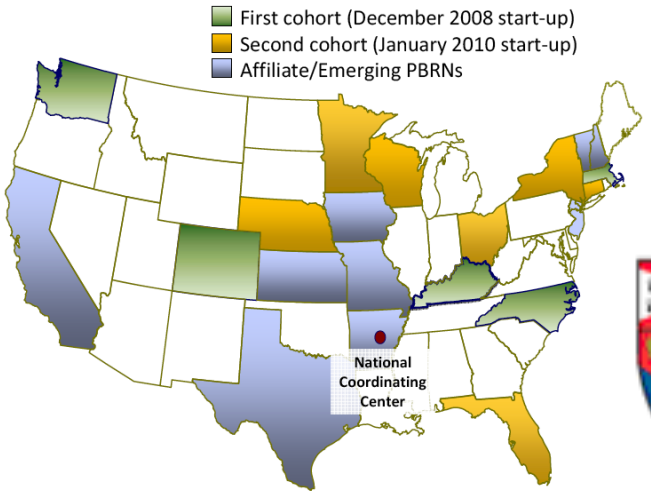
PUBLIC HEALTH
Practice-Based Research Networks
National Coordinating Center

Public Health PBRN
Monthly Virtual Meeting
May 2012

Revenue Streams and Service Delivery in Connecticut Local Health Jurisdictions 2001-2010

Public Health Practice-Based Research Networks (PBRN) Program



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Yale School of Public Health

February 10, 2012

CADH Connecticut Association of Directors of Health

Background

- Study was funded by the Connecticut Practice-Based Research Network (PBRN)
- Motivation for study: Concerns that the recession of 2007-2009 had reduced Local Health Jurisdictions' (LHJs) revenue and that LHJs would be adjusting their service mix in response
- Connecticut health jurisdiction structure:
  - 106 LHJs in 2001 → 75 LHJs in 2011
  - Full-time single town/city (n=29)
  - Part-time single town (n=25)
  - District with multiple towns/cities (n=21)

Research questions

1. How has the profile of LHJ revenues and services changed over the 2001-2010 period?

2. Were changes in economic conditions, as measured by unemployment and housing permits, associated with changes in fee revenue or service provision?

3. Did other factors besides local economic conditions, such as type of LHJ, explain variation in fee revenue and service provision over time?

4. What coping mechanisms did LHJs use to respond to economic downturns and reduced revenues?

Methods used

Two phases: (1) quantitative, (2) qualitative

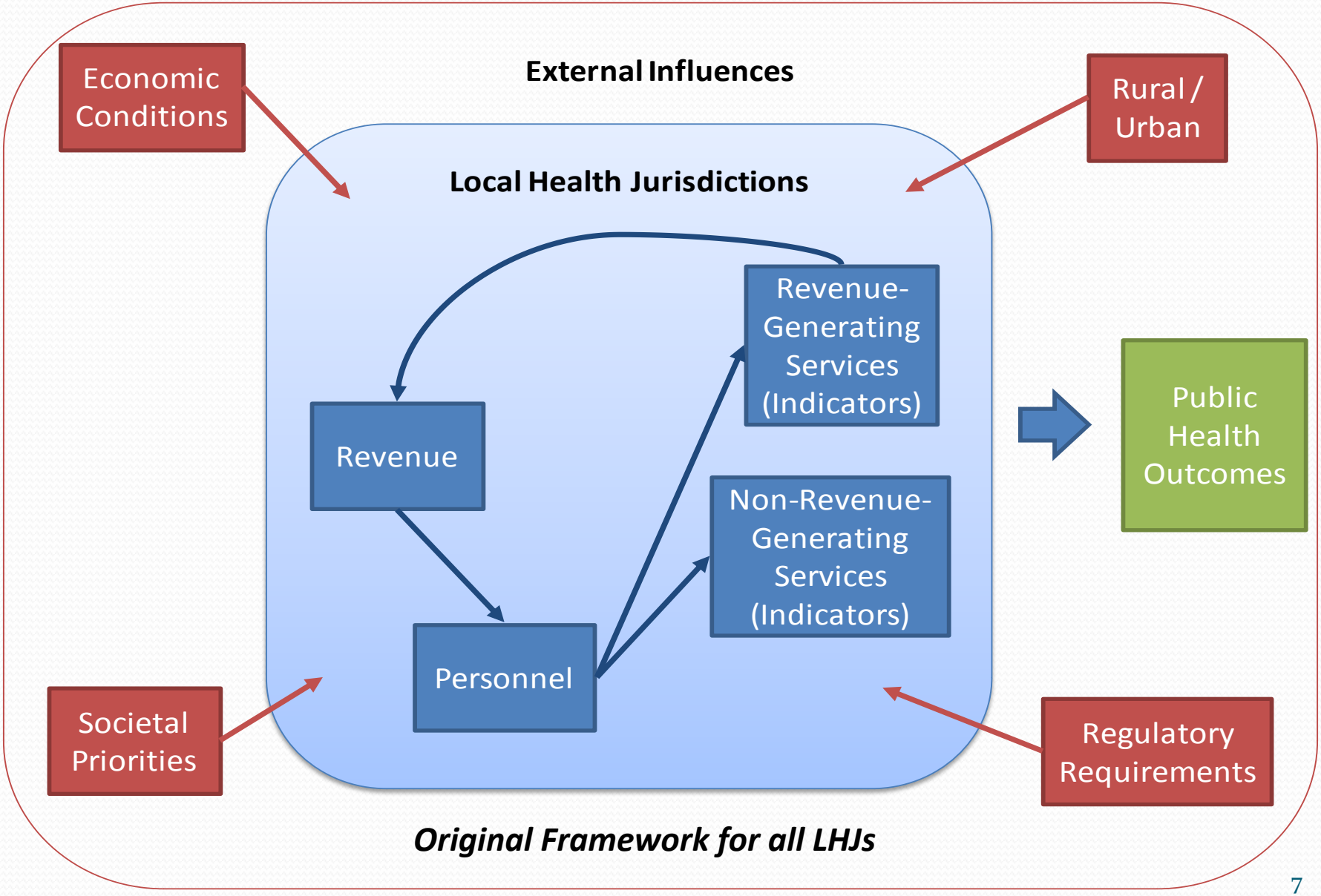
(1) **Quantitative analysis**

- Used annual report data submitted to DPH by LHJs for the years 2001-2010
- Supplemented with other Connecticut data on unemployment, housing, population, rural towns
- Described trends over time in fees and services
- Used regression models to test which factors explained variation in fees and services over time

Methods used

(2) **Qualitative analysis**

- Interviews with 17 Directors of Health for 20 LHJs
- Purposive sample across types of LHJs
  - 6 of 18 urban districts; 1 of 2 rural districts
  - 6 of 10 urban full time
  - 2 of 12 urban part time; 5 of 13 rural part time
- Interviews recorded and transcribed
- Transcripts coded by at least two independent reviewers
- Key themes identified around:
  (i) LHJ coping mechanisms in response to reduced revenues
  (ii) Other influences on LHJ revenue streams and services



