

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

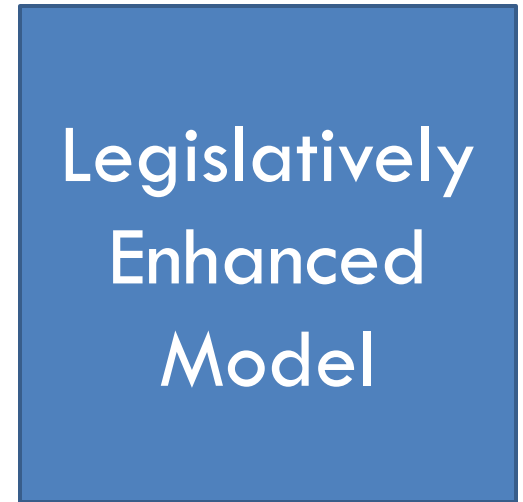
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Cost = Price X Resource Quantity

Cost =

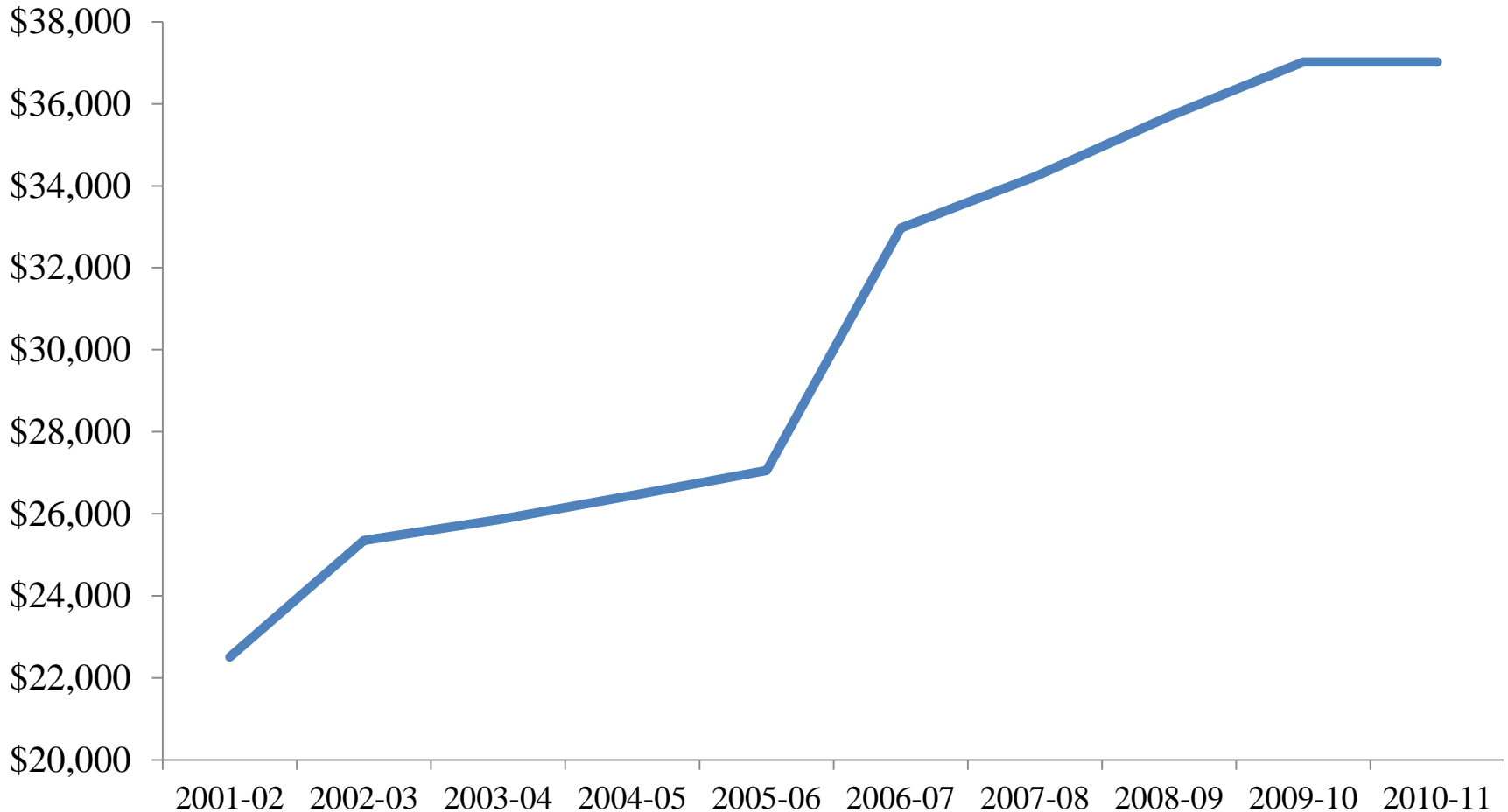


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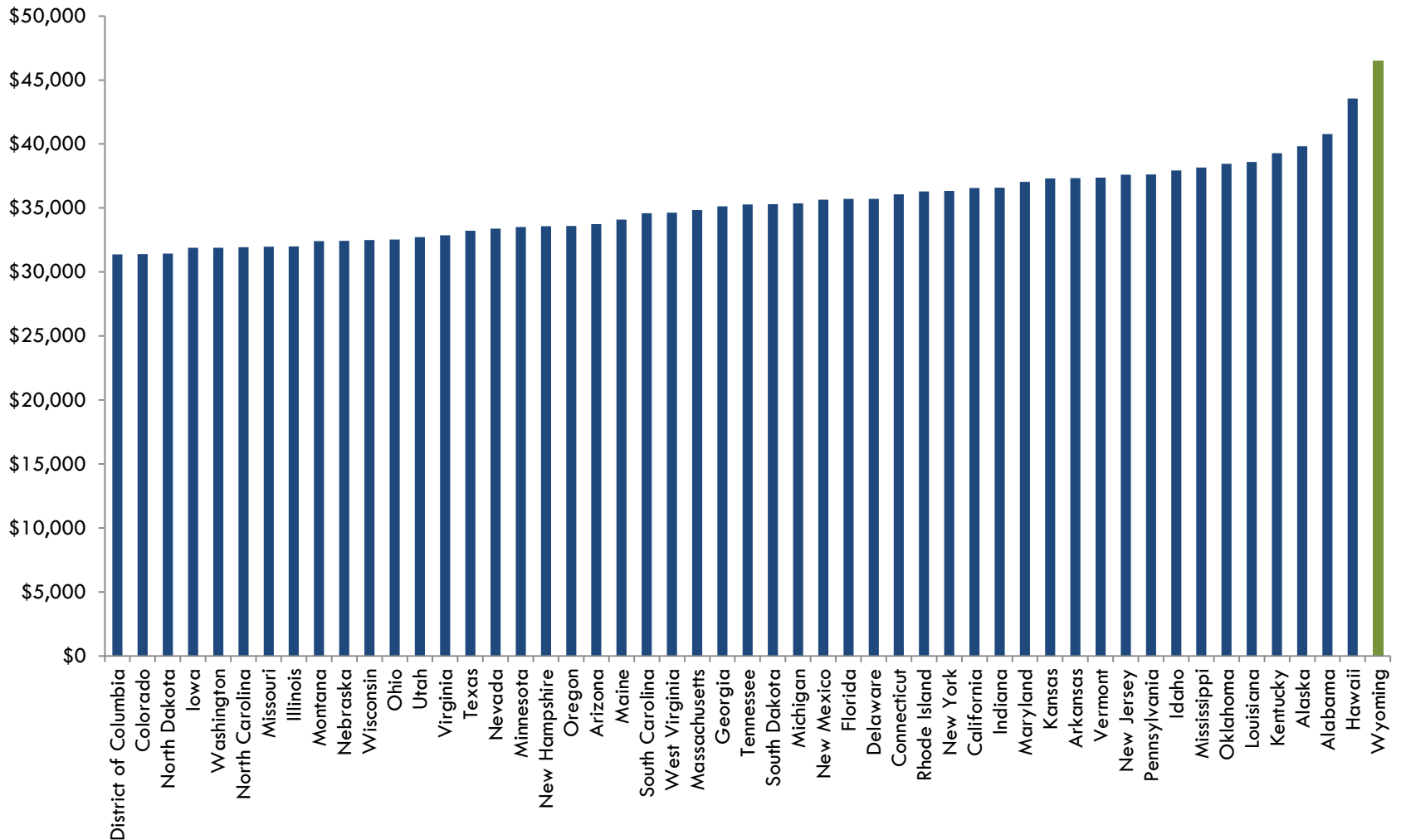


