



# A PERFECT STORM:

## A CASE STUDY OF WISCONSIN'S RURAL SCHOOLS

95<sup>th</sup> Wisconsin State Education Conference  
January 21, 2016

Presented by:  
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University of Wisconsin-Madison  
Applied Population Laboratory

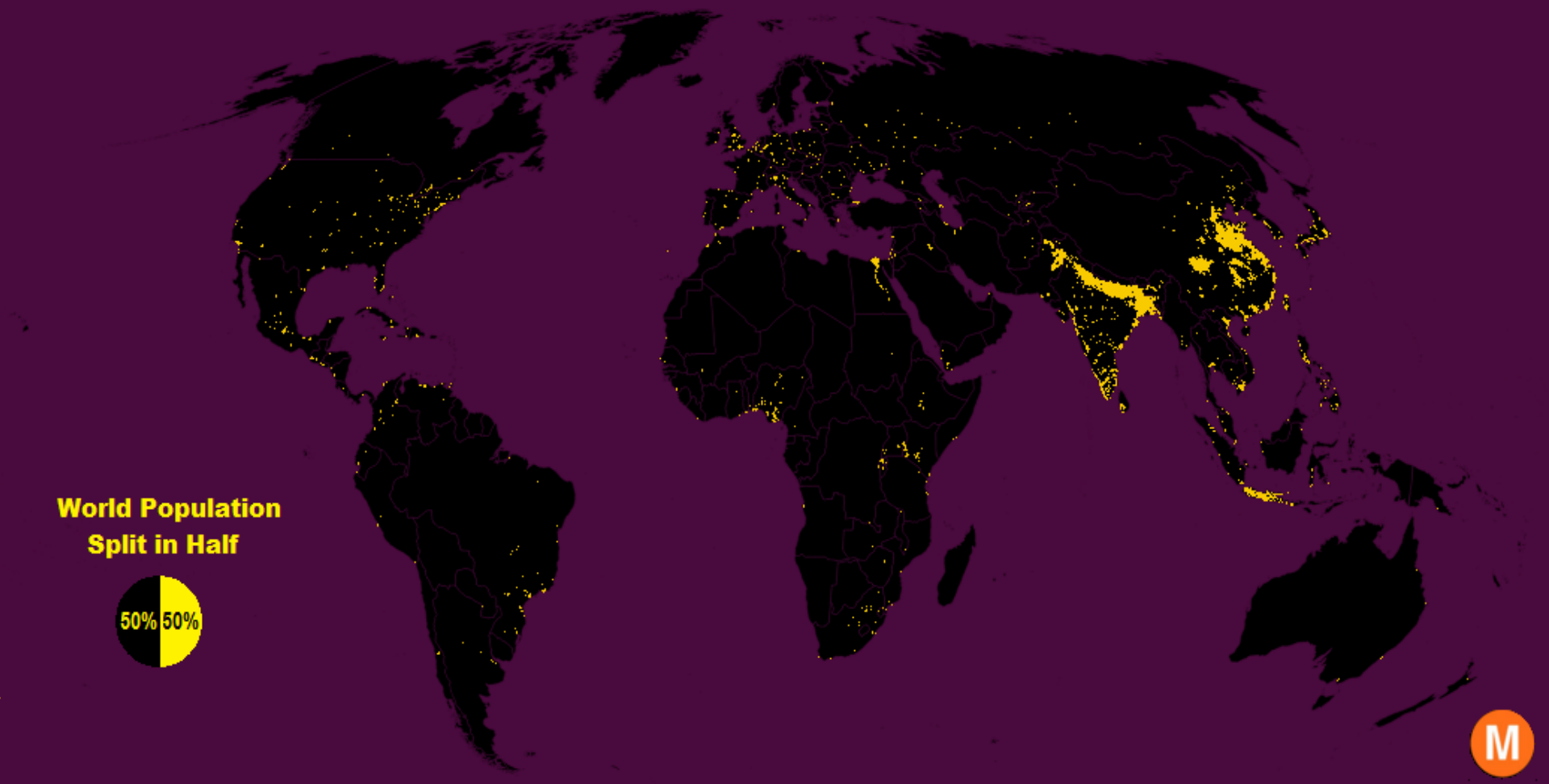


# Applied Population Laboratory

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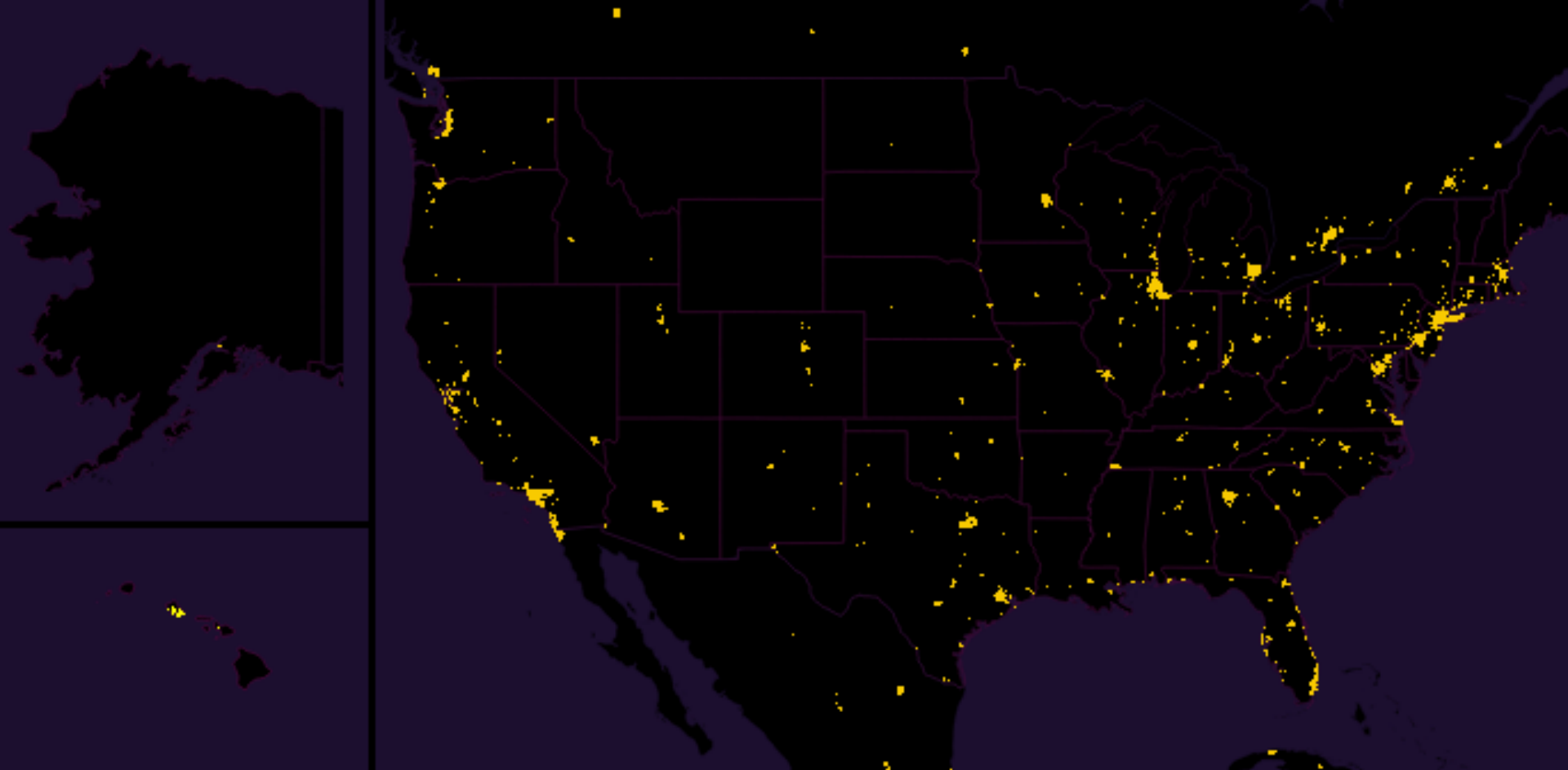
- Research and outreach professionals at University of Wisconsin-Madison since the 1960s.
- Custom projects examining populations with expertise in geographic information systems, community studies, and demographic methods.
- Data providers:
  - State Data Center for U.S. Census Bureau
  - University of Wisconsin- Extension
- Small area population estimates and projections including school district enrollment projections.

Visit APL on the web at: [www.apl.wisc.edu](http://www.apl.wisc.edu)



