THIRD SECTOR
INTELLIGENCE INC.

Final Report to the
Education Funding Task Force
K-12 Public School Staff Compensation Analysis

Submitted: November 15, 2016

Presented: November 15, 2016

Outline

- Introduction and Executive Summary
- Summary of Data Collection, Cleaning and Consolidation
- Supplemental Pay Analysis
- Revenue to Expenditures Analysis
- Comparable Positions Salary Analysis
- Local Labor Market Adjustment Analysis
- Staff Salary Cost Model

Final Report Goal

Provide input to the Education Funding Task Force on supplemental pay analysis and market context for attracting and retaining staff

Project Requirements from E2SSB 6195

(a) Collect K-12 public school staff total compensation data, and within that data, provide an analysis of compensation paid in addition to basic education salary allocations under the statutory prototypical school model, source of funding, and the duties, uses, or categories for which that compensation is paid;

(b) Identify market rate salaries that are comparable to each of the staff types in the prototypical school funding model; and

(c) Provide analysis regarding whether a local labor market adjustment formula should be implemented and if so which market adjustment factors and methods should be used.

In addition 3SI has developed a model that will allow the Education Funding Task Force to evaluate salary cost scenarios

How to Read the K-12 Salary Analysis Final Report

- The K-12 Salary Analysis Final Report includes a presentation and a more detailed final report submitted to the Task Force as two separate documents on November 15, 2016
- There is a large amount of data and analysis throughout the report; many questions that arise when reviewing the analysis will be answered in later sections
- There are many ways to analyze the district submitted data; this report slices the data by staff type and prototypical school model position to analyze the detailed supplemental pay; the digital appendix contains additional analysis including full results segmenting by prototypical school model position, duty root and district
- This report is a review and analysis of the primary data submitted by districts along with other data sources and is intended to focus on observations and implications of the data; it does not draw conclusions on which supplemental pay factors are "basic education" or how to interpret comparable position salaries and market rate factors

To support drawing conclusions from this analysis 3SI has developed a model that will allow the Education Funding Task Force to evaluate salary cost scenarios

Executive Summary (1 of 2)

Data Collection, Resource to Expenditure and Supplemental Pay Analysis (SPC)

- There was a high response rate to the salary and resource to expenditure data collection effort
- Analysis of district reported supplemental pay revealed that a small number of the many categories and sub-categories in the OSPI survey explain the core of additional pay
  - For CIS at the supplemental pay category level districts pay for all of the activities and duties included in the survey: Professional Development, Deemed Done, Additional Responsibilities, Time Outside the Regular School Day, Time Outside the 180 Day School Year and Other, however, payments are concentrated in a few supplemental pay sub-categories including: professional responsibility stipend, combination of activities outside the regular school day, extracurricular, extra days, district and self-directed professional development, and paid holiday / sick-leave buyout
  - Additional base salary paid by districts (reflecting market rates for these positions) makes up almost half of CAS total salary - 40% for Principals and 46% for Central Administrators
  - CLS supplemental pay is more fragmented across the categories and varies in sizes
  - In general large urban districts pay higher amounts of supplemental pay while smaller districts pay lower amounts of supplemental pay; larger districts more frequently pay for district directed PD and professional responsibility stipends while smaller districts pay for extra days and classroom prep
- Revenue to expenditure analysis revealed that both small and large districts report using local funds to support the statutory programs of basic education through supplemental pay

Executive Summary (2 of 2)

Comparable Positions Salary Analysis and Market Rate Adjustments

- Comparable positions analysis revealed that state base salaries for K-12 positions are lower than salaries for comparable positions but salaries are parallel when additional supplemental pay is added (when looking at state averages)
- Market rate adjustment analysis shows that current total salaries reflect market factors

- *While data did not reveal one "typical" educator or school staff pay formula, trends and patterns did emerge pointing to commonly used supplemental pay items and magnitudes*
- *The staff salary cost model (developed for this project) allows the task force to observe the impact of categories of supplemental pay as well as market rate adjustments, associated with attracting and retaining talent, on total costs*

Project Context

In the 2014-15 school year, districts paid ~1.455B in additional salary and base salary for additional FTEs*

	State Allocated FTEs	Actual FTEs	State Salary Allocation	Total Salary**
Certificated Instructional Staff (CIS)	53,463	53,677	$2,830,563,963	$3,578,879,997
Certificated Administrative Staff (CAS)	4,023	3,991	$241,203,874	$459,168,538
Classified Staff (CLS)	17,225	22,309	$557,052,617	$1,045,944,765
Total	**74,711**	**79,978**	**$3,628,820,454**	**$5,083,993,300**

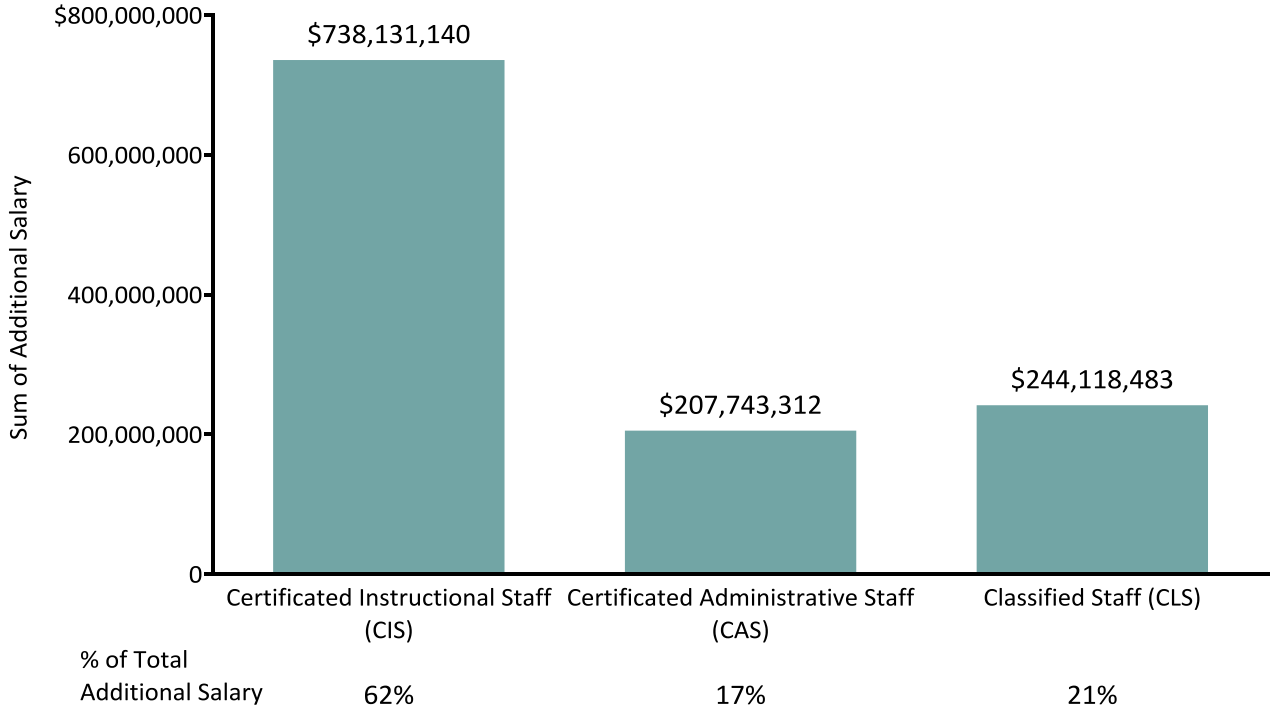
- *Total variance in SY 2014-15 of ~$1.455B between state salary allocation and total salary paid, additional dollars pay for additional FTEs and additional salary*
- *This report will describe the duties and categories of additional pay within this variance*

*FTE counts and salary totals include all statutory programs of basic education except Special Education and Pupil Transportation. **State, local and federal resources are included in total salary paid. Source: OSPI 2014-15 SY final apportionment report and population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set).

Additional Salary by Staff Type

In the 2014-15 school year additional salary total was ~1.189B

Total Additional Salary for
Statutory Programs of Basic Education by Staff Type



- Total additional salary across all staff types was $1.189B
- 73% of additional salary was in accounting program 01 – basic education ($882M)
- $205M, the next largest amount of additional salary, was in districtwide support (18%)
- Additional salary in the other programs of basic education ranged from 4% to less than 1% of the total additional salary

Additional salary is provided for all individuals is the population for the sample data set for E2SSB 6195. Additional salary was not normalized to a FTE of 1 and represents total district spending in the 2014-15 school year. Additional salary for all programs except Special Education and Pupil Transportation represented above. Analysis includes negative variance between total salary and base salary. When negative variance is excluded the total equals $1.225B
Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set)

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Data Collection, Cleaning and Consolidation

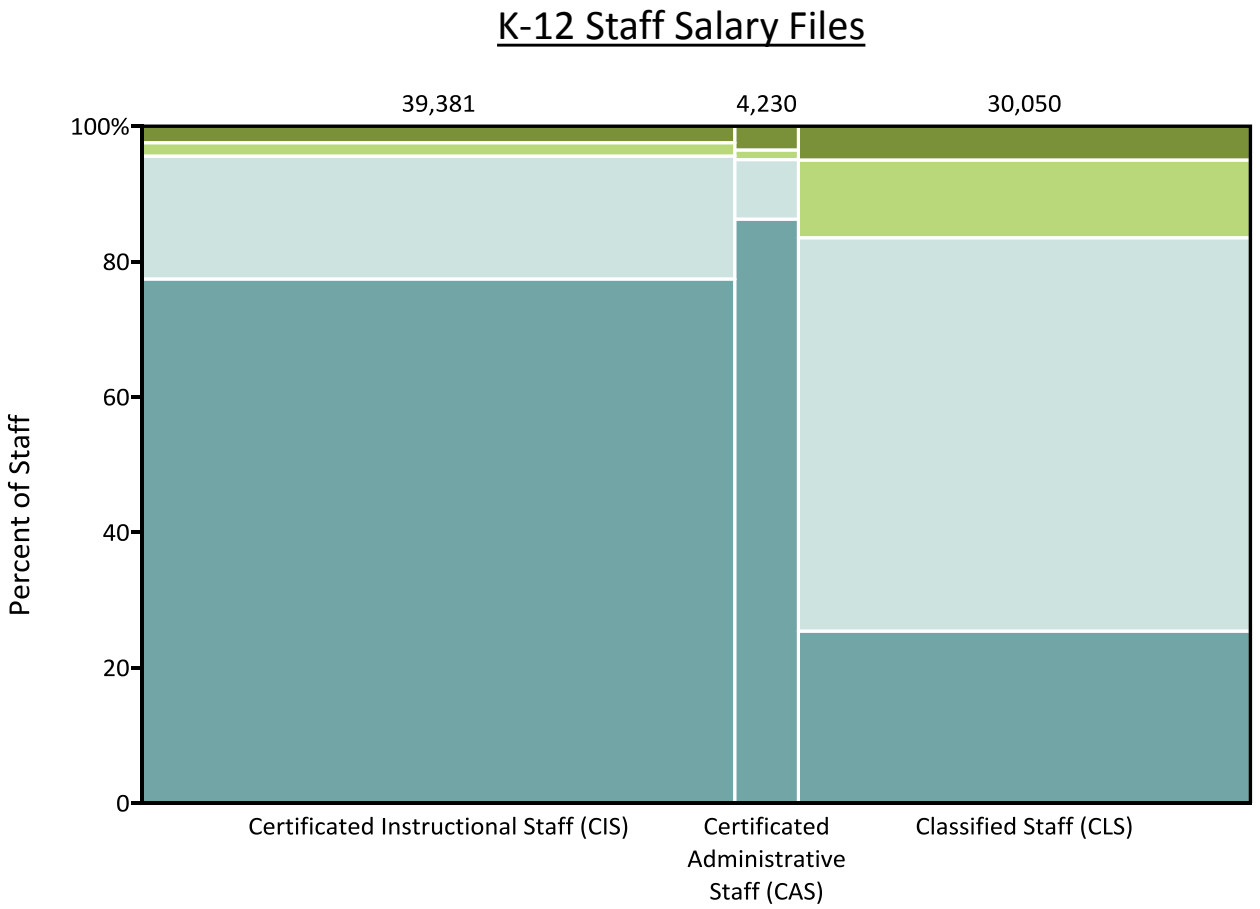
Thorough data standardization and cleaning has yielded a detailed and reliable data set for analysis

- Districts were asked for data in four separate worksheets for three staff categories and one for revenue to expenditure data
- 87% of districts submitted data ensuring representation of district sizes and locations across the state
- Data represents 92% of students ensuring representation of different student populations across the state
- Data submissions have the same proportion of staff counts by years of experience as the population ensuring representation of the staff (CIS and CAS)
- While the response rate was high, many submissions were not consistent with the original data collection tool and required standardization
- After data submissions were standardized and consolidated, data entries required extensive cleaning in order to asses levels of detail for analysis which resulted in including the majority (~80%) of supplemental pay data in analysis

This final K-12 staff salary report is based on a comprehensive and detailed data set from which to analyze supplemental pay

Final Flagged Data

Across all staff types ~80% of supplemental pay data is included the analysis



Resource to Expenditures Files

- 269 district revenue to expenditure files received
- Originally 49 files included inappropriate negative values, follow-up with districts reduced this to 20 unusable files
- 8 other district submissions included potentially erroneous data
- Ultimately resulting in 241 usable submissions

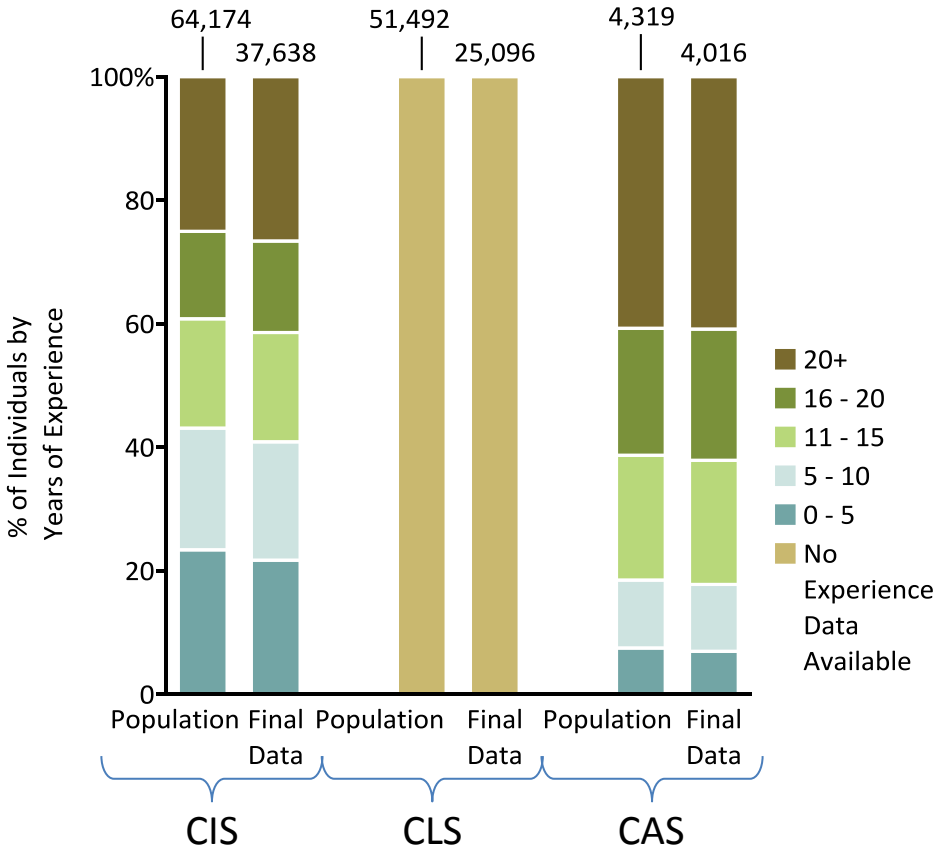
No Submission or Data Insufficient for Flagging Process
Flag 3: Detail not Sufficient
Flag 2: Category Detail Only
Flag 1: Category and Sub-Category Detail