Original Framework for all LHJs

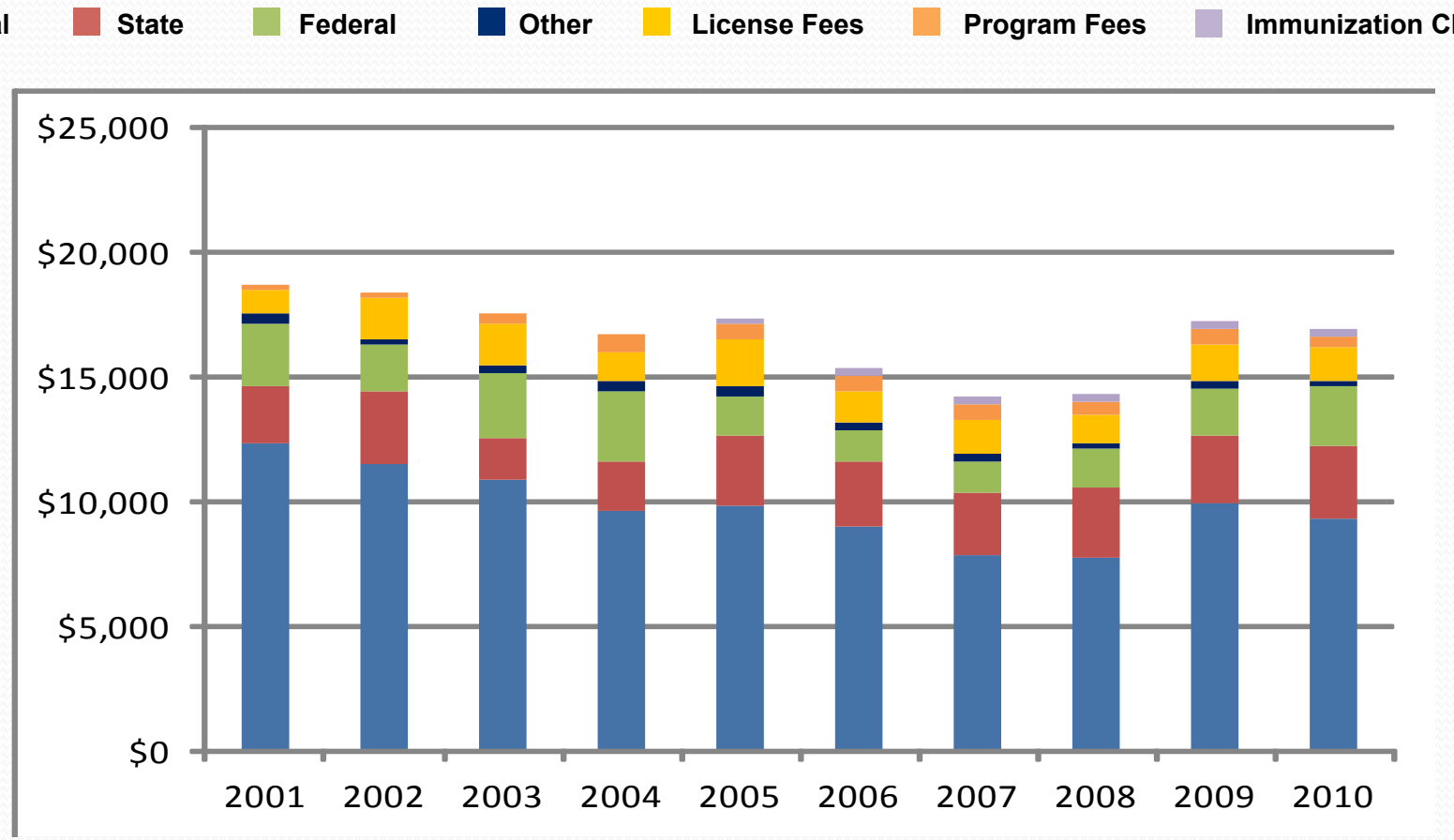
Service indicator identification

Desired Indicator Features	Available in Data Set?
Mapped to CDC 10 essential public health services	No, mapped to CT 8 essential public health services instead
Were available across all 10 years of DPH annual reports	Yes
Measured quantity of service provision	Yes, for 50% of indicators
Measured quality of service provision	No
Showed variation across LHJs and years	Yes

Service indicators used in quantitative analysis

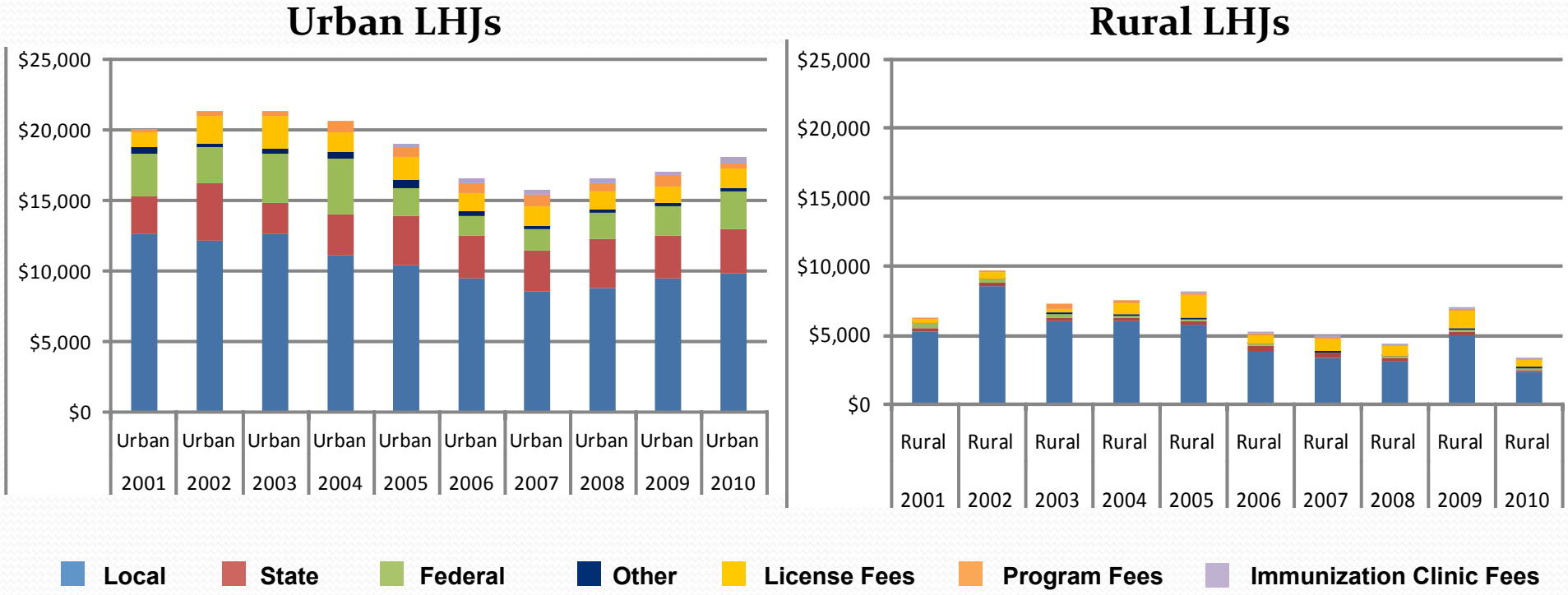
CT 8 Essential Public Health Service	Indicator
Public Health Statistics	Annual report certified
Health Education	Health educator (or community outreach worker) on staff
Nutritional Services	Dietitian or nutritionist on staff
Maternal and Child Health	Number of childhood vaccines offered
Communicable & Chronic Disease Control	STD clinical treatment services offered STD partner referral services offered Hep B pregnant positive referral services offered Hep B partner referral services offered Hep A case follow up services offered
Environmental Services	Environmental health personnel per 1000 population Septic permits issued per 1000 population Sewage lots tested per 1000 population Well permits issued per 1000 population Percent of required Class 3 food service inspections completed Percent of required Class 4 food service inspections completed
Community Nursing Services	Any nurse on staff
Emergency Medical Services	*None*
Cross-cutting indicator	Full time equivalents per 1000 population

Revenues per 1000 population from each revenue source: annual average across all LHJs (inflation-adjusted 2001 dollars)



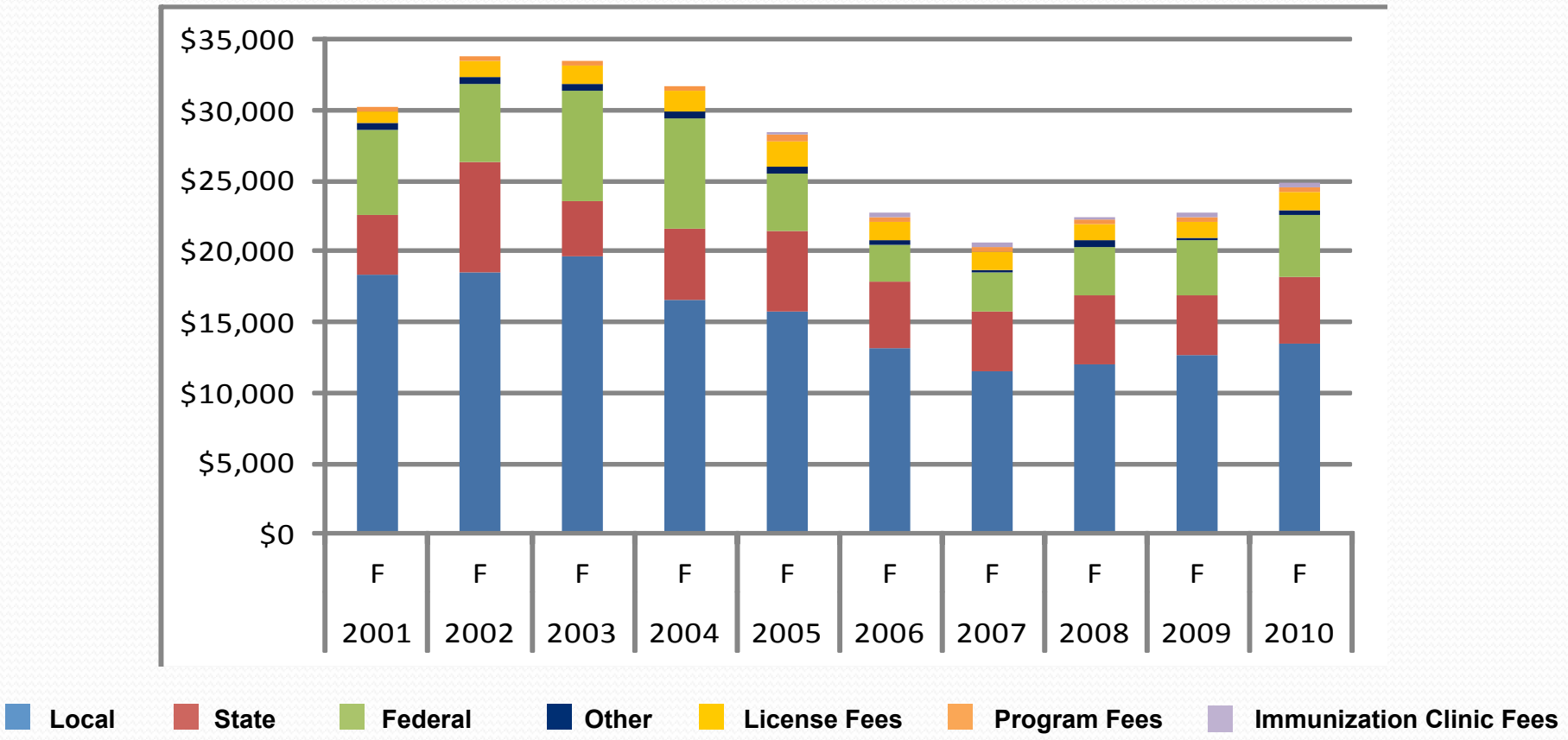
- All LHJs: annual average revenues of $14-$18 per capita

