed to the percentage of shoreline (borderline) your county has as part of that region

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Measuring the Odds of Tropical Storms

- A special mathematical distribution (Poisson) is applied to calculate the single year probability
- A similar but slightly more complicated formula using wind fields is applied to calculate single year wind gust probability
- Also 50 year sustained and wind gust probabilities are estimated

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Measuring the Odds for Tropical Storms

- In addition, to sustained winds estimates, wind gusts are estimated for tropical events. For TP, the probability of one or more wind gusts in a given year is
- >38mph gusts – 31.9% (1), >99.9% (50)
- >73 mph gusts – 9.8% (1), 99.6% (50)
- >110 mph gusts – 3.3%, 82.3% (50)



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Quantifying the Cost of Tropical Storms

- In addition, to using the probabilities of certain wind speed storms in deciding the strength of construction of buildings, it can be helpful in the in financial preparation of local governments
- We can calculate the expected cost in a given year from a tropical system based on the “expected valuation” approach



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Quantifying the Cost of Tropical Storms

- We can simply take the probability that a given storm will make landfall in a given year times the loss that a storm would incur on the parish if it occurred
- Challenges:
 - Identifying the appropriate probability
 - Identifying the appropriate loss incurred
- These issues will be addressed in our parish and municipal loss scenario presentations

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Conclusion

- Risk should be taken into account when identifying returns and loss to individual and public decision making
- Risk aversion suggests paying someone else (e.g. insurance) to bear the risk
- Historical tropical storm activity helps to provide an estimate of risk which can be used to identify expected losses to the public sector

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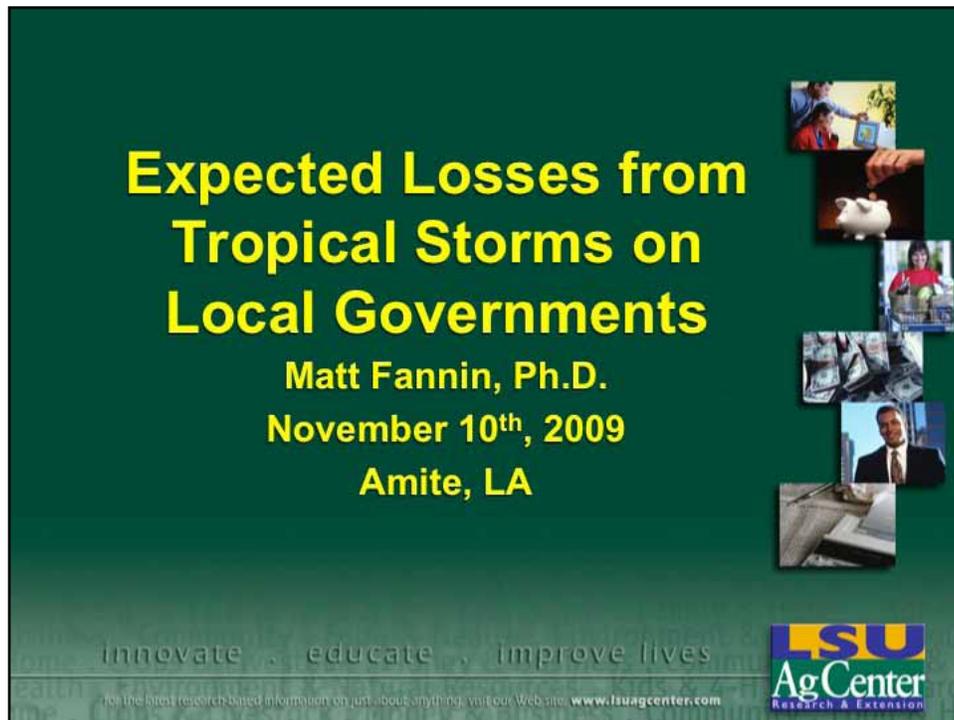
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Slide Show 3-2 Expected Losses from Tropical Storms on Local Governments

Slide 1



Expected Losses from Tropical Storms on Local Governments

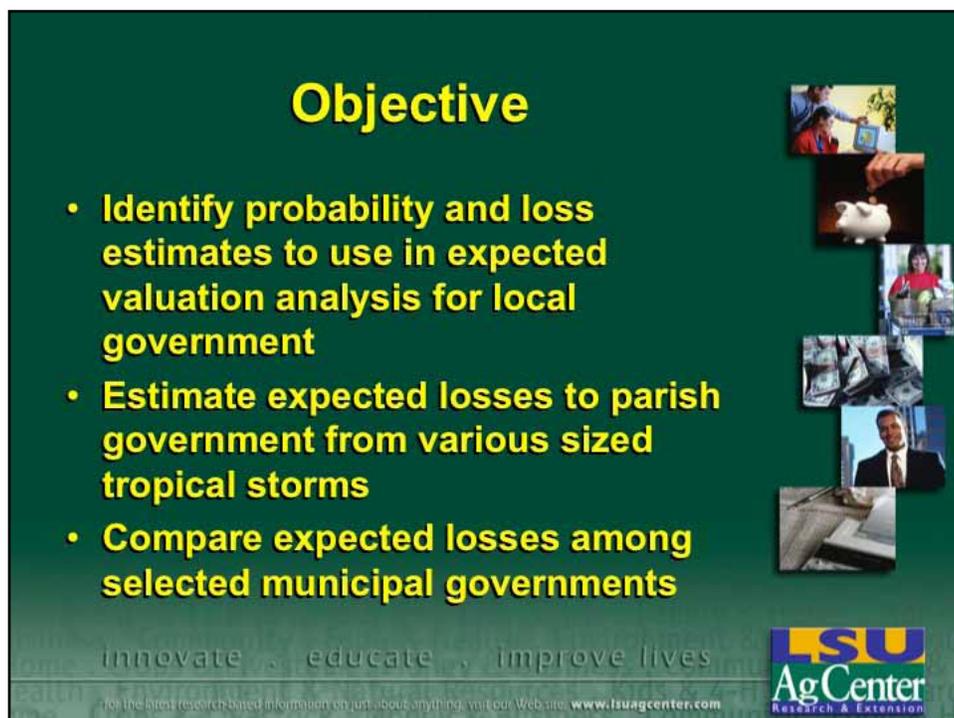
Matt Fannin, Ph.D.
November 10th, 2009
Amite, LA