Source: Final data processing as of October 26, 2016

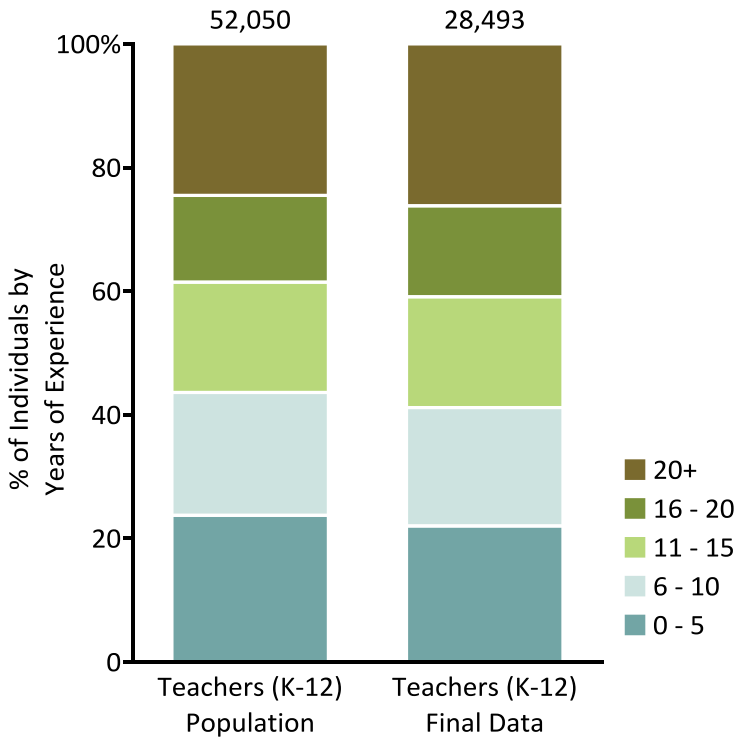
Representativeness of the Final Data

The final data used in the analysis is representative of the K-12 staff population in the State of Washington

K-12 School Staff by Years of Experience
(Population vs. Final Data)



Teachers (K-12) by Years of Experience
(Population vs. Final Data)



Source: Final data processing as of October 30, 2016

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Supplemental Pay Analysis Goals

Provide the Education Funding Task Force with insight on the duties, activities and reasons for compensation paid in addition to basic education salary allocations

E2SSB 6195 Section 3a, 10-14

Collect K-12 public school staff total compensation data, and within that data, provide an analysis of compensation paid in addition to basic education salary allocations under the statutory prototypical school model, source of funding, and the duties, uses, or categories for which that compensation is paid

Original Analysis Goals

- Understand the amount and frequency of supplemental pay
- Analyze duties, uses and categories for which salaries are paid

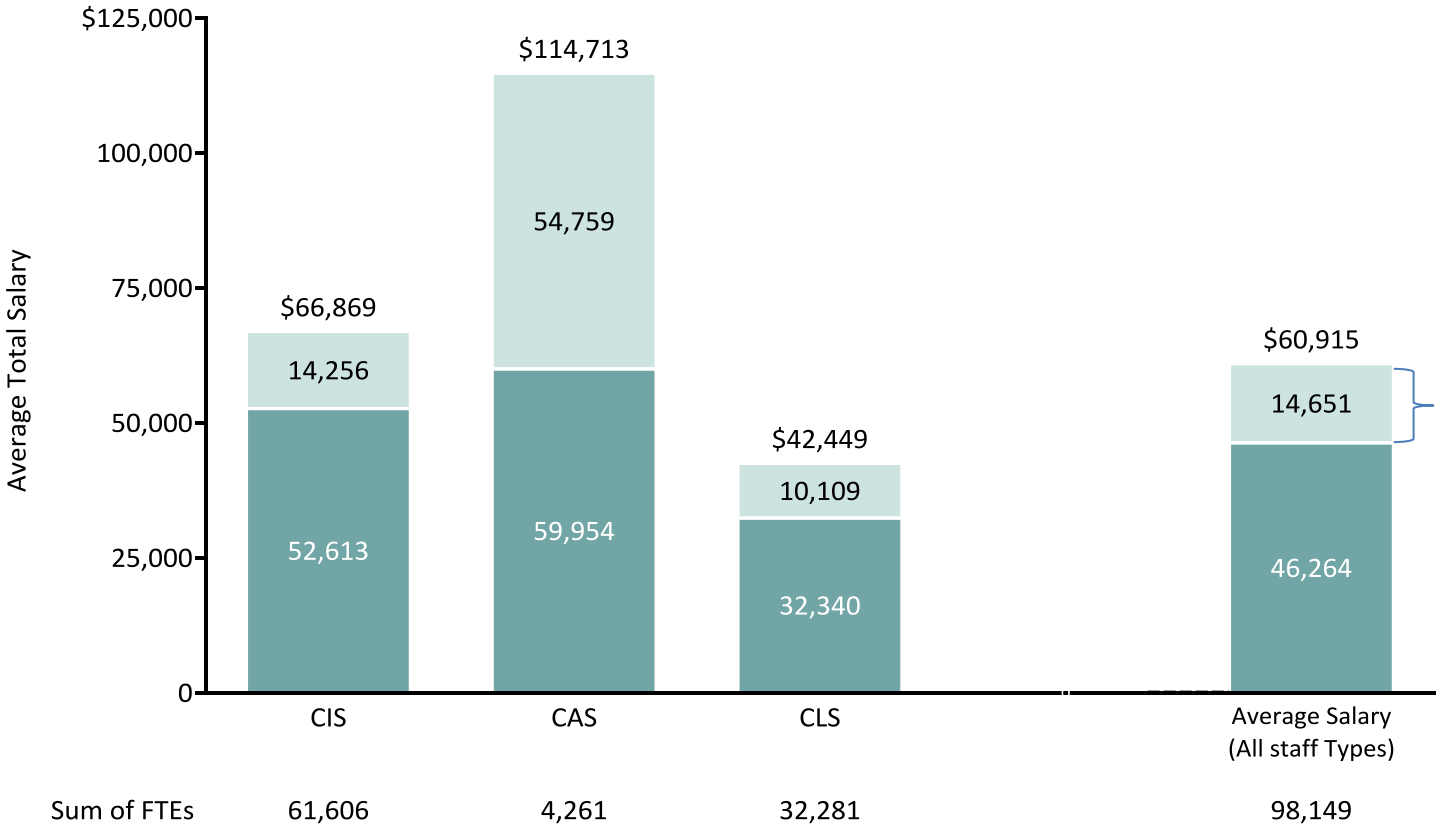
Supplemental Pay Analysis Summary Findings

Districts use a few supplemental pay categories and sub-categories to describe the majority of additional pay

Supplemental Pay Frequency	• Nearly all CIS staff (92%) receive additional compensation for Professional Development and 61% receive stipends for Deemed Done activities • Universally CAS staff receive a stipend for "Additional salary above state allocation considered district base pay" • Within CLS staff the Other and Deemed Done categories are the most frequent, 53% and 20%
Supplemental Pay Magnitude	• CIS Professional Development is paid at a median amount of $851; the highest median payments are for Deemed Done activities with a median of $3,831 • Additional base salary makes up almost half of CAS total salary - 40% for Principals and 46% for Central Administrators • CLS stipend levels vary widely across supplemental pay categories
Relationships Between Pay and District Factors	• There are patterns between district characteristics and supplemental pay frequency and magnitude however, relationships are not dramatic • In general, large districts pay higher amounts of supplemental pay while smaller districts pay smaller amounts of supplemental pay • Larger districts more frequently pay for district directed PD and professional responsibility stipends while smaller districts pay for extra days and classroom prep

Average Additional Salary by Staff Type

Across all staff types districts pay, on average, an additional $14,651 for a full time equivalent employee



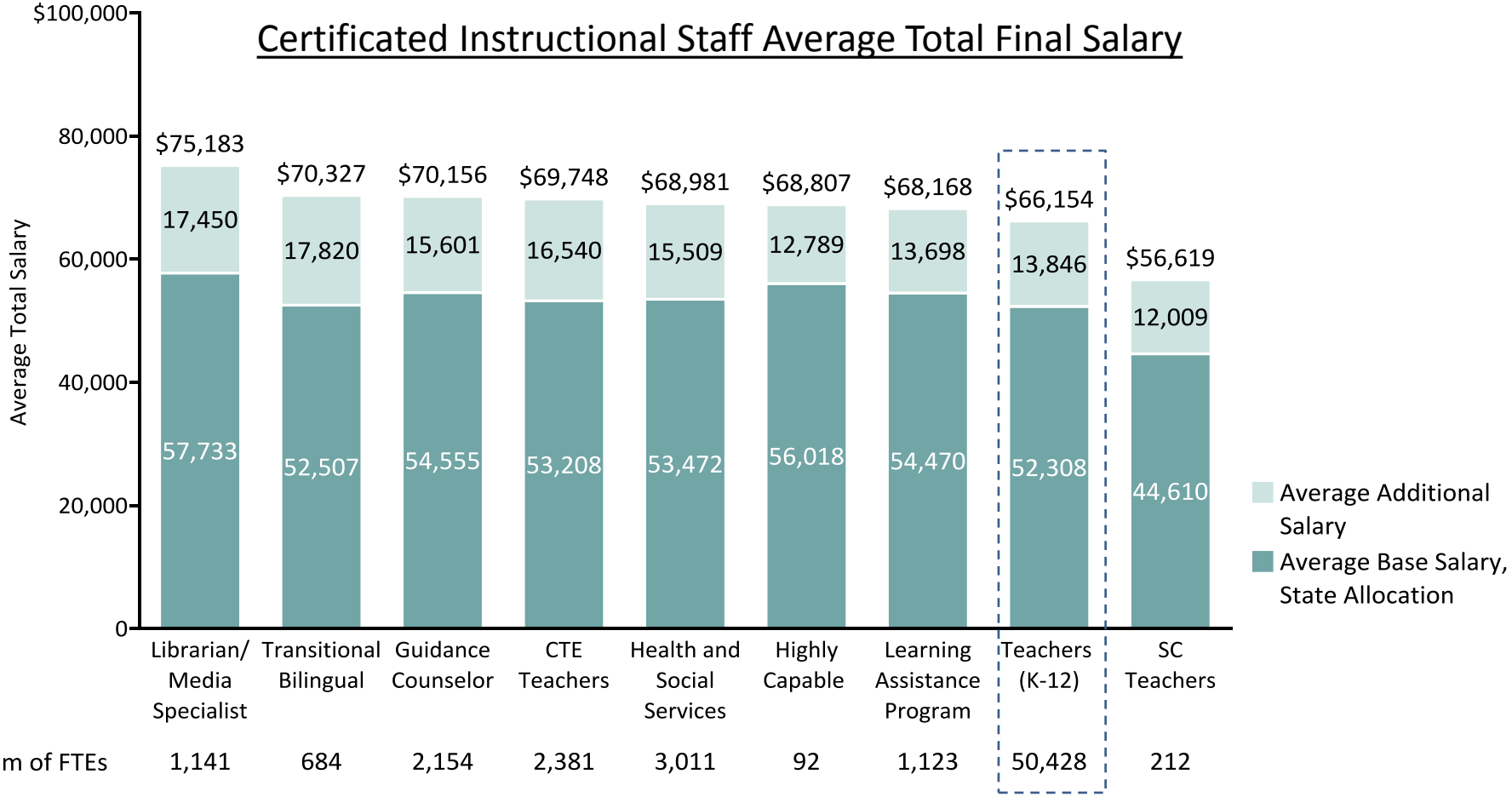
The supplemental pay analysis will describe the duties or reasons for additional pay

	CIS	CAS	CLS	Average Salary (All staff Types)
Sum of FTEs	61,606	4,261	32,281	98,149

Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set). Sum of FTEs includes all statutory programs of basic education. Data represents the population from which the sample was created. Salaries are normalized for an FTE of 1.

CIS: Average Additional Salary

The most additional pay, in aggregate, is paid to teachers (K-12), which comprise over 80% of CIS staff

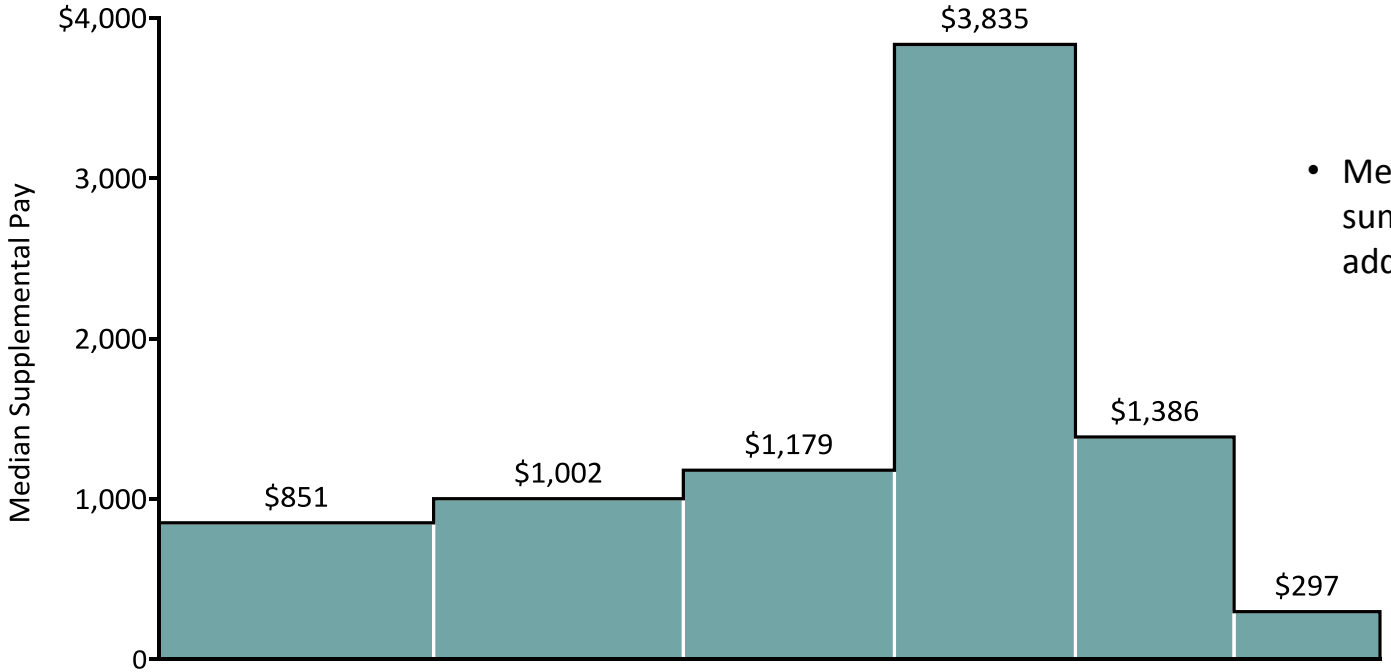


Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set). Health and Social Services = Nurses, Psychologist, and Social Workers. Salaries are normalized to an FTE of 1. Infrequently used CIS PSM staff positions not included, see appendix for full list of CIS positions. CTE = Career and Technical Education.

