

# COST ADJUSTMENTS AND THE WYOMING SCHOOL FUNDING MODEL

A PRESENTATION TO  
THE JOINT EDUCATION COMMITTEE

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# Cost Adjustment in the Wyoming Funding Model

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- External Cost Adjustment (ECA)
  - ▣ Used to adjust the *level* of funding for changes in the cost of providing educational services
- Regional Cost Adjustment (RCA)
  - ▣ Used to adjust the *distribution* of funding for regional differences in the cost of providing educational services

# The Determinants of Cost

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Cost = Price X Resource Quantity



Picus &  
Associates  
Model

Legislatively  
Enhanced  
Model

# The Determinants of Cost

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- Prices are set by the market
- Resource quantities are set by the legislature
- Both types of cost adjustments (ECA and RCA) and the proposed cost monitoring process focus exclusively on adjustments to the *prices* used in the funding model

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# The External Cost Adjustment

# A Two-Part Test for External Cost Adjustments

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- Do we have a reliable estimate of cost for each educational resource?
- Do we have reliable estimates of the changes in those costs over time?

Do we have a reliable estimate of cost for each educational resource?

# Do We Have Reliable Price Estimates?

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- Some components of the funding model are purchased by all types of firms
  - ▣ Paper & Pencils
  - ▣ Software
  - ▣ Energy
- Other components of the funding model are purchased only by schools
  - ▣ Teachers
  - ▣ Principals
- It's hard to know the market price for resources purchased only by schools
- Evidence suggests that teacher salaries have been above market



# The Determinants of Labor Cost in the Funding Model

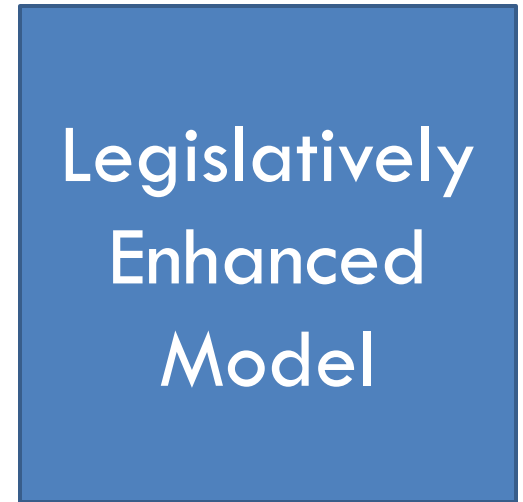
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Cost = Price X Resource Quantity

Cost =

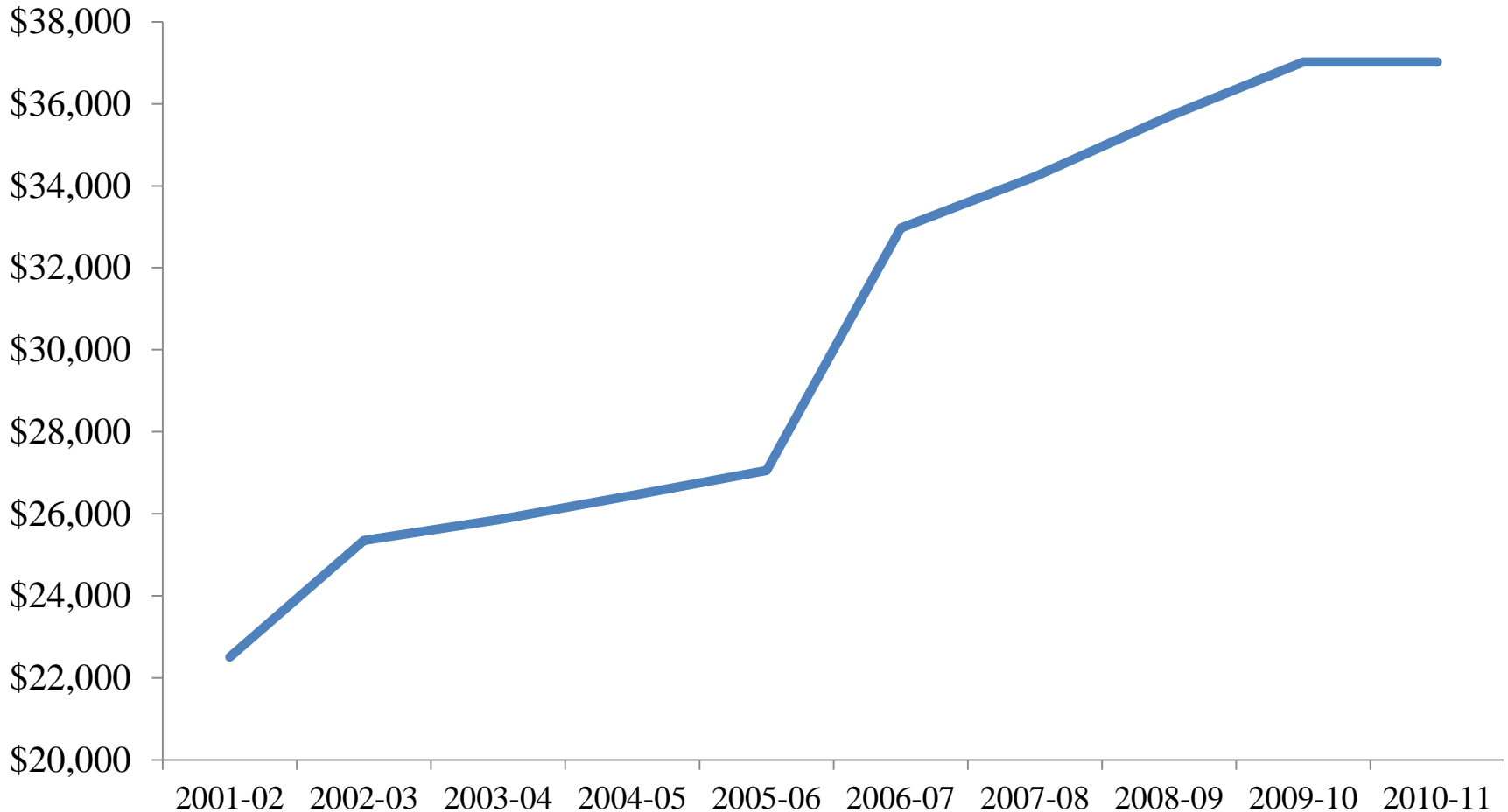


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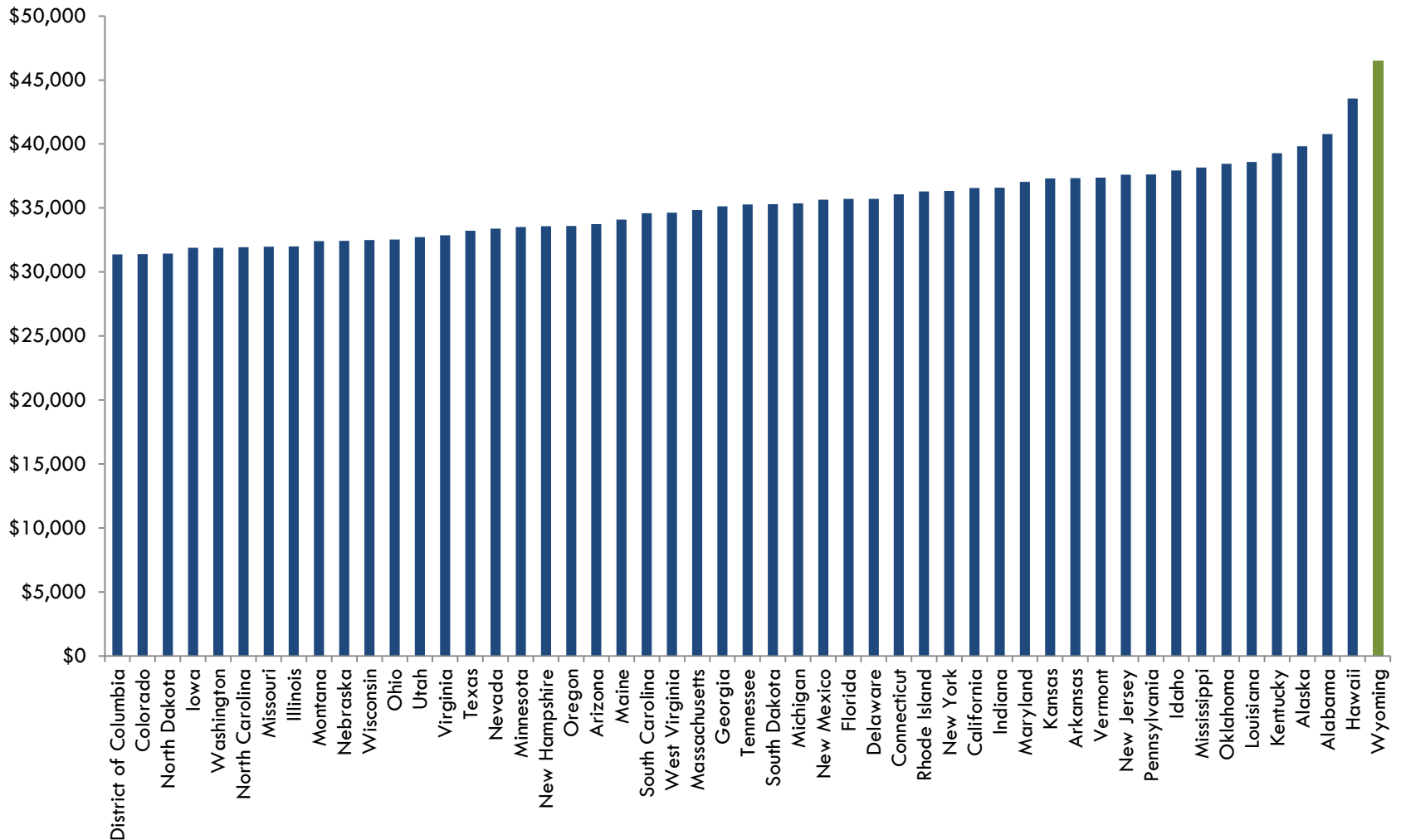