Source: <http://metrocosm.com/>

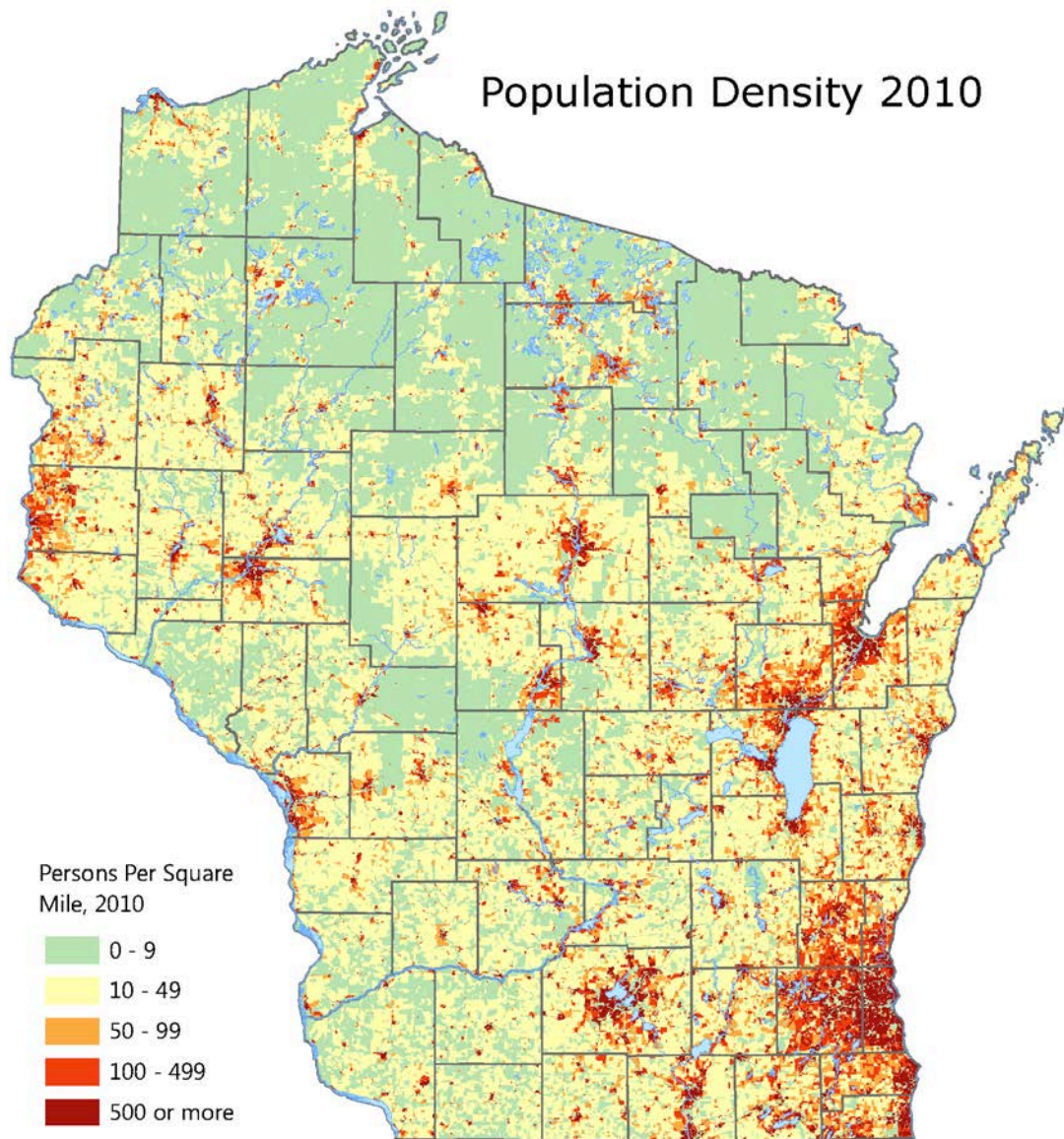
**50% of the world's population lives in just 1% of the land.**



Source: <http://metrocosm.com/>

**United State's population live in 5.4% of the land.**

## Population Density 2010



Data source: Census 2010 Redistricting Data

Applied Population Laboratory  
UW-Madison  
Department of Community & Environmental Sociology

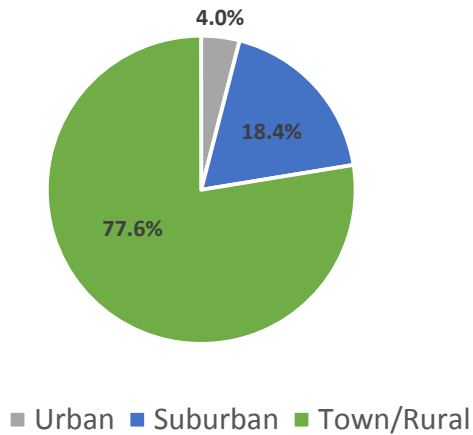


UW  
Extension

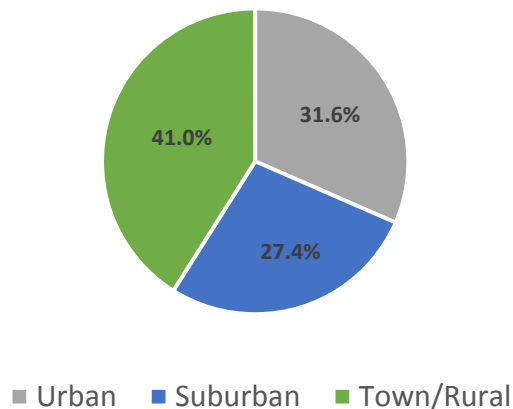
70% of the population is in cities and villages.

# Defining Rural School Districts

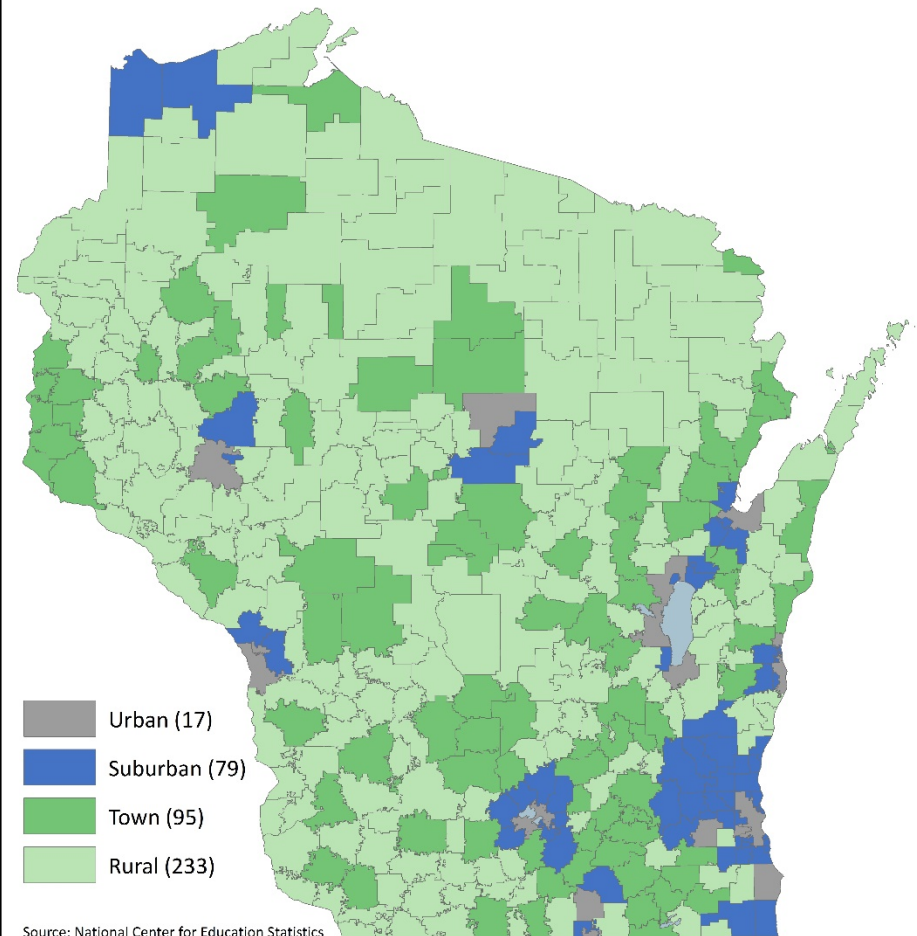
Number of Districts



Student Enrollment



School Districts by Locale





- “Rural public schools are the **mainstay of a community** and provide an enormous sense of pride over generations.”
- “According to the Wisconsin State Journal, rural school districts from 2000 to 2010, suffered a 7.5 percent **enrollment decline.** ”
- “For rural areas, where jobs are fewer and **wages are about 25 percent less** than urban areas, this is devastating for kids.”
- “While public school funding for rural schools declines, there are **costs that continue to increase . . .**”

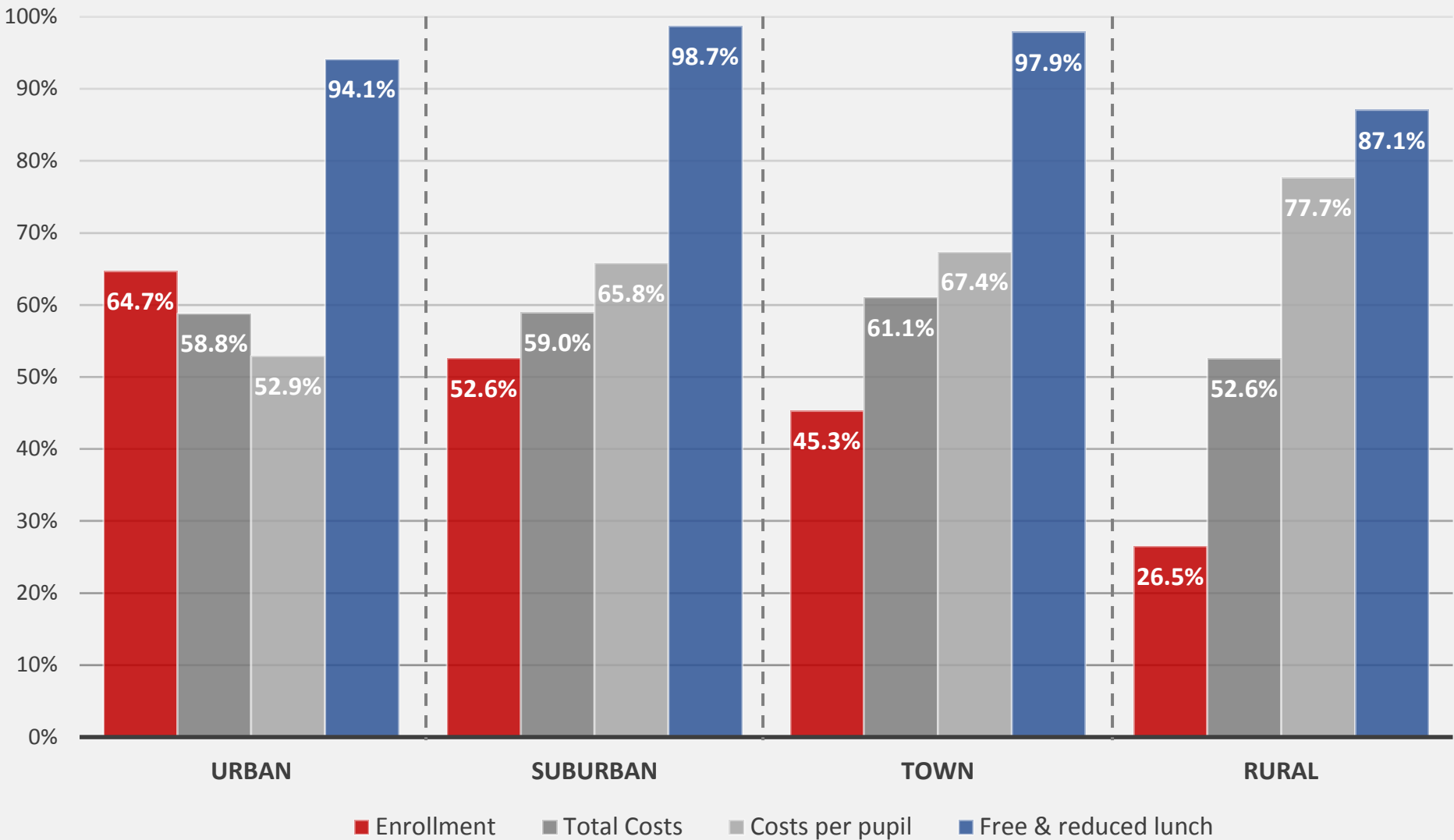
*“Wisconsin's rural public schools face dilemma”*

*Capitol Times Editorial from Luke Francois and Rita Wittwer - July 15, 2015*

# Increase in Enrollment, Costs, & Poverty

## Percent of Districts by Locale

### 2008/09 to 2013/14





# Research Questions

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- What trends (enrollment decline, poverty, and increasing costs) are affecting rural schools in Wisconsin?
- Is there a correlation between these different trends in rural school districts?
- How does enrollment predict expenses, poverty, assessment, & demographic characteristics?