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Slide 2



Objective

- Identify probability and loss estimates to use in expected valuation analysis for local government
- Estimate expected losses to parish government from various sized tropical storms
- Compare expected losses among selected municipal governments

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Identifying Probability

- We have Dr. Gray's climatology estimates for sustained winds and wind gusts. Which should one use?
 - A single wind gust may blow over a tree, yet sustained winds may weaken a natural or man-made foundation to the point that a gust destroys the structure and creates debris
- A combination of the two may be appropriate

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Identifying Loss

- We can use one of three strategies:
 - Apply historical actual losses incurred for one's own region
 - Simulate losses from computer models for a region
 - Apply projections from inferential statistics on actual losses incurred from historical storms from multiple regions

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Identifying Losses

- For purposes of our calculations, we will apply
 - Simple average of sustained wind and wind gust probabilities
 - Historical loss estimates for one's own region
- Future research plans to apply the inferential statistical approach



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Tangipahoa Parish Expected Costs

- Assumptions
 - Adjusted Katrina losses into 2008 dollars
 - Calculated value of losses X years into the future based on 5% growth rate
 - Calculated discount rate for present value at 3%



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Tangipahoa Parish Expected Costs

- Total costs include only Category A costs (debris removal)
- Do not include Category B Costs (emergency protective measures such as search and rescue, shelter operations, mass feeding, evacuation and reentry efforts, traffic control, etc)

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Tangipahoa Expected Costs

Parish Government	Eligible Losses	Exp Loss 1 Year	Exp Loss 4 Years	Exp Loss 10 Years	Exp Loss 20 Years	Exp Loss 50 Years
Katrina						
Parish Govt	\$4,156,266	\$219,684	\$816,785	\$1,666,628	\$2,342,180	\$2,187,735
Parish and Sel Mun Govts	\$8,558,519	\$452,370	\$1,681,911	\$3,431,895	\$4,822,980	\$4,504,949
Gustav						
Parish Govt	\$4,667,464	\$923,129	\$2,491,033	\$3,473,032	\$3,901,309	\$3,429,284
Parish and Sel Mun Govts	\$5,008,997	\$990,677	\$2,673,310	\$3,727,164	\$4,186,780	\$3,680,215

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Tangipahoa Expected Costs

Selected Municipal Govts	Eligible Losses	Exp Loss 1 Year	Exp Loss 4 Years	Exp Loss 10 Years	Exp Loss 20 Years	Exp Loss 50 Years
Katrina						
Amite City	\$2,975,360	\$157,266	\$584,715	\$1,193,095	\$1,676,704	\$1,566,141
Hammond, City Of	\$1,268,500	\$67,048	\$249,284	\$508,658	\$714,837	\$667,701
Independence, Town Of	\$54,355	\$2,873	\$10,682	\$21,796	\$30,631	\$28,611
Ponchatoula, City Of	\$104,038	\$5,499	\$20,445	\$41,718	\$58,629	\$54,763
Subtotal	\$4,402,253	\$232,686	\$865,126	\$1,765,267	\$2,480,800	\$2,317,215

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Tangipahoa Expected Costs

	Unrestricted Net Assets	Gen Fund Unreserved	Eligible Losses	% of UNA 50 Yr Exp Loss	% of UGF 50 Yr Exp Loss
Katrina					
Amite City	\$1,549,935	\$21,769	\$2,975,360	0.99	0.01
Hammond, City Of	\$3,094,139	\$1,990,181	\$1,268,500	4.63	2.98
Independence, Town Of	\$1,426,051	\$493,508	\$54,355	49.84	17.25
Ponchatoula, City Of	\$4,888,134	\$2,230,735	\$104,038	89.26	40.73
Municipal Portion Katrina	\$10,958,259	\$4,736,193	\$4,402,253	4.73	2.04
TP Govt (Katrina)	\$11,594,800	\$1,818,872	\$4,156,266	5.30	0.83
TP Govt (Gustav)	\$11,594,800	\$1,818,872	\$4,667,464	3.38	0.53
TP Govt (Katrina and Gustav)	\$11,594,800	\$1,818,872	\$8,823,730	2.06	0.32

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Implications and Limitations

- **Most municipalities in TP in reasonable financial shape both in terms of cost share with federal government and short-term liquidity for paying contractors for a single Katrina-type storm**
- **For the parish government and certain municipalities, an evaluation of the flexibility of using non-general fund dollars to cover debris removal should be evaluated**

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Implications and Limitations

- **Municipalities should recognize that this analysis only considers paying for the “expected” cost of one Katrina-type storm**
- **It further assumes that municipal assessed valuation grows at the same rate as the parish average and that unreserved funds earn 3% return annually**

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Implications and Limitations

- Parish and municipal governments should consider additional thresholds of reserves if they want to cover costs of emergency operations (Cat B expenses) or if they want to prepare financially for multiple storms



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Questions?