CIS: Supplemental Pay Overall

For CIS staff the Professional Development category is most frequent but Deemed Done has the highest median compensation

Frequency and Magnitude of Supplemental Pay Categories



- Medians cannot be summed to derive average additional salary

	Professional Development	Time Outside Regular School Day	Additional Responsibilities	Deemed Done	Time Outside 180 day School Year	Other
Frequency	92%	84%	71%	61%	53%	49%

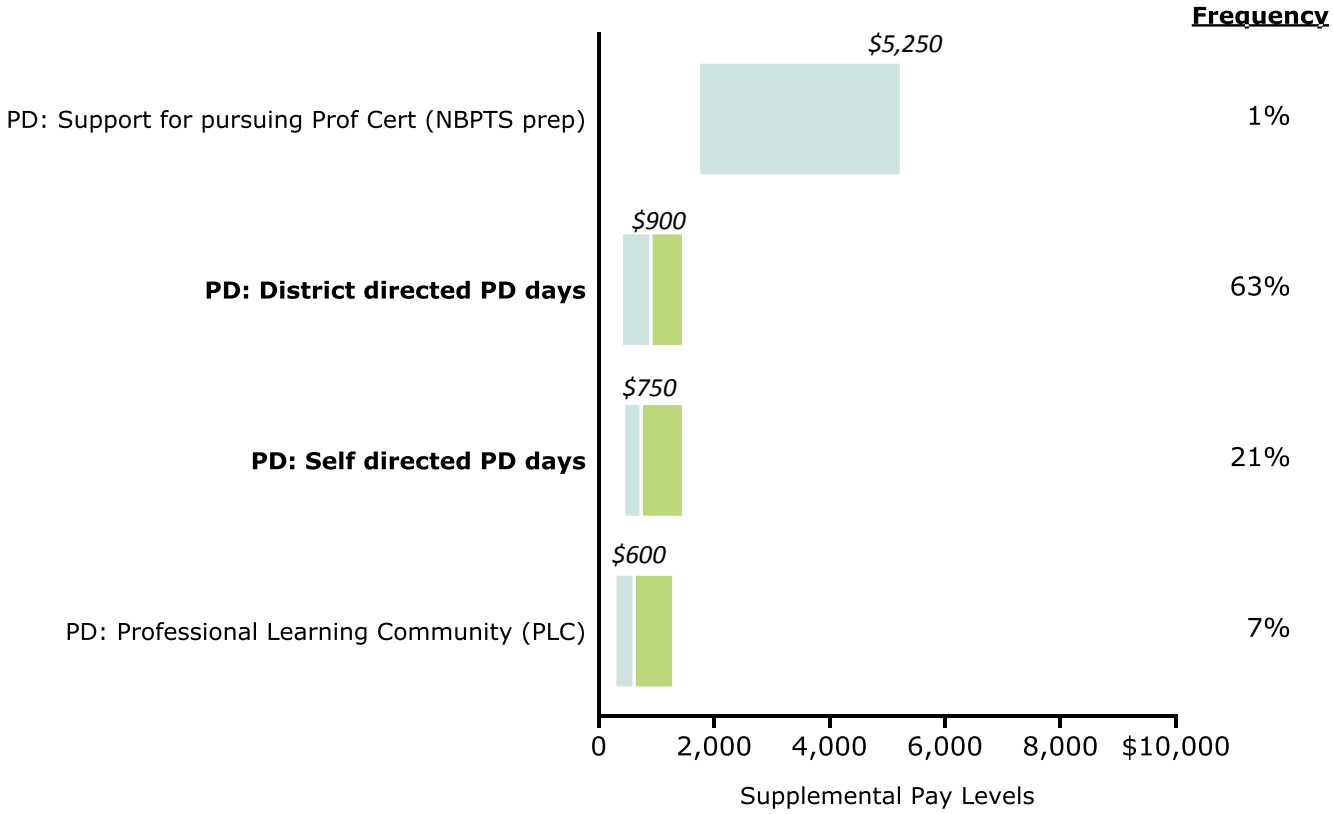
Source: Data collected for E2SSB 6195 as of 10/30/2016
Excludes supplemental pay and staff records flagged for insufficient detail

CIS: Specific Sub-categories

In the Professional Development category, District directed PD is the most frequent and has the highest median value

Key:
Median - 3rd quartile
1st quartile - Median
$xxx Italics number = Median value
Bold text = > 20% frequency

Professional Development (PD):
All CIS Sub-category Supplemental Pay Amounts



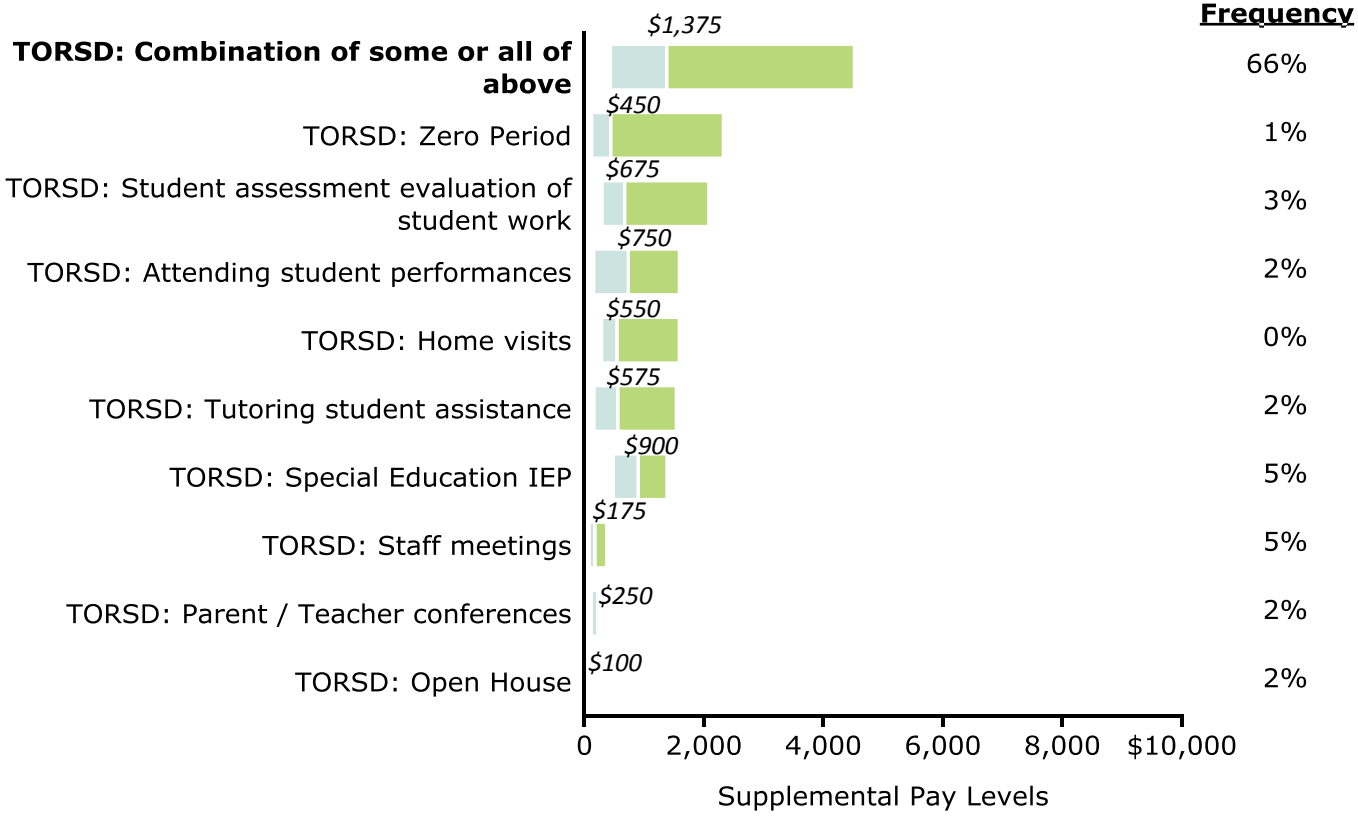
- Professional Development is the most frequently used supplemental pay category
- The sub-category District directed PD days are paid to 63% of CIS staff at a median value of $900
- The sub-category Self directed PD days are paid to 21% of CIS staff at a median value of $750
- Support for pursuing Professional Certification refers to district support for certification training and is paid at small amounts and many payments at $5,250 (median equal to the 3rd quartile)

Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Specific Sub-categories

In the Time Outside the Regular School Day category, Combination of some or all of above is the most frequent and the largest

Time Outside the Regular School Day (TORSD):
All CIS Sub-category Supplemental Pay Amounts



- Time Outside the Regular School Day is the second most frequent supplemental pay category
- All sub-categories are used infrequently because districts described supplemental pay as a combination of all the duties Outside the Regular School Day (i.e., districts were unable to break out supplemental pay)
- Median district supplemental pay for combination of duties Outside the Regular School Day is $1,375 with a relatively wide range of supplemental pay reported by districts

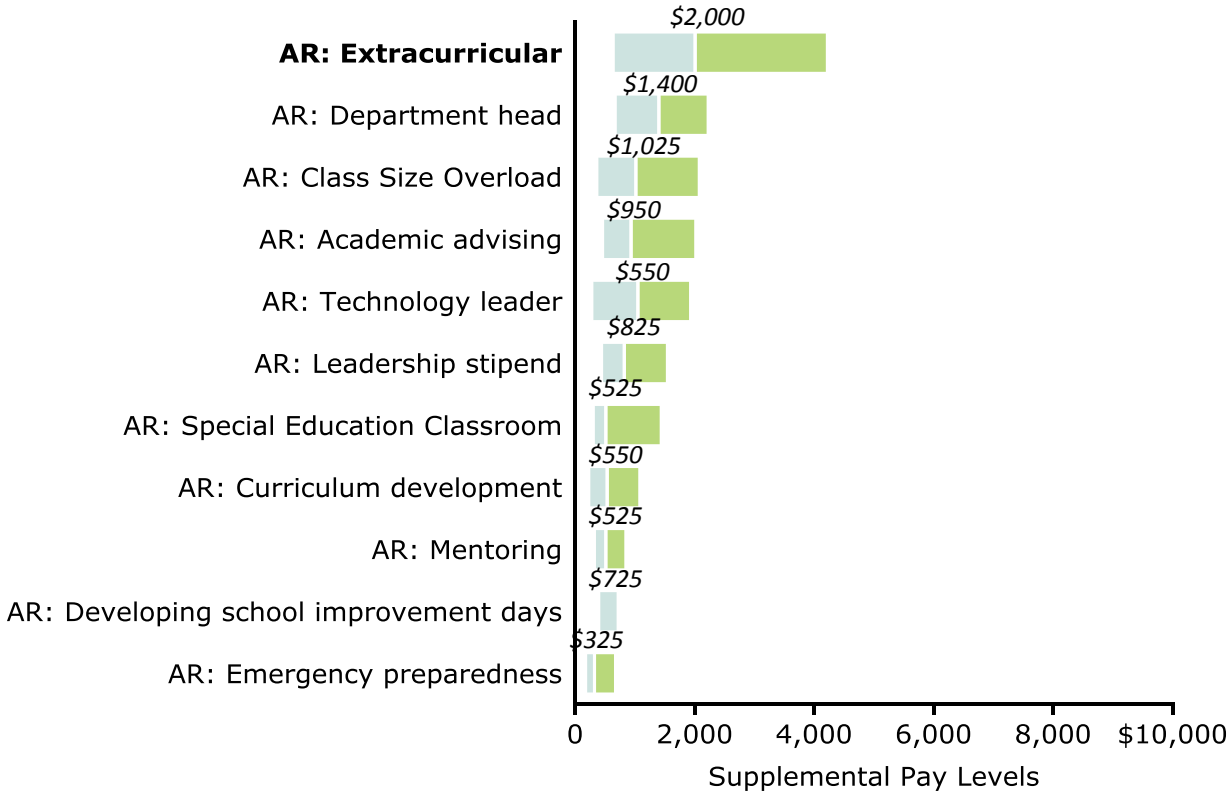
Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Specific Sub-categories

In the Additional Responsibilities category, Extracurricular is the most frequent and the highest median value

Key:
Median - 3rd quartile
1st quartile - Median
$xxx Italics number = Median value
Bold text = > 20% frequency

Additional Responsibilities (AR):
All CIS Sub-category Supplemental Pay Amounts



Frequency
36%
6%
12%
3%
1%
7%
1%
5%
4%
1%
0%

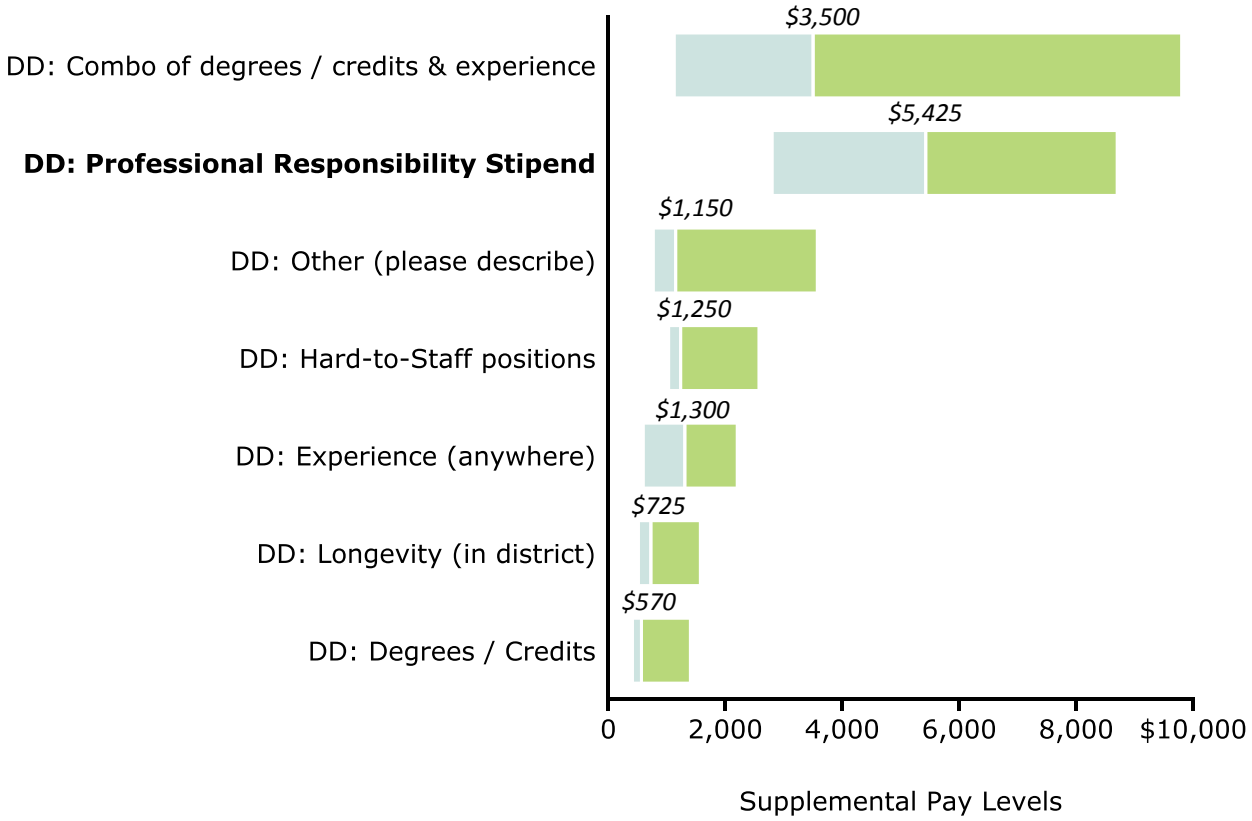
- Additional Responsibilities is the 3rd most frequent category of supplemental pay with 71% of CIS staff getting an Additional Responsibilities stipend
- The sub-category of Extracurricular is the most frequent type of Additional Responsibilities payment with 36% of CIS staff receiving an Extracurricular payment with a median value of $2,000

Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Specific Sub-categories

In the Deemed Done category, Professional Responsibility Stipend is the most frequent and has the highest median value

Deemed Done: All CIS Sub-category
Supplemental Pay Amounts



- The Deemed Done category describes supplemental pay for 61% of CIS staff but it has the highest median payment amount of $3,850
- The sub-category of Professional Responsibility Stipend is the most frequent type of Deemed Done payment with 39% of CIS staff receiving a payment at a median value of $5,425

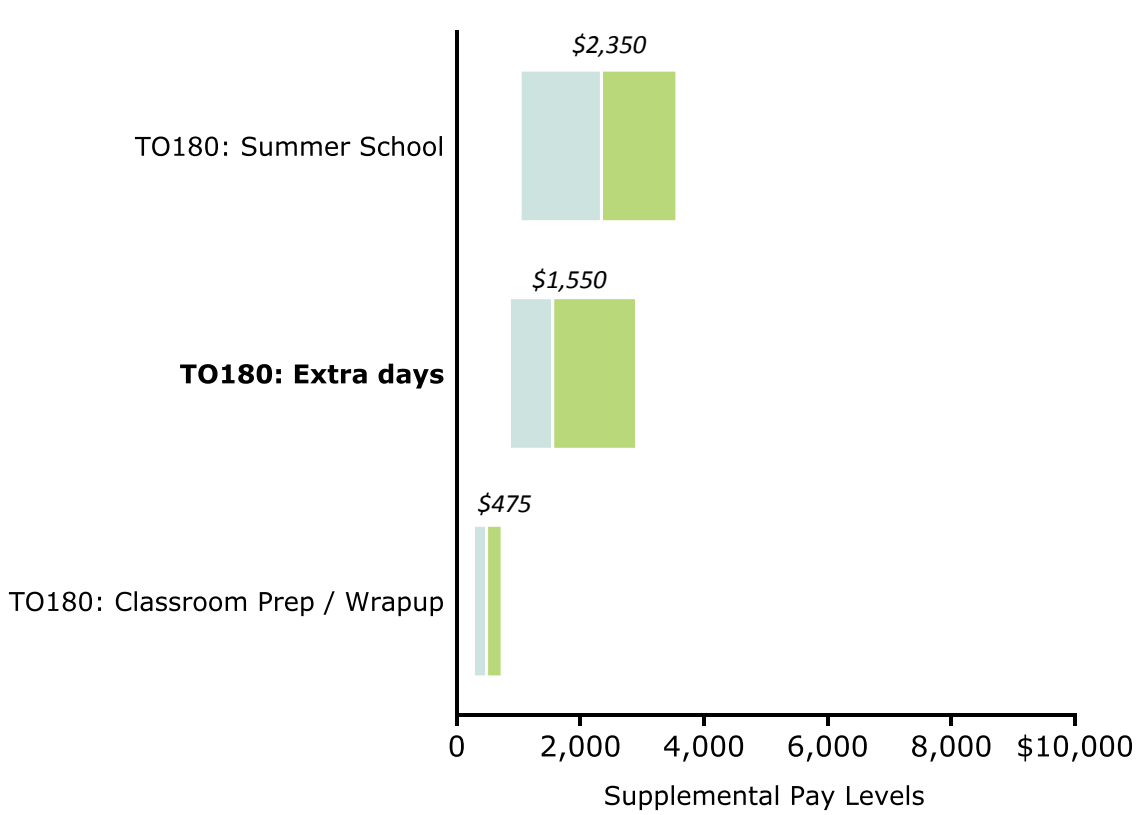
Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Specific Sub-categories

In the Time Outside the 180 Day School Year category, Extra days is the most frequent while Summer school has the highest median

Key: Median - 3rd quartile; 1st quartile - Median; *$xxx Italics number = Median value*; **Bold text = > 20% frequency**

Time Outside the 180 Day School Year (TO180):
All Staff Sub-category Supplemental Pay Amounts

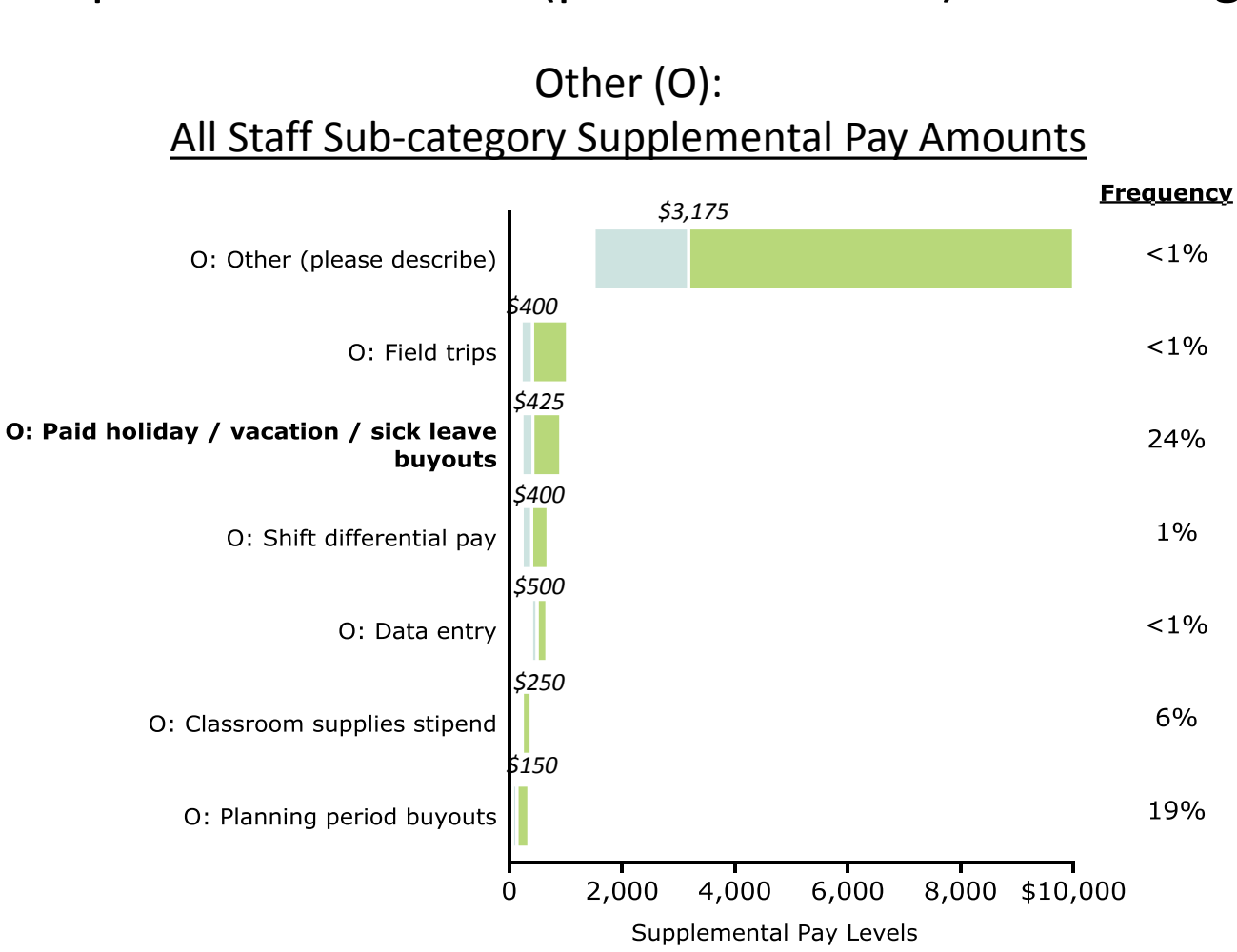


- The Time Outside the 180 Day School Year category describes supplemental pay for 53% of CIS staff at a median value of $1,386
- The sub-category of Extra days is the most frequent type of payment with 34% of CIS staff receiving a payment at a median value of $1,550

Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Specific Sub-categories

In the Other category, Paid holiday/ sick leave buyouts is the most frequent while Other (please describe) has the highest median



- The Other category describes supplemental pay for 49% of CIS staff with a median amount of $297
- The sub-category of Paid holiday / vacation / sick leave buyouts is the most frequent type of Other payment with 24% of CIS staff receiving a payment at a median value of $425
- Other: Other (please describe) describes additional district base pay for CIS staff (remaining Other: Other excluded from analysis because of non-specific descriptions)

Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Specific Sub-categories

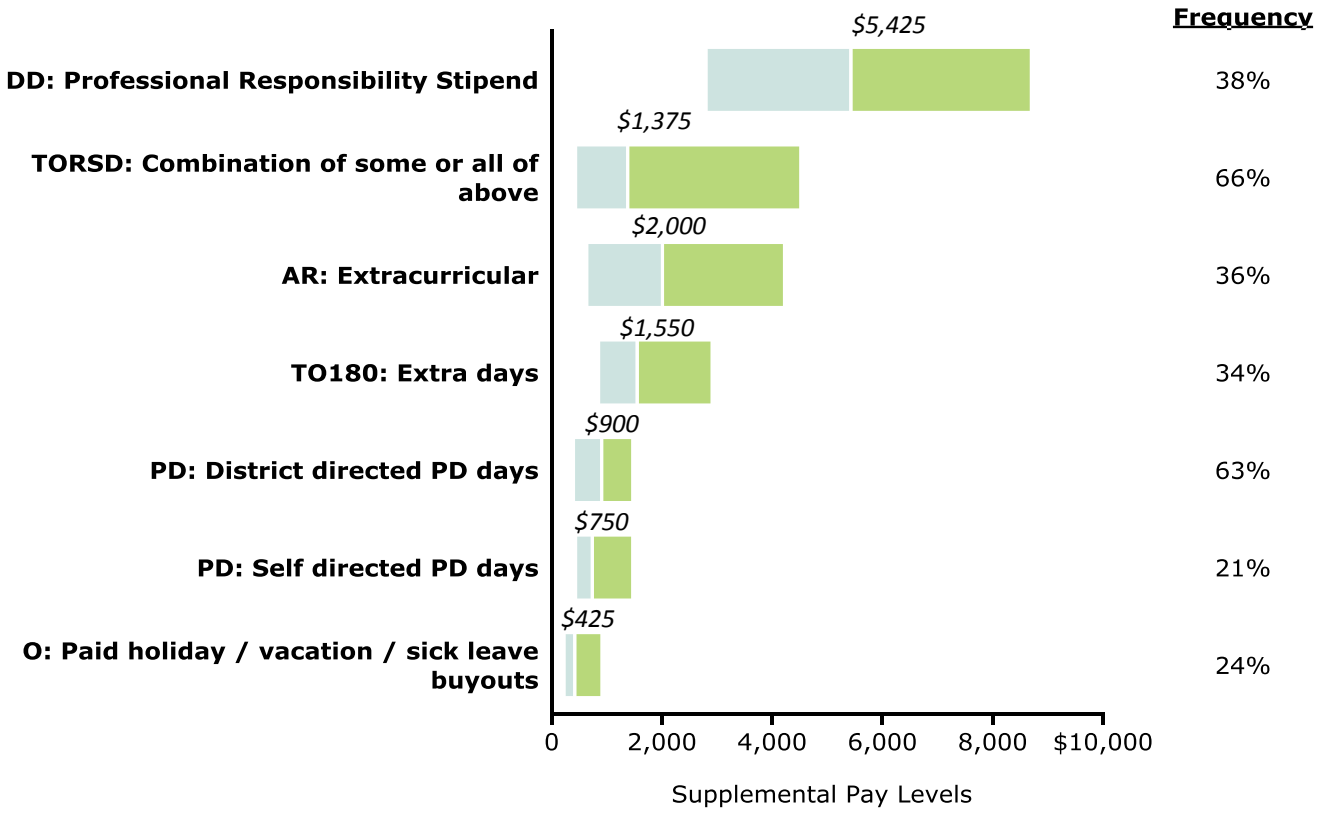
District supplemental pay is described by a few sub-categories