Revenues per 1000 population from each revenue source: annual average across urban vs. rural LHJs



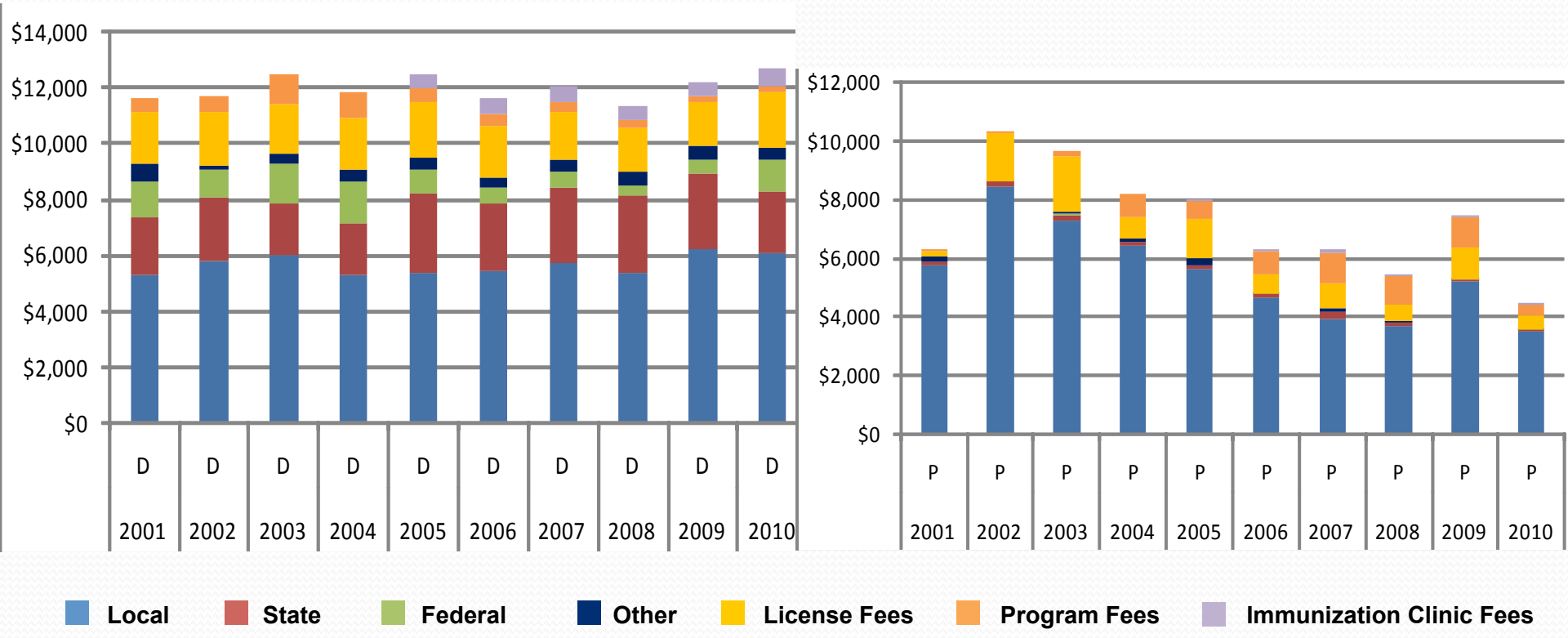
- Urban LHJs: annual average revenues of $15-$20 per capita
- Rural LHJs: annual average revenues of $3-$9 per capita

Revenues per 1000 population from each revenue source: annual average across Full Time LHJs



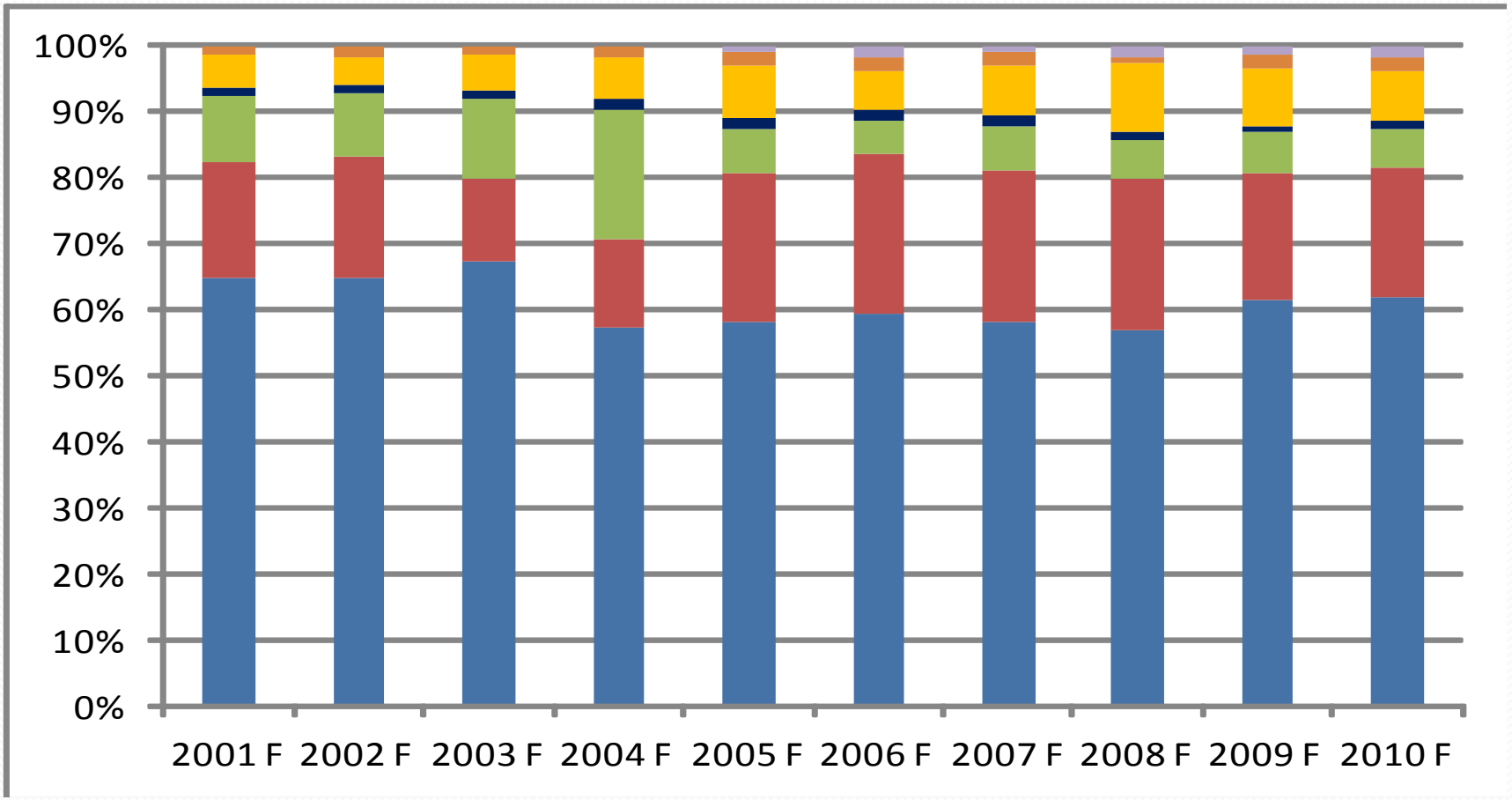
- Full Time LHJs: annual average revenues of $20-$34 per capita

