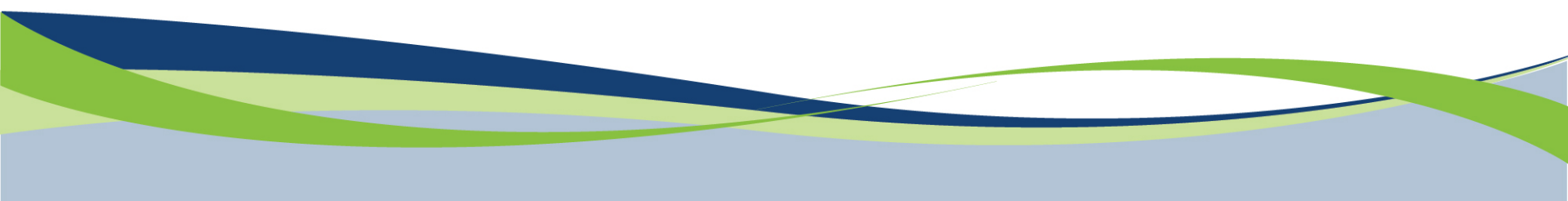# Public Health PBRN
Monthly Virtual Meeting
August 16, 2012

Forecasting the Impact of the Economic Recession on the Financing of Local Public Health Departments in Wisconsin

A *Quick Strike* research project supported through the
Wisconsin Public Health Practice-Based Research Network

Andrew Reschovsky, Ph.D.
Susan Zahner, DrPH, RN
Kohei Enami
Senay Goitom
University of Wisconsin-Madison

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Quick Strike Project Goals

- Develop a model to forecast the revenues that will be available to Wisconsin LHDs over the next few years -- 2012 through 2014

  - Assist LHDs in planning how to maintain core services in a difficult fiscal environment

  - Develop a *tool* that will allow individual LHDs to predict future resource availability under a set of different assumptions

- Develop revenue forecasting methodology that should assist analysts in other states in building their own LHD revenue forecasting capacity

Outline of Today's Presentation

- Discuss the economic and fiscal environment in the U.S. and its implication for the financing of local public health departments

- Describe our revenue forecasting methodology for LHDs in Wisconsin

  - Disaggregated approach by revenue source
  - When possible, forecasts based on LHD revenue data for the period 2002 to 2009
  - Spelling out a range of assumptions and developing a methodology to allow the assessment of different assumptions on future revenues

- Presentation of Wisconsin results

- Conclusions

The Current Economic Environment

- Recovery from the Great Recession has been very slow
  - The recession officially ended in June 2009, but growth has been slow
  - July 2012 national unemployment rate is 8.3% (in 2007 it was under 5%)
  - Political gridlock and Euro crisis may further retard recovery

- Wisconsin economic forecast suggests continued slow growth
  - Employment growth in Wisconsin has been below the national average
  - June 2012 forecast predicts personal income growth from 2012 through 2015 will be slower than 2011 growth rate
  - Suggests slow rates of tax revenue growth over next few years

The Current Fiscal Environment
State Government Finance

- Since FY2008, state governments have had to close budget gaps totally about $600 billion
  - Gaps caused primarily by declining state tax revenues due to the Great Recession and the financial crisis
  - Budget gaps were closed primarily through spending cuts, including **large cuts in state grants to local governments**
  - State revenues have been rising for over two years, but in real terms they are still about 5% below their pre-recession peak

- Wisconsin General Fund taxes in FY2012 are about 3.2% higher than tax revenues in FY2008
  - Adjusting for inflation, this is a **4% decline**
  - The state government is projecting a slower rate of tax growth in FY2013 than in FY2012

The Current Fiscal Environment
Local Government Finance

- In the U.S., general-purpose local governments (municipalities and county governments) get most of their tax revenues from the property tax

- Since 2007, housing prices in the U.S. have fallen dramatically, in some places by more than half

  - Housing prices continue to fall and the rate of housing foreclosures continues to rise in some parts of the country

- Recent research has found a lag of about 3 years between declines in housing prices and declines in property tax revenues

  - National data shows declines in property tax revenues starting in 2010

- In Wisconsin in 2011 the market value of taxable property fell by 1.8%

  - Largest drop was 6.4% (Juneau county)
  - 16 out of 72 counties saw small property value increases