# Funding Model Base Salaries

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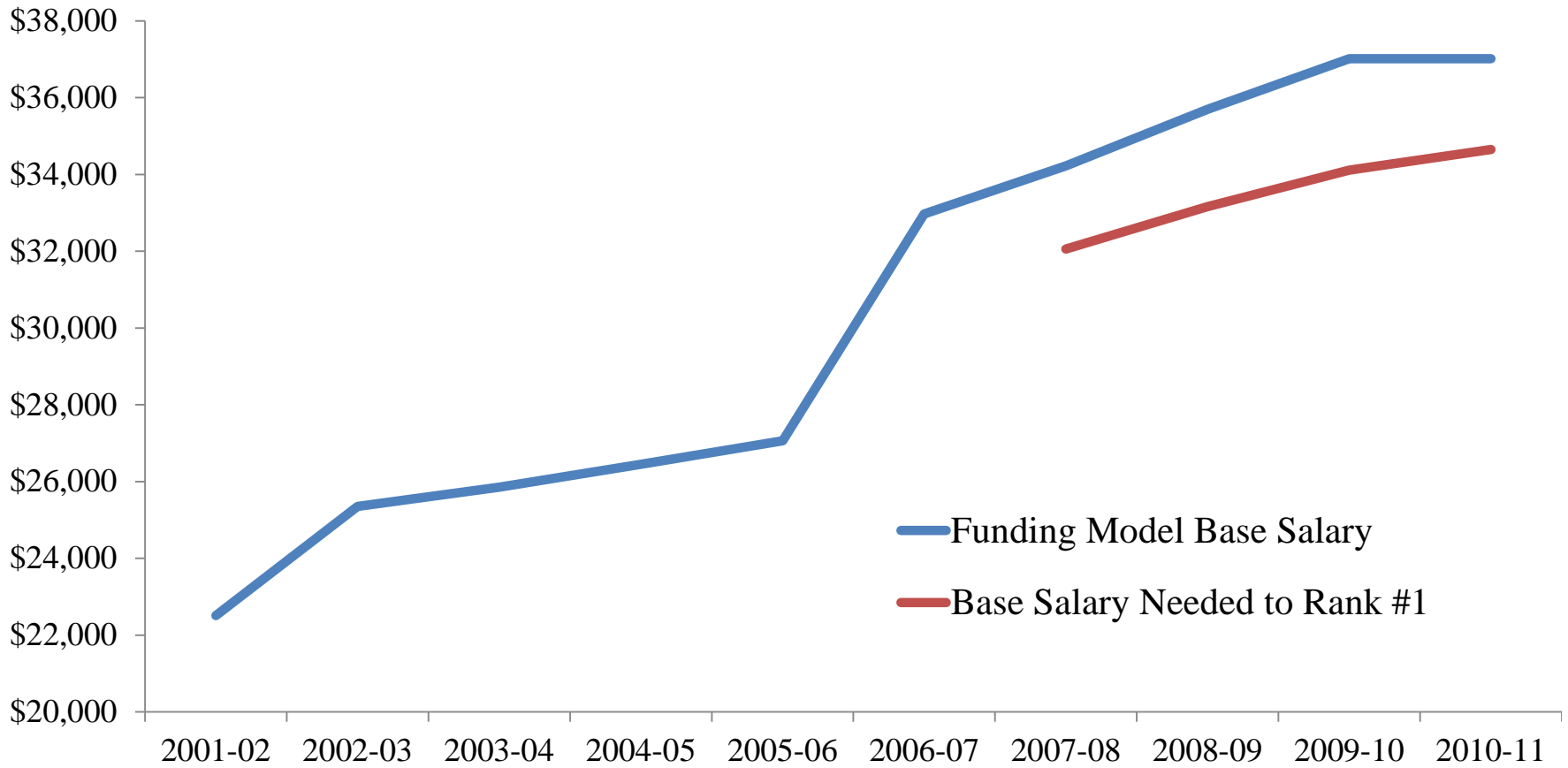
# Cost-Adjusted Starting Salaries by State, 2007-08



Source: NCES Schools and Staffing Survey and CWI

# Funding Model Base Salaries

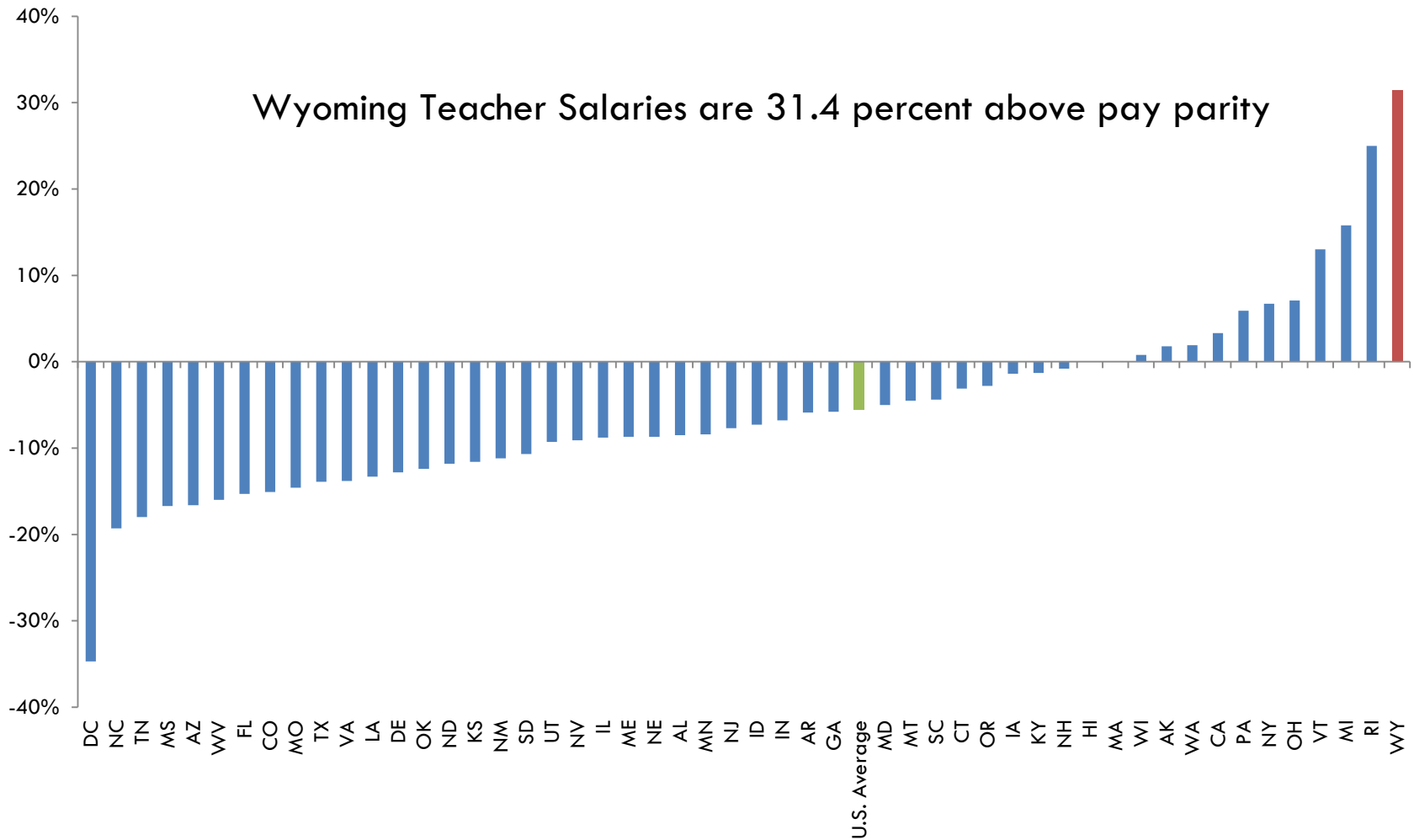
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Note: Base salary needed to rank #1 has been calculated assuming no change in the relationship between funding model base salaries and actual starting salaries