Revenues per 1000 population from each revenue source: annual average across District vs. Part Time LHJs

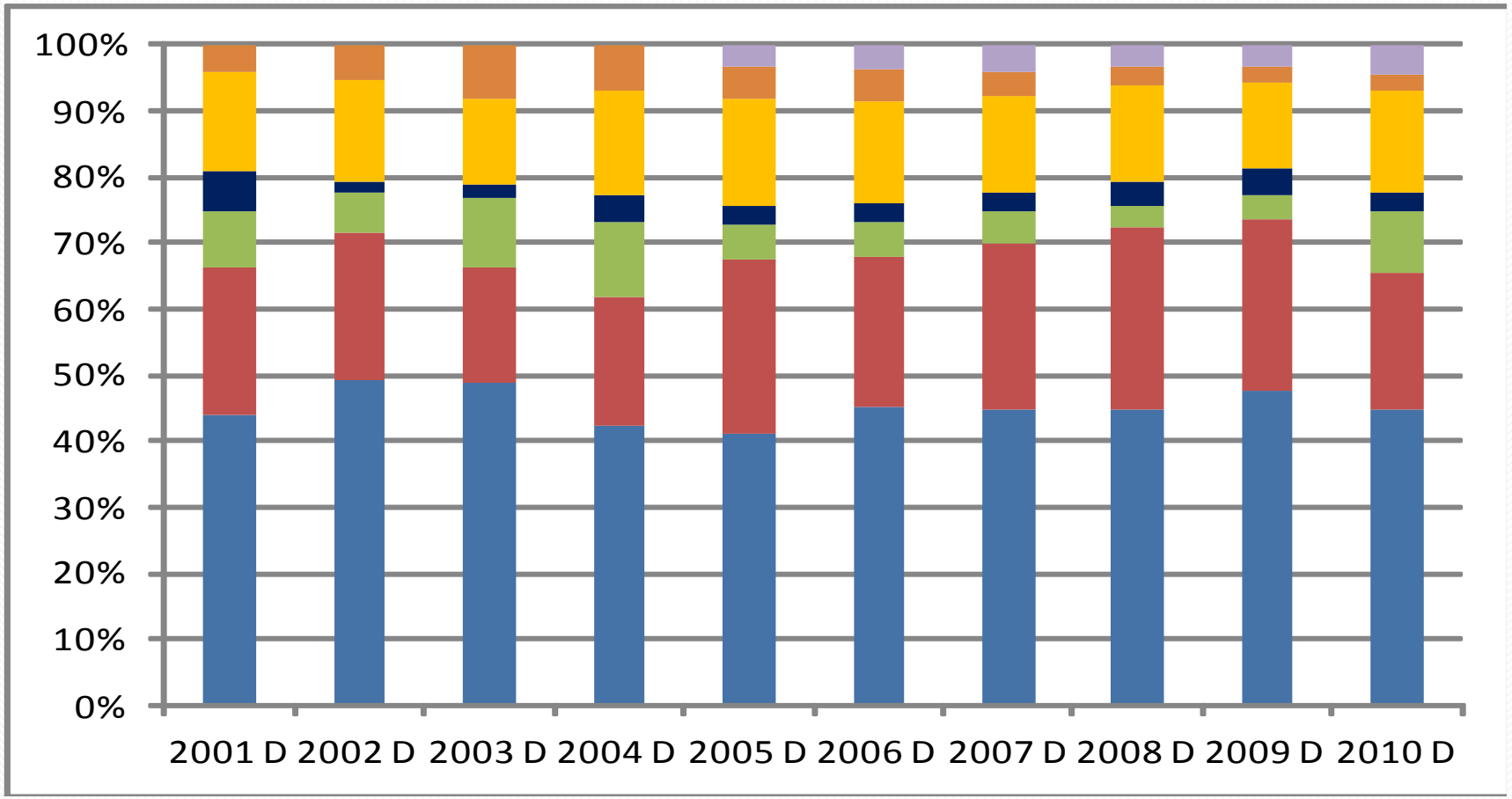


- District LHJs: annual average revenues of $11-$12 per capita
- Part Time LHJs: annual average revenues of $4-$10 per capita

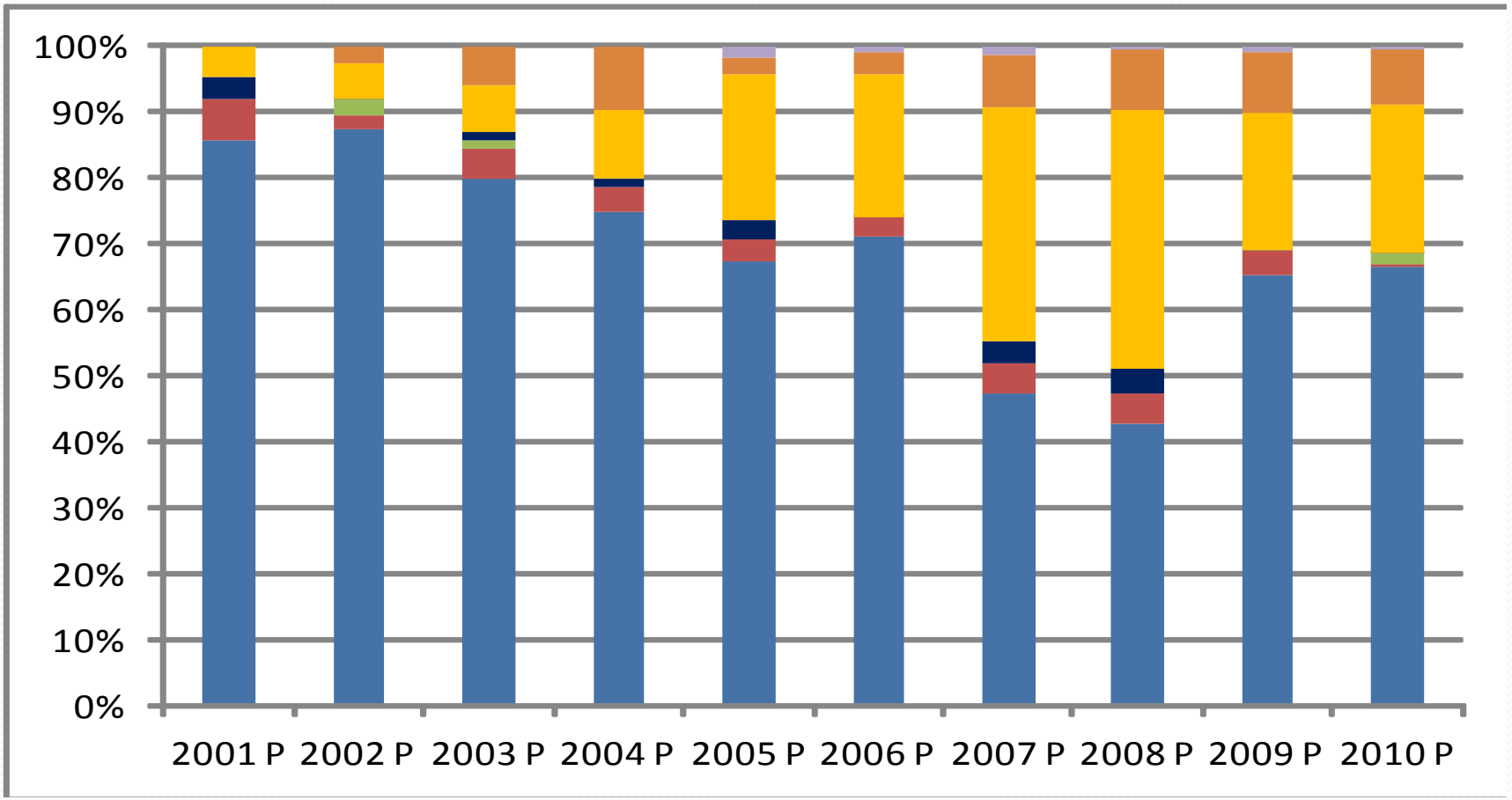
Percent of revenues from each source: annual average across Full time LHJs