Funding Model Base Salaries

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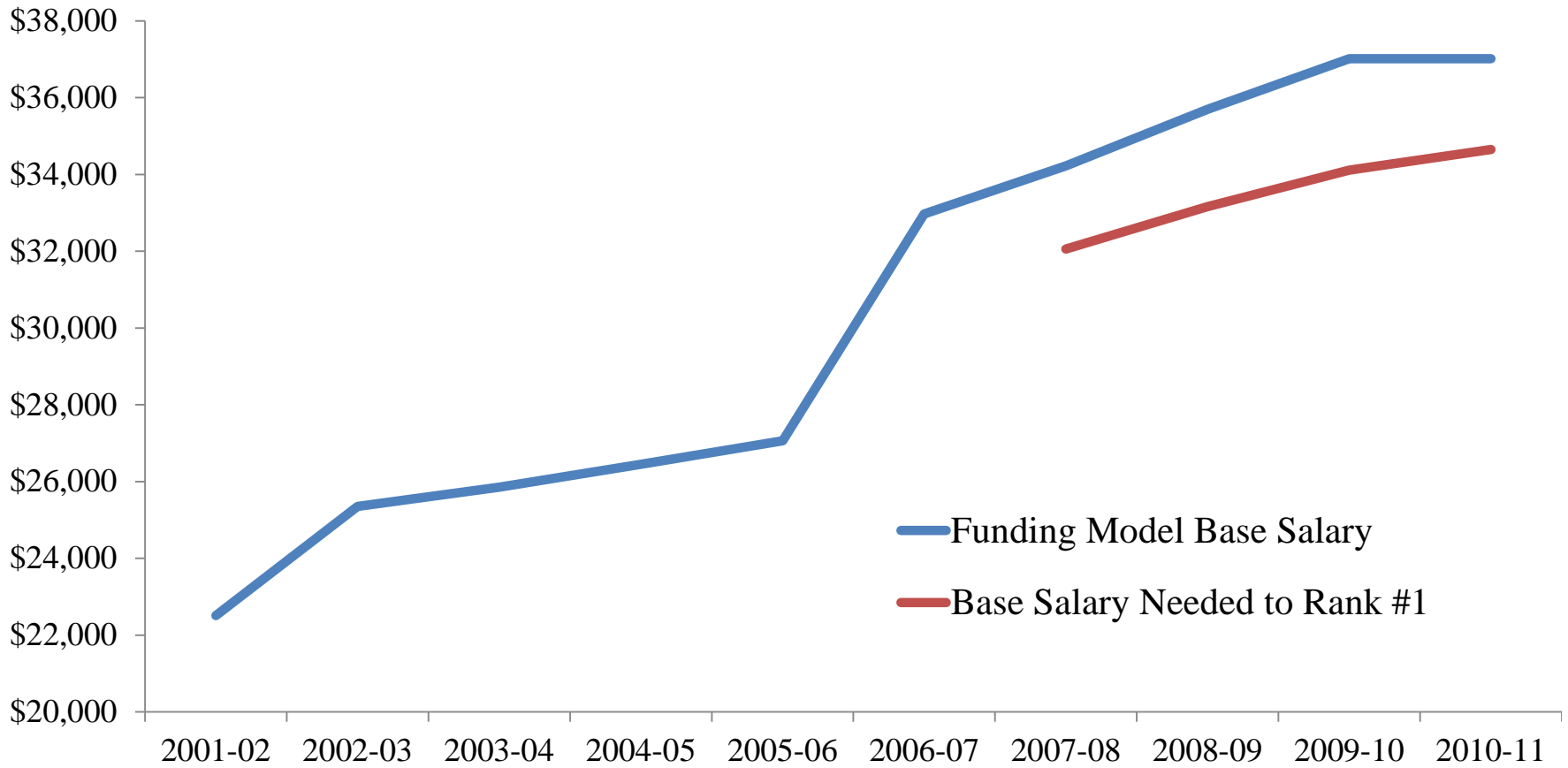
Cost-Adjusted Starting Salaries by State, 2007-08



Source: NCES Schools and Staffing Survey and CWI

Funding Model Base Salaries

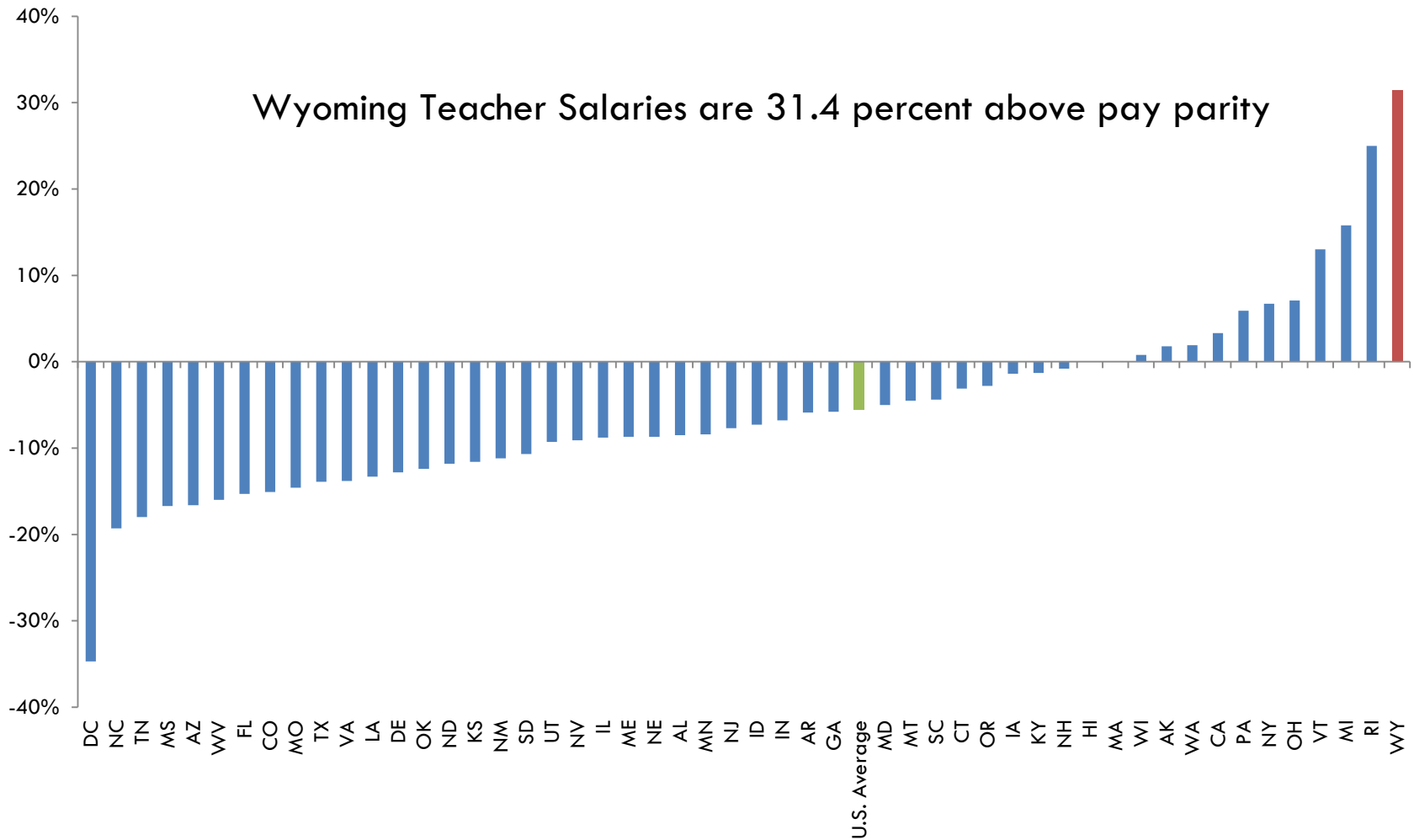
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Note: Base salary needed to rank #1 has been calculated assuming no change in the relationship between funding model base salaries and actual starting salaries