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Module 4: Risk Profiling for Local Government Financial Disaster Planning

Module Overview

A community's risk tolerance is important to know when developing policy alternatives and best practices for financial planning. Highly risk-averse communities may desire to have lower deductible government insurance policies on government property and larger "rainy day" funds to handle emergencies. This module attempts to better understand the community's aversion to risk.

Module Objective

1) Obtain data necessary to develop an average risk profile for the advisory panel and educate the advisory panel on how the risk profile impacts future local government financial planning.

Advanced Materials

- Agenda - emailed one week in advance of advisory panel meeting
- Slide Show 4-1 – Identifying Risk Preferences for Financial Decision Making (Use Clickers)
- Slide Show 4-2 – Using Risk Profiles in Financial Preparation for Tropical Natural Disasters

Timeline of Meeting (Assuming a 6:00 p.m. start time)

6:00 p.m.	Meal
6:20 p.m.	Overview of Agenda
6:30 p.m.	Identifying Risk Preferences for Financial Decision Making
7:15 p.m.	Using Risk Profiles in Financial Preparation for Tropical Natural Disasters
7:30 p.m.	Questions and Feedback
7:45 p.m.	Schedule Next Advisory Panel Meeting
8:00 p.m.	Adjournment

Suggestions

Slide Show 4-1

- The Identifying Risk Preferences for Financial Decision Making slide show requires no editing other than changing the title slide to fit your community. This slide show is one of two slide shows where we incorporate both the use of clickers to 1) record the responses of advisory panel members to questions, and 2) save these results in a file for future spreadsheet analysis. The steps in executing and saving the advisory panel member responses are included in the Appendix 1 of your manual.
- Please be aware that, unlike the use of clickers in Module 2, advisory panel members will NOT see the panel's overall results. The reason for this is the risk elicitation technique requires an iterative process without revealing results to work effectively. Revealing these results instantly would bias future responses resulting in a biased risk measurement.

- The risk elicitation slide show should NOT be performed without proper training by either witnessing your trainer execute the slide show, or by you participating as a mock advisory panel member in a train-the-trainer session.
- Your trainer will give you directions on how to extract the results and conduct the statistical analysis necessary to present the results in Module 5.

Slide Show 4-2

- Slide Show 4-2 first reminds advisory panel members of the expected loss analysis from Module 3. Further, it describes how a “risk premium” would be calculated from slide show 4-1 and used to adjust losses necessary to construct revised resource thresholds necessary to be financially prepared for the next tropical natural disaster.
- Please note that if your community and advisory panel is not willing to participate in four advisory panel meetings, one can still successfully complete the program by moving slide show 4-1 as a third slide show in Module 3 and eliminating slide show 4-2. This can be performed without loss of continuity to the advisory panel and the educational process for the community.

Slide Show 4-1 Identifying Risk Preferences for Financial Decision Making

Slide 1

Identifying Risk Preferences for Financial Decision Making

**Tangipahoa Parish
Amite, LA
Tuesday, March 15th, 2010**

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Slide 2

Rules of Activity

- **You will be presented with different “lotteries” that a trusted source offers you. We would like you to tell us how much you would pay this source to play each of the lotteries. The “correct” answer is the amount that you would pay to play each of the lotteries.**

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Example: Suppose a friend offered you a lottery where a fair coin was tossed. If it landed on heads you would receive \$10,000 and if it landed on tails you would receive \$0. How much would you pay to play this lottery?

1. \$0 - \$1,000
2. \$1,001 - \$2,000
3. \$2,001 - \$4,000
4. \$4,001 - \$5,000
5. \$5,001 and above



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Example Explained

- In the above example, if you would have answered \$1,001 to \$2,000, (assuming we take the midpoint \$1,500)
- If heads popped up, your net gain would have been \$8,500 ($\$10,000 - \$1,500$)
- If tails popped up your net gain would have been -\$1,500 ($\$0 - \$1,500$)

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Lottery 1: Heads or Tails: \$5,000 Heads - \$0 Tails

- 1. \$0 - \$500**
- 2. \$501 - \$1,000**
- 3. \$1,001 - \$1,500**
- 4. \$1,501 - \$2,500**
- 5. > \$2,500**



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Lottery 2: Heads or Tails: \$10,000 Heads - \$5,000 Tails

- 1. \$5,000 - \$5,500**
- 2. \$5,501 - \$6,000**
- 3. \$6,001 - \$6,500**
- 4. \$6,501 - \$7,500**
- 5. > \$7,500**



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Lottery 3: Heads or Tails: \$15,000 Heads - \$10,000 Tails

1. \$10,000 - \$10,500
2. \$10,501 - \$11,000
3. \$11,001 - \$11,500
4. \$11,501 - \$12,500
5. > \$12,500



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Lottery 4: Heads or Tails: \$50 Heads - \$0 Tails

1. \$0 - \$5
2. \$6 - \$10
3. \$10 - \$15
4. \$16 - \$25
5. > \$25



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**Lottery 5: Heads or Tails:
\$10,000 Heads - \$20,000 Tails**

1. \$10,000 - \$11,000
2. \$11,001 - \$12,000
3. \$12,001 - \$13,000
4. \$13,001 - \$15,000
5. > \$15,000



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**Lottery 6: Heads or Tails:
\$5,000 Heads - \$15,000 Tails**

1. \$5,000 - \$6,000
2. \$6,001 - \$7,000
3. \$7,001 - \$8,000
4. \$8,001 - \$10,000
5. > \$10,000



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New Activity

- You own a stock that must be sold at the end of the trading day tomorrow. Based on your own information, there is a 50% chance for each of two outcomes.
- A broker presents you with five “insurance options” options where you pay him to take on the next day’s risk. How much would you be willing to pay him for this “insurance”?