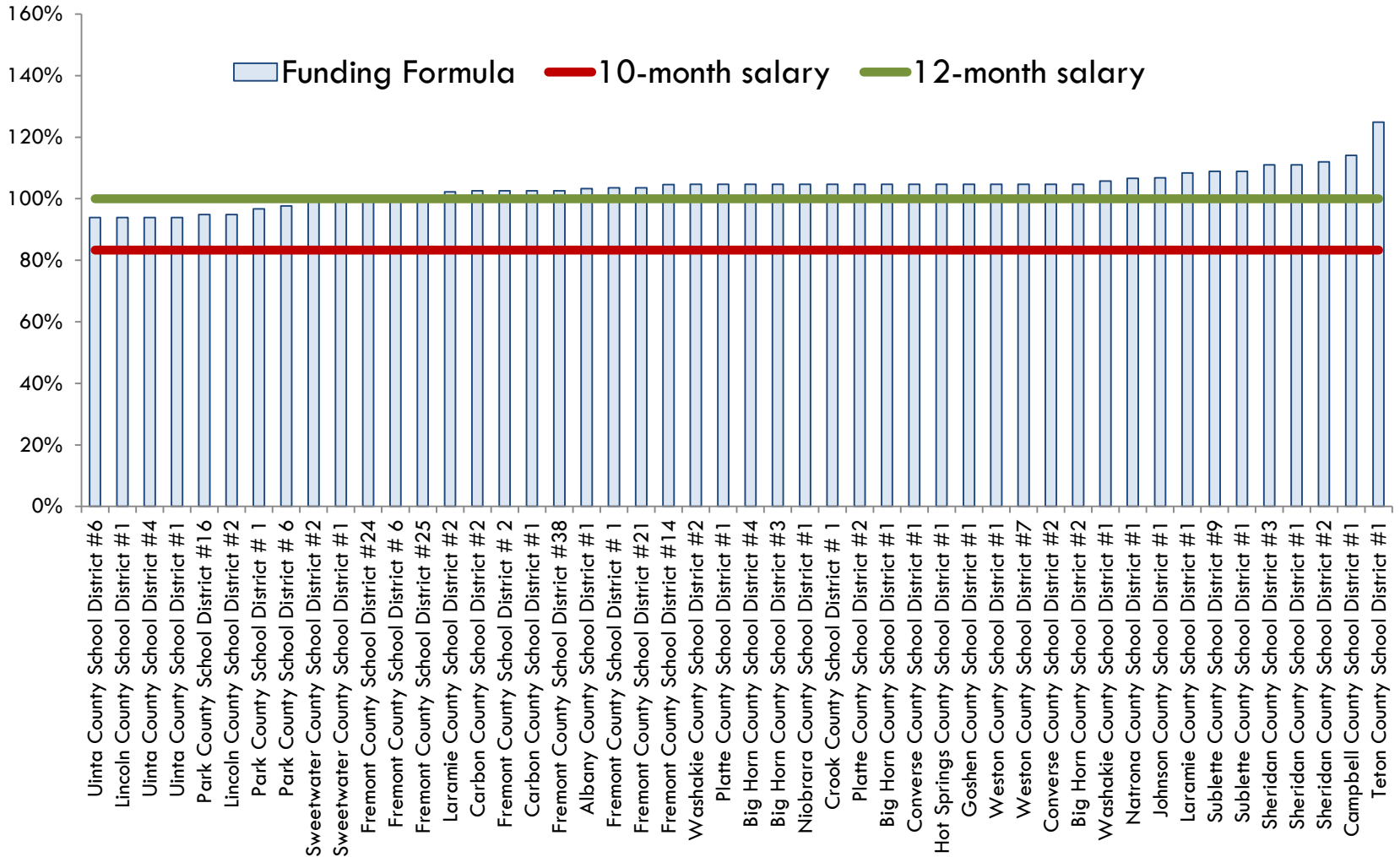
# Education Week's Pay-Parity Index

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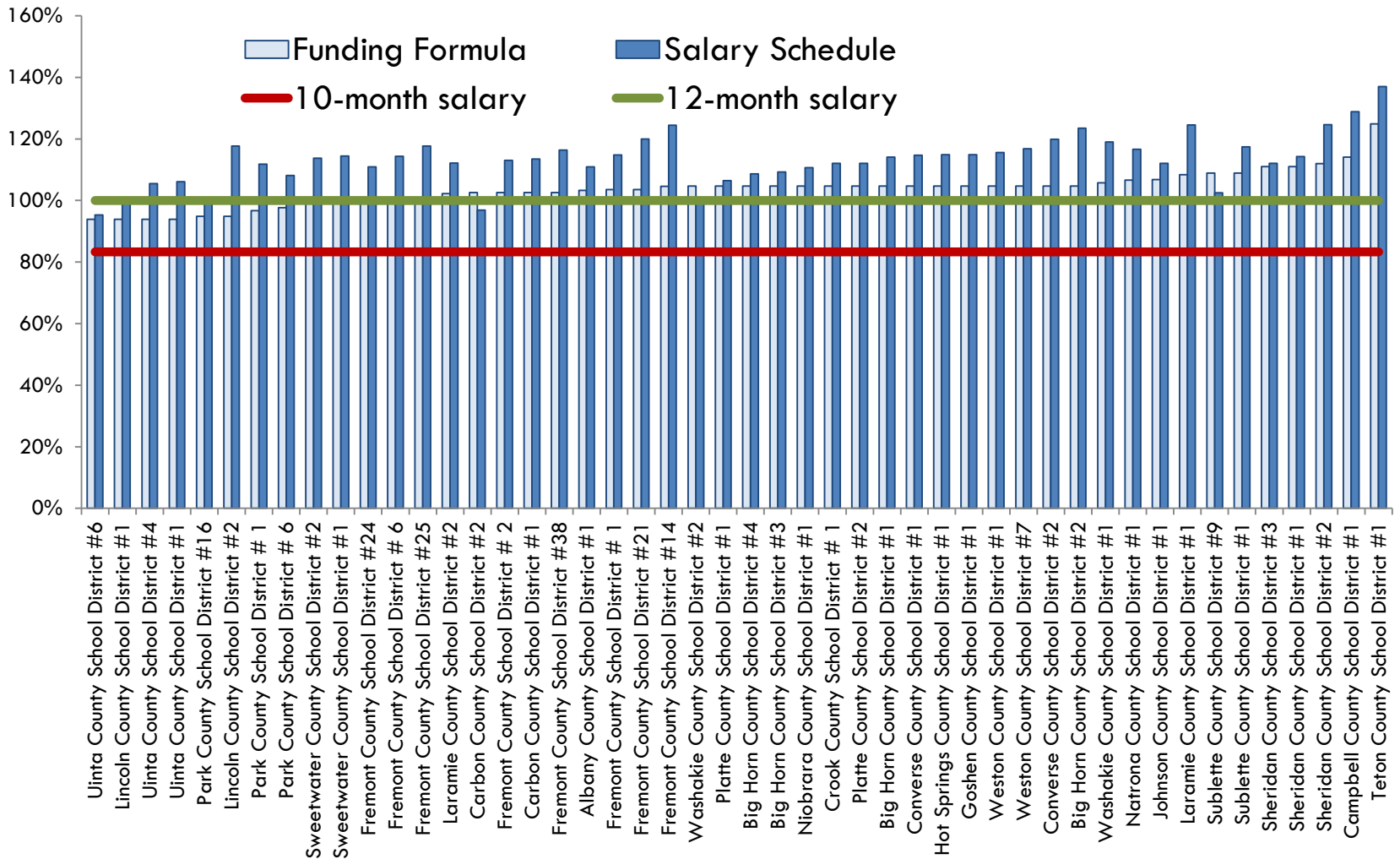