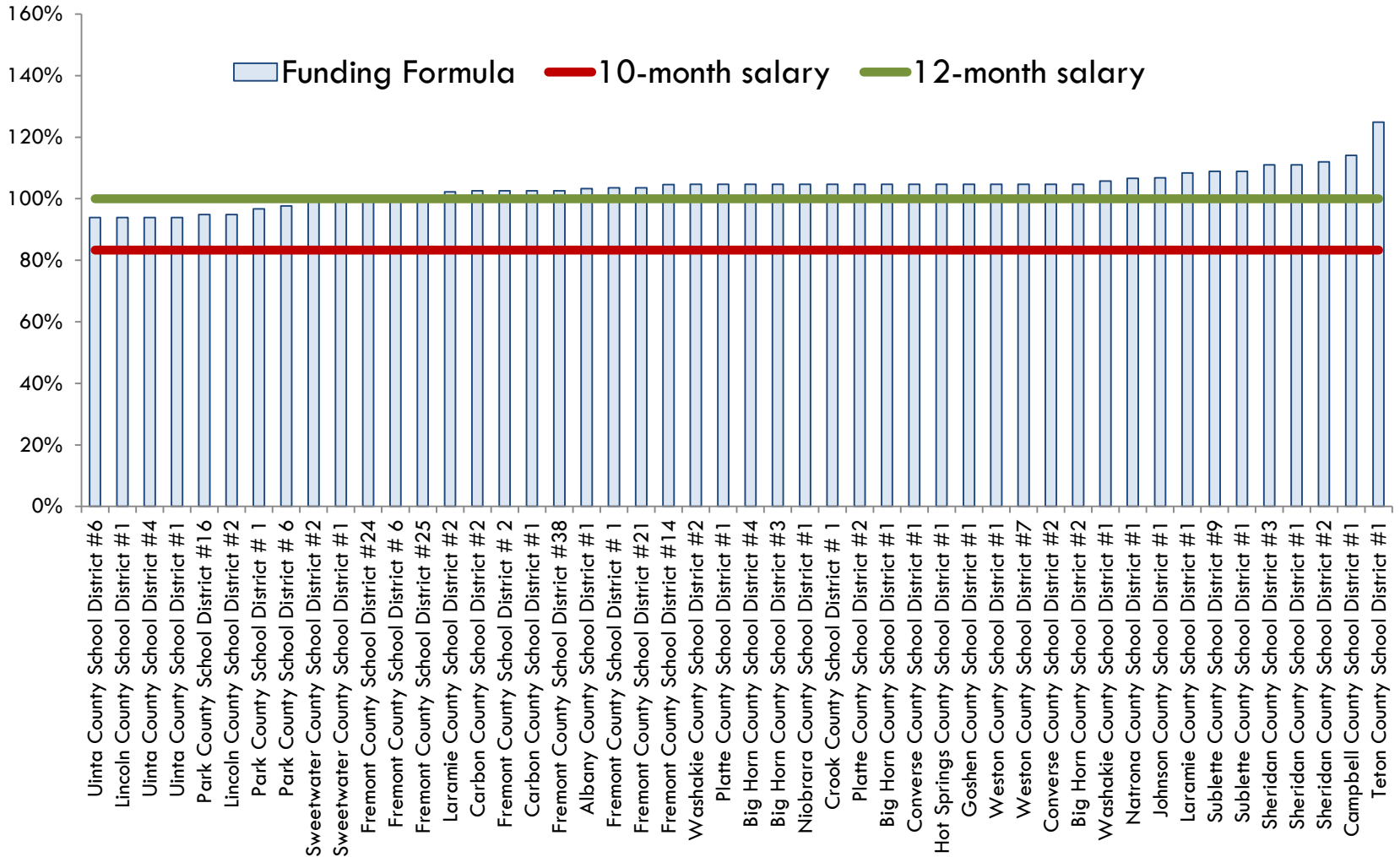
Education Week's Pay-Parity Index

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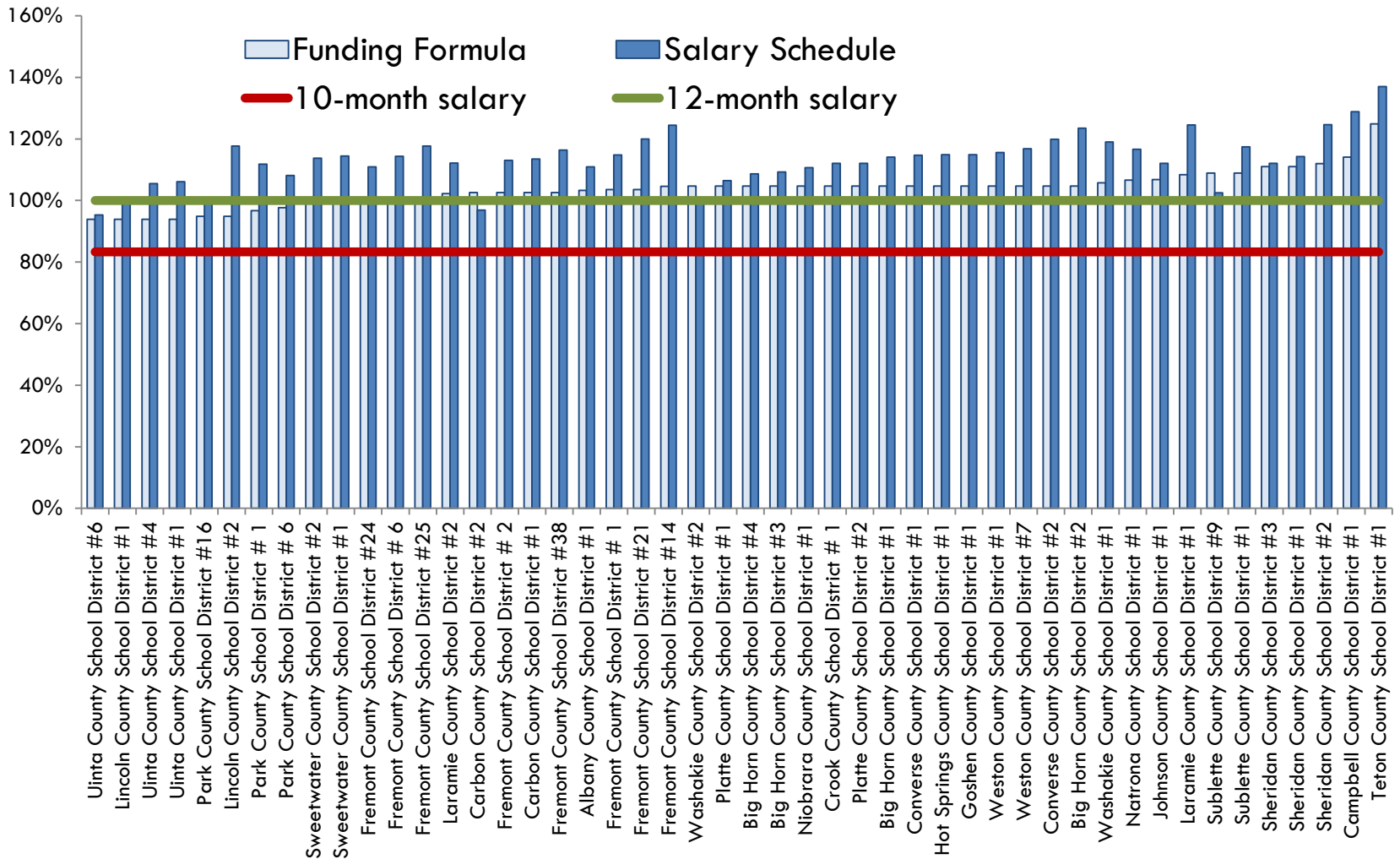