# Methodology

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- Calculate percent change from 2008/09 to 2013/14  
(Ex:  $2,000 - 1,900 = 100 / 2,000 = - .05$ )
- Perform Pearson's correlation coefficient and generate scatter plots
- Complete series of multi-regression models

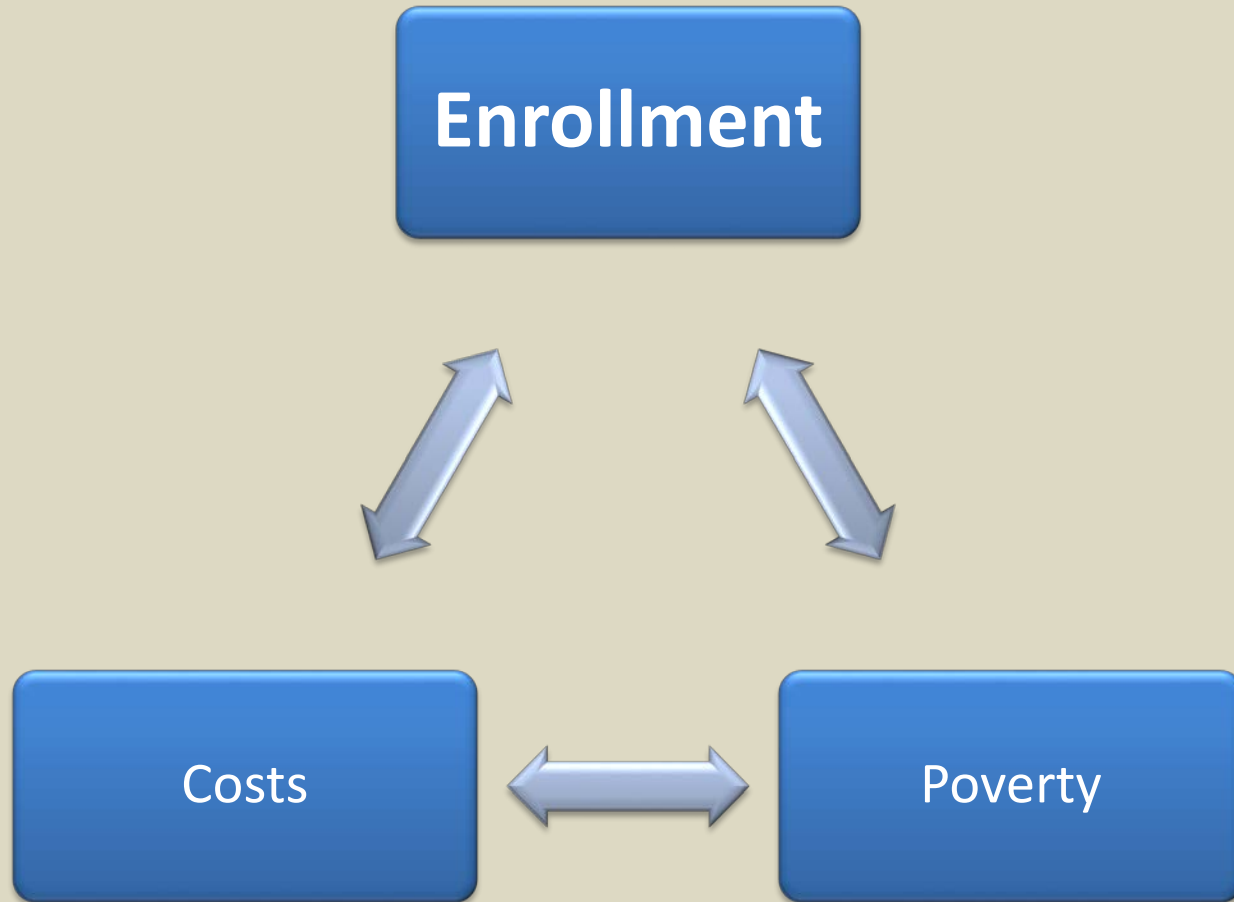
# Research Questions

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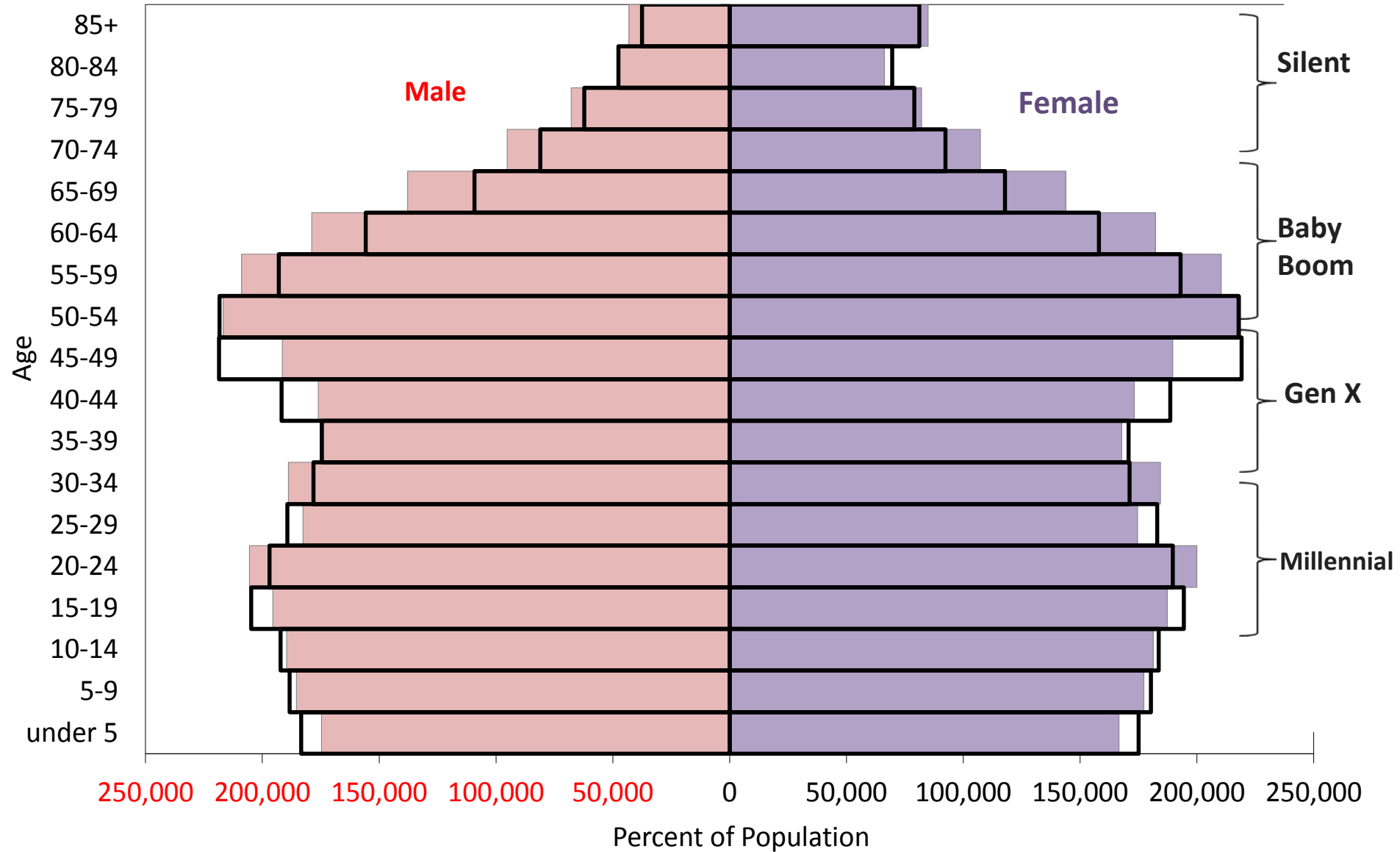
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# Key Variables

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# Age Structure State of Wisconsin