Example: How much would you be willing to pay in insurance to avoid these potential outcomes for your stock?

50%: Lose \$5,000 50% Lose \$0

1. \$5,000 - \$4,500
2. \$4,499 - \$4,000
3. \$3,999 - \$3,500
4. \$3,499 - \$2,500
5. <\$2,500



How much stock insurance would pay to avoid the following potential outcomes?
50% Lose \$1,000
50% Lose \$0

- 1. \$1,000 - \$900**
- 2. \$899- \$800**
- 3. \$799 - \$700**
- 4. \$699 - \$500**
- 5. <\$500**



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How much stock insurance would pay to avoid the following potential outcomes?
50% Lose \$5,000
50% Lose \$10,000

- 1. \$10,000 - \$9,500**
- 2. \$9,499 - \$9,000**
- 3. \$8,999 - \$8,500**
- 4. \$8,499 - \$7,500**
- 5. <\$7,500**



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How much stock insurance would pay to avoid the following potential outcomes?
50% Lose \$10,000
50% Lose \$0

- 1. \$10,000 - \$9,000**
- 2. \$8,999 - \$8,000**
- 3. \$7,999- \$7,000**
- 4. \$6,999- \$5,000**
- 5. <\$5,000**



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How much stock insurance would pay to avoid the following potential outcomes?
50% Lose \$10,000
50% Lose \$20,000

- 1. \$20,000 – 19,000**
- 2. \$18,999 - \$18,000**
- 3. \$17,999- \$17,000**
- 4. \$16,999- \$15,000**
- 5. <\$15,000**



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How much stock insurance would pay to avoid the following potential outcomes?
50% Lose \$100
50% Lose \$0

1. \$100 – 90
2. \$89 - \$80
3. \$79- \$70
4. \$69- \$50
5. <\$50



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How much stock insurance would pay to avoid the following potential outcomes?
50% Lose \$4,000
50% Gain \$1,000

1. \$4,000 - \$3,500
2. \$3,499 - \$3,000
3. \$2,999 - \$2,500
4. \$2,499 - \$1,500
5. <\$1,500

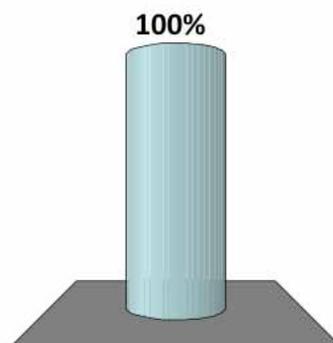


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Enter question text...

1. Enter answer text...



Slide Show 4-2 Using Risk Profiles in Financial Preparation for Tropical Natural Disasters

Slide 1

Using Risk Profiles in Financial Preparation for Tropical Natural Disasters

Matt Fannin
Tropical Storm Recovery Finance Committee
March 16, 2010
Amite, LA



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Slide 2

Why do we try to reduce the negative outcomes of risk?

- **Smooths over life's uncertainties**
 - **Get immunized as a child to avoid the probabilities of obtaining childhood diseases**
 - **Go to the gym and exercise to keep “physically fit” to avoid probabilities of poor health outcomes later in life**



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Why do we try to reduce the negative outcomes of risk?

- Reduce unpredictable and undesirable outcomes from events that have potential negative financial outcomes
 - Buy homeowner's insurance to avoid full replacement cost of rebuilding one's home after destroyed from tornado/hurricane
 - Buy life insurance to avoid financial hardship of spouse/child to unforeseen death



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Insurance

- In Louisiana, we are very familiar with insurance, because we face many risky events
- Tornadoes, floods, hurricanes, bad air, etc.
- We recognize this due to the high premiums that we pay on many insurance policies in the state



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How do insurance companies determine premiums?

- While many dimensions have developed over time, conceptually it is based on two dimensions:
 - The expected loss from the event occurring
 - The risk profile of the individual purchasing insurance



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Expected Loss

- As we've stated in our last meeting, expected loss (EL) is basically the probability of all potential outcomes from an event occurring times the financial loss from each outcome
- From a tropical storm/hurricane perspective, we are referring to whether or not it passes through our parish with a given wind speed



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Measuring the Odds for Tropical Storms – Selected Parishes

Parish	Storm Type	1 Year Prob	4 Year Prob	10 Year Prob	20 Year Prob	50 Year Prob
Tangipahoa	Named Storm	1.63%	6.35%	15.12%	27.96%	55.95%
Tangipahoa	Hurricane	0.78%	3.09%	7.54%	14.52%	32.44%
Tangipahoa	Intense Hurricane	0.39%	1.56%	3.85%	7.56%	17.84%
St. Tammany	Named Storm	5.29%	19.53%	41.91%	66.25%	93.38%
St. Tammany	Hurricane	2.68%	10.30%	23.80%	41.93%	74.30%
St. Tammany	Intense Hurricane	1.24%	4.88%	11.77%	22.15%	46.52%
Cameron	Named Storm	7.74%	27.56%	55.34%	80.05%	98.22%
Cameron	Hurricane	3.93%	14.82%	33.03%	55.15%	86.53%
Cameron	Intense Hurricane	1.24%	4.88%	11.77%	22.15%	46.52%