Source: Education Week's Quality Counts 2012

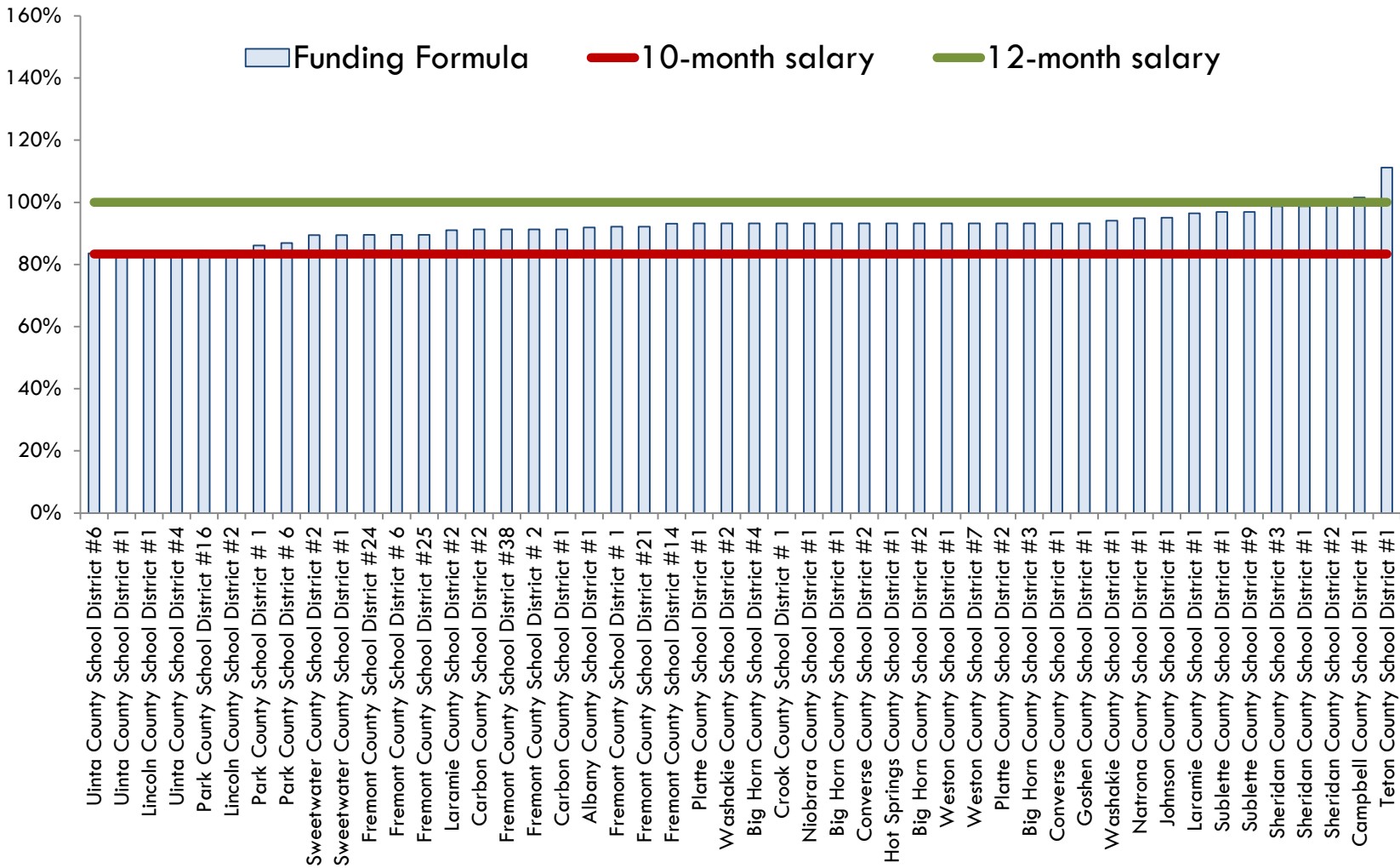
Relative Starting Salaries 2010-11



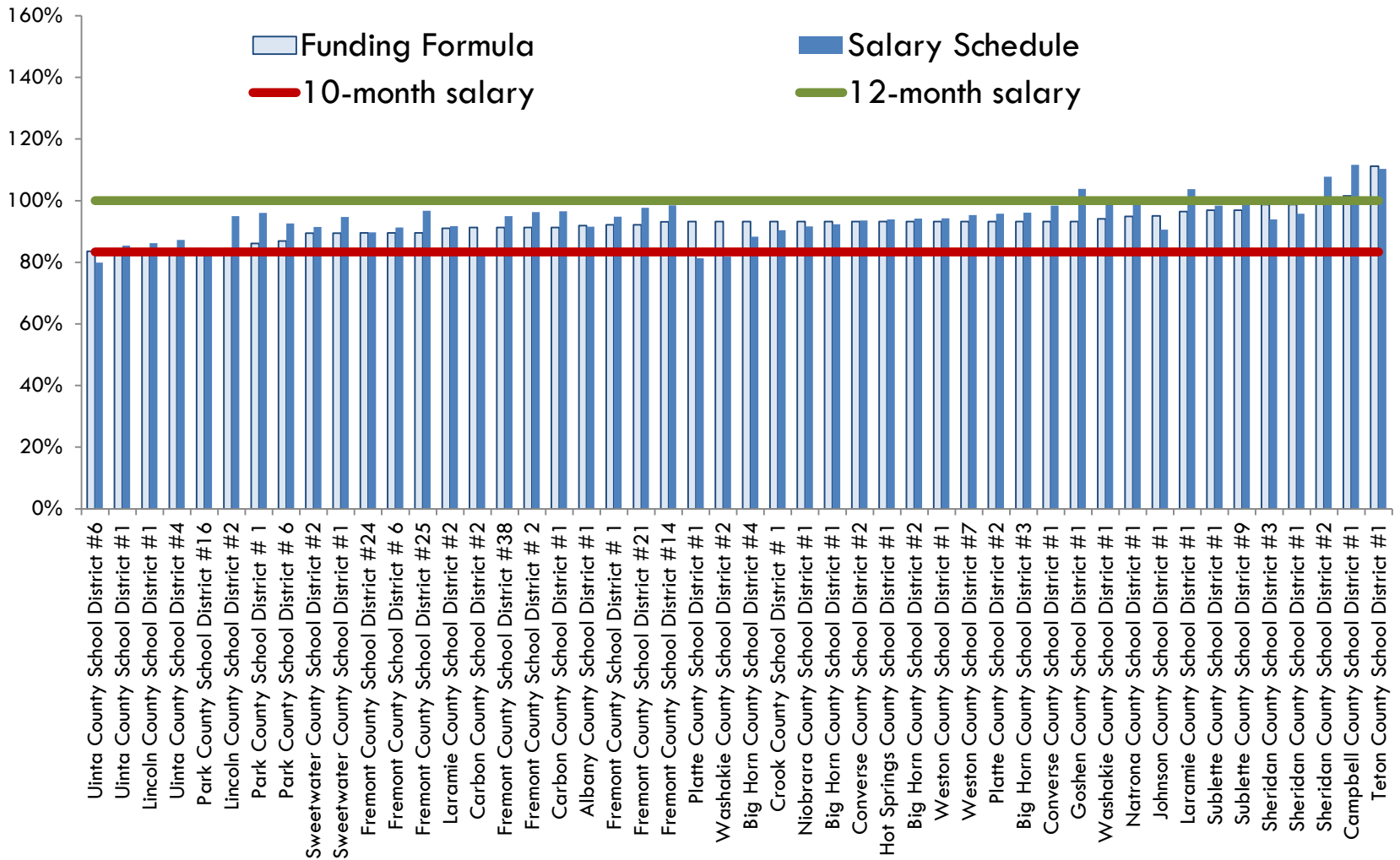
Relative Starting Salaries 2010-11



Relative Mid-Career Salaries 2010-11



Relative Mid-Career Salaries 2010-11