Source: Education Week's Quality Counts 2012

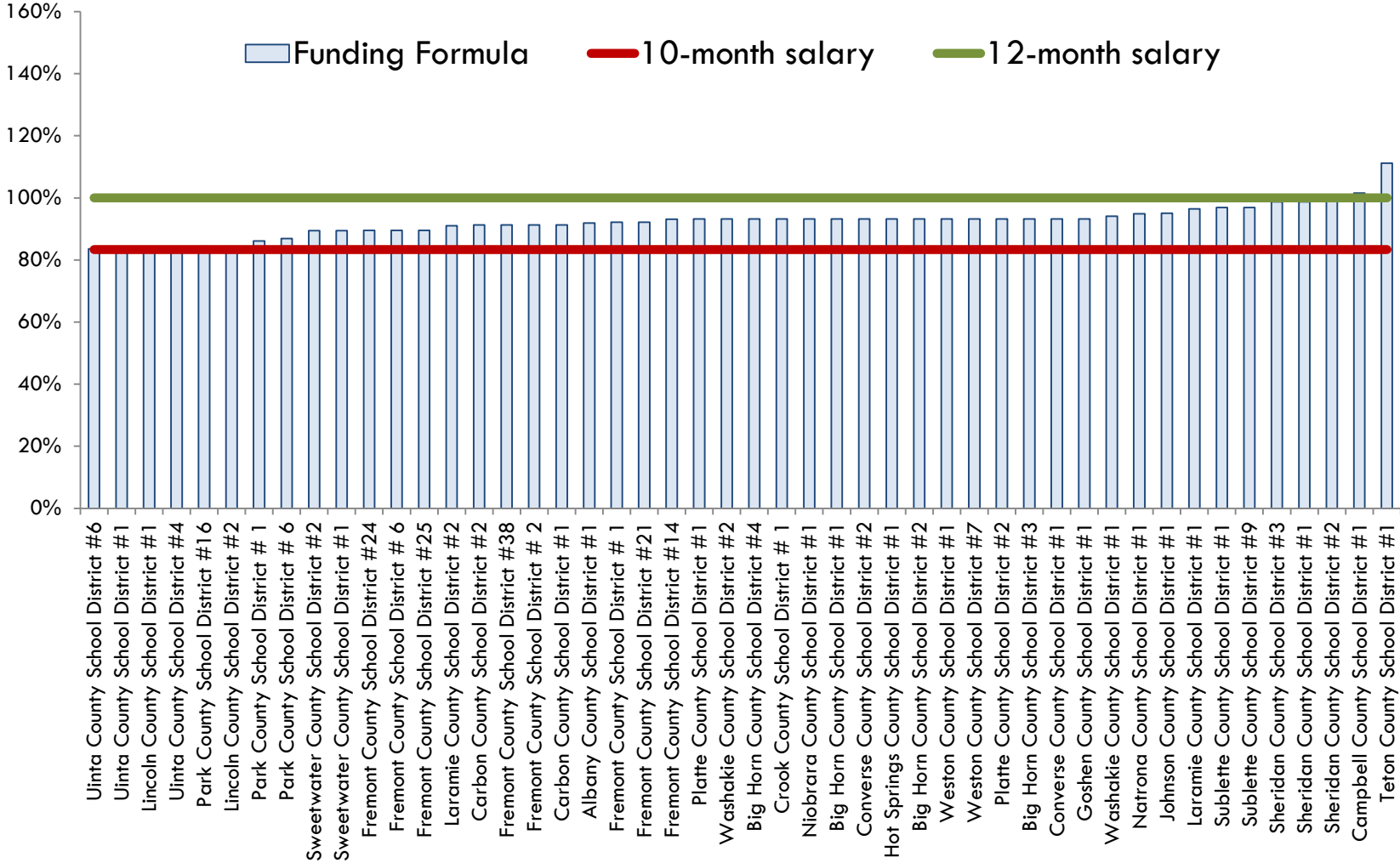
# Relative Starting Salaries 2010-11



# Relative Starting Salaries 2010-11

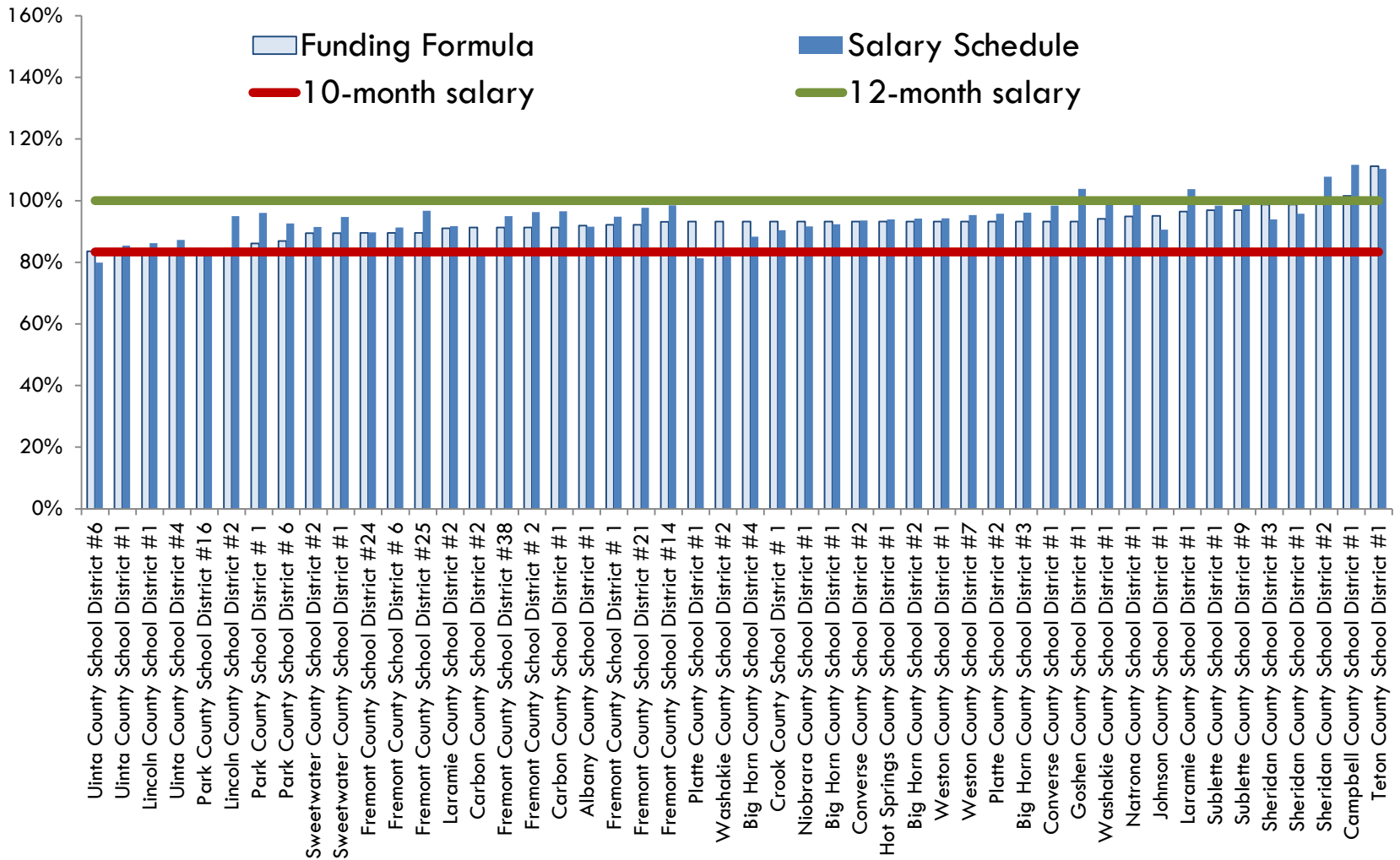


# Relative Mid-Career Salaries 2010-11





# Relative Mid-Career Salaries 2010-11



# Surge in New Teaching Licenses

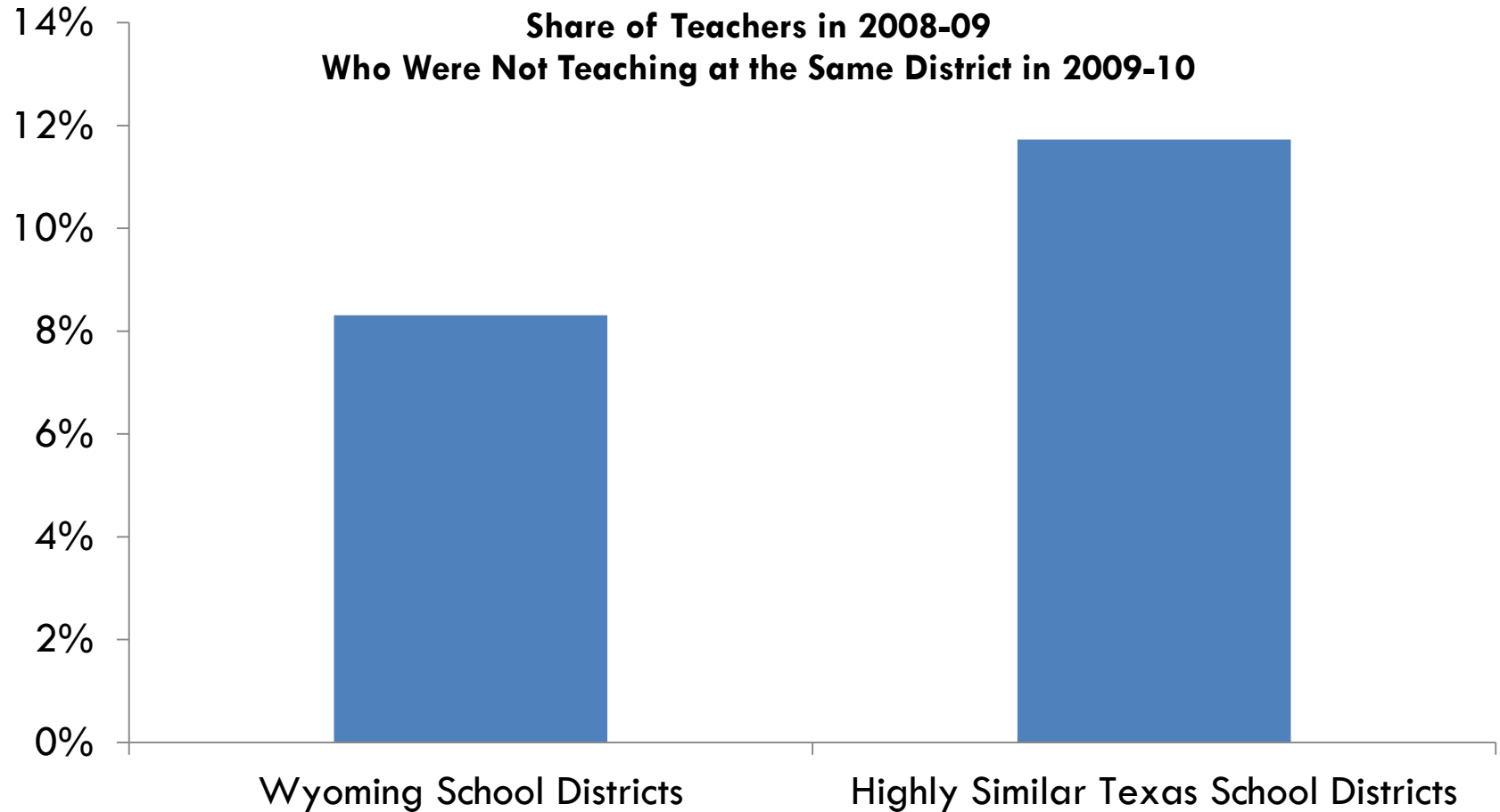
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Year	New Teaching Licenses	Renewed Teaching Licenses
2007	897	1,575
2008	902	1,570
2009	911	1,902
2010	901	1,945
2011	1,039	2,104

Source: Wyoming Professional Teaching Standards Board

# Turnover Remains Remarkably Low

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# Current Estimates of Price

- Wyoming has historically priced personnel in the funding model based upon averages of salaries actually paid
- Evidence suggests that those prices have been above market
  - ▣ Cost-adjusted, teacher salaries are higher than teacher salaries in any other state