Key: Median - 3rd quartile; 1st quartile - Median

$xxx Italics number = Median value

Bold text = > 20% frequency

Most Frequent:
All CIS Sub-category Supplemental Pay Amounts

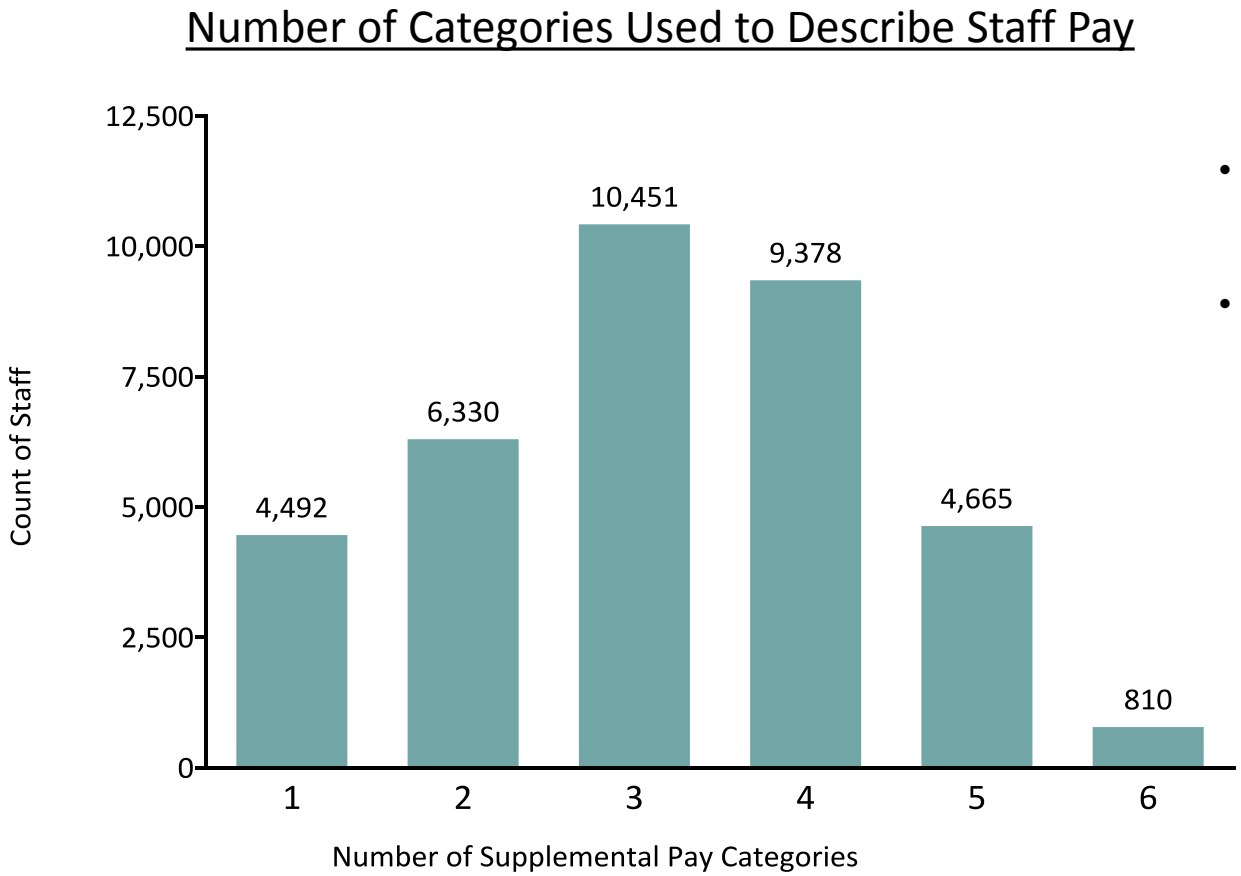


- These seven sub-categories explain approximately 1/3 of the total CIS salary variance, the remainder includes the cumulative less frequent sub-categories, additional base pay not included in this analysis and unexplained variance

Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Supplemental Pay Across Categories

There is significant overlap in how districts apply supplemental pay categories

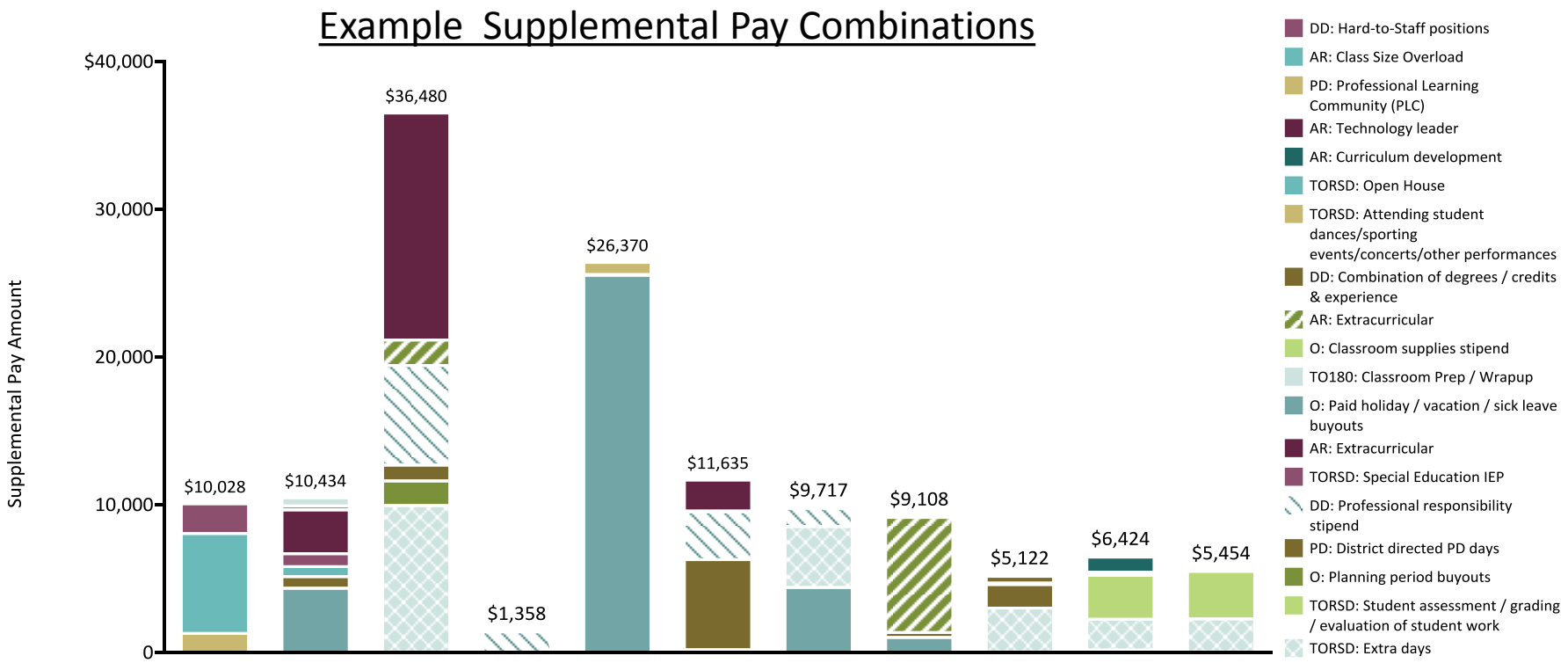


- Most staff are assigned multiple types of supplemental pay
- 70% of CIS staff receive 3 or more supplemental payments from different categories and 2% receive payments from all 6 categories

Source: Data collected for E2SSB 6195 as of 10/30/2016

CIS: Examples for Similar Teachers (1 of 2)

Teachers with the same experience level across areas of the state have many different combinations of supplemental pay

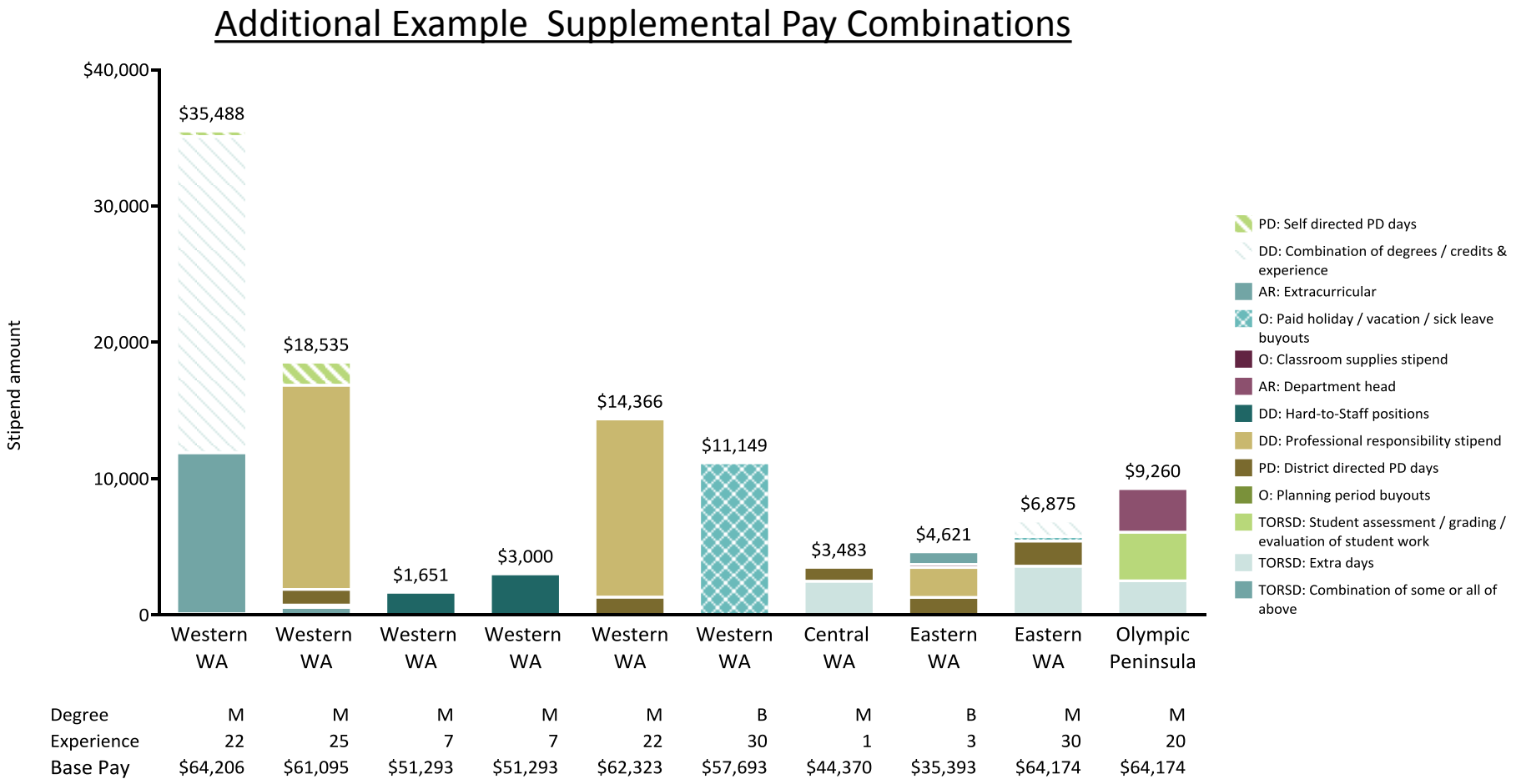


Teachers with 10-13 Years of Experience

Source: Data collected for E2SSB 6195 as of 10/30/2016; M=Master's Degree, B=Bachelor's Degree

CIS: SPCs for a Range of Teachers (2 of 2)

Teachers with different experience levels also have very different combinations of supplemental pay



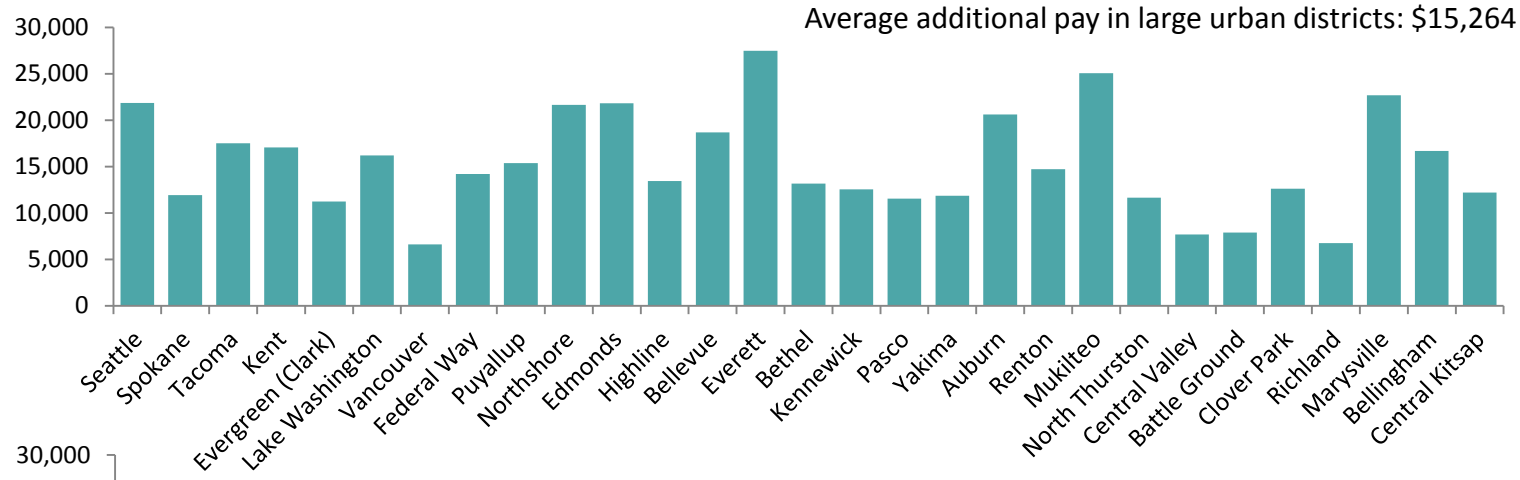
Degree	M	M	M	M	M	B	M	B	M	M
Experience	22	25	7	7	22	30	1	3	30	20
Base Pay	$64,206	$61,095	$51,293	$51,293	$62,323	$57,693	$44,370	$35,393	$64,174	$64,174

Source: Data collected for E2SSB 6195 as of 10/30/2016

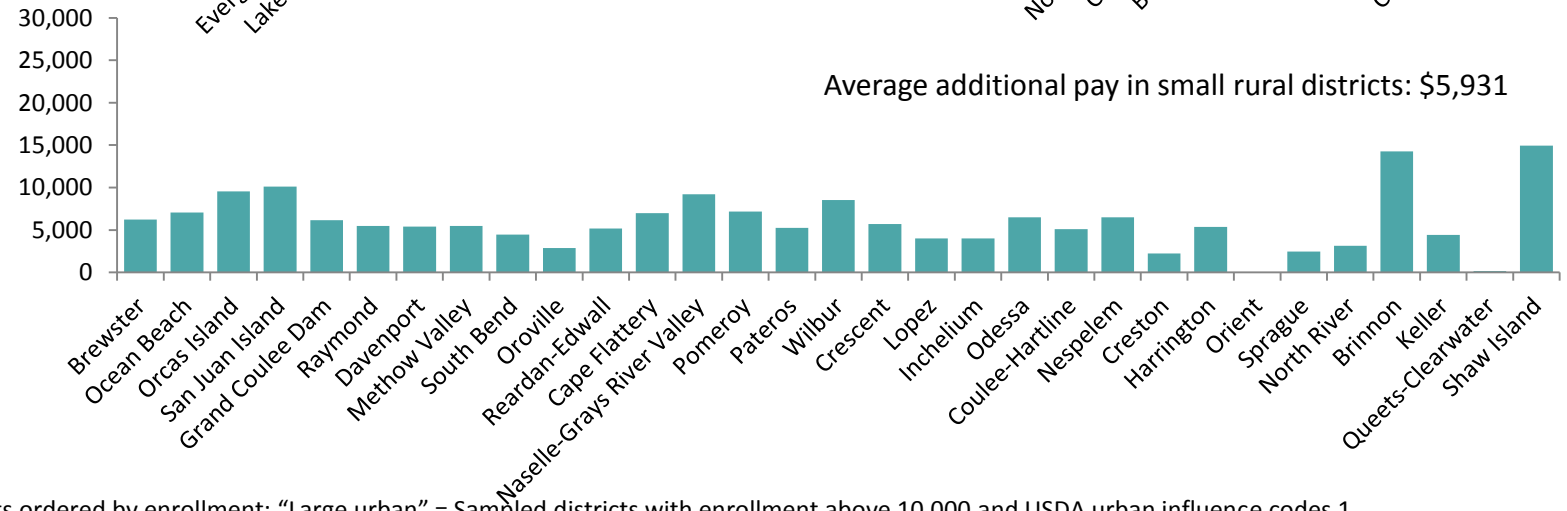
CIS: Additional Teacher Pay by District Type