Surge in New Teaching Licenses

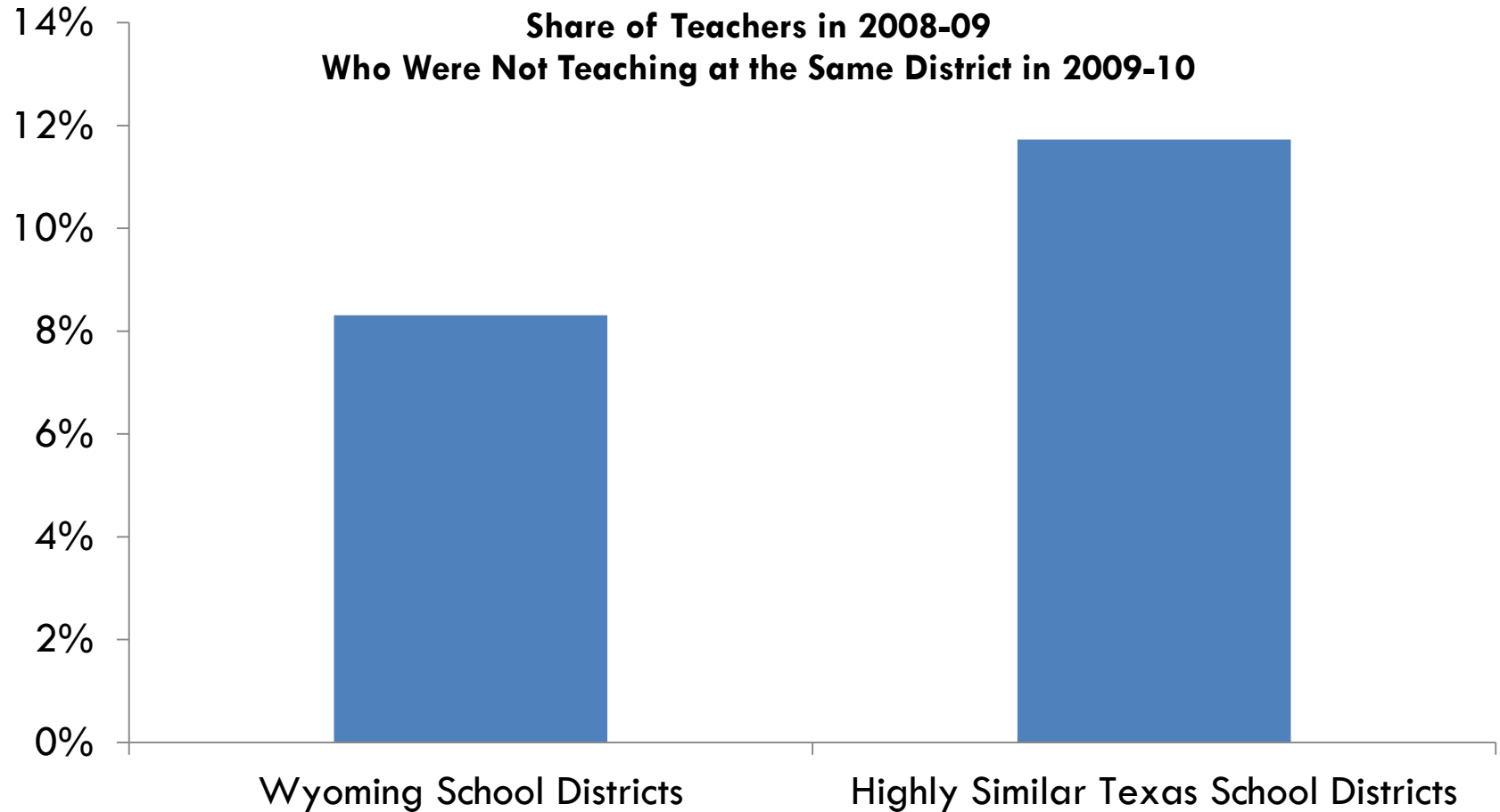
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Year	New Teaching Licenses	Renewed Teaching Licenses
2007	897	1,575
2008	902	1,570
2009	911	1,902
2010	901	1,945
2011	1,039	2,104