*Based on 127 Year Climatology



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Evaluating Expected Loss – Tangipahoa Hurricane

- **Expected Probabilities Over 50 years of a Katrina Type tropical system with Hurricane Force winds is 32.44%**
- **Assume Katrina Cat A (Debris Removal) and Cat B (Emergency Operations Costs) at approximately \$5 million**
- **Total expected loss over 50 years is \$5 million x 0.3244 = \$1.62 million in today's dollars**



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Risk Premium

- However, most individuals for larger investments (home, health, auto) pay more than the expected loss from a negative event when they pay insurance, they pay a premium called a risk premium



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Risk Premium

- From an academic/classroom perspective, the risk premium is the amount you are willing to pay above the expected loss to not have pay the larger negative financial outcome of an event
- **Insurance Premium = Expected Loss + Risk Premium**



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Risk Premium

- **Of course, the risk premium is where insurance companies make their money – they insure enough individuals that over time their payout is the expected loss and the insurance companies' profits are the risk premiums**



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Risk Premium

- **You as a purchaser of insurance reveal your risk preference by choosing the size of your deductible and/or co-payment**
- **If you are highly risk averse, you choose a lower deductible and co-payment**



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Measuring Risk Preference

- Our lottery and stock event exercises were examples of hypothetical risk preference elicitation
- By providing repeated events, we are able to assess a level of risk preference, its consistency, and how it changes given the financial magnitude of the event



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Measuring Risk Preference

- Each hypothetical outcome allowed you to purchase the right to either enter into or opt of the risky event
- The price you were willing to pay is called the Certainty Equivalent (CE)
- The risk premium is the difference between the Expected Loss and Certainty Equivalent
- $RP = EL - CE$
- As long as you are risk averse, this value is always positive



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Risk Preference and Community Risk Taking

- There are multiple limitations to this approach to apply to measuring community risk preferences
 - Difference between hypothetical risk preference and revealed risk preferences
 - “Representative Sample” of those participating in the risk profiling exercise compared to the average parish population
 - Difference between community decision maker’s risk profile for their individual financial decisions versus the risk they take on behalf of the community



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Application of Risk Profiling to Financial Preparation

- A proper assessment of the community’s risk profile can improve the proper resources needed to prepare for future financial disaster costs
- Adding the expected loss plus an upward adjustment for the risk premium can provide an optimal level of resources to prepare for the cost of the next tropical system



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Conclusion

- Risk Profiling elicits the “extra” resources necessary for an individual to feel comfortable with managing risk
- To the extent one can obtain a representative community’s risk profile, the community can save the optimal level of resources to prepare for the next tropical natural disaster



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Module 5: Identifying Financial Recovery Options from Natural Disasters

Slide Show 5-1

Module Overview

To date, the financial disaster resiliency program has focused on educating the advisory panel about the local economics and government's financial health, its financial vulnerability to future tropical natural disasters, the cost of future tropical natural disasters and relative financial capacity to handle these disasters. This module attempts to pull the knowledge gained to date and have the advisory panel choose from among various options and determine a preferred policy strategy for its local government to move toward to maintain financial resiliency to future tropical natural disasters.

Module Objective

- 1) By reviewing research results from previous meetings, the local advisory panel chooses among alternative policy options to improve or maintain its local government's financial disaster resiliency.
- 2) This slide show has two objectives: 1) a review of what has been learned to-date about the local government's financial disaster resiliency condition and 2) what policy options it should consider going forward to address that condition.

Advanced Materials

- Agenda - emailed one week in advance of advisory panel meeting
- Slide Show 5-1 – Identifying Alternatives for Financing Future Natural Disasters (Use Clickers)

Timeline of Meeting (Assuming a 6:00 p.m. start time)

6:00 p.m.	Meal
6:20 p.m.	Overview of Agenda
6:30 p.m.	Identifying Alternatives for Financing Future Natural Disasters
7:30 p.m.	Questions and Feedback
8:00 p.m.	Adjournment

Suggestions

Slide Show 5-1

- This slide show is the only one in Module 5 and incorporates risk preference analysis results from the Module 4 slide show (Risk Preferences). Please find the following slides that will need to be edited to modify the slide show for your particular community.
 - Slide 1 – Change title to fit Community, Date and Facilitators.
 - Slides 3 and 4 – Replace with appropriate slides from Module 2-2 slide show.
 - Slide 7 – Replace with appropriate slide from Module 4-2 slide show.

- Slide 8 – Replace with appropriate slide from Module 4-2 slide show.
 - Slides 10-12 – Provide appropriate results and interpretation from Lottery and/or Insurance results based on descriptive statistics (from program trainer).
 - Slides 13-30 – Develop with assistance of scenarios for policy alternatives with program trainer.
 - Slides 25-28 are recording policy alternative options defined by you the facilitator. Clickers will be used to record advisory panel responses. Similar steps to record and save results, based on steps in Appendix 1, were used in Slide Show 4-1.
- Since this is the last advisory panel meeting, it is important to inform the community how their overall efforts will be used. You should note that a summary report will be created and presented to the parish (county) or municipal council, commission or jury. While their results do not constitute formal recommendations, they do reveal the average preference of the advisory panel.
- It is suggested that the advisory panel continue to be updated after the end of the advisory panel meetings. Alternatives include submitting a draft of the final proposal for review and comment.
- As an alternative, if you opt to incorporate slide show 4-1 into Module 3 and eliminate the meeting in Module 4, then you can add a meeting to present the results of the policy alternatives. If you develop a draft of the final report before that meeting, it can be distributed and discussed at this final meeting. This approach still keeps to a maximum of four meetings, but more directly engages the advisory panel as to the final report that would be presented to the elected officials of the local government.