The Current Fiscal Environment
Federal Government Finance

- Federal fiscal policy is being driven by the need to reduce the size of the nation's debt
  - In the long run, the rising cost of entitlements will generate an unsustainable debt burden (debt relative to GDP)

- The Budget Control Act of 2011 (BCA) mandated spending cuts over the next 10 years

- Additional cuts are required through sequestration (or some alternative)

- The House (Ryan) budget calls for very large additional cuts in non-defense discretionary expenditures
  - About one-third of this category of spending is for federal grants to state and local governments, including most federal grants going to finance LHDs
  - Estimates suggest cuts of nearly 25% in FY2014

- Regardless of the outcome of the November elections, federal grants are likely to be reduced, probably quite dramatically

- The Ryan budget also calls for the conversion of Medicaid into a block grant to states
  - This would lead to cuts in Medicaid coverage and funding, especially during recessions

Local Public Health Departments in Wisconsin

- ## 92 LHDs

  - ### 70 county public health departments

    - Madison and Eau Clair have joint health department with their respective counties

    - Beloit's city health department merged with its county health department

  - ### 22 municipal public health department

    - Representing 42 municipalities

Wisconsin LHD Revenue by Source, 2009

Revenue Source	Total Amount (92 LHDs)	Percent of Revenue
Parent Jurisdiction	$81,258,764	50.0%
Federal Grants	40,800,788	25.1%
State Grants	9,744,448	6.0%
Fees	27,698,970	17.0%
Donations	569,276	0.4%
Private Grants	2,547,972	1.6%
Total LHD Revenue	$162,620,218	100.0%

Forecasting Methodology

- Efforts concentrated on major revenue sources

- We relied on LHD data from fiscal surveys to develop baseline revenue estimates by source

- We use econometric techniques to forecast revenues where that was possible

- For other revenue sources, we rely on more *ad hoc* approaches

- For each revenue source developed a *pessimistic* and *optimistic* set of assumptions
  - Our model is heavily parameterized, meaning that it is easy to quickly see the revenue implications of changing assumptions
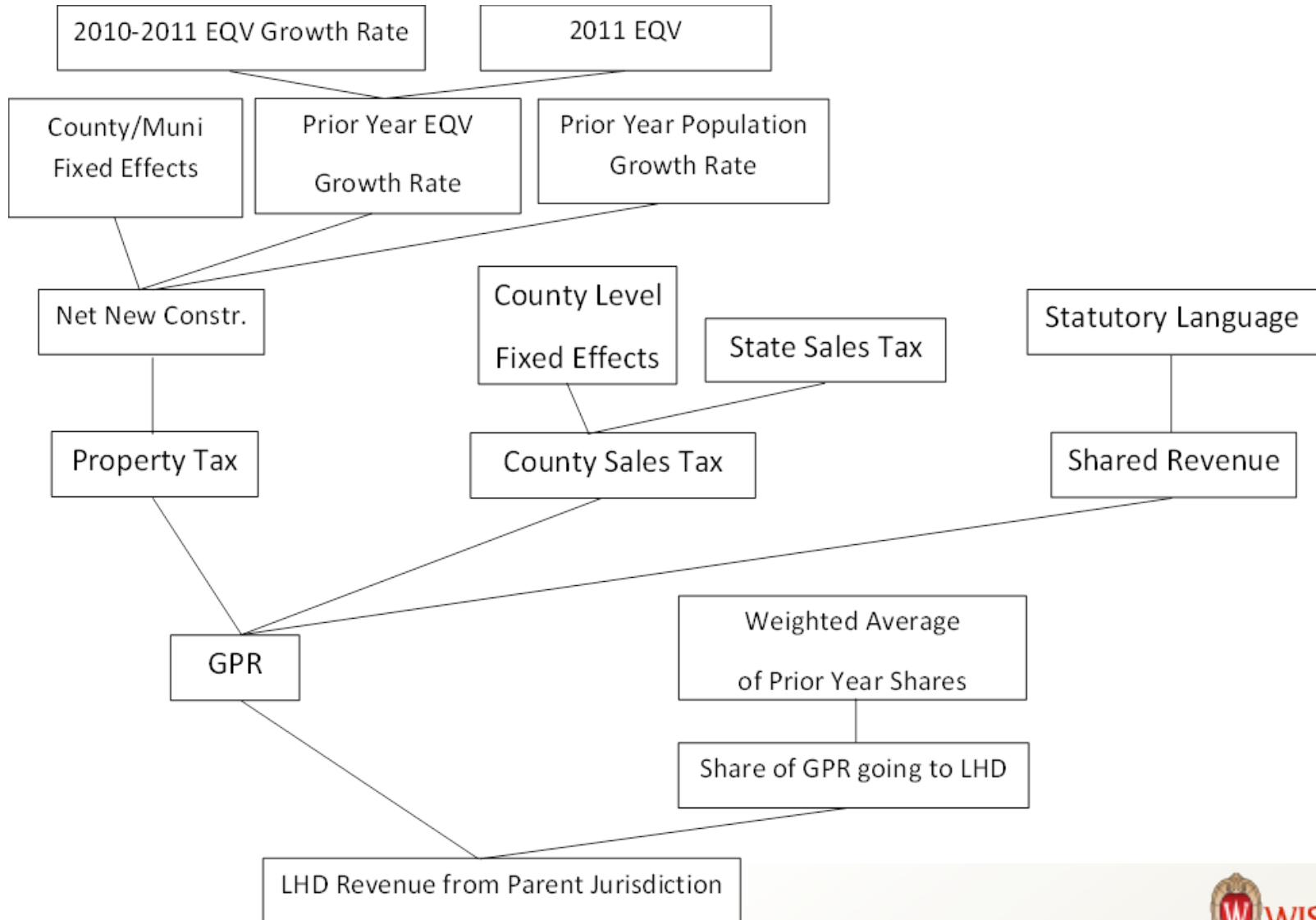
Revenue from Parent (County or Municipal) Government