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

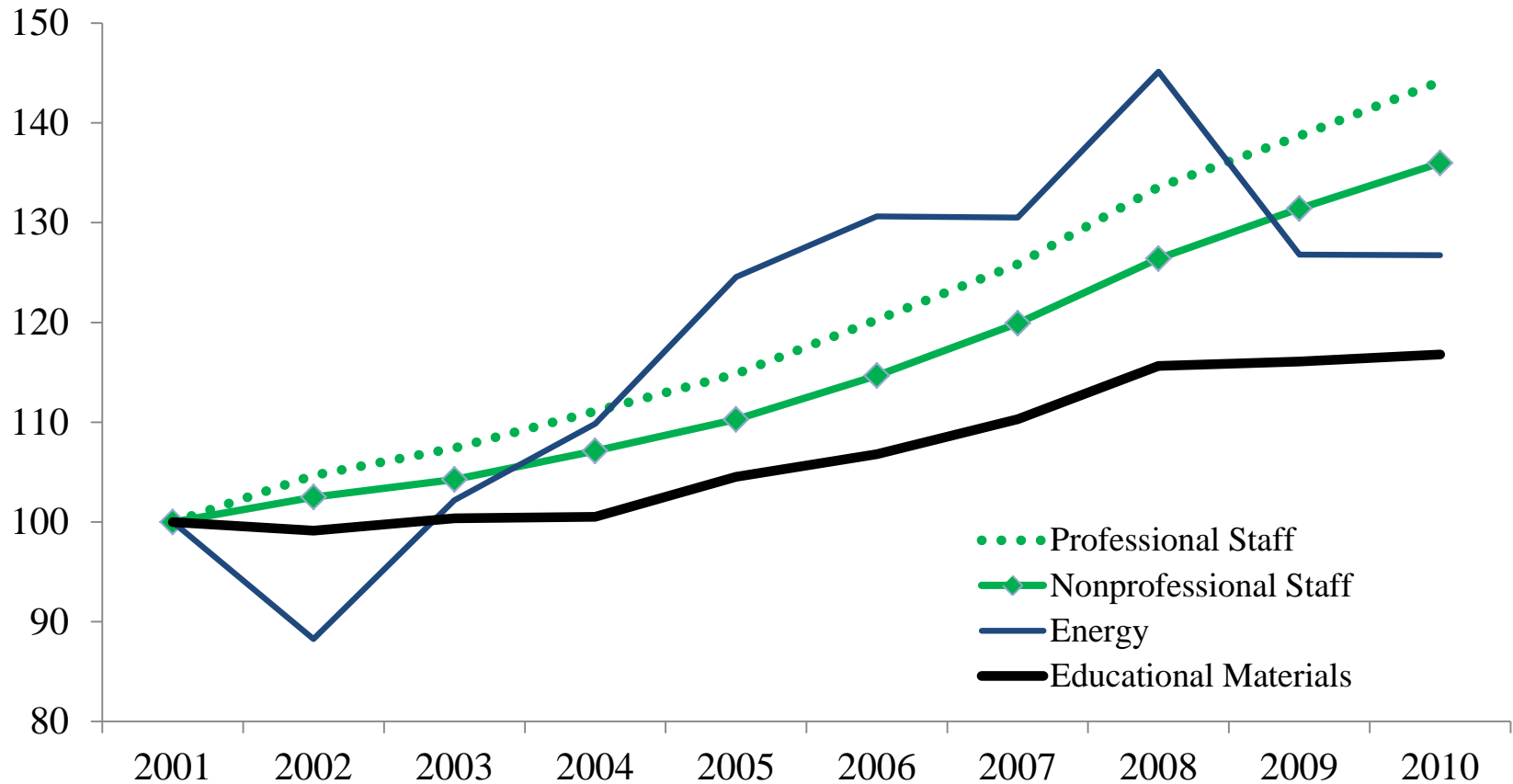
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Model Component	Recommended Cost Index	Share of Funding Model Expenditures
Professional Labor	Comparable Wage Index	66.7%
Non-professional Labor	High School Comparable Wage Index	14.6%
Energy	Weighted average of BLS producer price indices (PPIs) for 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