Large urban districts pay teachers approximately three times the amount of additional pay as small rural districts on average

Teacher pay above state base in large urban districts



Teacher pay above state base in small rural districts



Note: districts ordered by enrollment; "Large urban" = Sampled districts with enrollment above 10,000 and USDA urban influence codes 1 and 2; "Small rural" = Sampled districts with enrollment under 1,000 and USDA urban influence codes 6, 7, 8, 9, and 12

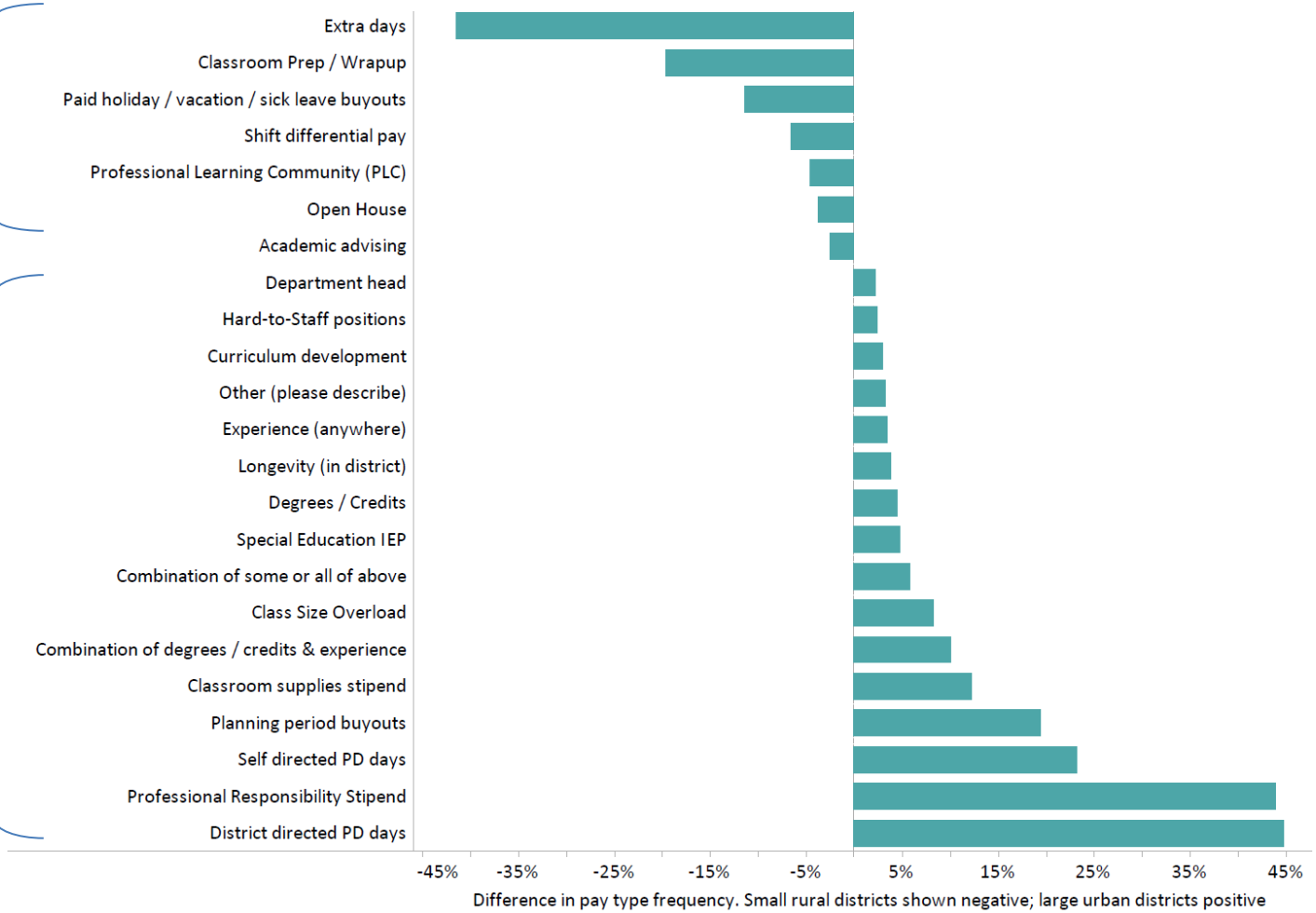
Source: OSPI levy report and district data for the 2014-15 SY

CIS: Teacher Supplemental Pay by District Type

Large urban districts use different supplemental pay categories than small rural districts

Pay categories that are more commonly paid in small rural districts

Pay categories that are more commonly paid in large urban districts



Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher Supplemental Pay and Urbanicity

Large urban districts pay larger supplemental pay amounts at higher frequencies for a set of supplemental pay categories and less for others

	Large Urban Districts		Small Rural Districts	
	Frequency	Per-contract	Frequency	Per-contract
Professional Responsibility Stipend	47.0%	$7,130	3.1%	$1,062
Combination of degrees / credits & experience	13.0%	5,349	3.0%	1,594
Combination of some or all of above*	50.6%	3,398	44.8%	2,712
Extra days	24.9%	3,386	66.5%	1,067
Summer School	6.2%	2,262	4.7%	3,063
Extracurricular	32.0%	1,683	33.2%	3,519
Technology leader	0.9%	1,528	1.4%	8,154
Department head	6.2%	1,521	4.1%	4,177
Class Size Overload	16.0%	1,285	7.7%	883
District directed PD days	71.6%	1,049	26.9%	986
Classroom Prep / Wrap-up	7.8%	894	27.5%	756
Professional Learning Community (PLC)	5.2%	778	9.9%	939
Self directed PD days	26.4%	733	3.1%	817
Paid holiday / vacation / sick leave buyouts	22.2%	503	33.6%	635
Tutoring / one-on-one student assistance	3.1%	406	3.3%	2,396

Large urban districts pay less frequently and/or smaller amounts

"Large urban" = Sampled districts with enrollment above 10,000 and USDA urban influence codes 1 and 2
"Small rural" = Sampled districts with enrollment under 1,000 and USDA urban influence codes 6, 7, 8, 9, and 12
"Combination of some or all of above" = Combination of duties outside the regular school day
Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher Supplemental Pay and Unemployment

Districts in counties with higher unemployment pay smaller supplemental pay amounts

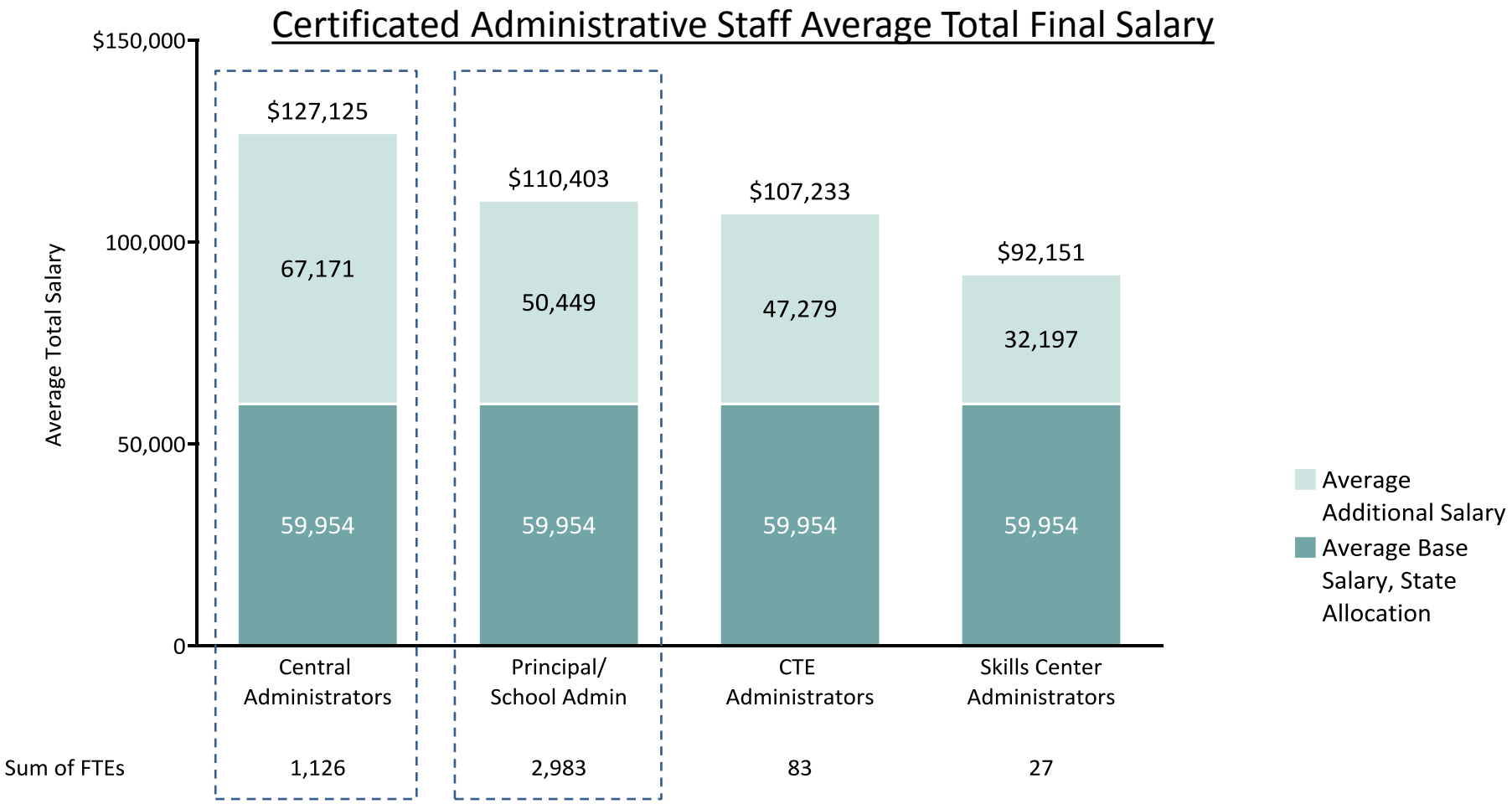
	Lower-Unemployment Districts (<7.5%)		Higher-Unemployment Districts (>7.5%)	
	Frequency	Per-Contract	Frequency	Per-Contract
Combination of some or all of above*	18%	$3,674	18%	$1,794
Professional Responsibility Stipend	8%	5,779	7%	4,991
Extracurricular	9%	2,210	9%	2,800
Combination of degrees / credits & experience	2%	10,414	0%	5,319
District directed PD days	14%	1,199	17%	1,190
Extra days	8%	1,711	12%	1,320
Self directed PD days	5%	1,458	4%	1,416
Paid holiday / vacation / sick leave buyouts	6%	532	7%	561
Longevity (in district)	2%	1,361	0%	633
Class Size Overload	3%	907	3%	1,147
Department head	1%	1,342	1%	2,075
Summer School	1%	2,285	2%	3,317

Higher-unemployment districts pay less frequently and/or smaller amounts

Lower-unemployment districts are located in counties where unemployment was lower than 7.5% in 2014. Higher-unemployment districts are located in counties where unemployment was 7.5% or above. To mitigate the effect of district size (all of the state's largest districts were located in districts with < 7.5% unemployment in 2014), the data for this slide omits districts with enrollment greater than 10,000 in 2014. * "Combination of some or all of above" = Combination of duties outside the regular school day

CAS: Average Additional Salary

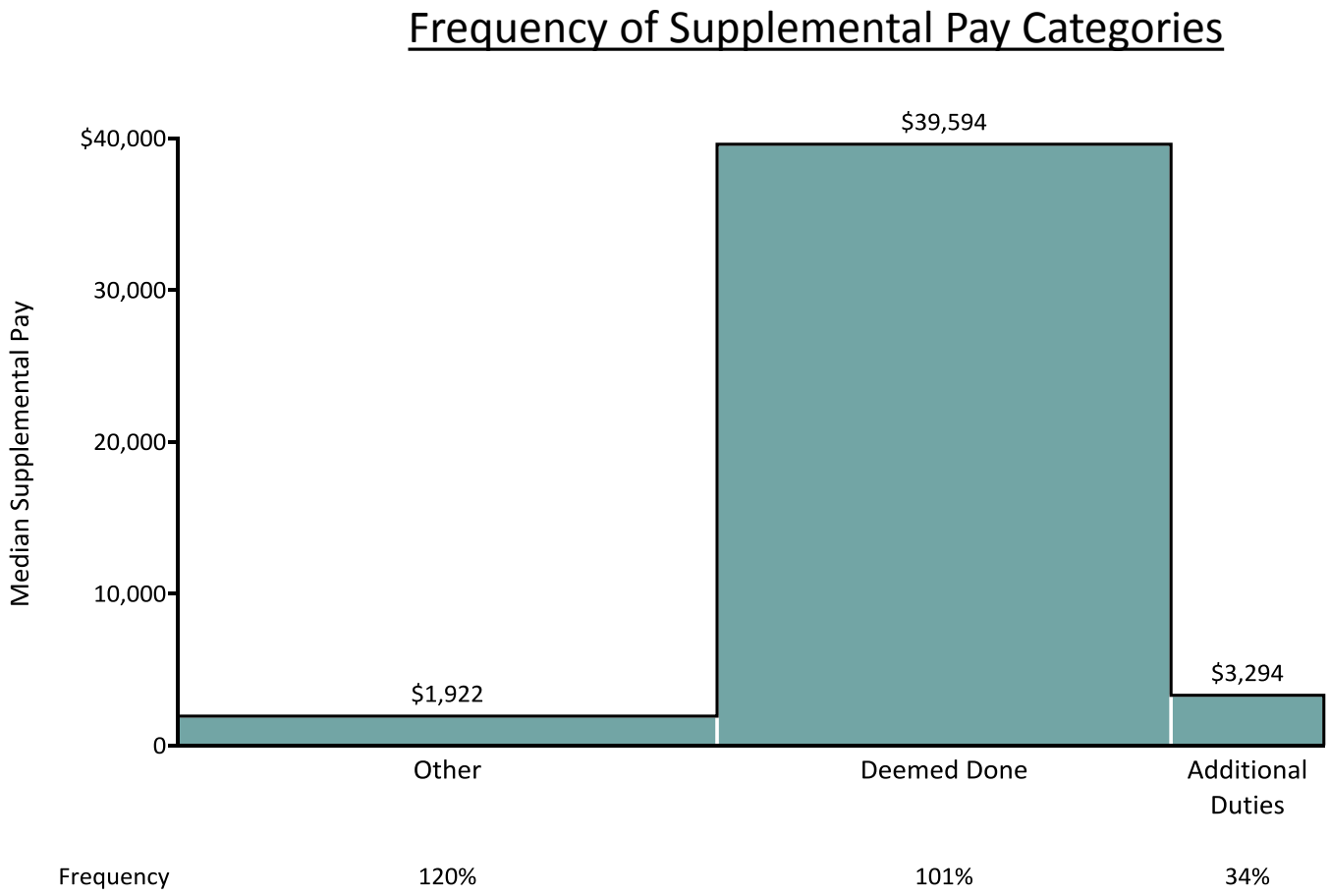
The average additional salary for CAS positions is higher than CIS, however, the number of FTEs is lower



Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set). Salaries are normalized to an FTE of 1, Infrequently used CAS PSM staff positions not included, see appendix for full list of CAS positions.