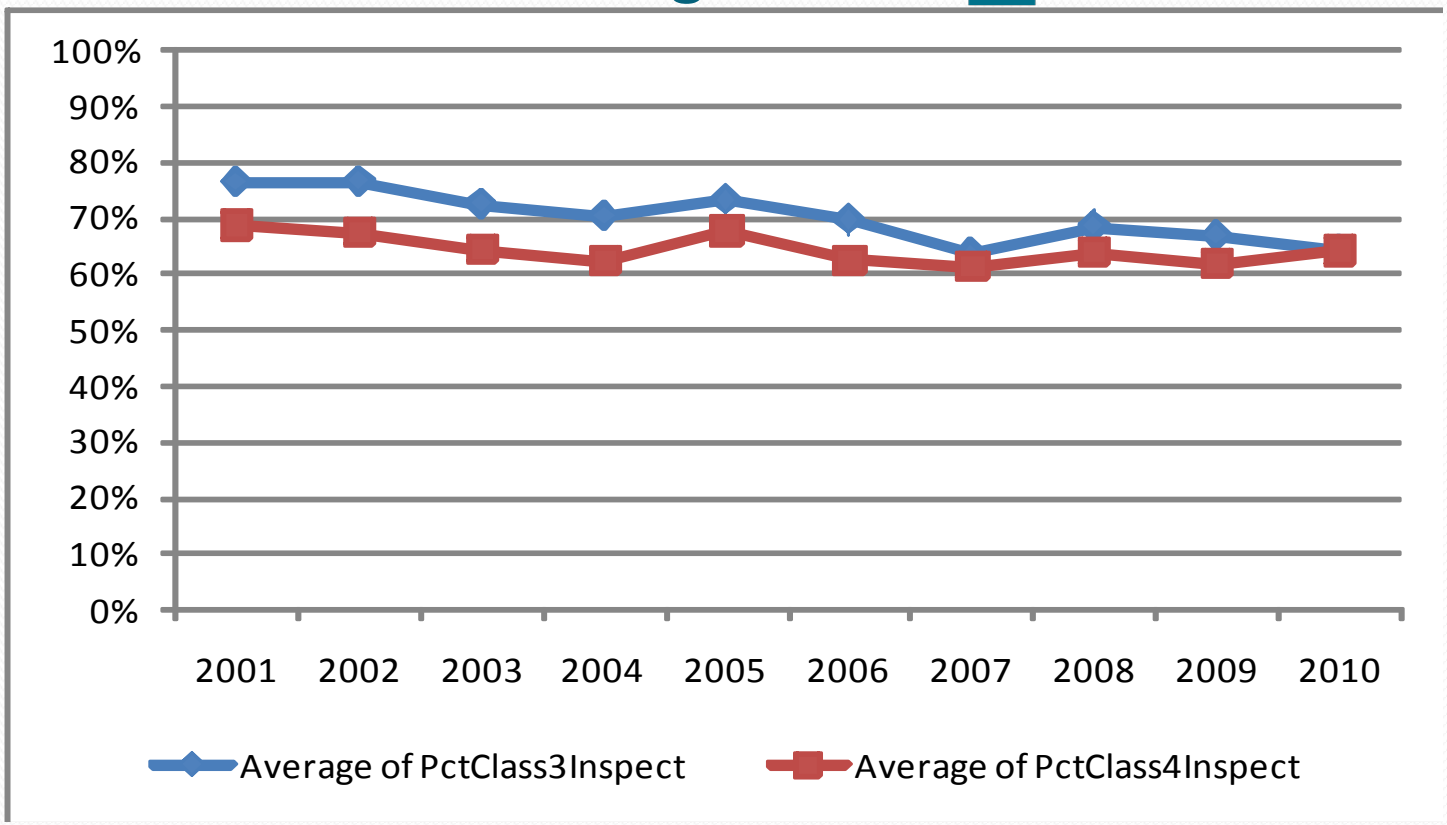
Percent of revenues from each source: annual average across District LHJs



Percent of revenues from each source: annual average across Part time LHJs

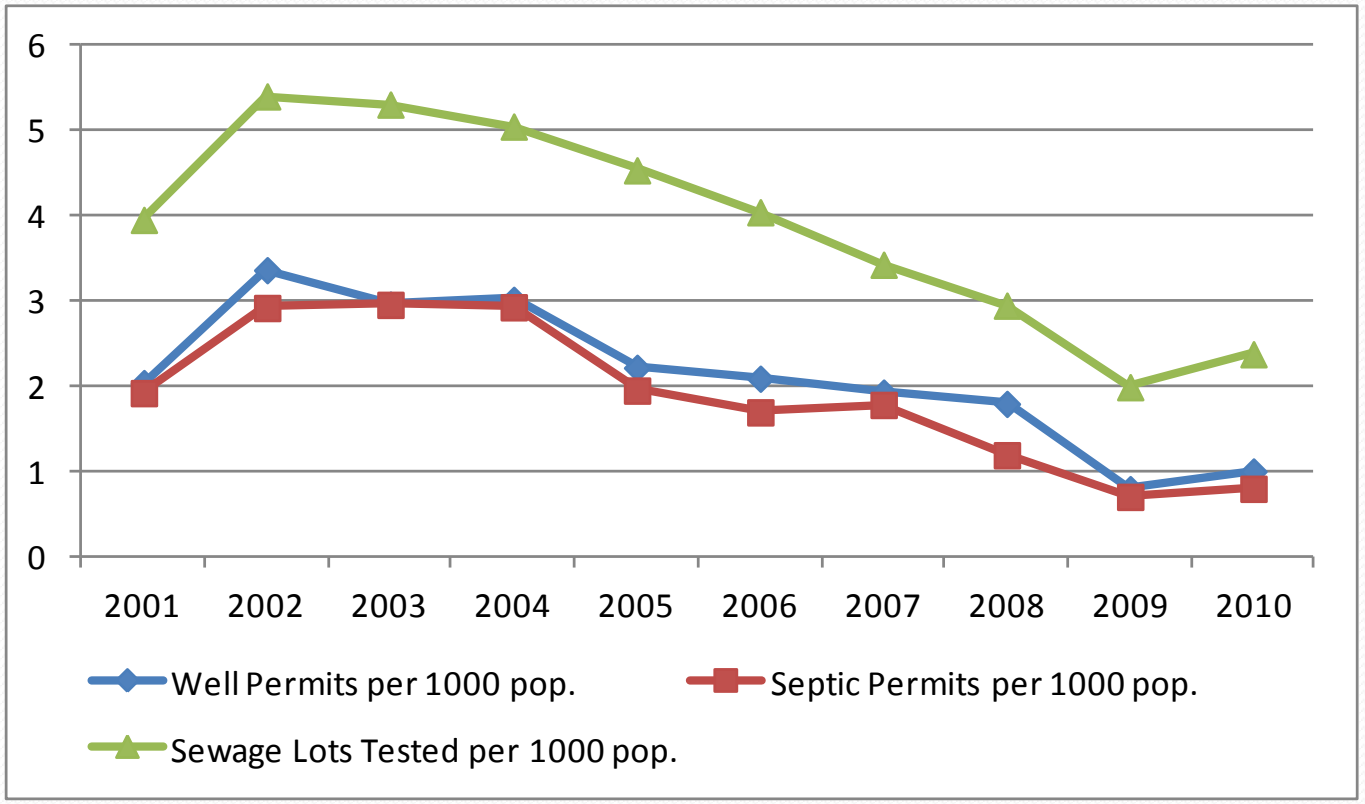


Percent of required Class 3 and Class 4 food service establishment inspections completed: annual average across all LHJs