Step 1: Forecast the General Fund (GF) revenue of parent governments from:

- Property taxes

- Sales taxes (in most counties)

- Shared Revenue grants

Step 2: Forecast *share* of parent government GF revenue that is allocated to LHDs

Estimating LHD Revenue for Parent Governments

Forecasting Property Tax Revenue

- 76% of GF revenues from the property tax

- 2011-13 state budget restricts annual growth rate of county and municipal property tax **levies** to--net new construction as a % of last year's property value (EQV)

- This means that forecasting property tax revenues requires forecasting the rate of new construction (NNC)

- Using NNC data from FY2006 through FY2011, we estimate new construction as a % of EQV as a function of the 1-year lagged values of:

  - The growth rate of the log of population

  - The growth rate of the log of per capita equalized property values

  - County "fixed effects"

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$$Net\ New\ Construction_{it} = \alpha + \beta\ ln\ Population\ Growth_{i,t-1} + \gamma\ ln\ EQV\ Growth_{i,t-1} + c_i + e$$

- To forecasting NNC through 2014, we need population and EQV forecasts through 2013

  - Local level population forecasts based on data from the WI State Demographic Service Center

  - EQV forecasts based on muted trends from changes in most recently available data on property values (2010 to 2011)

Forecasting Sales Tax Revenue

- Forecast based on county sales tax revenue data from 1998 through 2009

- Regression includes
  - County fixed effects
  - State-level per capita sales tax revenue estimates

$$Per\ Capita\ Sales\ Tax_{it} = \alpha + \beta\ Wisconin\ Per\ Capita\ Sales\ Tax_t + c_i + u_{it}$$

Forecasting Shared Revenue

- The formula used to allocate most of shared revenues has been frozen for a number of years

- The 2011-13 state budget mandates large cuts in Shared Revenues

  – Aid allocated to county governments declines by 24.1%

  – Aid reductions were made by a complex formula

  – Dollar amount of each counties' shared revenue allocation to remain unchanged in 2013 and in "subsequent years"

    - Future budgets could change shared revenue allocations

Forecasting LHD Allocations from Parent Government GF Revenue

- *Share* of parent government general fund allocated to LHDs tends to be quite stable over time

  - 2002-2009 coefficient of variation = 0.2

  - Our attempts to statistically explain variation in shares was unsuccessful

- For each LHD, we assume that share of revenue from the GF in 2012 through 2014 will be equal to a weighted average of shares between 2002 and 2009

  - Most recent years given higher *weight* in calculating averages

Forecasting Federal Revenue

- Largest federal grants to LHDs
  - WIC
  - Maternal and Child Health
  - Immunization