CAS: Supplemental Pay Overall

For CAS staff the Other category is most frequent but Deemed Done has the highest median pay amount



- A frequency greater than 100% indicates that some individuals within the data set receive supplemental pay contracts more than once for the same category

Source: Data collected for E2SSB 6195 as of 10/30/2016

CAS: Specific Sub-categories

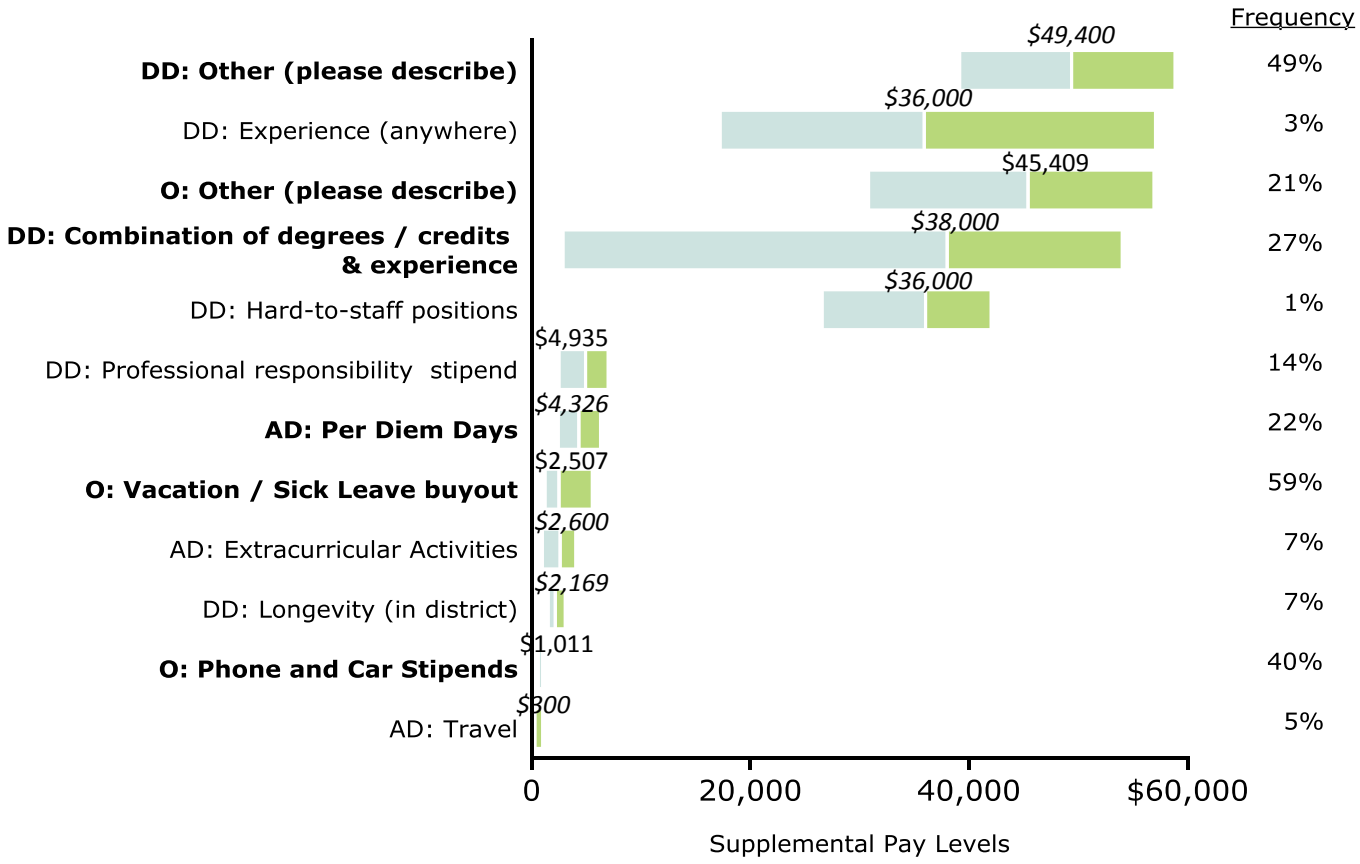
CAS supplemental pay includes additional base pay or market pay across a number of sub-categories

Key: Median - 3rd quartile; 1st quartile - Median

$xxx Italics number = Median value

Bold text = > 20% frequency

CAS Sub-category Supplemental Pay Amounts

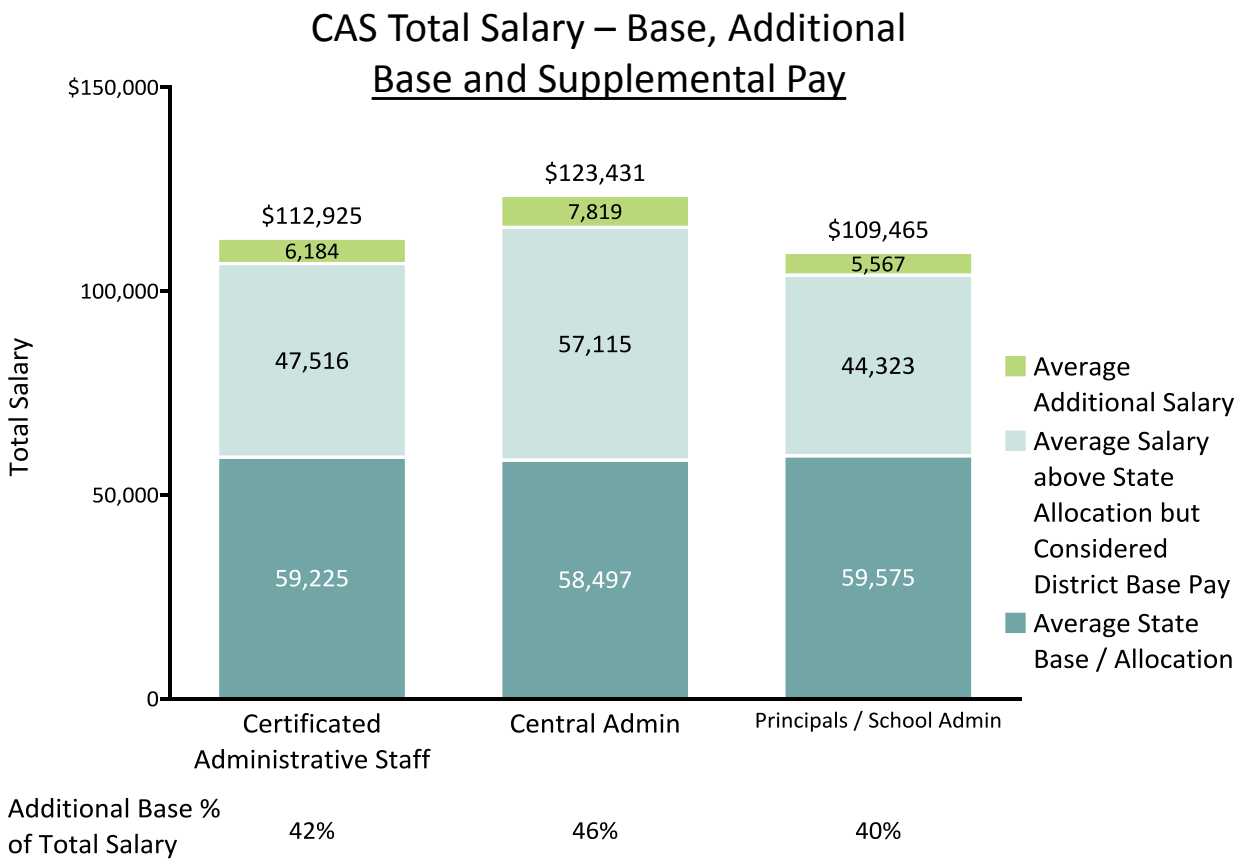


- On average CAS staff receive at least one stipend for both Other and Deemed Done supplemental pay categories
- The sub-categories of Deemed Done: Other, Other: Other and combination of degrees / credits & experience are frequently paid at high median payments and generally capture what districts describe as additional market pay / additional base pay
- There are a wide range of payments at different districts around these larger supplemental payments

Source: Data collected for E2SSB 6195 as of 10/30/2016

CAS Additional Base Salary from Districts

Additional base pay is almost half of CAS total salary - 40% for Principals and 46% for Central Administrators

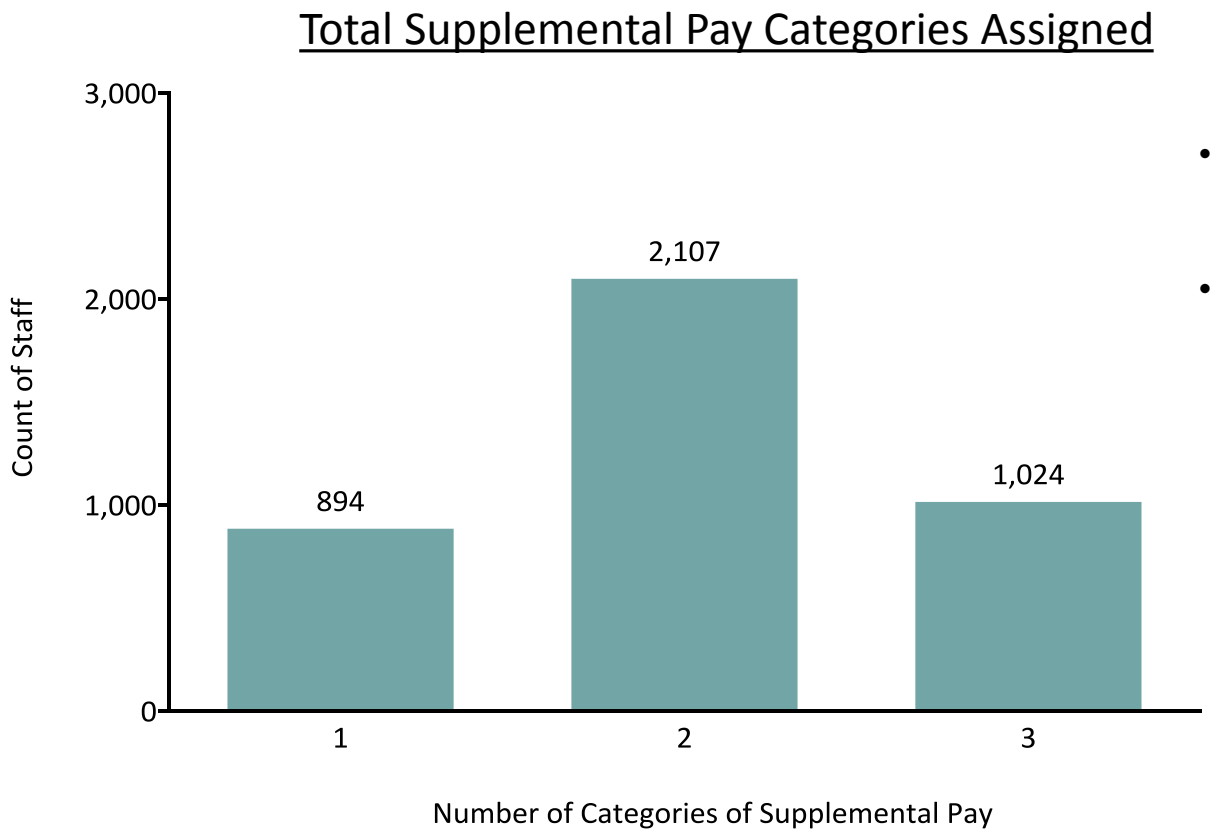


- Certificated Administrative Staff have the largest gap between state base allocation and total salary
- Districts categorized "Additional Salary above State Allocation but Considered District Base Pay" as:
  - "Base Pay"
  - "Market Pay"
  - "Deemed Done"
  - "Base Increase"
  - "Bargained Amount"

Source: data collected for E2SSB 6195 as of 10/30/2016

CAS: Supplemental Pay Across Categories

There is significant overlap in how districts apply supplemental pay categories (i.e., staff are assigned multiple pay types)

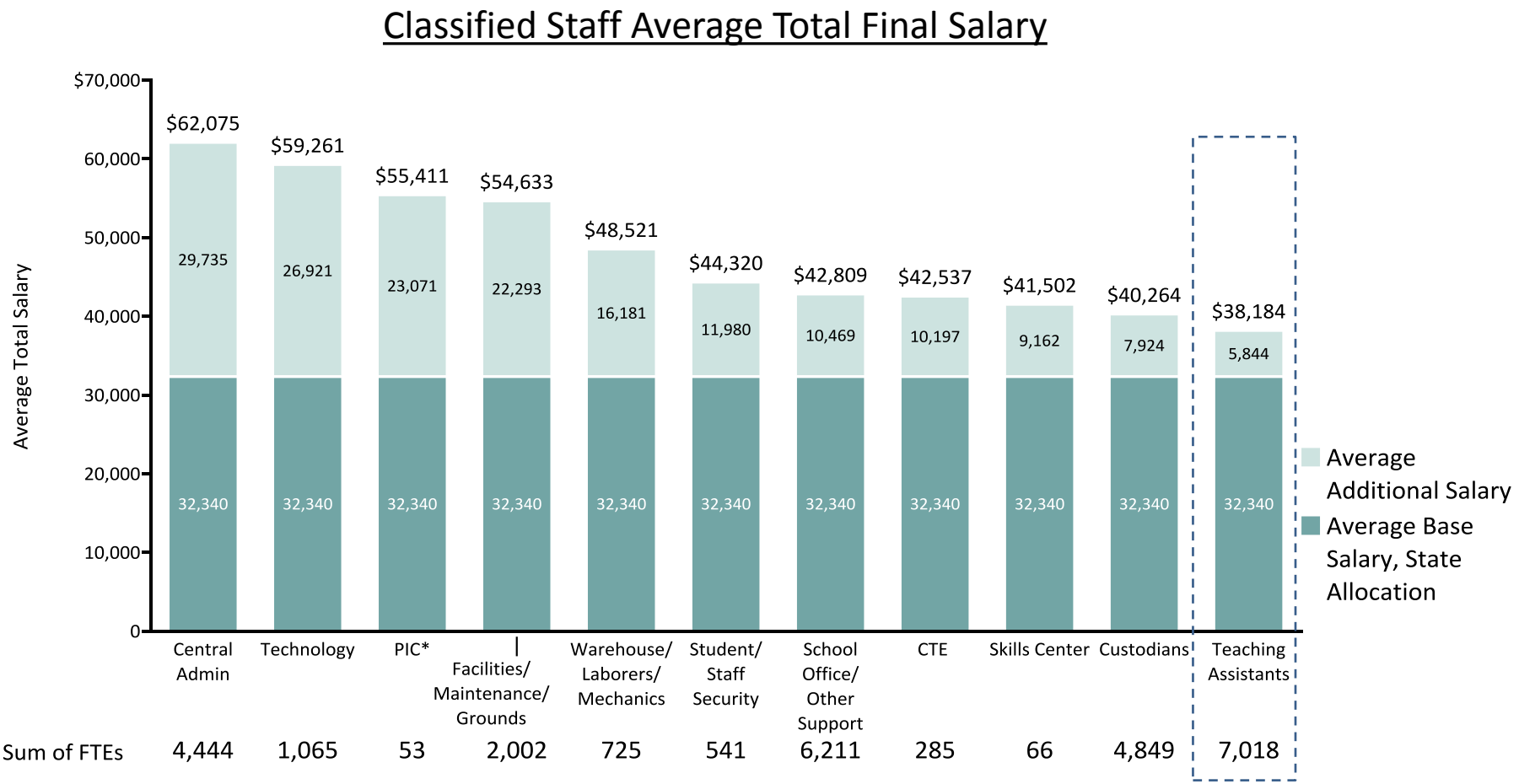


- Deemed Done and Other are assigned together most frequently
- 78% of staff are assigned supplemental pay from more than one category