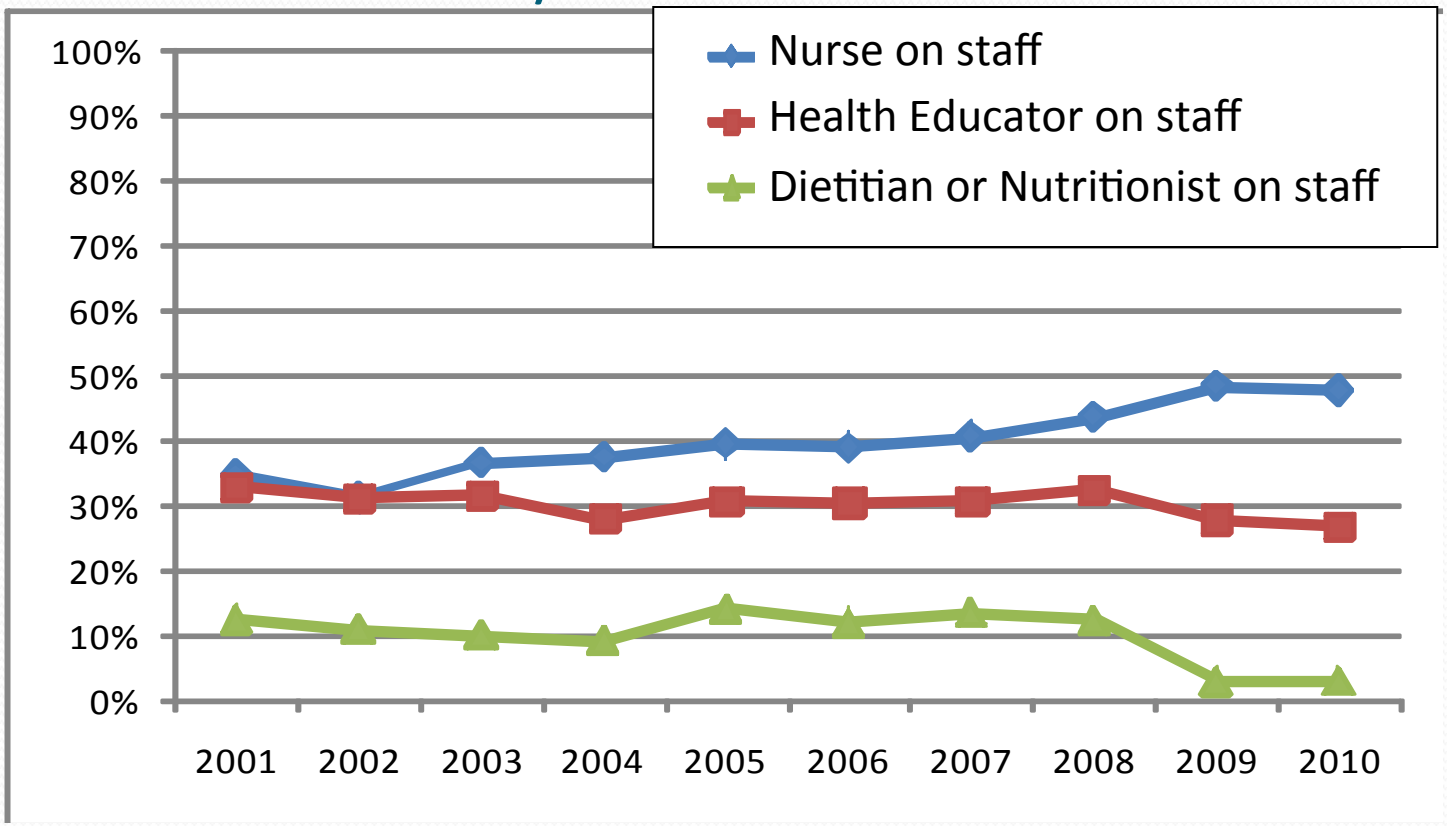
- Average percent remains at a consistent level (~70%) across all types of LHJs in all years.

Well permits, septic permits, and sewage lots tested per 1000 population: annual average number across all LHJs



- Levels of all three services decline between 2002 and 2009, with slight recovery in 2010.

Percentage of all LHJs with a nurse, health educator, or dietitian/nutritionist on staff



- The percent of LHJs with any nurse on staff increases from 35% to 50%.
- The percent of LHJs with a health educator on staff is steady at ~30%.
- The percent of LHJs with a dietitian or nutritionist on staff drops in 2009-10.

Quantitative analysis results

Research Question 1: How has the profile of LHJ revenues and services changed over the 2001-2010 period? **Descriptive graphs**

Research Question 2: Were changes in economic conditions, as measured by unemployment and housing permits, associated with changes in fee revenue or service provision?

- **Changes in housing permits were not associated with changes in fee revenue or service provision.**
- **Increases in unemployment rate were associated with reductions in some staffing indicators, but not with changes in fee revenue or other services.**

Research Question 3: Did other factors besides local economic conditions, such as type of LHJ, explain variation in fee revenue and service provision over time?

- **Rural/urban location was associated with changes in license fees and environmental health service outcomes.**
- **LHJ type was associated with changes in program fees, immunization clinic fees, nurse on staff, health educator on staff, and Hep B partner referral.**

Research Question 4: What coping mechanisms did LHJs use to respond to economic downturns and reduced revenues?

- **Turn to qualitative analysis to ask Directors of Health how they set fees, choose service offerings, and cope with reduced revenues**

Interviewee sample by LHJ type

Stratum	LHJ Type	Rural or Urban	# of LHJs in stratum (as of 2010)	# of LHJs invited to participate	# of LHJs interviewed	Response rate (# interviewed/ # invited)
1	District	Urban	18	6	6	100%
2	District	Rural	2	2	1	50%
3	Full Time	Urban	32	10	6	60%
4	Part Time	Urban	12	4	2	50%
5	Part Time	Rural	13	8	5	63%
		TOTAL	**77**	**30**	**20**	**67%**

Key themes from transcript analysis

LHJ coping mechanisms in response to reduced revenues

1. Revenue
2. Services
3. Staffing
4. Politics
5. Partnerships

Key influences on revenue streams and services

1. Service priorities
2. Political climate
3. Structures and systems
4. Funding streams affect -
    a. LHJ budgets
    b. Services

LHJ coping mechanisms in response to reduced revenues

Key themes from transcript analysis

Analysis revealed that LHJs respond to reduced revenue by making adjustments in five domains:

1. Revenue
2. Services
3. Staffing
4. Politics
5. Partnerships

Illustrative quotes: LHJ coping mechanisms

- Revenue:*"We can't control the per capita…and we can charge fees for service. So we started charging fees for service."* (District)
- Services: *"We're not doing any of those extra things, but I do believe we are fulfilling our role in the minimum of what public health needs to do in a town."* (Part Time)
- Services: *"…when financial resources are cut we have—in the past—cut services to accommodate that."* (District)

Illustrative quotes: LHJ coping mechanisms

- Staffing: *"Over last year we had a serious deficit, which led to a number of layoffs and reductions in programs."* (Full Time)
- Staffing: *"…we have on two occasions and will probably this year do all kinds of minor scheduling and compensation changes and adjustments…so that people will work 33 hours instead of 35. People will have 4 furlough days… We will make all kinds of small adjustments but that's largely to avoid laying anybody off."* (District)

Illustrative quotes: LHJ coping mechanisms

- Politics: *"But as I mentioned the selectmen – our relationship is close. They walk right by my door every day to go to the men's room or ladies room, and they swerve in here every now and then just to talk with me, or if they receive phone calls about anything related to public health, I'm right here, in the same building."* (Part Time)
- Partnerships: *"I don't think that it's really practical to get an XRF analyzer ….In a small community like that every dollar counts, spending in that manner probably wouldn't be the best use of resources out there when we can get agreements with surrounding areas that can provide those services."* (Part Time)

Influences on revenue streams and services
Key themes from transcript analysis

Analysis revealed that revenue streams and services were influenced by dynamics in four domains:

1. Service priorities
2. Political climate
3. Structures and systems
4. Funding streams affect -
    a. LHJ budgets
    b. Services

Theme 1: Service priorities

Key findings

Directors reported that service priorities were determined by:

1. Regulations
2. Community needs
3. Local political priorities
4. Funder priorities
5. Health department staff

Illustrative quotes: Service priorities

- *"The services that we offer are mandated by the statute. So basically the health departments are charged with enforcing the public health code, which is in the state statute. And that's complemented by the city ordinances on health. So most of the services-we don't need to sit down and think about "what should we do" because those are established and we all do those."* (Full-time)

- *"The public health person in me says the services that are most important are the services that are going to have the most impact on preventing diseases and promoting good health…But the reality of life is getting actual funding for that is very difficult."* (District)

Illustrative quotes: Service priorities

- *"From a local health department perspective, the most important change comes when a mayor or first selectman says, 'I know it's a fine health department but actually we don't need all the services you're doing. We just need basic environmental services. All the rest of the things that you do, they're wonderful but that's for another time when we can afford them. So all these things about communicable diseases and obesity and nutrition and physical activity and blah blah, they're luxuries right now…' That's the nexus of the economic and the political scene, which has brought about the most fundamental 'changes' in this health district."* (District)

Theme 2: Political climate
Key findings

1. Directors report being active in local politics

2. Directors report maintaining relationships with mayors and town officials

3. Directors perceive that it is very important that they advocate for their budgets and issues

Illustrative quotes: Political climate

- *"But I've always felt like if I could be upfront with all of our municipal officials, it a) educates them about what we do and then b) it doesn't lend itself to surprises… I've always told-when we've actually looking at adding towns-I've always told the official in the new town to talk to the officials in the towns we currently serve, that'll give them some perspective. And I think a) it shows that I trust that the dialogue that'll happen with those officials is going to be a positive one. And I also think it gives them some comfort to know that we have the credibility that they can actually go to someone we've served for 25 years, and that they'll get a positive response."* (District)

- *"And I will tell you that the selectmen, who ultimately approve my fees again they are asking for each fee to justify that particular fee… they're representing the town, they're representing the residents of the town and they want to be sure the town residents are being treated fairly, and not being gouged."* (Part-time)