  - ▣ Teacher salaries are higher than comparable non-teacher salaries in Wyoming
  - ▣ Wyoming is experiencing a surge in applicants for teaching licenses and unusually low turnover rates
- Tools developed by Dr. Stoddard will indicate when the educator salaries face market pressures
- When the educator labor market begins responding to pressure, we will know the prices are at market

Do we have reliable estimates of the changes in those costs over time?

# Recommended Cost Indices

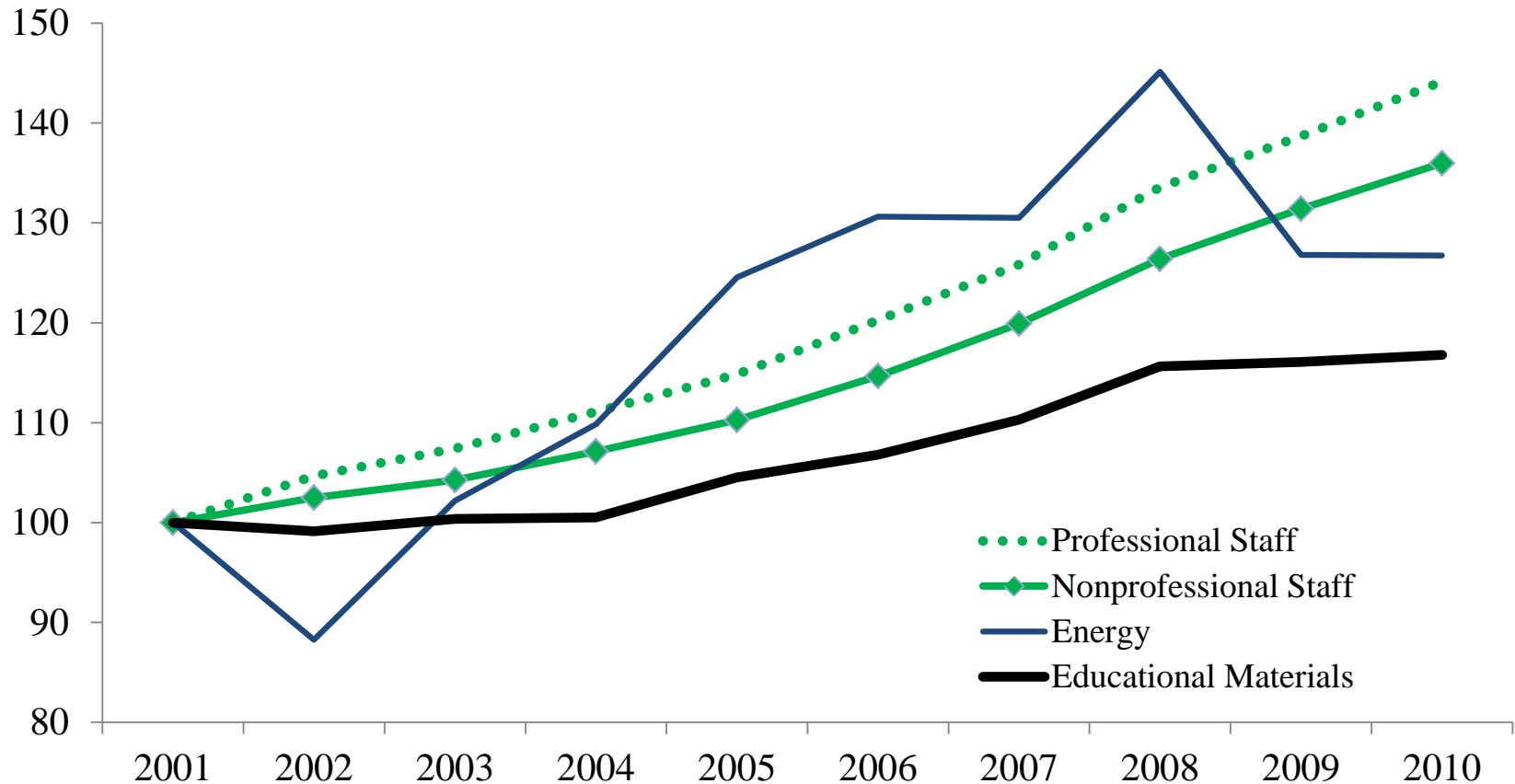
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<b>Model Component</b>	<b>Recommended Cost Index</b>	<b>Share of Funding Model Expenditures</b>
Professional Labor	Comparable Wage Index	66.7%
Non-professional Labor	High School Comparable Wage Index	14.6%
Energy	Weighted average of BLS producer price indices (PPIs) for commercial electricity and natural gas	3.4%
Educational Materials	BLS PPI for office supplies and accessories	15.3%