Slide Show 5-1 Using Risk Profiles in Preparation for Tropical Natural Disasters

Slide 1

**Identifying Alternatives
for Financing Future
Natural Disasters**

Matt Fannin
**Tropical Storm Recovery
Finance Committee**
June 22, 2010
Amite, LA



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Slide 2

What We Have Learned

- **The financial position of Tangipahoa Parish Government is solid relative to rule of thumb indicators for financial health**
- **These indicators suggest that for the present, the parish governments financial position is sufficiently solid to meet its short term and long term financial obligations**



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Debt to Asset Ratio Comparison

Parish	2004	2008	% Change in Ratio
Tangipahoa	0.31	0.10	-66.61
Livingston	0.24		
St. Helena	0.17	0.20	19.10
St. John	0.85		
St. Tammany	0.24	0.27	9.22
Washington	0.42	0.39	-8.58

Rule of Thumb: Debt to Asset Ratio should not exceed 1.

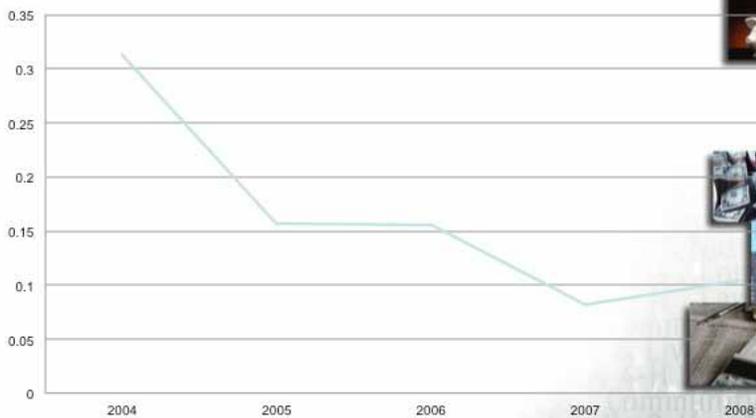
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TP Debt to Asset History

Debt to Asset



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What Have We Learned

- Like individuals, the public sector faces events with uncertain outcomes
- When we can't assign a probability to outcomes, we call it "uncertainty"
- When we can assign a probability to all possible outcomes of an event, we call it "risk"



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What we have Learned

- Tangipahoa Parish has a non-trivial, positive probability of getting hit by a named storm within the working time frame of elected officials (4 years) as well as longer planning periods (10, 20 and 50 years)
- These probabilities multiplied by the financial costs that these events inflict on local government identify the "expected loss" from the risky event



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Measuring the Odds for Tropical Storms – Selected Parishes

Parish	Storm Type	1 Year	4 Year	10 Year	20 Year	50 Year
		Prob	Prob	Prob	Prob	Prob
Tangipahoa	Named Storm	1.63%	6.35%	15.12%	27.96%	55.95%
Tangipahoa	Hurricane	0.78%	3.09%	7.54%	14.52%	32.44%
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Cameron	Named Storm	7.74%	27.56%	55.34%	80.05%	98.22%
Cameron	Hurricane	3.93%	14.82%	33.03%	55.15%	86.53%
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*Based on 127 Year Climatology



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Tangipahoa Expected Costs

Parish Government	Eligible Losses	Exp Loss	Exp Loss	Exp Loss	Exp Loss	Exp Loss
		1 Year	4 Years	10 Years	20 Years	50 Years
Katrina						
Parish Govt	\$4,156,266	\$219,684	\$816,785	\$1,666,628	\$2,342,180	\$2,187,735
Parish and Sel Mun Govts	\$8,558,519	\$452,370	\$1,681,911	\$3,431,895	\$4,822,980	\$4,504,949
Gustav						
Parish Govt	\$4,667,464	\$923,129	\$2,491,033	\$3,473,032	\$3,901,309	\$3,429,284
Parish and Sel Mun Govts	\$5,008,997	\$990,677	\$2,673,310	\$3,727,164	\$4,186,780	\$3,680,215

Note: Includes Debris removal and cleanup only. Does not include emergency operations costs.



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Determining Optimal Reserves

- While expected losses give you a cost based on your odds of an outcome occurring, they do not take into account the subjective human element – the aversion to risk
- If we incorporate the tools of insurance to the problem, we may be able to quantify this “human” dimension