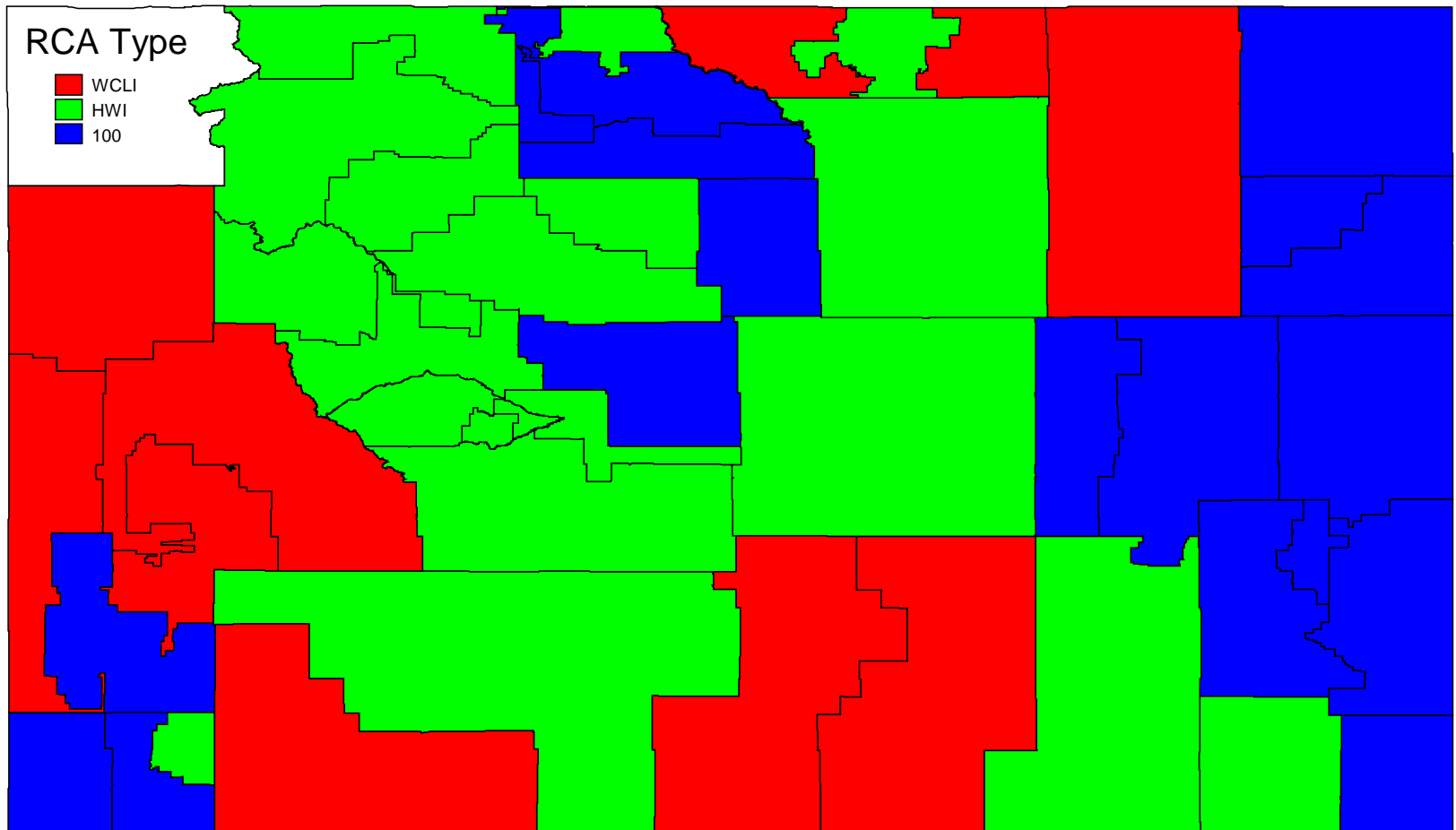
Wyoming's RCA Policy Choice

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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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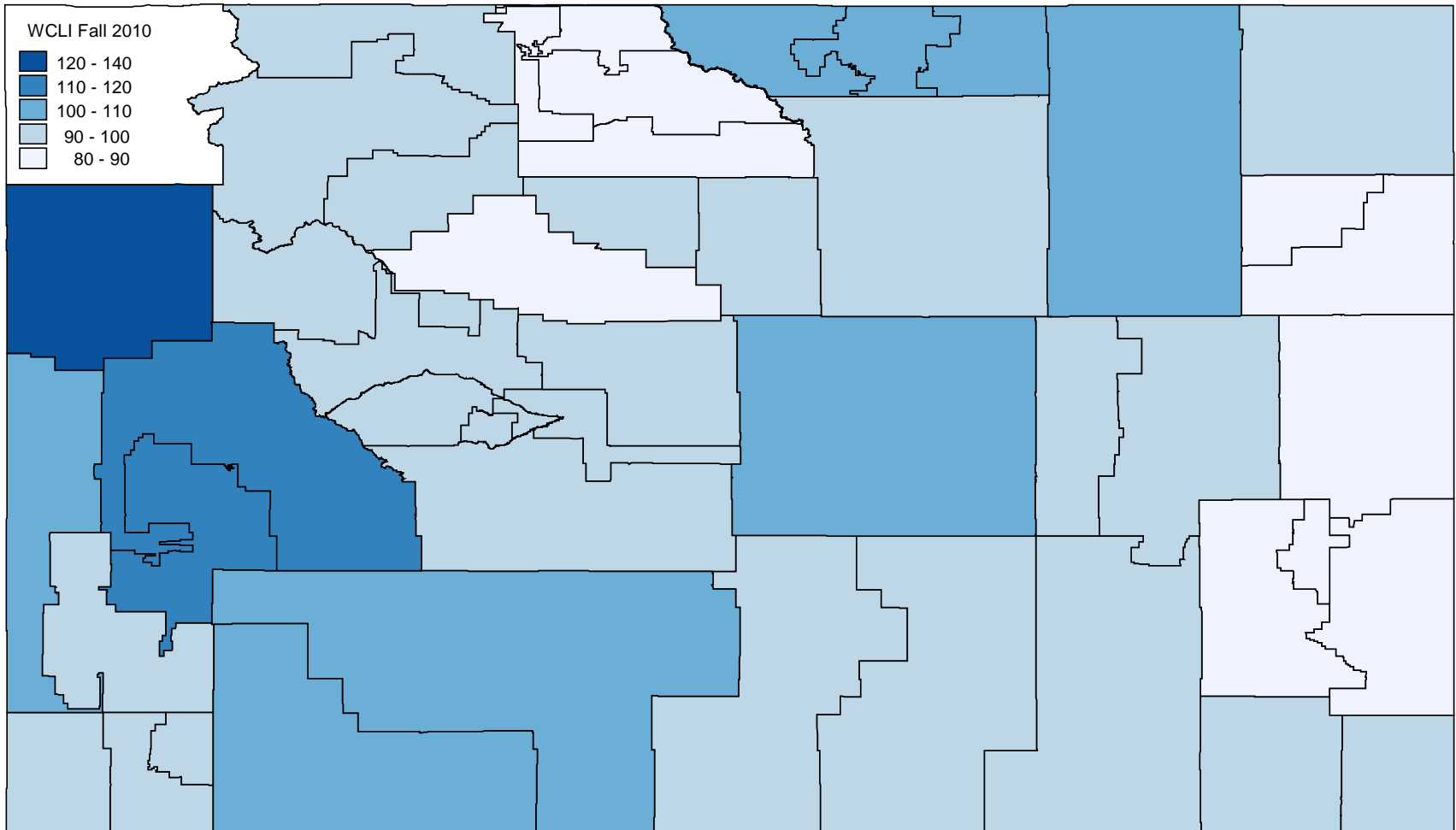


The WCLI

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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 living 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