# Recommended Cost Indices for the Four Major Funding-Model Components

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Index 2001=100



# Conclusions About the ECA

- If prices are above market, there is no need to apply an external cost adjustment
  - ▣ Personnel prices appear above market
  - ▣ Supplies and energy prices appear close to market
- As funding levels become aligned with costs, Wyoming should consider adjusting each major resource component separately using the most appropriate price index for that component
- Because Wyoming uses a block grant to fund schools, it is a policy decision whether to apply a cost adjustment to energy and supplies when there are no signs of labor market pressure



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# The Regional Cost Adjustment

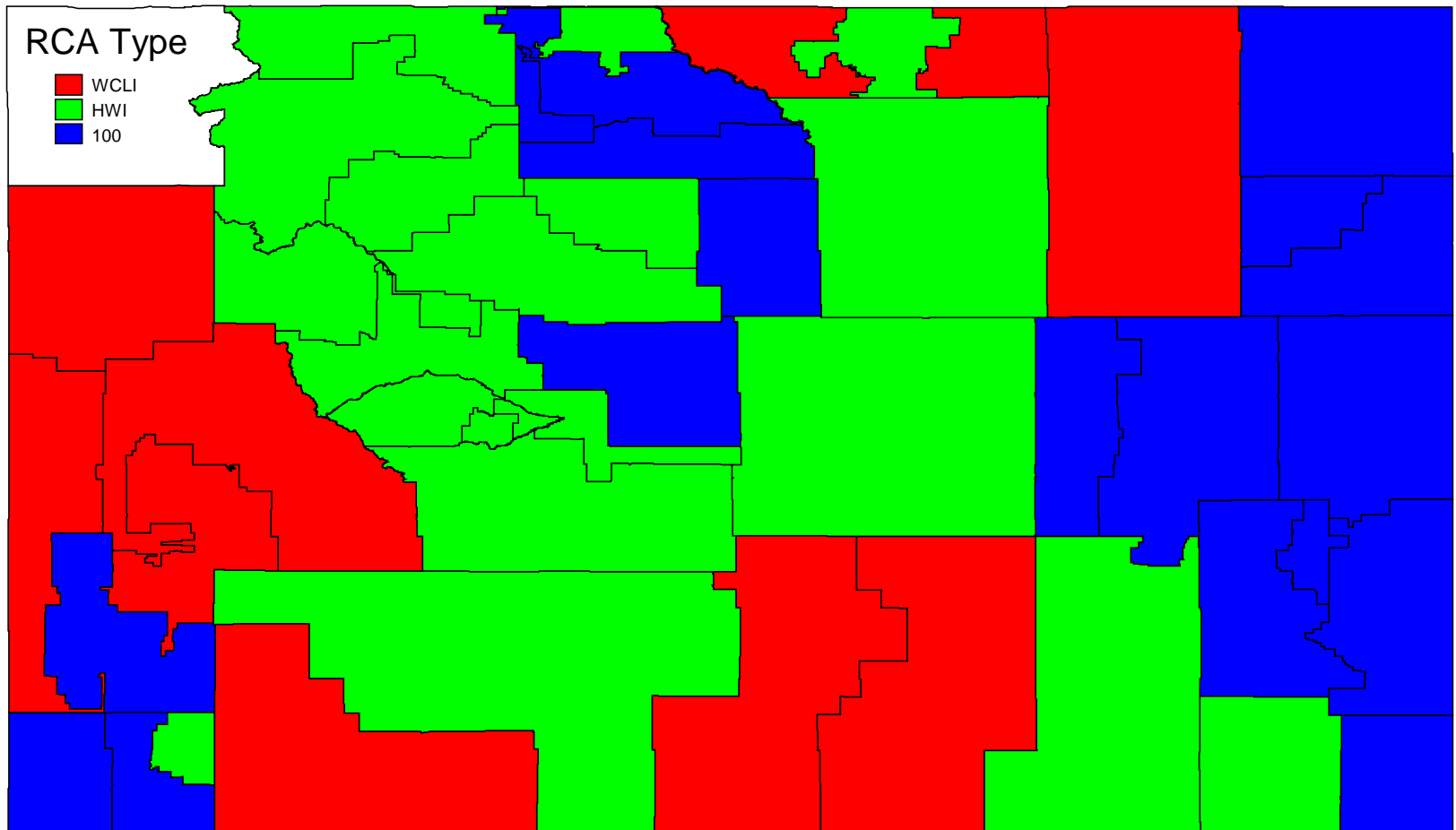
# Wyoming's RCA Policy Choice

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- Wyoming's regional cost adjustment (RCA) is designed to provide additional resources to school districts with higher labor costs
  - The RCA applies only to the salary components of the funding model
  - Only districts with above average costs receive an RCA
- Each school district's RCA is the larger of
  - The Wyoming Cost of Living Index (WCLI)
  - The 2005 Wyoming Hedonic Wage Index (HWI)
  - 100

# The Determinants of the Wyoming RCA

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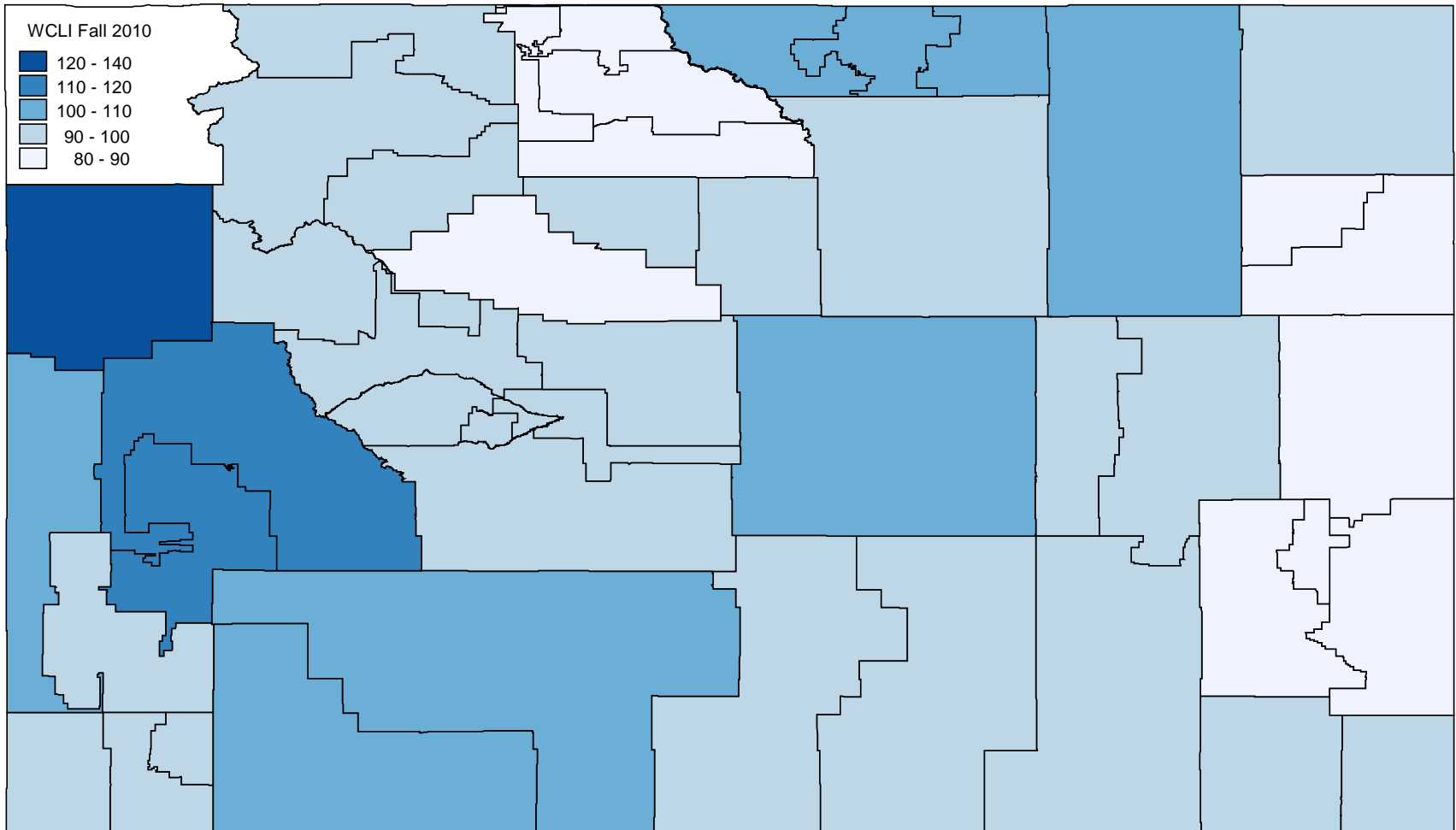