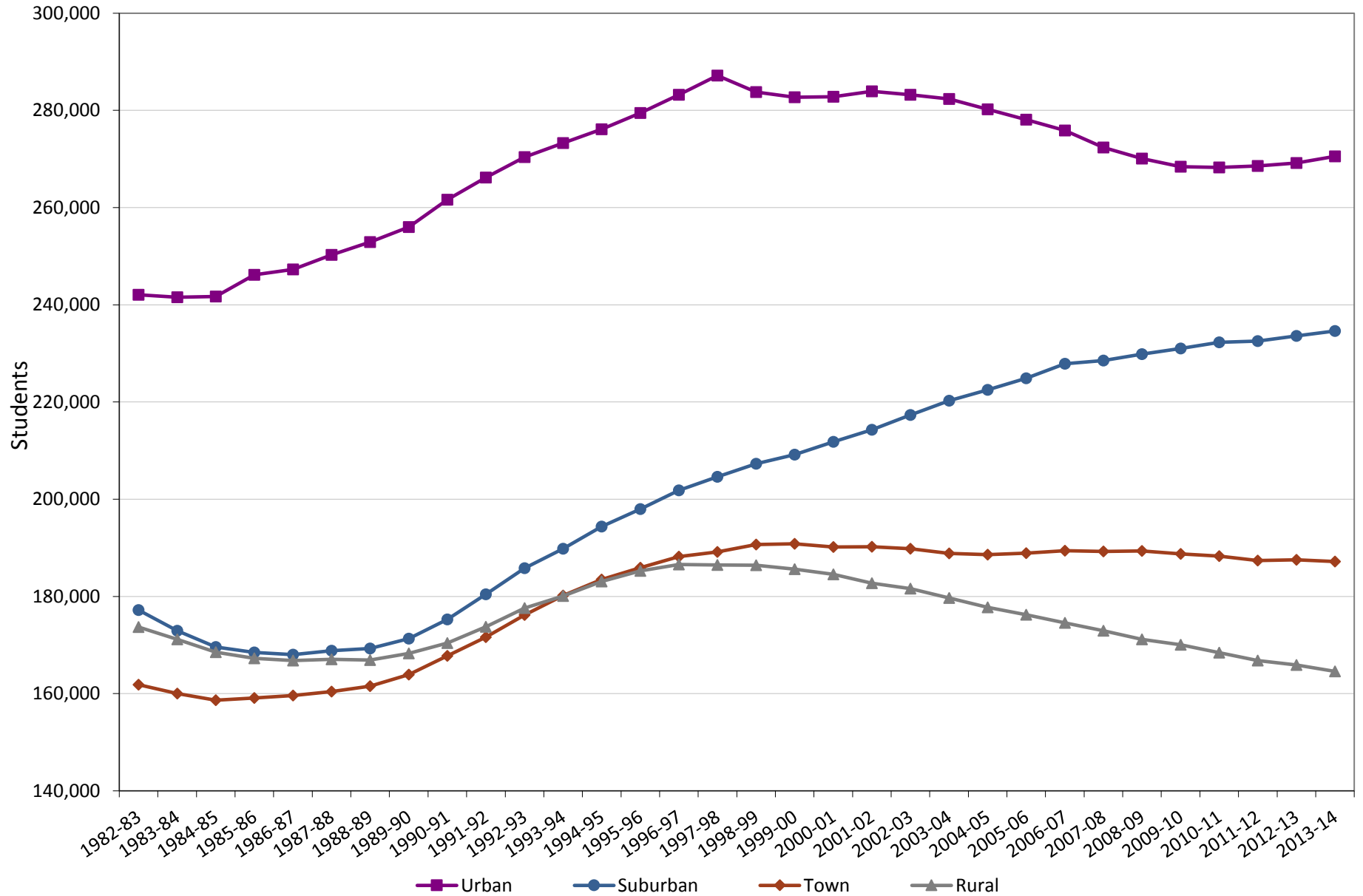


Source: U.S. Census

2010 Census      2014 Estimates

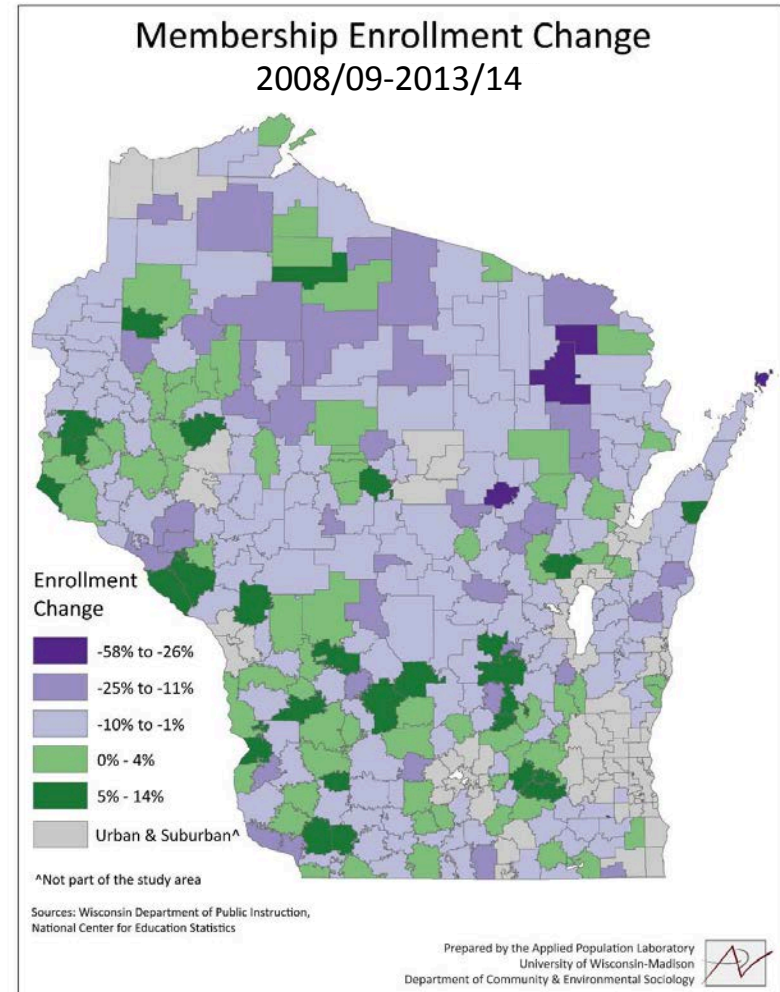
# School Districts

Student Enrollment by Locale



# School District Enrollment

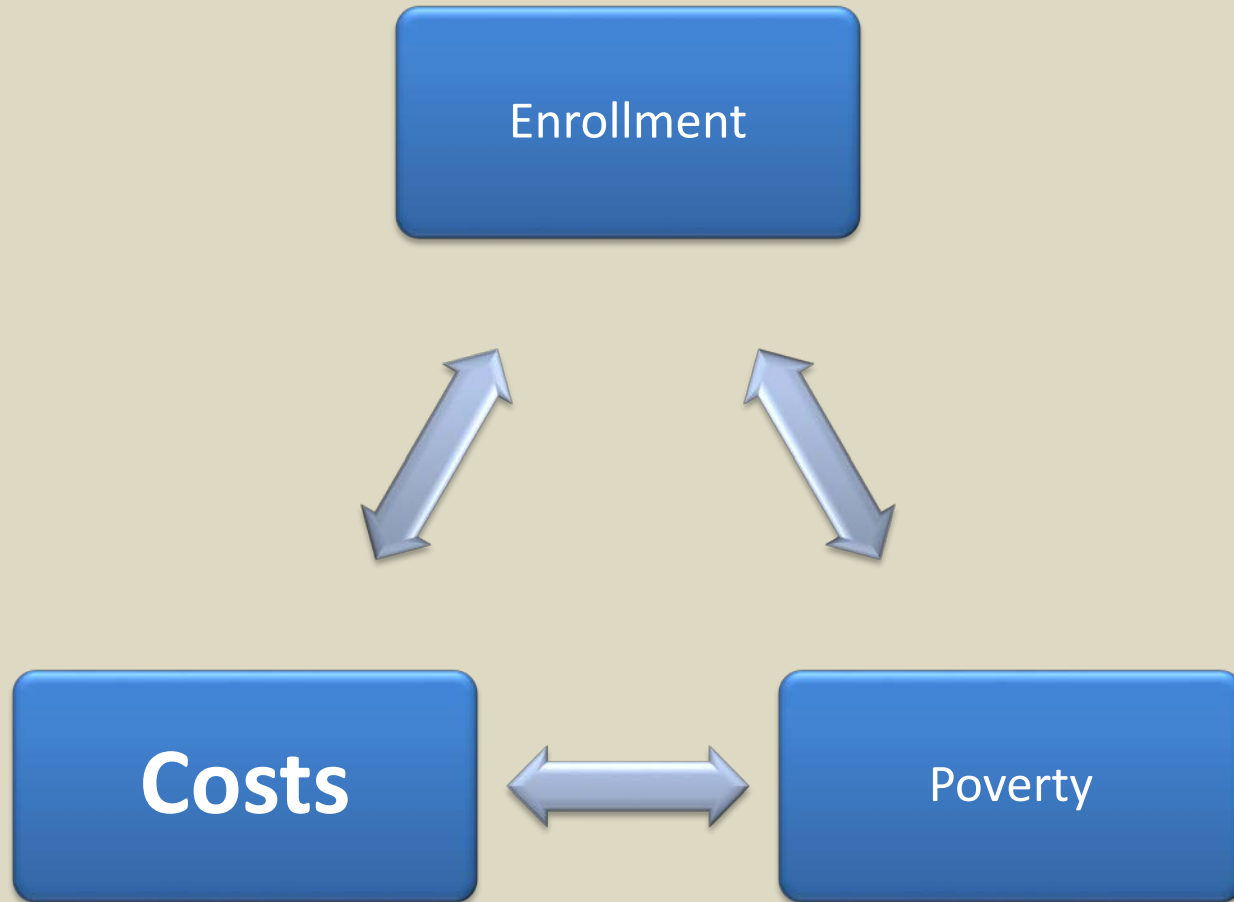
- Statewide enrollment declined by 0.43% from 2008/09 to 2013/14.
- 35% of urban districts declined.
- 47% of suburban districts declined.
- 67% of town/rural districts declined.
- 29% of town/rural districts decreased by 10% or more.