Theme 3: Structures and systems
Key findings

1. Rural and part time LHJs rely primarily on local funding
2. Districts report competition for municipalities
3. LHJs report collaboration with each other
4. Population demographics have changed significantly

Illustrative quotes: Structures and systems

- *"The biggest influencing factor [on revenue] are our neighbors because if we go up to meet our needs and they're not happy, they'll look to neighboring health districts, and if it looks better on the other side because it's less expensive-doesn't mean the services are better, or comparable probably-then it becomes a threat and we haven't had a lot of that but that's because everybody tries to stay in their own lane. But for example, [a neighboring Health District] staying so low and being on my border, it keeps my per capita low because he just gets bigger and bigger. "* (District)
- *"I think that my towns have been slightly buffered because of the casinos. [One town] is in between both casinos, so that area has been buffered from some of the economic downturn… a lot of projects that probably could have gone forward but because of the funding crisis a few other things have been kind of shelved."* (Part-time)

Theme 4a: Funding streams affect LHJ budgets
Key findings

1. Primary sources of funds are state and local government

2. Districts struggle to set per capita levels with member towns

3. License and service fees vary

4. Larger LHJs had more grants

Illustrative quotes: Funding streams affect LHJ budgets

- *"On one hand the budget-the city budget-has been impacted. Over last year we had a serious deficit, which led to a number of layoffs and reductions in programs… and staff obviously they felt like they weren't being supported in the program… So it's been a hard time to run a department with short staff and with few resources. However the health department also has special funds, which are state or federal funds, so some of our projects are not being impacted directly by the city's deficit. And even still the state was in a big deficit last year. And the federal government is also trying to reduce the budget. So there is an impact on all levels."* (Full Time)

Illustrative quotes: Funding streams affect LHJ budgets

- *"Certainly for us, the population we serve is predominantly rural, suburban and rural. So the housing market bust had a particularly significant impact on our agency. Specifically less houses were being built so we're pulling in less revenue from permits and service fees such as well permits and septic permits, soil testing for (SED) evaluations for septic…we've had a reduction in the number of food service establishments that we're permitting. Some of the mom and pops are going out of business."* (District)

Theme 4b: Funding streams affect services

Key findings

1. Funding cuts have direct effects on staff and services

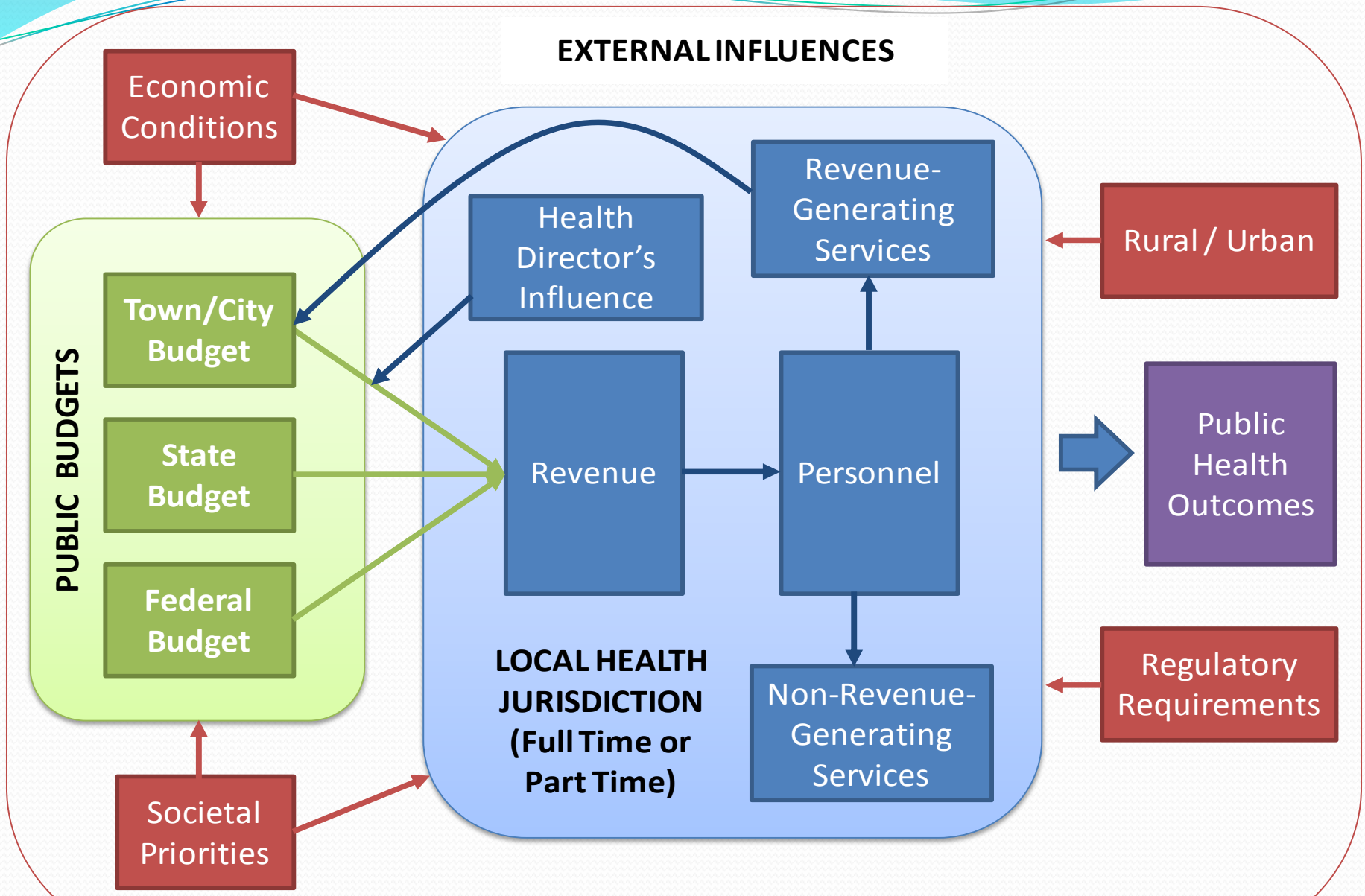
2. Rural part time LHJs reported least effect of budget cuts

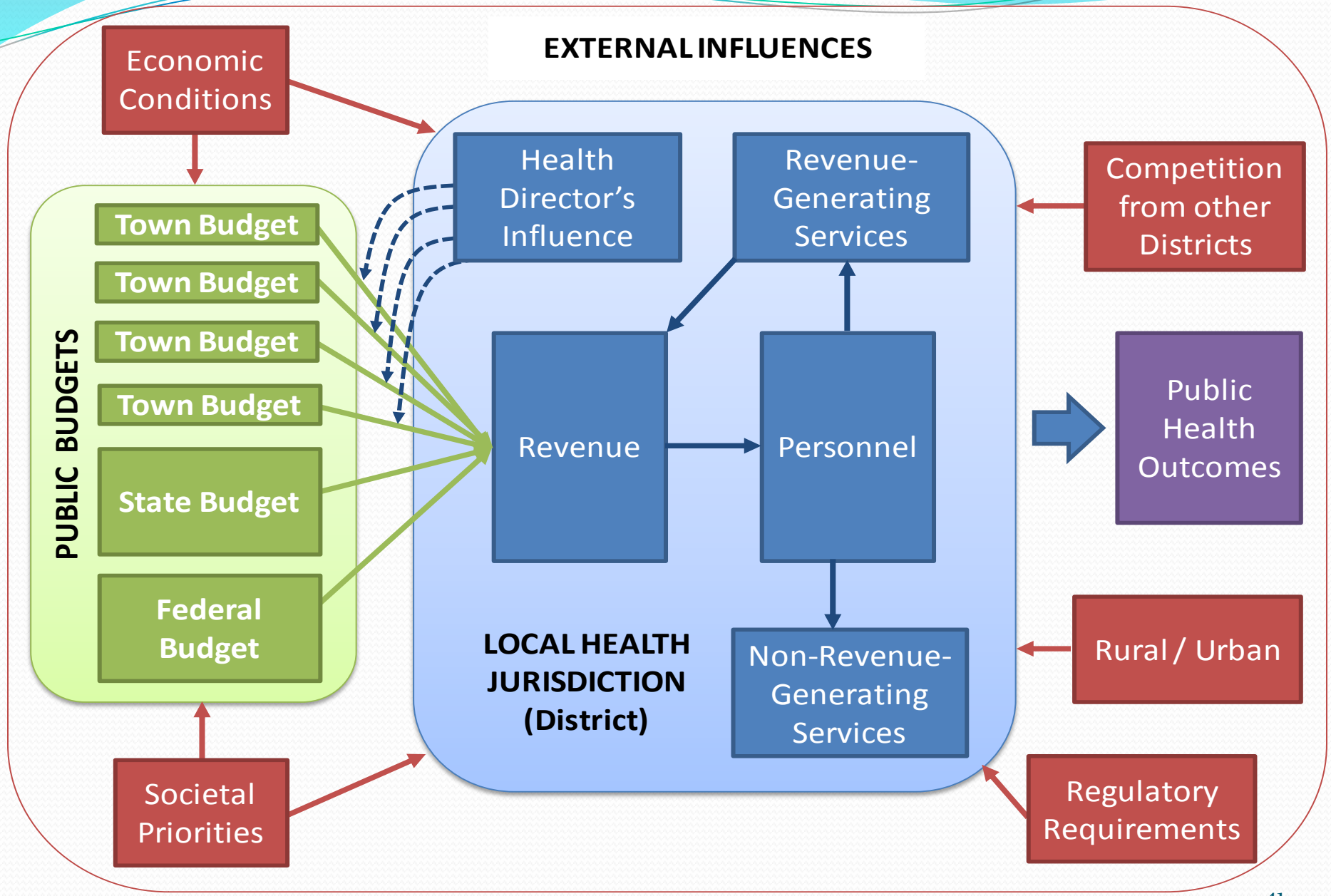
3. Grants funds are not always timely, making service delivery challenging