# The WCLI

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- Modeled after the U.S. Bureau of Labor Statistics' Consumer Price Index for urban consumers (CPI-U)
- Produced bi-annually by the Wyoming Department of Administration & Information's Economic Analysis Division
- Constructed as a weighted average of the prices for food, housing, apparel, transportation, medical services, and recreation and personal care
  - ▣ Weights designed to reflect each item's share in the typical consumer's budget
- Colorado and Florida use similar cost of living indices for regional cost adjustment

# The WCLI, Fall 2010



# Concerns about Using the WCLI for Regional Cost Adjustment

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- Any cost of living index overstates the cost of hiring in locations that have attractive amenities
- The WCLI overstates the cost of living in Wyoming counties with relatively high housing costs
  - Residents of Wyoming spend a smaller share of their budgets on housing than the residents of any other state except Iowa and North Dakota, yet
  - The CPI-U and WCLI are constructed assuming that families spend 32 percent of their incomes on shelter, which is the national average for urban households
  - Therefore the WCLI weight on housing is too high

# Additional Concerns about Using the WCLI for Regional Cost Adjustment

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- The WCLI overstates the cost of living in counties with relatively high daycare costs
  - The WCLI uses the cost of licensed, full-time daycare as its only measure of education expenditures
  - The CPI-U uses the cost of daycare, plus the cost of educational books and supplies, college tuition, private school tuition, technical and business school tuition, etcetera
  - If the cost of daycare is 5% above the state average in Laramie County, then the costs of books and supplies and tuition are also assumed to be 5% above the state average
  - Education expenditures represent 3.1% of consumer purchases in the CPI-U and WCLI
- The cost of daycare is undoubtedly influenced by the level of teacher salaries, creating a potential feedback loop from the funding model to the WCLI

# The 2005 Wyoming HWI

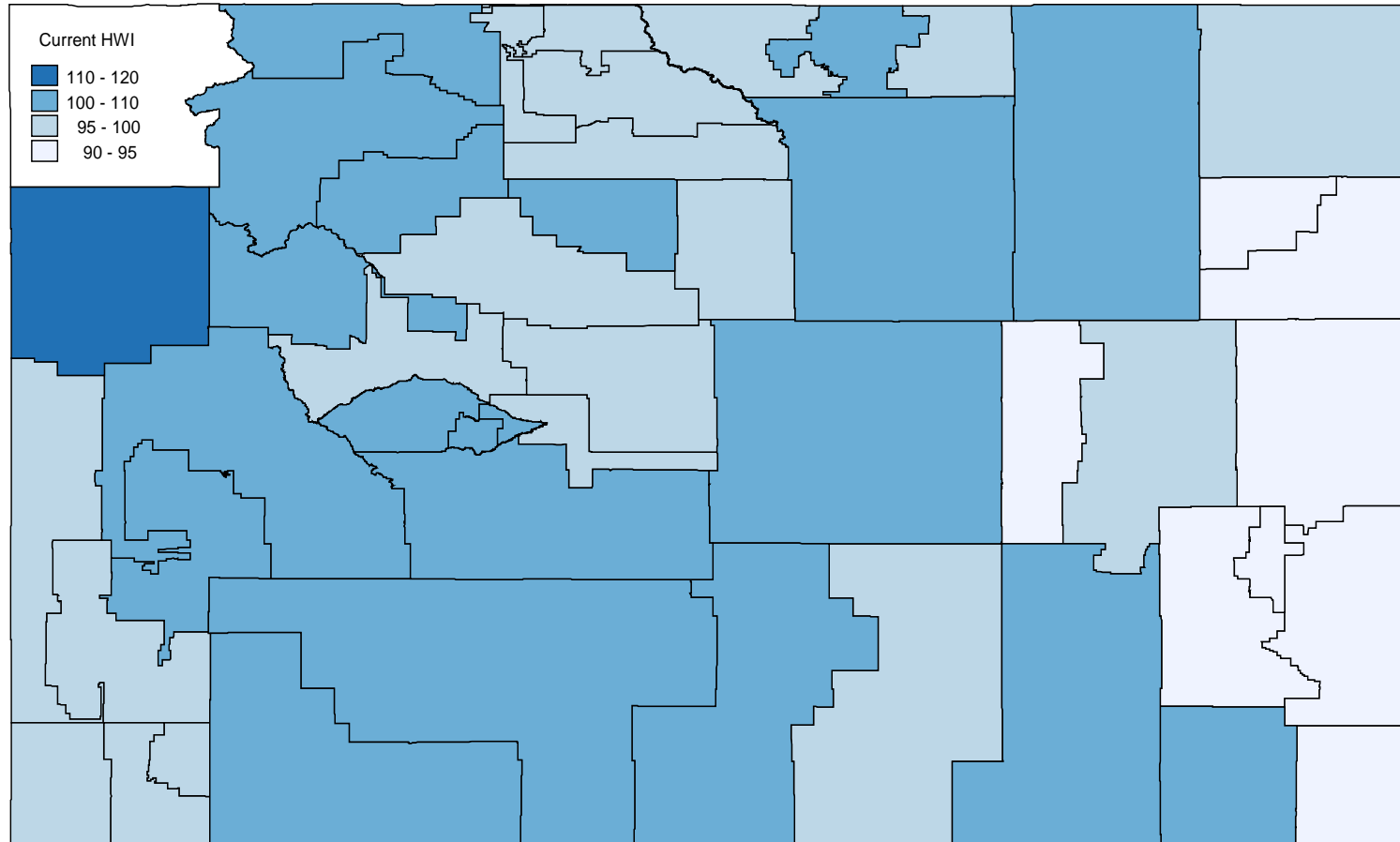
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- Based on regression analysis of teacher salary data from 2003-04 and 2004-05
- Regression analysis used to separate observed variation in teacher “base” salaries into that which is attributable to
  - ▣ Discretionary factors (such as teacher characteristics, teaching assignments and length of the school year)
  - ▣ Factors outside of school district control
- The HWI is based on the predicted, full-time base salary in each school district, holding constant the influence of discretionary factors
- Texas uses a similar HWI for regional cost adjustment



# The 2005 Hedonic Wage Index

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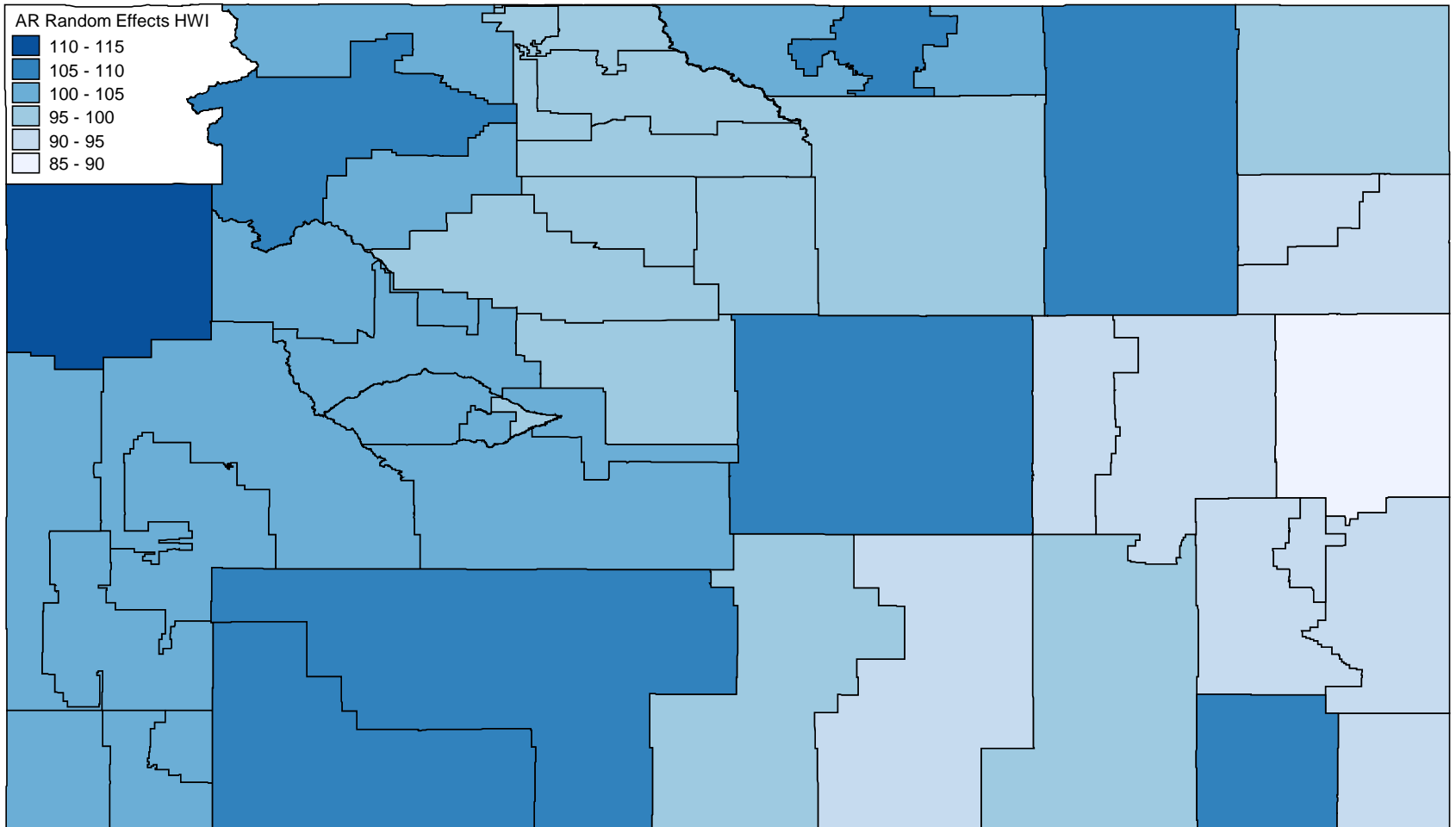
# Five Updates to the HWI