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Lottery Example Total

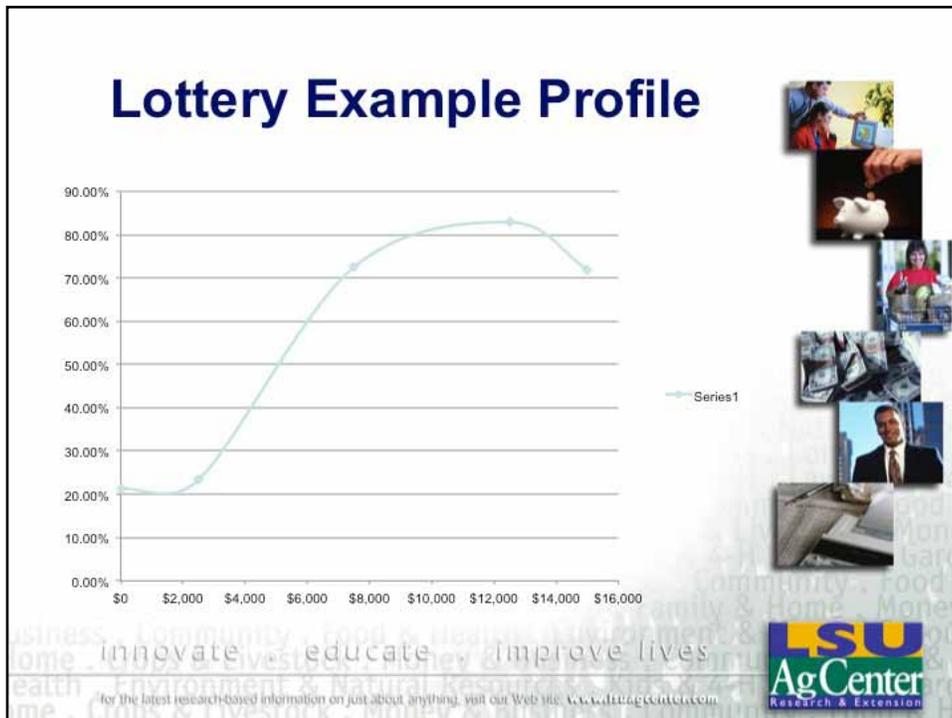
	Expected Loss	Risk Premium	Percent
Lottery 1	\$25	\$20	21.33%
Lottery 2	\$2,500	\$1,916	23.34%
Lottery 3	\$7,500	\$2,062	72.50%
Lottery 4	\$12,500	\$2,139	82.89%
Lottery 5	\$15,000	\$4,200	72.00%
Weighted Average	\$37,525	\$10,337	72.45%



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Lottery Profile Interpreted

- **In the table, we see that risk premium is the amount we would pay to play the lottery. This amount is less than the expected value of the lottery. Hence, the advisory panel is risk averse.**
- **From the figure, we see that as the expected value increases, we are willing to pay much less to play the lottery. This means the advisory panel is increasingly risk averse.**
- **As the value of the negative outcome increases (even when the odds are the same), we pay less to play the lottery (or would pay more to avoid the lottery if the outcomes are negative)**

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Scenarios

- If we assume a 3% discount (interest rate), then the net present value of the expected loss totals \$443,988
- If we treat the risk premium percent (72.45) as an additional amount the parish would like to keep on hand to be “safe” then that value would total \$765,657
- This could be interpreted the level of a reserve fund if you funded it fully and did not touch it except to pay out disaster recovery costs



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Scenarios

- If we assume a 3% discount (interest rate), then the net present value of the expected loss totals \$443,988
- If we treat the risk premium percent (72.45) as an additional amount the parish would like to keep on hand to be “safe” then that value would total \$765,657
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Scenarios

- If one decided to start a fund from scratch to pay the expected loss from a Katrina like storm, one would pay \$3,244 per month for 50 years or \$5,594 per month if one includes the risk premium.
- If one decided to pay a fund monthly to cover both a Katrina like storm and a Gustav type storm, the payment would be \$7,440 per month or \$12,831 per month with the risk premium



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Alternatives

- Fortunately, there are many ways to fund tropical storm/hurricane recovery costs. There are many short-term ways to finance storm recovery costs. They include:
 - Liquidity of dedicated funds
 - Liquidity of undedicated funds
 - Debt financing



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Tradeoffs of Alternatives

- **Liquidity of existing restricted funds**
 - **Advantage: Use restricted funds to cover costs.**
 - **Disadvantage: Some restricted funds cannot be spent on cleanup and debris removal. Removes liquidity and leverages day-to-day operations of restricted funds**



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Tradeoffs of Alternatives

- **Liquidity of undedicated funds**
 - **Advantage: It minimizes potential problems financing day-to-day operations**
 - **Disadvantage: Makes parish more vulnerable to future financial emergencies; lowers liquidity position of overall government**



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Tradeoffs of Alternatives

- **Debt Financing**
 - **Advantage: Does not impact liquidity of local government. Provides multiple year period for payback**
 - **Disadvantage: Increases debt burden and lowers financial health. May not be available to parishes with poor financial condition.**



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Which of the following alternatives do you prefer?

1. Use existing restricted fund or creation of new dedicated funds
2. Use undedicated funds (from general fund)
3. Use debt financing



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Which of the following alternatives do you prefer?

- 1. Use existing restricted fund or creation of new dedicated funds**
- 2. Use undedicated funds (from general fund)**



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Which of the following alternatives do you prefer?

- 1. Use undedicated funds (from general fund)**
- 2. Use debt financing**



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Which of the following alternatives do you prefer?

1. Use existing restricted fund or creation of new dedicated funds
2. Use debt financing



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Unrestricted Funds in General Fund in Tangipahoa Parish

- **Unreserved funds in the general fund in the parish totaled \$1,818,872 at the end of 2008. Total general fund balance was \$2,617,974**
- **Many accountants advise to keep some liquidity on hand as much as 3 months of expenses, or 25% of total.**
- **25% of general fund expenses total \$2,359,117**



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Which of the following alternatives do you prefer given general fund balance information provided?