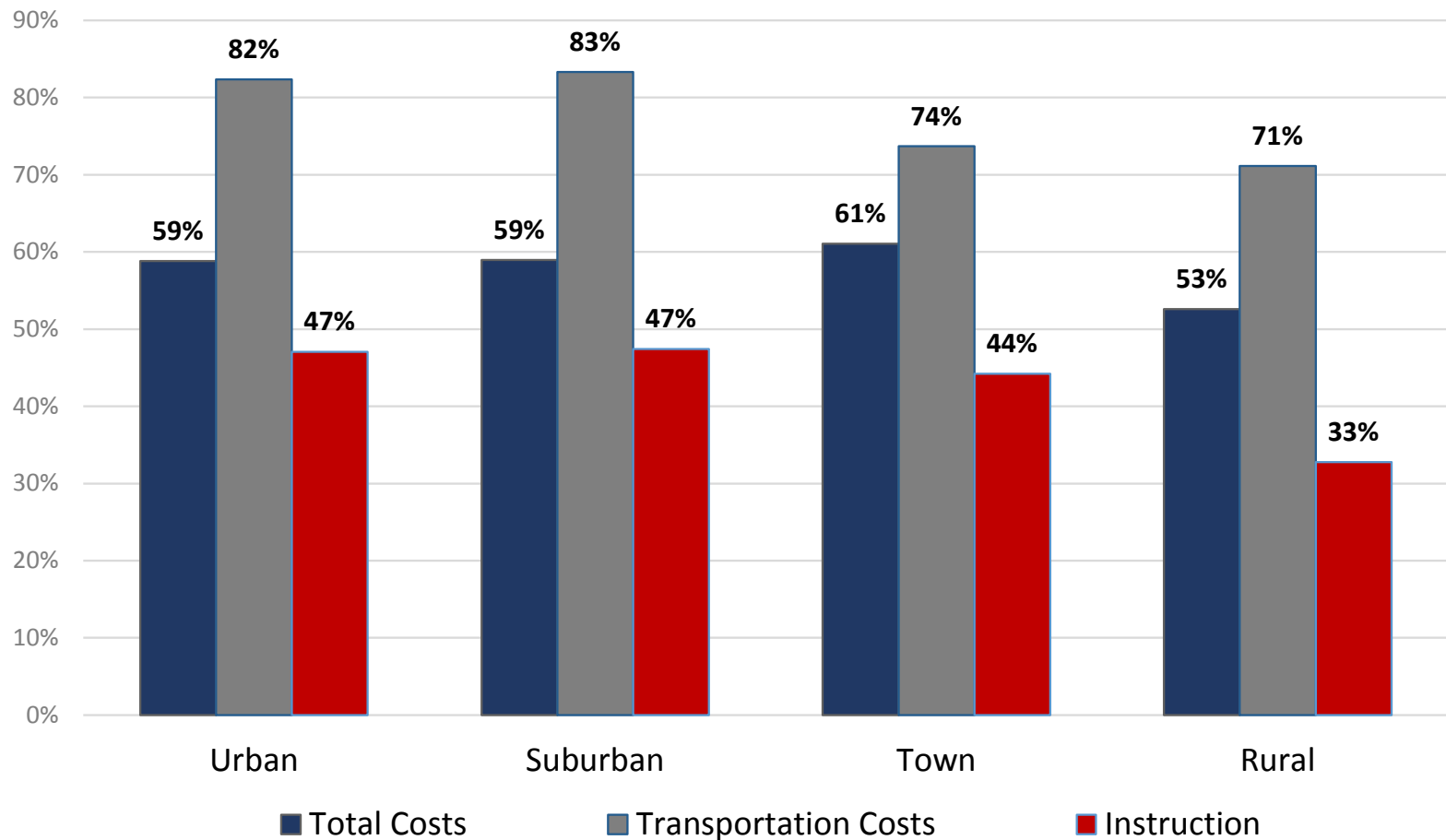
# Key Variables

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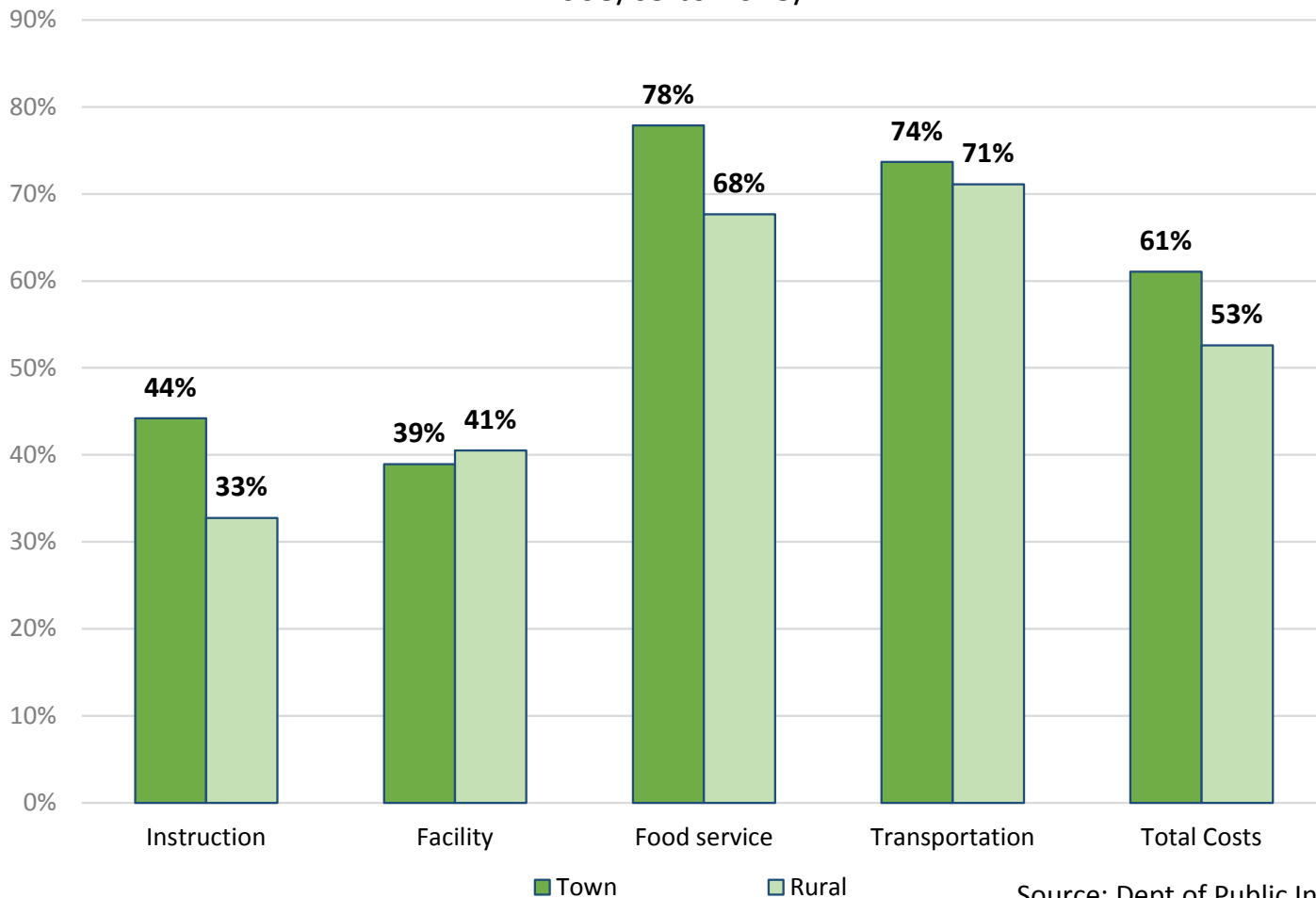
# Costs

Increased Spending  
Percent of District by Locale  
2008/09 to 2013/14



# Rural School Costs

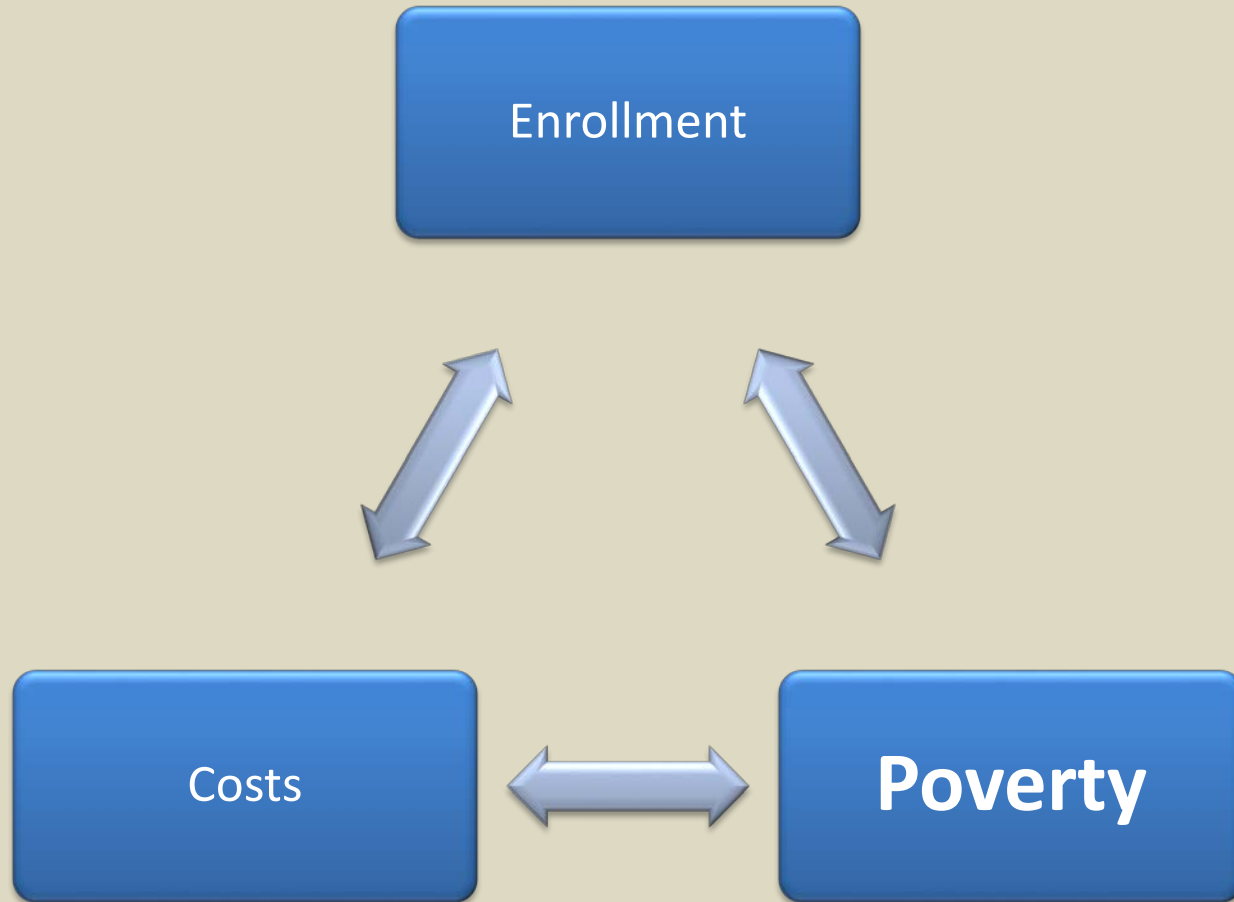
Increased Spending  
Percent of Districts  
2008/09 to 2013/14



Source: Dept of Public Instruction

# Key Variables

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# Poverty in Wisconsin

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Nearly 1 in 5 children are now living in poverty.

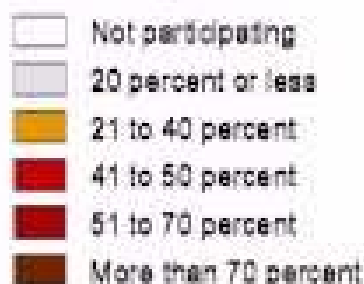
- Over 2010-2014, nearly one in five Wisconsin children were living in poverty.
- 239,000 children living in poverty, or 18.5%.
- Up from 14.6% of children living in poverty in 2005-2009.
- Additional 50,000 children at risk for food & housing insecurity and poor educational outcomes.
- Wisconsin ranks 20<sup>th</sup> on the prevention of child poverty.
- 10 states had faster rates of increase in child poverty than Wisconsin.