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- The update uses more recent data and a much longer time series
- The update uses a hedonic model of total salary, not just base salary
- The update uses a much richer set of discretionary factors
- The update revises and expands the set of uncontrollable cost factors to improve the predictive power of the hedonic wage model
- The update includes an extended version of the National Center for Education Statistics' Comparable Wage Index (CWI) as one of the uncontrollable cost factors

# The Updated HWI

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# Questions Raised About the HWI

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- The CWI lacks the geographic detail needed to make it a good substitute for the WCLI
  - Agreed. This is why the WCLI, the CWI, and the county population density are all included in the hedonic wage analysis. This combination of factors does a better job of explaining teacher salaries than any single factor alone
  - Excluding the CWI from the hedonic wage model is statistically inappropriate and has only a modest impact on the HWI for most school districts
    - For example, index values would rise by a percentage point in Campbell County #1 and fall by a percentage point in Laramie County #1 and Natrona County #1

# Questions Raised About the HWI

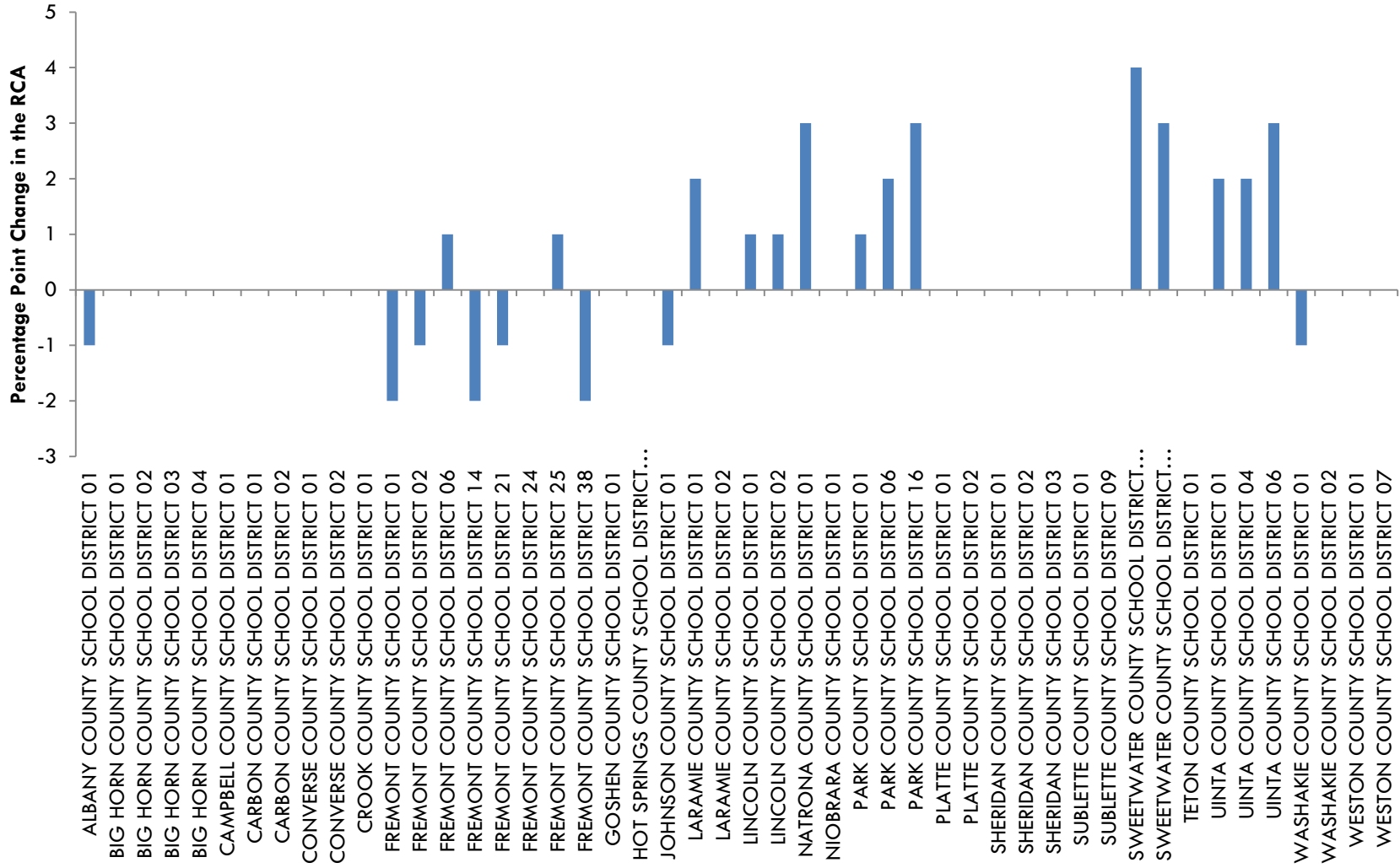
- Why does the analysis include geographic indicators like the distance to Yellowstone or to the nearest city?
  - Previous analyses of teacher salaries in a variety of states (including Wyoming) have indicated that a lack of access to the amenities of urban life (hospitals, restaurants, ...) has an important influence on the salaries teachers are willing to accept
  - Previous analyses of teacher salaries in Wyoming have indicated that distance to Yellowstone has a significant influence on teacher salaries

# Equity Implications

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- Defining the RCA as the greater of three alternatives—the WCLI, the HWI or 100—has consequences for school funding equity that will not be resolved by updating the HWI
- From a strict equity perspective, continuing to apply the regional costs index only to districts with above-average costs will overfund more than a third of the school districts in Wyoming
- Continuing to offer the WCLI option will also overfund some districts because
  - Any cost of living index overstates the cost of hiring in locations that have attractive amenities
  - The WCLI overstates the cost of living in Wyoming counties with relatively high housing costs

# The Impact on the RCA of Using the Updated HWI Instead of the 2005 HWI



# The Count of School Districts Receiving Each Type of RCA

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	<b>HWI</b>	<b>WCLI</b>	<b>100</b>
2011 Updated HWI	22	9	17
2005 Wyoming HWI	20	10	18



# Conclusions about the RCA

- The cost of education varies widely within the state, offering strong support for regional cost adjustments
- Because of the three-way design of the RCA, only 22 of the 48 school districts in Wyoming would receive the regional cost adjustment indicated by the updated HWI
  - ▣ The remaining districts would receive a larger adjustment
- Equity goals in Wyoming would be better served if the Legislature replaced the three-way design of the RCA, and simply used the updated HWI as the sole source of regional cost adjustments

# Conclusions About Cost Adjustments

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- The ECA and the RCA are adjustments to the *prices* used in the funding model and have no effect on the resource quantities
- The salaries currently used in the funding model are above market, suggesting that no ECA is needed
- The current three-way system for making regional adjustments to the funding model does not reflect actual differences in labor cost, suggesting that the RCA needs to be revised

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Thank you