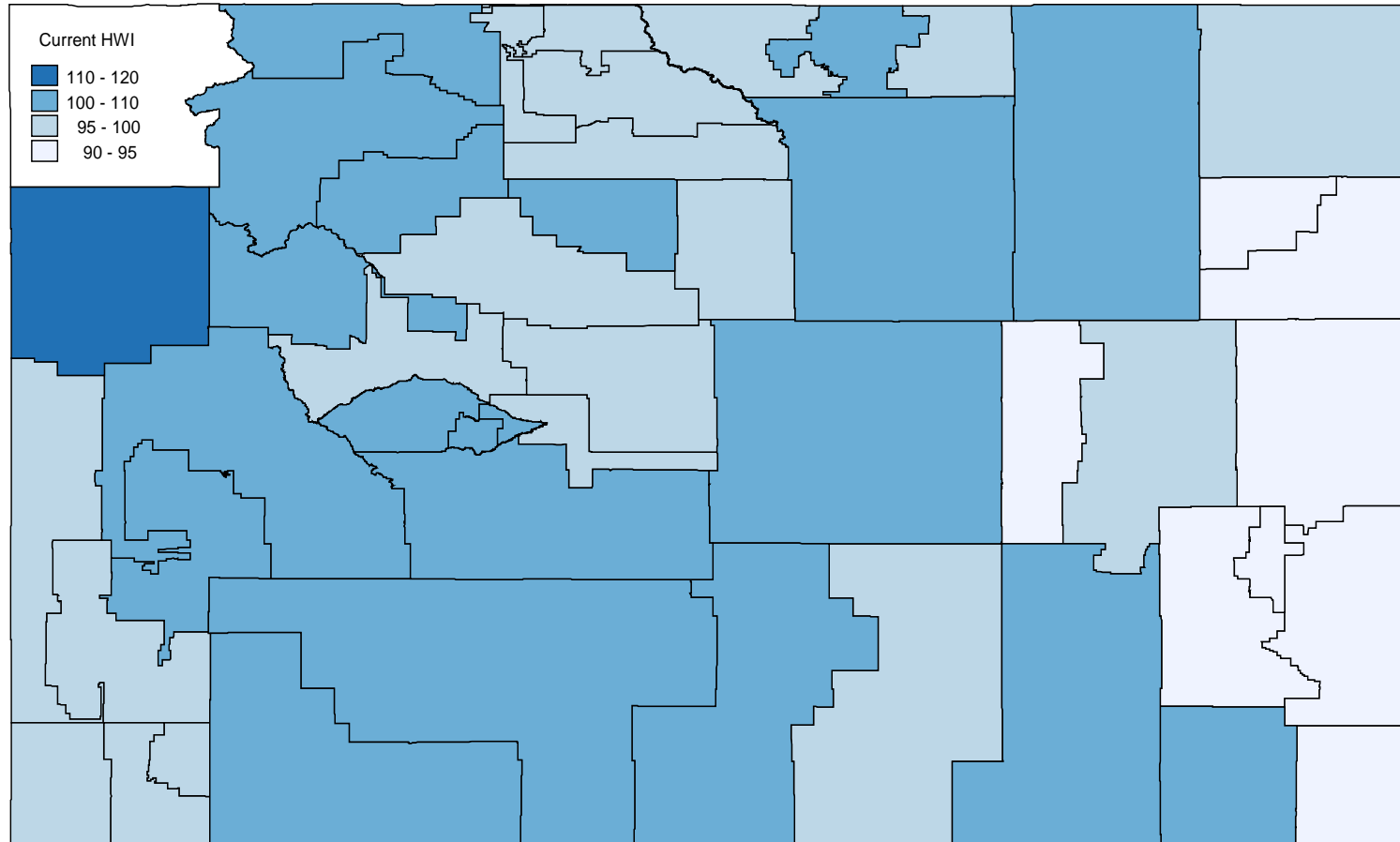
The 2005 Wyoming HWI

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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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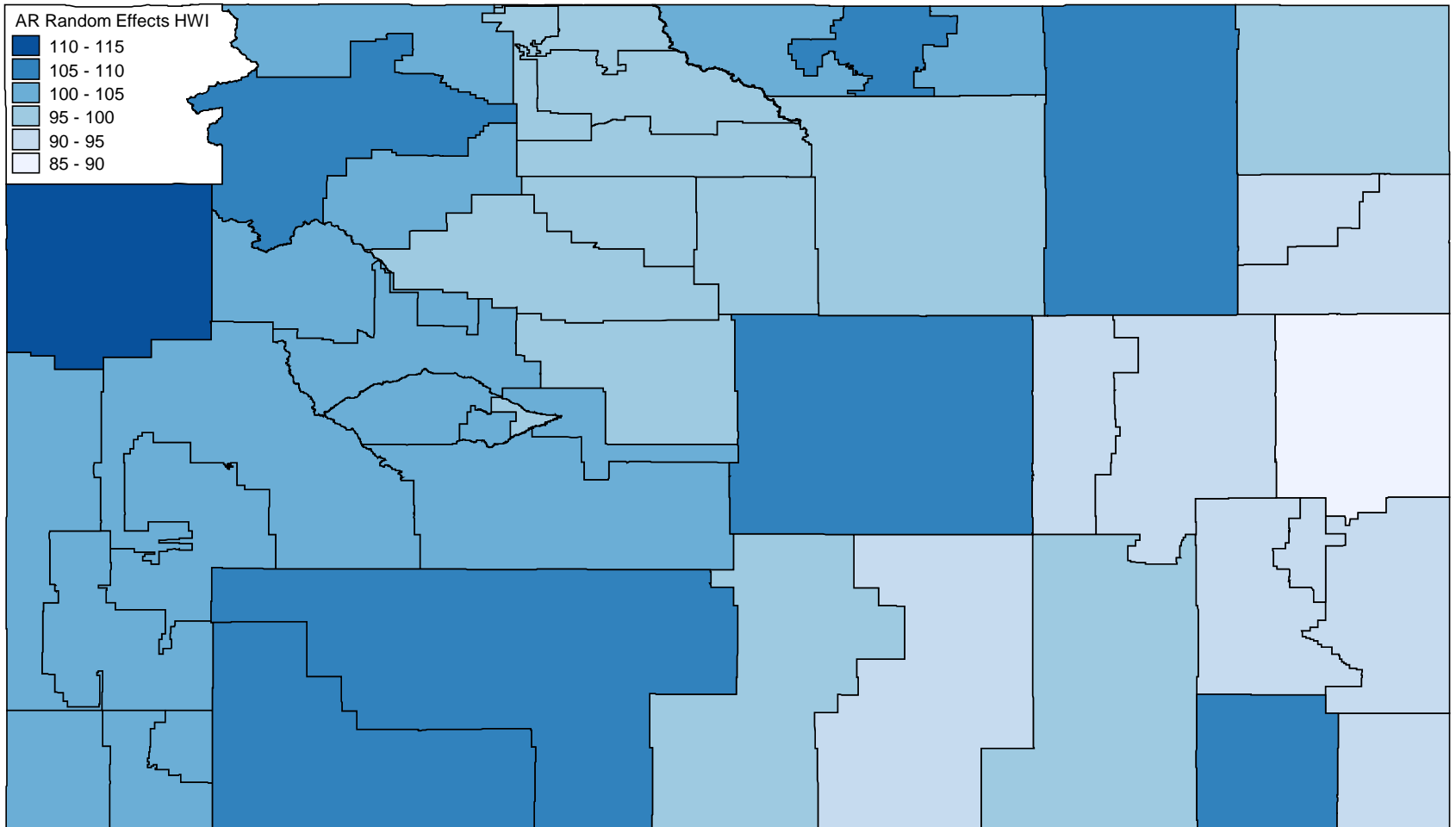
Five Updates to the HWI

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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

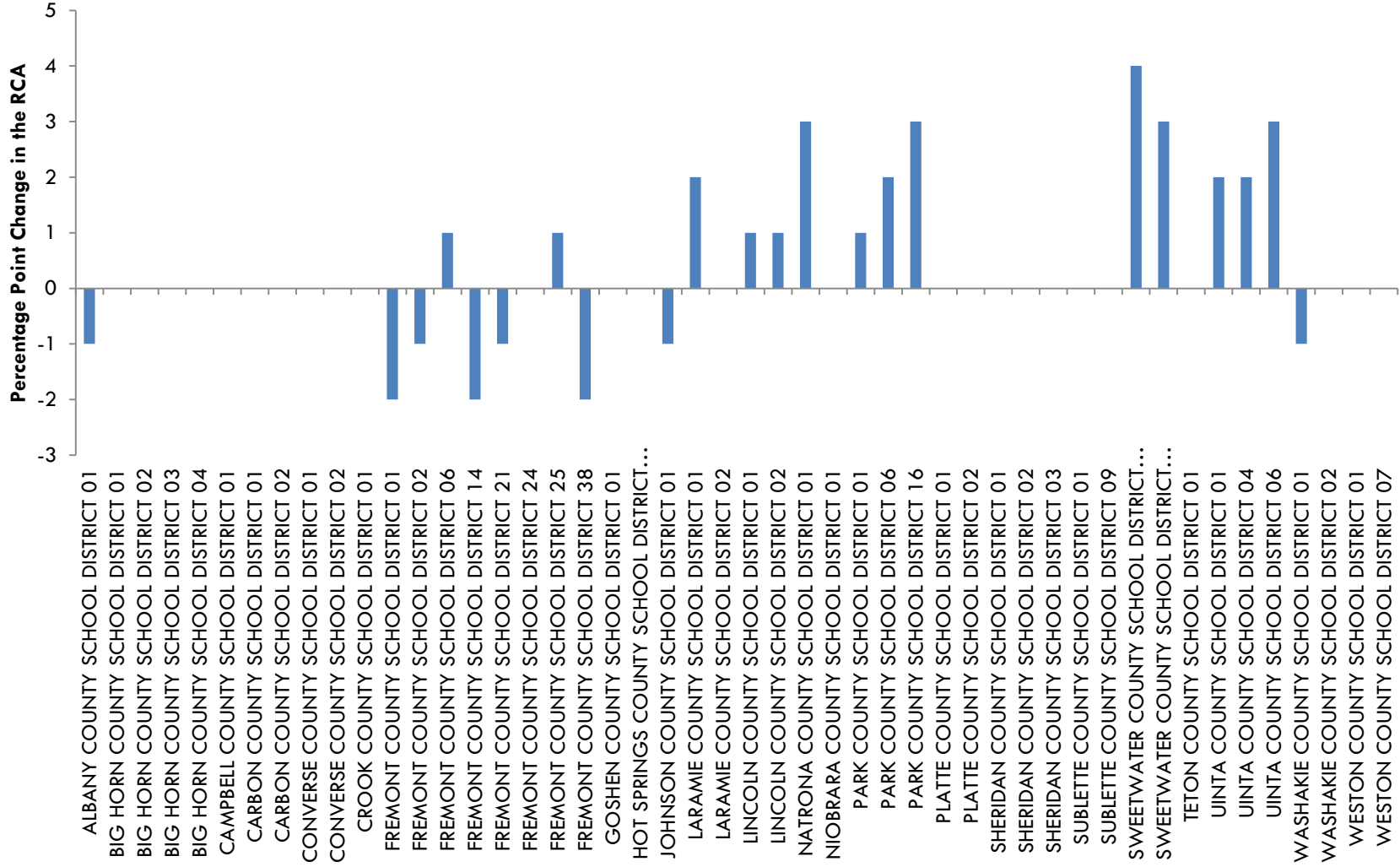
- Why does the analysis include geographic indicators like the distance to Yellowstone or to the nearest city?
 - Previous analyses of teacher salaries in a variety of states (including Wyoming) have indicated that a lack of access to the amenities of urban life (hospitals, restaurants, ...) has an important 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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	HWI	WCLI	100
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