# Poverty in Wisconsin

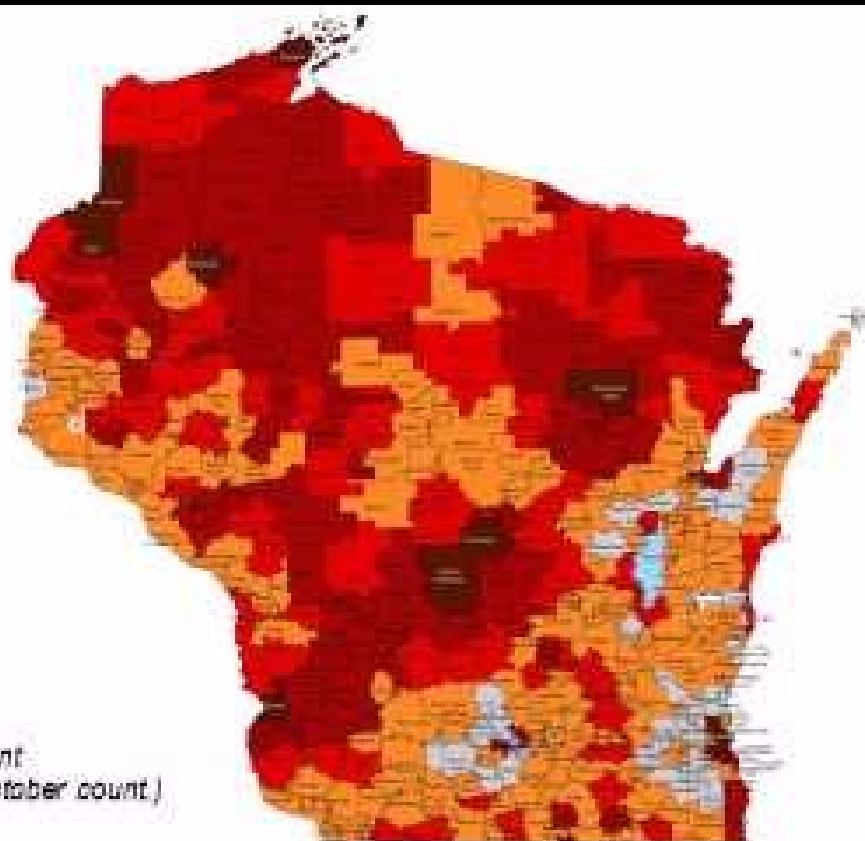
## Free or Reduced-Price School Meal Eligibility

**2012-2013**

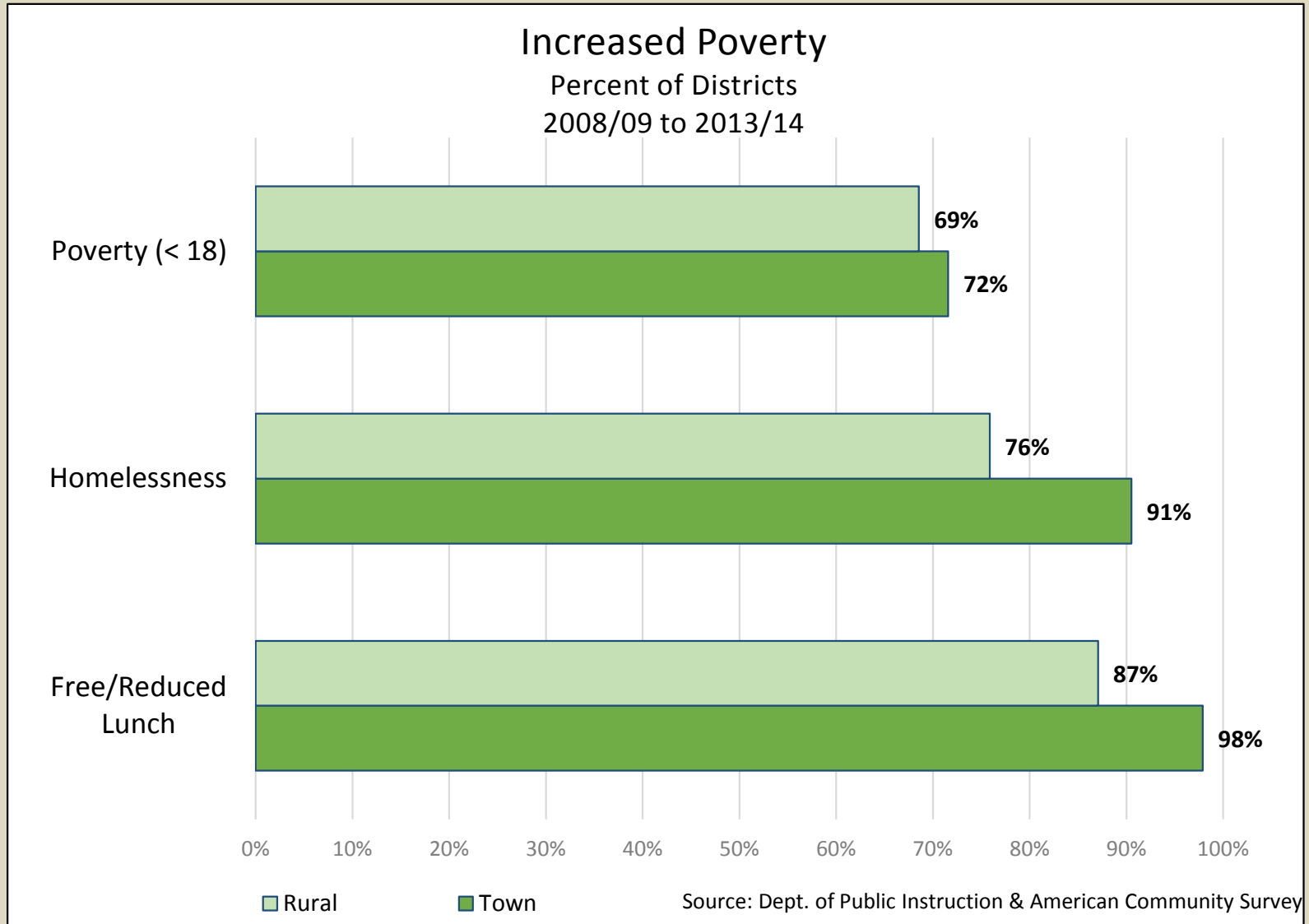
### Legend



*Data Source: National School Lunch Program reimbursement claims submitted by school districts to the DPI. (Certified October count.)*



# Rural School Poverty

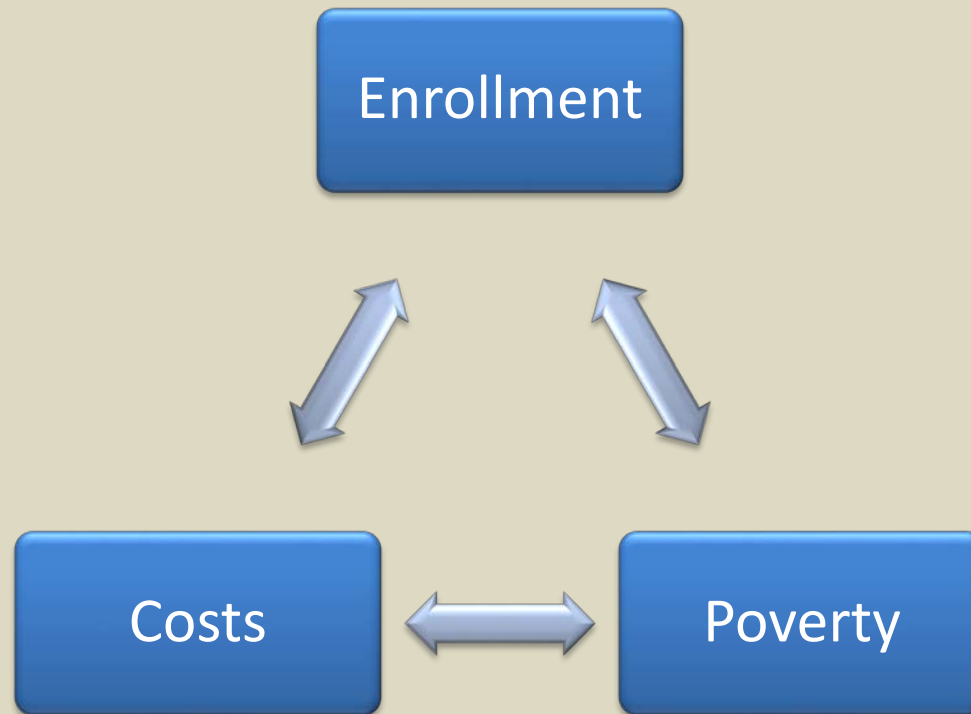




# Research Question

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Is there a correlation between these different trends in rural school districts?