- Data problems prevent forecasting of specific grant programs

- We assume (base case) that federal revenue will equal weighted average federal grant between (2002 and 2009) increased by the rate of inflation (CPI) to 2011
  - Weights range from .04 (2002) to .21 (2009)
  - Changes in federal grants for 2012-2014 period reflect estimates of non-partisan agencies
  - -4% in 2012; -8.8% in 2013; -7.4% in 2014

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Forecasting Revenue from Fees, State Grants, Donations, and Private Grants

- Base case estimates of each of these revenue sources is based on a weighted average of revenue to each LHD from 2002 through 2009
  - Weights are higher for more recent years

Alternative Assumptions

	Pessimistic Case	**Optimistic Case**
Property tax	Same as base case	Levy limit raised to maximum of 2% or rate of net new construction
Sales tax	95% of base case	105% of base case
Shared revenues	90% of base case	110% of base case
LHD share of parent government revenue	95% of base case	105% of base case
Federal grants	20% cut (rel. to 2012)	5% cut (rel. to 2012)
Other revenue sources	Equal to minimum value in 2002 to 2009 period, adjusted for inflation	Equal to maximum value in 2002 to 2009 period, adjusted for inflation and plus 5%

Wisconsin LHD Revenue, 2012-2014
Nominal Dollars and Per Capita, Base Case Assumptions

	Total LHD Revenue	Percentage Change	Total LHD Per Capita Revenue	Percentage Change
2012	$158,766,743		$26.54	
2013	$158,968,195	0.1%	$26.31	-0.9%
2014	$162,130,266	2.0%	$26.56	1.0%

Wisconsin LHD Revenue, 2012-2014
Real Dollars and Per Capita, Base Case Assumptions

	Total LHD Revenue	Percentage Change	Total LHD Per Capita Revenue	Percentage Change
2012	$151,562,637		$25.33	
2013	$148,779,435	-1.8%	$24.62	-2.8%
2014	$148,472,337	-0.2%	$24.32	-1.2%

Note: Inflation adjustments based on forecasted values of the Consumer Price Index. All revenuesare expressed in 2010 dollars.

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Percentage Changes in LHD Revenues by 2010 Population of LHD Parent Governments

Population	Number of LHDs	Average Per Capita LHD Revenue, 2012	Percentage Change in LHD Revenue		
			2009 to 2012	2012 to 2013	2013 to 2014
Under 25,000	33	$35	0.8%	0.1%	1.8%
25,000 to 100,000	46	$25	0.9%	0.3%	1.9%
More than 100,000	13	$25	-3.1%	0.3%	2.1%
Total	92	$27	-2.4%	0.1%	2.0%

Note: Averages in the Total row are statewide averages. This implies that percentage changes are weighted by the population of the parent government.

Percentage Changes in LHD Revenues by LHD Certification Level

Certification Level	Number of LHDs	Average Per Capita LHD Revenue, 2012	Percentage Change in LHD Revenue		
			2009 to 2012	2012 to 2013	2013 to 2014
Level 1 certification	8	$23	-9.1%	-0.3%	1.3%
Level 2 certification	53	$27	2.8%	0.2%	2.0%
Level 3 certification	31	$33	-1.5%	0.4%	1.9%
Total	92	$27	-2.4%	0.1%	2.0%

Note: Averages in the Total row are statewide averages. This implies that percentage changes are weighted by the population of the parent government. Certification levels established by the Wisconsin Department of Health Services, with higher levels requiring a broader range of service provision and reporting requirements.

Percentage Changes in LHD Revenues by LHD Organizational Structure

Organizational Structure	Number of LHDs	Average Per Capita LHD Revenue, 2012	Percentage Change in LHD Revenue		
			2009 to 2012	2012 to 2013	2013 to 2014
LHD part of Human Services Dept.	24	$26	5.5%	0.0%	2.0%
LHD an independent Department	68	$30	-1.5%	0.3%	1.9%
Total	92	$27	-2.4%	0.1%	2.0%

Note: Averages in the Total row are statewide averages. This implies that percentage changes are weighted by the population of the parent government.