- 1. Use existing restricted fund or creation of new dedicated funds**
- 2. Use undedicated funds (from general fund)**
- 3. Use debt financing**



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Assume you chose to use a restricted or dedicated fund, what would you choose?

- 1. Vote to open up restricted funds (like solid waste, roads, etc) to finance disaster storm recovery only**
- 2. Create a new dedicated fund restricted to finance disaster storm recovery only financed by excess reserves**



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Assuming you used undedicated funds, what would you choose?

- 1. Use unrestricted funds regardless of size of unrestricted funds**
- 2. Use unrestricted funds up to a point where sufficient liquidity remained (remainder funded through restricted funds or debt financing)**



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Assume you created a dedicated fund for disaster recovery, how would you structure it?

- 1. Fund for probability of 50 years or greater for one Katrina type storm**
- 2. Fund for probability of 50 years or greater for a Katrina and a Gustav type storm**
- 3. Fund for more than two storms**
- 4. None of the above**



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Next Steps

- **Generate a draft report of findings for your review that covers financial health indicators as well as alternative policy options**
- **After comment and feedback from panel, present key findings at a parish council meeting**
- **Develop a draft program manual for application of technique to other parishes**



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Thank You!



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Post Meeting Deliverables and Action Steps

On completion of Module 5, the local advisory panel will have completed the participatory research process and identified one or more strategies for addressing financing future tropical natural disaster emergency operations and clean up and debris removal costs. At this point, it is important for you as the extension facilitator to maintain contact with the local government and advisory panel that have been a part of this process. It should be noted that to transform the knowledge gained into actual decision making, the costs and policy alternatives need to be translated from the advisory panel to decision making authorities. These decision making authorities include the county (parish) government or municipal government elected bodies who can make changes to policies that impact revenues and expenditures in their budget. The goal is to transform the knowledge into “impacts” and eventually “outcomes.” Key actions steps include:

- Prepare, disseminate and present case study report to advisory panel and elected leaders.
- Disseminate web-based survey instrument for post advisory panel evaluation.
- For facilitators finishing up their first or second financial disaster resiliency Extension program, a meeting with the program trainer, or other experienced agent, should be conducted to identify strengths and weaknesses of the program. Questions or issues that remained unanswered or challenges facilitators found with the current program should be sent back to Extension program authors for program and manual updates.

Extension facilitators should check back with local stakeholder communities on a periodic basis to identify any key policy changes made and document them. Given these changes, extension facilitators should consider follow-up meetings with local governments in two to three years after any policy changes were made to see if any measurable outcomes can be identified through increased financial condition or disaster reserves funds developed or expanded. These findings should be disseminated back to extension program developers to highlight success stories in future iterations of the manual.

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Appendix 1

Steps in Executing a TurningPoint-enabled PowerPoint File

- 1) **Click on TurningPoint 2008 program.** *This will open PowerPoint with the TurningPoint 2008 add-on installed into your PowerPoint software. Click on the TurningPoint 2008 Tab.*
- 2) **Test the advisory panel clickers by clicking on “Tools/Settings/Polling Test Tab” and click the “Start Test” button.** *Each respondent should have their clicker devices ID show up under the Device ID column on the screen. If not, please provide a backup clicker to the respondent. When all have been verified, click “Done” and close the TurningPoint-Settings Box.*
- 3) **Click the Reset button and select the “Session” option.** *This activity deletes all previous data that may have been collected from a previous use of the slides.*
- 4) **Next, click on the slide show Tab and “From Beginning” to start the slide show.** *Slides that do not record responses will not have numbered options. You discuss these slides.*
- 5) **After you click to the first numbered tab, click once only to turn on the timer and allow advisory panel respondents to make their selection. DO NOT click your mouse or the next arrow a second time. This will immediately close the polling and not allow all respondents to complete the question. YOU CANNOT GO BACK AND REDO THE QUESTION.** *Once the timer gets to zero, the program automatically closes polling. You are then to move to the next slide by clicking once. This will move you to the next polling slide (a slide with numbered options). You then click one more time to start the timer. You continue this process until you get to the end of a section and/or all numbered slides in the slide show.*
- 6) **Once you have completed the slide show, click on the TurningPoint 2008 tab. Click on the “Save Session” tab. Save your file in an appropriate place where you can take it back to the office for analysis.**

Analyzing your data should not be performed in isolation but in tandem with a previous facilitator of a financial disaster resiliency case study. Analysis results from a previous facilitator will be used in constructing your results slides in Module 4.

Appendix 2

Financial Ratio Analysis Measures.

Ratio Type	Ratio Name	Ratio Name Abbreviation	Ratio Calculation
Profitability Ratios	Return on Equity (Return on Net Assets)	ROE	Net Surplus (Deficit) / Net Assets
	Return on Assets	ROA	Net Surplus (Deficit) / Total Assets
	Profit Margin	PM	Net Surplus (Deficit) / Total Revenues
Liquidity Ratios	Current Ratio	CR	Current Assets / Current Liabilities
Capital Structure Ratios	Debt to Equity	D/E	Total Liabilities / Equity
	Long-Term Liabilities to Total Assets	LTL/TA	Long-Term Liabilities / Total Assets
Performance Ratios	Assets Turnover	AT	Total Revenues / Total Assets
	Tax Revenues to Total Revenues	Tax/TR	Tax Revenues / Total Revenues
	Operating Ratio	OR	Total Revenues / Total Assets