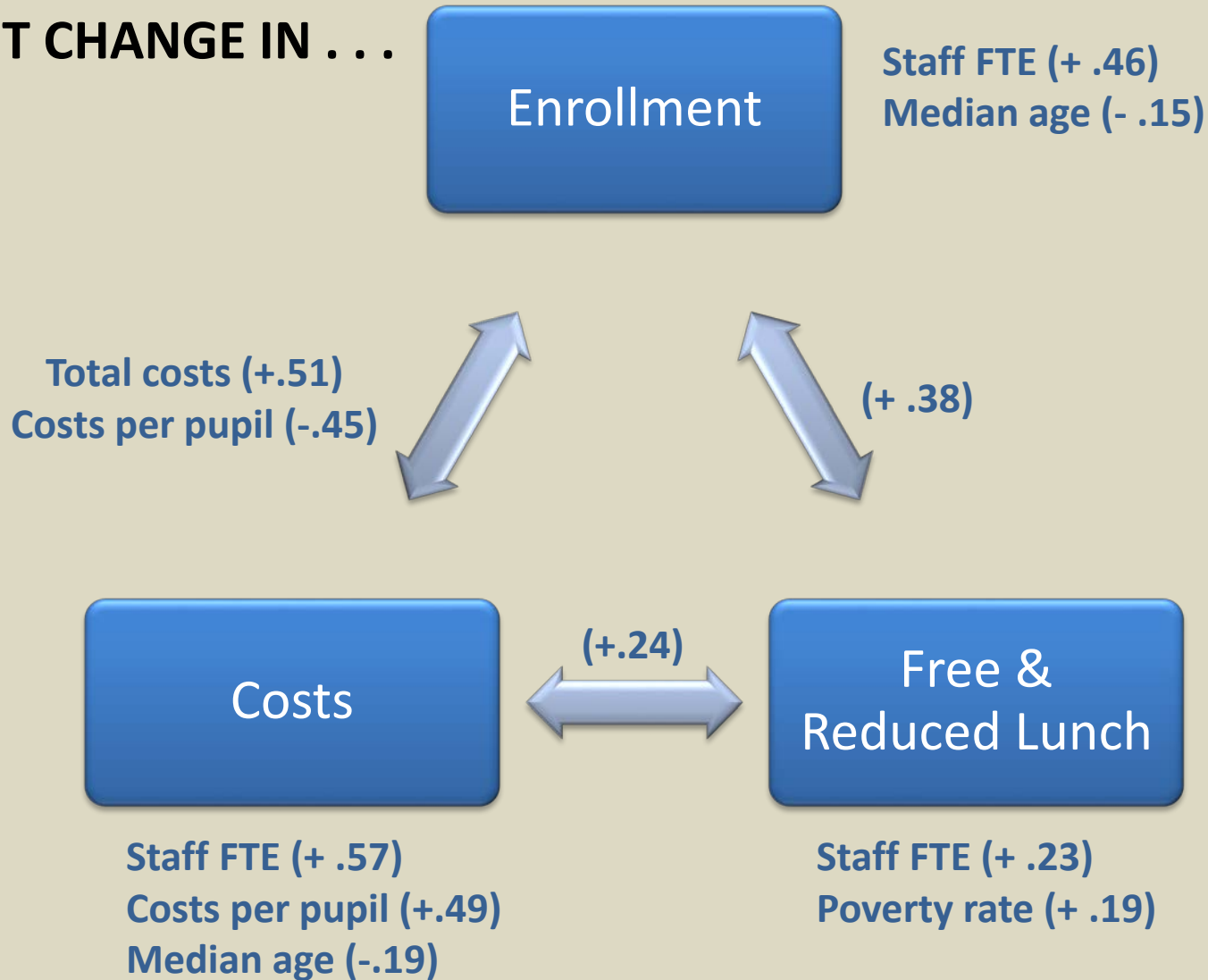
# Correlation

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- Correlation between enrollment & costs (total costs & costs per pupil).
- Correlation between enrollment & free/reduced lunch.
- Weaker correlation between free/reduced lunch & costs .
- Staff FTE collates with all three.
- Other correlations: poverty rate & graduation rates, poverty rate & staff FTE, and WKCE math & WKCE reading.

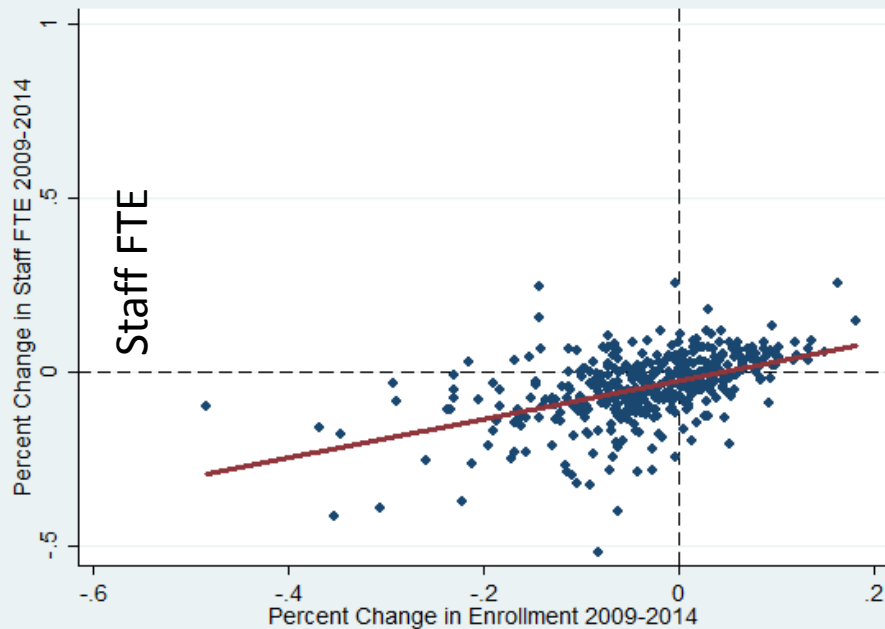
# Correlation

PERCENT CHANGE IN ...

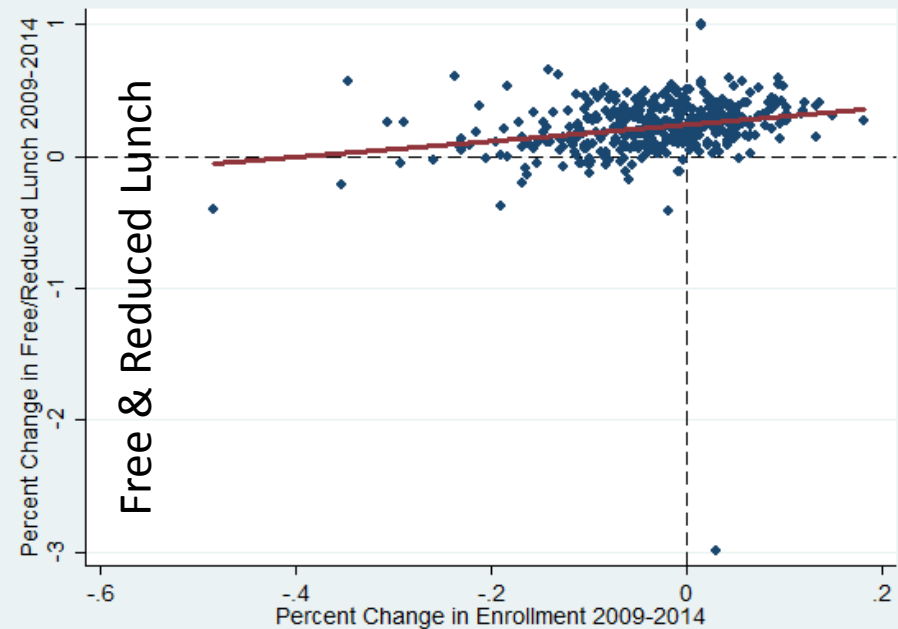


# Staff FTE & Free/Reduced Lunch

Positive correlation between Enrollment and Staff FTE.

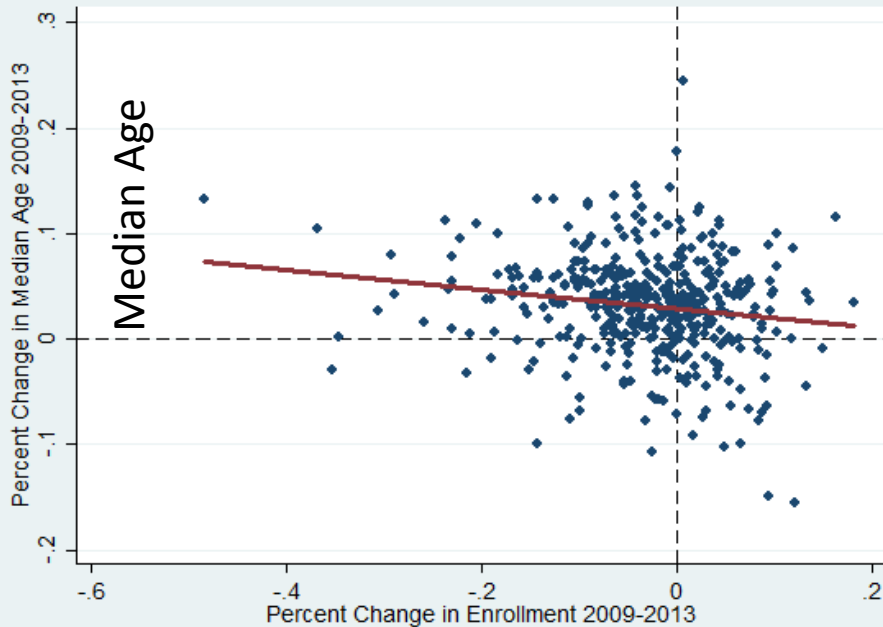


Positive correlation between Enrollment and F/R Lunch.

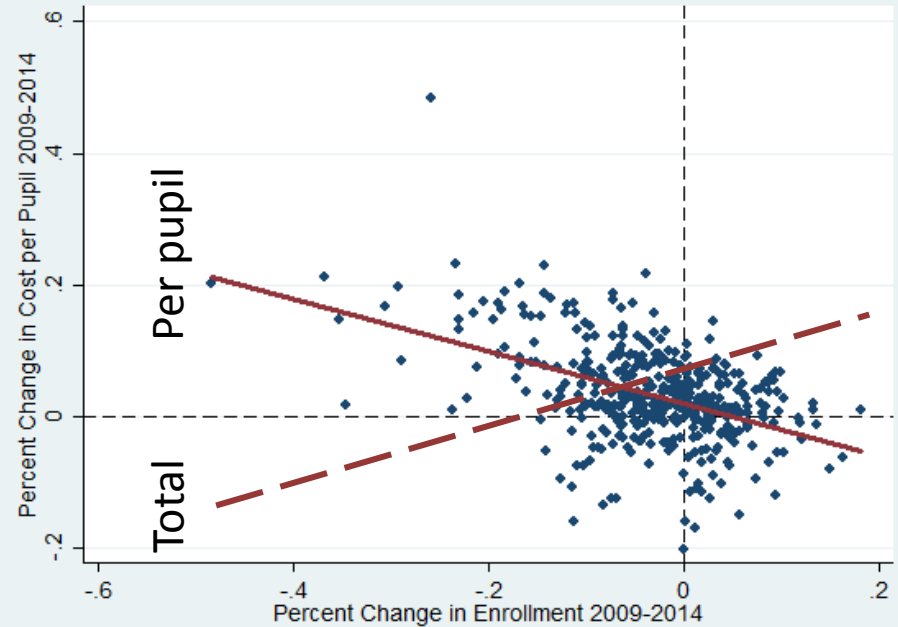


# Median Age & Costs

Negative correlation between Enrollment and Median age.