Forecast 2014 Nominal LHD Revenue Under Three Sets of Assumptions

	Pessimistic Case		Base	Optimistic Case	
	Amount	Rel. to Base	Case	Amount	Rel. to Base
2014 Total Forecast Revenue	$144,368,672	-11.0%	$162,130,266	$183,993,817	+13.5%
By Source of Revenue:					
Parent Government	$79,237,076	-6.1%	$84,368,570	$91,058,062	+7.9%
Federal Government	$32,272,941	-13.6%	$37,355,929	$38,324,117	+2.6%
State Revenue	$6,822,369	-28.5%	$9,539,432	$13,728,993	+43.9%
Fee Revenue	$24,040,219	-13.4%	$27,772,732	$35,818,573	+29.0%
Donation Revenue	$219,597	-56.0%	$498,525	$893,699	+79.3%
Private Grant Revenue	$1,776,470	-31.5%	$2,595,079	$4,170,373	+60.7%

Distributions of LHDs by Percentage Change in Per Capita Revenue 2009-2014, Under Three Sets of Assumptions

Percentage Change in Per Capita Revenue, 2009 to 2014	Number of LHDs		
	Pessimistic Case	Base Case	Optimistic Case
Greater than 25% Reduction	17	5	3
10% to 25% Reduction	35	19	6
Less than 10% Reduction	24	26	9
Less than 10% Increase	13	20	23
10% to 25% Increase	3	15	25
Greater than 25% Increase	0	7	26
Total	92	92	92

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Conclusions

- We are entering a period of extraordinary fiscal uncertainty

  - How the Affordable Care Act will be implemented is unknown

- All three levels of government face long-term (structural) revenue problems

- Revenue forecasting will never be perfectly accurate, but it can reduce uncertainty and provide important information for budgetary planning for more than next year

- Revenue forecasting models must be state-specific, but the Wisconsin model can provide a roadmap for the design of LHD revenue forecasting models in other states

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Other Meeting Agenda Items

Updates

- Quick Strikes

- Funding Opportunities Update: PCORI and AHRQ

- Policy Translation: A View from OMB

- Dissemination: An Update on Frontiers

Items for Dissemination

- Linked-In Group: http://www.linkedin.com/groups?gid=4474347
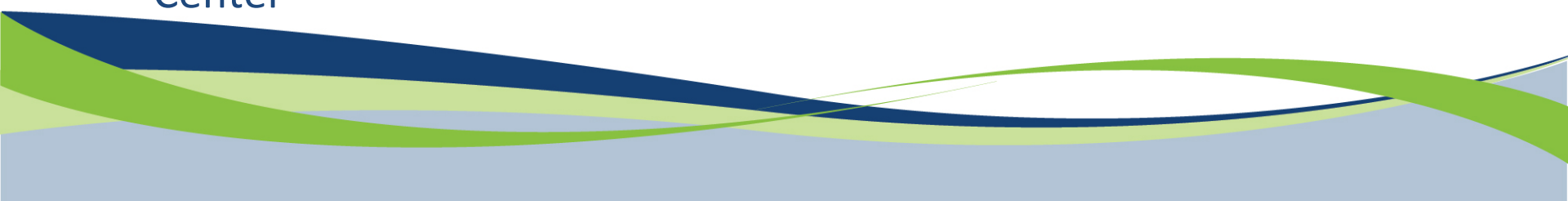
Other Meeting Agenda Items

Upcoming meetings
- APHA, October 27-31, San Francisco, CA

September events:
- Monthly Virtual Meeting: September 20, presentation by NY PBRN

PBRN Updates
- Introductions: The 2012-2013 Public Health PBRN National Coordinating Center Research Staff

- Quarterly Network Calls

- Technical and Administrative Assistance from the Coordinating Center

Other Meeting Agenda Items

Grant reporting reminders

- Send to *grantreports@rwjf.org* , copy to *PublicHealthPBRN@uky.edu*

- RWJF guidelines for annual, final narrative reports & bibliography:
  http://www.rwjf.org/files/publications/RWJF_GranteeReportingInstructions.pdf

- RWJF guidelines for financial reports:
  http://www.rwjf.org/files/publications/RWJF_FinancialGuidelinesReporting.pdf

- RWJF guidelines for electronic submission standards for products and reports
  www.rwjf.org/files/publications/RWJF_ElectronicSubmissions.pdf

For more information contact:

Glen Mays

glen.mays@uky.edu

111 Washington Avenue • Lexington, KY 40517

859.257.5678

www.publichealthsystems.org