Illustrative quotes: Funding sources affect services

- *"Almost all the time the-whatever we're going to do, the activity comes before the money. What happens is we sign a contract and … we hire a person from the outside to come in, they're an independent contractor, and we try to start that as closely to the start of the contract period as we can… Especially I think like city health departments-they can't do what we do… We've never ever lost money. The state [grants] always comes through with what they say they will. It's maybe gotten a little bit better but not much better. There's a big lag between implementation and the payment that's coming in for that contract."* (District)

- *"A service would end if you have to cut staff or if a grant was cut-that would be the only answer… So that amount of extra money just isn't around. Probably the political answer and the right answer would be to find another source like other grants, but as a city we're not a 501c3, so I can't even really compete for the types of grants that may be out there because I'm a city."* (Full-time)


EXTERNAL INFLUENCES
Economic Conditions
PUBLIC BUDGETS
Town/City Budget
State Budget
Federal Budget
Societal Priorities
Health Director's Influence
Revenue-Generating Services
Revenue
Personnel
Non-Revenue-Generating Services
LOCAL HEALTH JURISDICTION (Full Time or Part Time)
Rural / Urban
Public Health Outcomes
Regulatory Requirements


EXTERNAL INFLUENCES
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Revenue
Personnel
LOCAL HEALTH JURISDICTION (District)
Non-Revenue-Generating Services
Competition from other Districts
Public Health Outcomes
Rural / Urban
Regulatory Requirements

Conclusions

1. LHJs adjust to economic downturns and reduced revenues in a variety of ways but these adjustments are not captured in the DPH annual report data.
2. LHJ rural/urban location and LHJ district, full time, or part time status are more important predictors of revenues and services than unemployment rate or housing permits.
3. Political support from local government officials is an important determinant of LHJ revenues.
4. Some services are more resistant to changing economic and revenue conditions than others.

Questions?

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With special thanks to:

- Juanita Estrada in the Office of Local Health Administration at the CT DPH for her assistance with the annual report data;

- the LHJ Directors of Health for their willingness to share their experience and perspectives with us.

Additional slides

Examples of available indicators for selected CT 8 essential public health services

Environmental Services

- PERSONNEL: Environmental Health Personnel (#)
- PERSONNEL: Chief Sanitarian on staff (Y/N)
- PERSONNEL: Environmental Health Director on staff (Y/N)
- PERSONNEL: Housing Inspector on staff (Y/N)
- PERSONNEL: Registered Sanitarian on staff (Y/N)
- PERSONNEL: Sanitary Inspector on staff (Y/N)
- ORDINANCE: Ordinance/code exists (Y/N) – for each of 19 program areas
- ORDINANCE: Licensing program exists (Y/N) – for each of 19 program areas [1]
- ORDINANCE: Number of sites (#) – for each of 19 program areas [1]
- ORDINANCE: Number of inspections (#) – for each of 19 program areas [1]

The 19 program areas are: Artificial Ice Plants; Barber/Beauty Shops; Body Piercing; Child Day Care Centers; Housing/Property Maintenance; Massage Establishments; Migrant Labor Camps; Motel/Hotel; Nail Salons; Outing Facilities/Parks; Public and Private Campgrounds; Public Bathing Areas; Public Pools; Refuse Haulers; Schools, other than Food Service; Sewage Haulers; Tattoo; Temporary Events; and Trailer Parks.

Examples of available indicators for selected CT 8 essential public health services

Environmental Services (continued)

- FOOD: Number of Class I establishments (#)
- FOOD: Number of Class I inspections (#)
- FOOD: Number of Class I reinspections (#)
- FOOD: Number of Class II establishments (#)
- FOOD: Number of Class II inspections (#)
- FOOD: Number of Class II reinspections (#)
- FOOD: Number of Class III establishments (#)
- FOOD: Number of Class III inspections (#)
- FOOD: Number of Class III reinspections (#)
- FOOD: Number of Class IV establishments (#)
- FOOD: Number of Class IV inspections (#)
- FOOD: Number of Class IV reinspections (#)
- FOOD: Conducts hazard analysis inspections (Y/N)
- FOOD: Number of hazard analysis inspections (#)

Examples of available indicators for selected CT 8 essential public health services

Environmental Services (continued)

- FOOD: Total staff time (FTE) designated for inspections (#)
- FOOD: Number of orders issued to establishments (#)
- FOOD: Number of establishments closed (#)
- FOOD: Conducts plan reviews for restaurants (Y/N)
- FOOD: Number of temporary events with food service (#)
- FOOD: Total number of booths/vendors at temporary events (#)
- FOOD: Number of vendor inspections at temporary events (#)
- WATER: Number of public and private well permits issued (#)
- WATER: Collects samples of public water supplies (Y/N)
- WATER: Investigates complaints regarding public water supplies (Y/N)
- WATER: Makes inspections of public water supplies (Y/N)
- SEWAGE: Number of lots tested (#)
- SEWAGE: Number of new permits issued (#)
- SEWAGE: Number of repair permits issued (#)

Examples of available indicators for selected CT 8 essential public health services

Environmental Services (continued)

- SEWAGE: Number of permit denials (#)
- SEWAGE: Number of complaints of failed systems (#)
- SEWAGE: Number of orders issued (#)
- SEWAGE: Number of 19-13-B100a application reviews (#)
- LEAD: Conducts epidemiological investigations of reported confirmed blood lead levels 20 ug/dL and above (Y/N)
- LEAD: Responsible party for conducting environmental lead inspection (list)
- RADON: Technical assistance provided (Y/N)
- RADON: Test kits supplied (Y/N)
- RADON: Tests for radon in private homes (Y/N)
- RADON: Number of homes with radon levels above 4pCi/l (#)
- RADON: Tests for radon in schools (Y/N)
- RADON: Number of schools with radon levels above 4pCi/l (#)
- RADON: Number of schools mitigated for radon in the air (#)
- ZOONOTIC: Department assures follow up for rabies (Y/N)

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Other Meeting Agenda Items

- Follow-up from PBRN Grantee Meeting and KC
- MPROVE Call for Measures and Selection Criteria
- NCC needs your PBRN results/products!
- Upcoming meetings
  - ASHEcon (American Society of Health Economists), June 10-13. Registration open
  - NNPHI Quality Improvement in Public Health Open Forum Meeting, June 19-20, Portland, OR. Registration deadline is May 21. The meeting is designed to support the continued momentum of quality improvement (QI) and Accreditation as key strategies for improving the health of our nation.
  - AcademyHealth, June 24-26. Registration open until June 15
  - APHA Mid-Year Meeting June 26-28
  - NACCHO, July 11-13. Registration early rate June 8
  - APHA, October 27-31. Call for abstracts closed. Registration early rate August 16

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Other Meeting Agenda Items

Update on dissemination opportunities

- Publications
  - AJPM theme issue on PBRN studies
  - JPHMP special issue on PHSSR Advances
  - PHSSR methods book
- Electronic
  - ***Frontiers in PHSSR –*** April launch of open-access, rapid-cycle journal ***RE•ACT***
    Podcasts -- Research to action stories, hosted by Dr. Paul Halverson

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

Other Meeting Agenda Items

Upcoming Webinars

- Upcoming Monthly Virtual Meeting Presentations:
  - Jun 21 Florida PH PBRN
  - Jul 19 Kentucky PH PBRN

- Next Quarterly Webinar:
  - July ?? Research Roundtable from the Colorado PBRN

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