Negative correlation between Enrollment and Costs per pupil.



Strong positive correlation between Enrollment and Total Costs.

# Research Questions

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- How does enrollment predict school expenses, poverty, assessments, & demographic characteristics?

# Key Variable - Enrollment

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## Expense Variables

- Staff FTE
- Total costs
- Costs per pupil

## Socioeconomic Variables

- Free/reduced lunch
- Equalized value
- *Poverty rate*

## Assessment Variables

- Graduation rates
- ACT scores (11<sup>th</sup>)
- WKCE scores (8<sup>th</sup>)

## Demographic Variables

- *Median age*
- *Population under 18*
- *Hispanic population*

\*Examining percent change in . . . .



# Future Research

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- Continue to monitor these trends and determine if enrollment is a predictor.
- Determine if the location of a district matters. What does it mean for districts further from urban centers?
- Analyze the influence of private schools and voucher program on rural public schools.

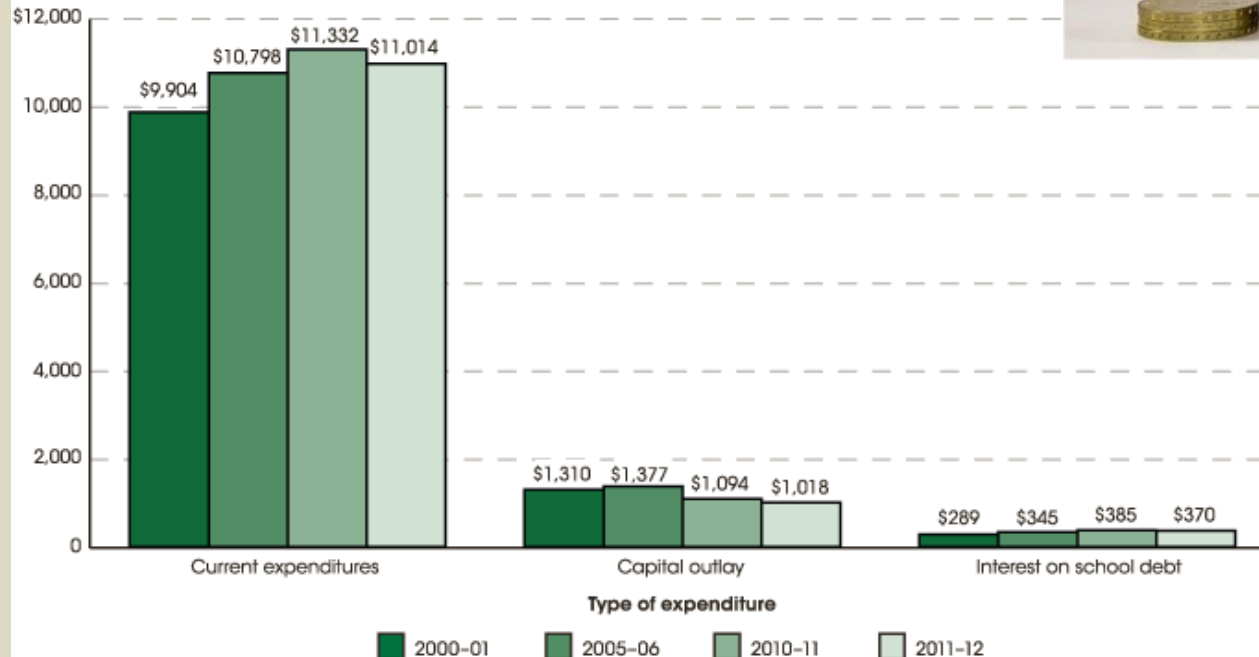


# School Expenses

## United States Expenditures on Education

Total expenditures per student

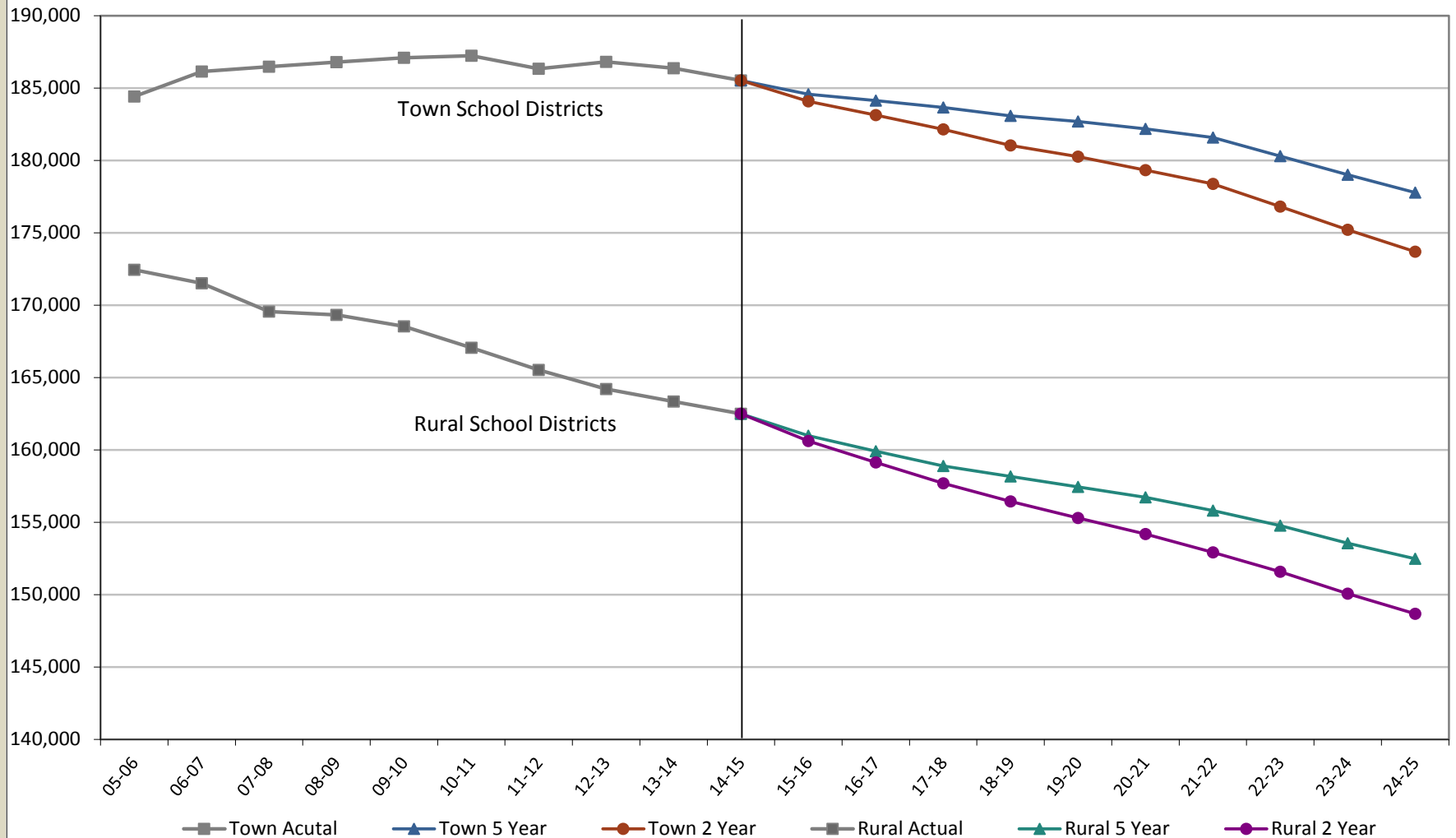
[In constant 2013–14 dollars]



Source: Center for National Education Statistics

# Enrollment Decline

**Town & Rural School Districts**  
4K-12 Enrollment History and Projections



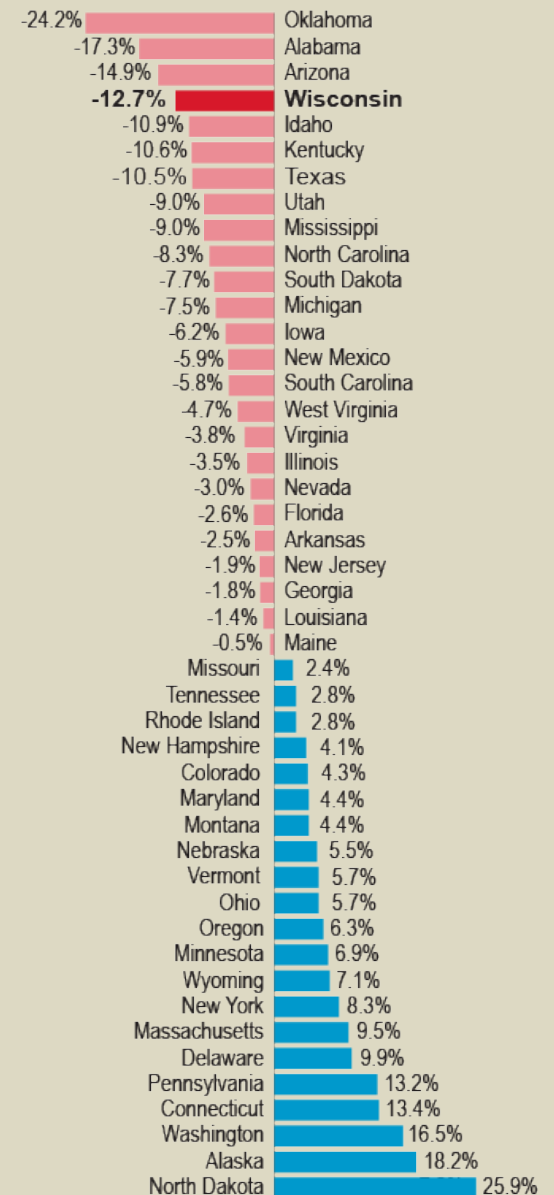
# State Budget Cuts to Education

- Student-teacher ratio increased from 14.8 in 2009 to 15.1 in 2013.
- Wisconsin schools have lost nearly 3,000 teaching jobs over the last decade.
- Share of districts with average teacher experience of 15 years or more has fallen.
- 2016-17 budget year calls for a freeze on the revenue limit and a \$100 increase in per-pupil spending.

Source: Wisconsin Budget Project  
Initiative by Wisconsin Council on Children and Families

## Wisconsin Cuts to Education Among Largest in the Country

Percent change in state formula per student, inflation-adjusted, fiscal years 2008-2016.





# THANK YOU!

Special thanks to Erica Anderson for her assistance.

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