Source: Data collected for E2SSB 6195 as of 10/30/2016

CLS: Average Additional Salary

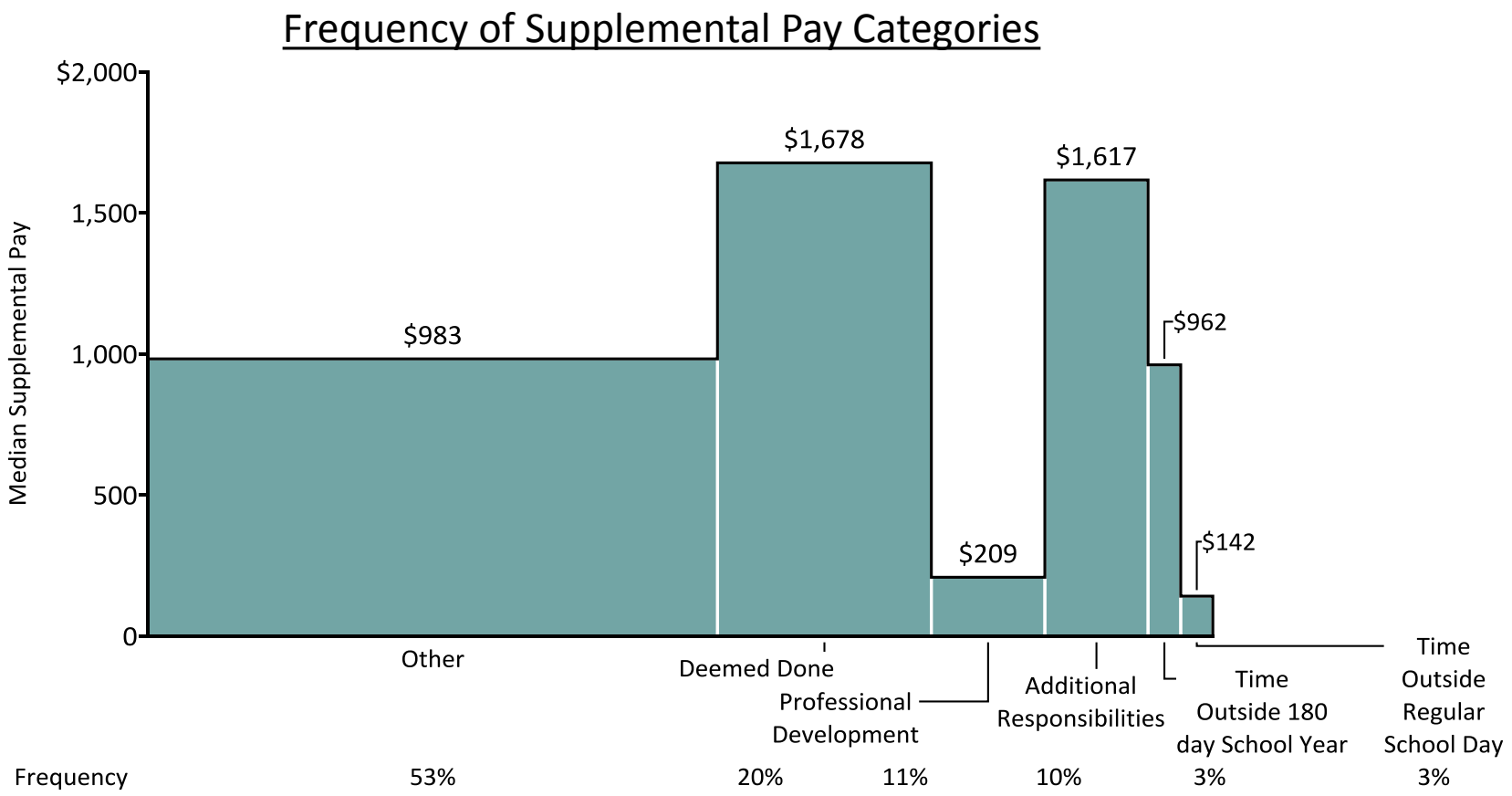
Teaching Assistants do not receive the most additional pay but are the largest group of classified staff



Source: Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set). Note: Salaries are normalized for an FTE of 1. *PIC = Parent Involvement Coordinator. Infrequently used CLS PSM staff positions not included, see appendix for full list of CLS positions. **Teaching Assistants, the prototypical school model title, is limited to certain programs of basic education. The sum of FTEs for the duty root aides (duty root 91) is 10,259 representing 19,171 individuals. Depending on the aide's associated activity and program their prototypical school model position title may be different from Teaching Assistants, for example LAP Classified Staff.

CLS: Supplemental Pay Overall

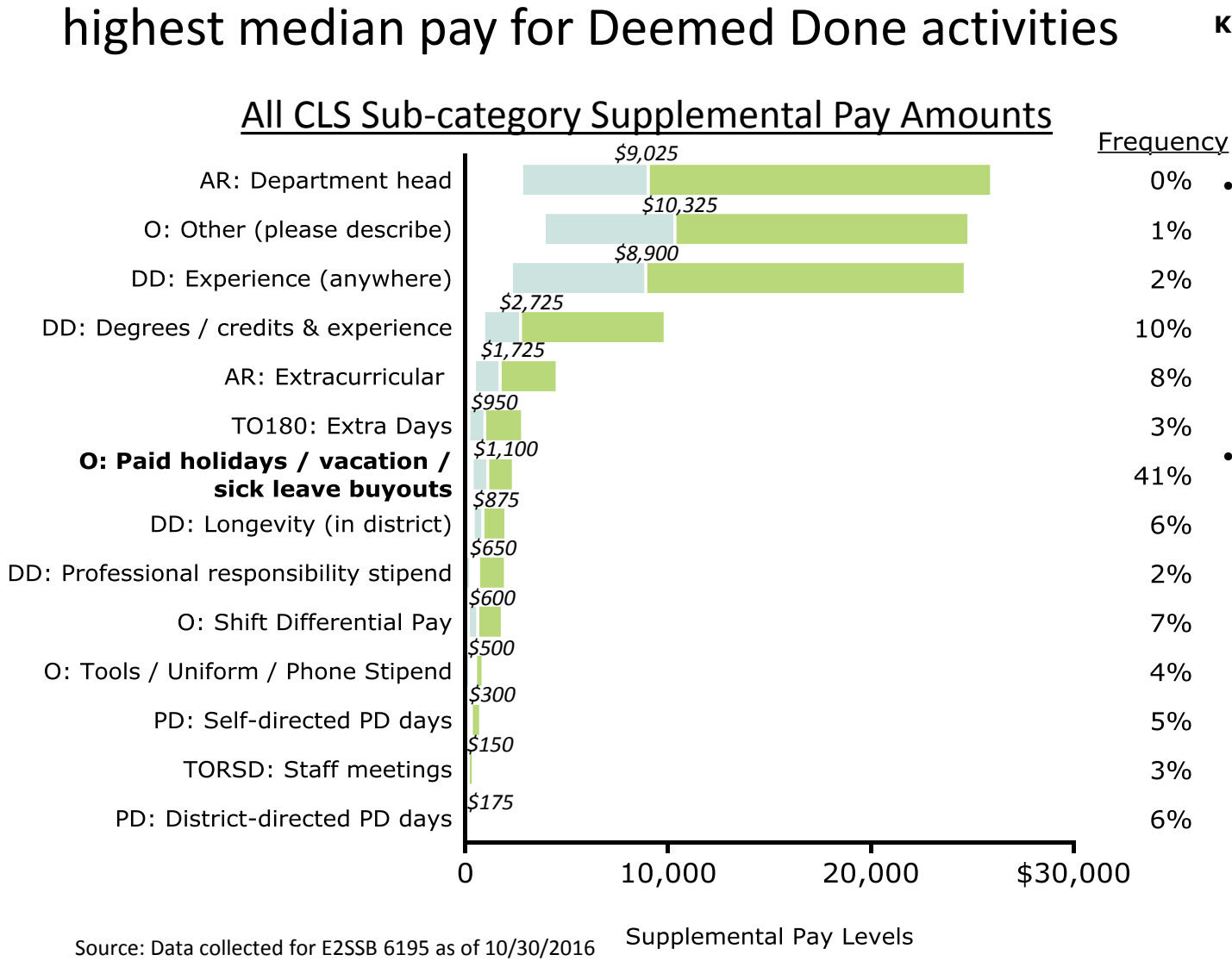
The Other and Deemed Done categories were used the most frequently to describe additional CLS pay



Source: Data collected for E2SSB 6195 as of 10/30/2016

CLS: Specific Sub-categories

There is wide variation in supplemental pay levels with the highest median pay for Deemed Done activities

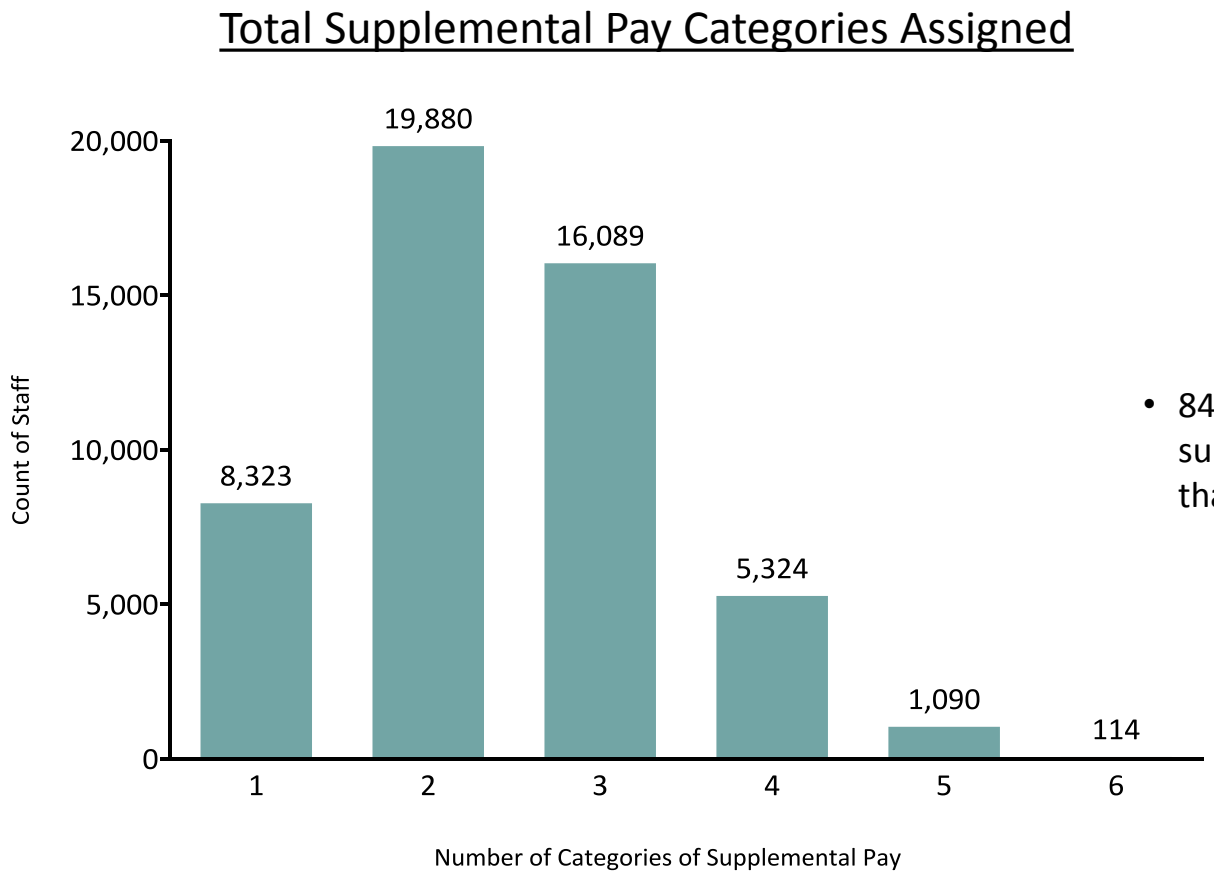


- Other is the largest category for CLS staff supplemental pay with paid holidays / vacation / sick leave buyouts as the most frequent sub-category
- There is a wide range of payment amounts for Additional Responsibilities, Other: Other and Deemed Done stipends although they are relatively infrequently applied, with the exception of Deemed Done: Degrees / credits & experience which is used for 10% of CLS staff

Source: Data collected for E2SSB 6195 as of 10/30/2016

CLS: Supplemental Pay Across Categories

Most CLS staff receive supplemental pay from 3 or fewer categories



- 84% of staff are assigned supplemental pay from more than one category

Source: Data collected for E2SSB 6195 as of 10/30/2016

Conclusions

Data did not reveal one "typical" educator or school staff pay formula, however, trends and patterns did emerge

Certificated Instructional Staff

- CIS receive, on average, the highest number of individual supplemental pay items (70% receive 3 or more pay items)
- Professional Development stipends are nearly universal, 92% frequency and a median amount of $851; the highest median payments are for Deemed Done activities ($3,831) but a lower frequency
- Within CIS, Teachers (K-12) make up the largest position type and have the most additional pay in aggregate
- On average large urban districts pay 3 times the additional salary paid for teachers as small rural districts

Certificated Administrative Staff

- On average CAS individuals receive 2 supplemental pay items
- The categories Deemed Done and Other are assigned together most frequently
- CAS is the smallest staff type but receive the largest amount of additional pay per person
- On average additional salary above state allocation but considered district base pay is 40% or $47,516 of a CAS' total salary
- Within CAS Central Administrators and Principals are the largest staff groups and receive the most additional salary in aggregate

Classified Staff

- 87% of CLS staff receive supplemental pay from 3 or fewer categories
- Like CAS Deemed Done and Other are assigned together most frequently
- CLS stipend levels for Other supplemental median pay is ($983) while the highest median payments are made for Deemed Done ($1,678)
- Teaching Assistants are the largest position type within CLS

Outline

- Introduction and Executive Summary
- Summary of Data Collection, Cleaning and Consolidation
- Supplemental Pay Analysis
- Revenue to Expenditure Analysis
- Comparable Position Salary Analysis
- Local Labor Market Adjustment Analysis
- Staff Salary Cost Model

Revenue Expenditure Analysis Findings

Collected data was used to understand the sources and uses of funding in school districts across the state

Sources and Uses of Funds

Summary of Findings

- Local funds make up approximately 22% of funding for districts
- Local taxes are primarily levy dollars (but not exclusively)
- In aggregate levy funding is higher in large districts, however on a per student basis levy funding is similar
- Many districts report expenditures from local funds on the statutory programs of basic education
- Districts use of local funds is not related to district size

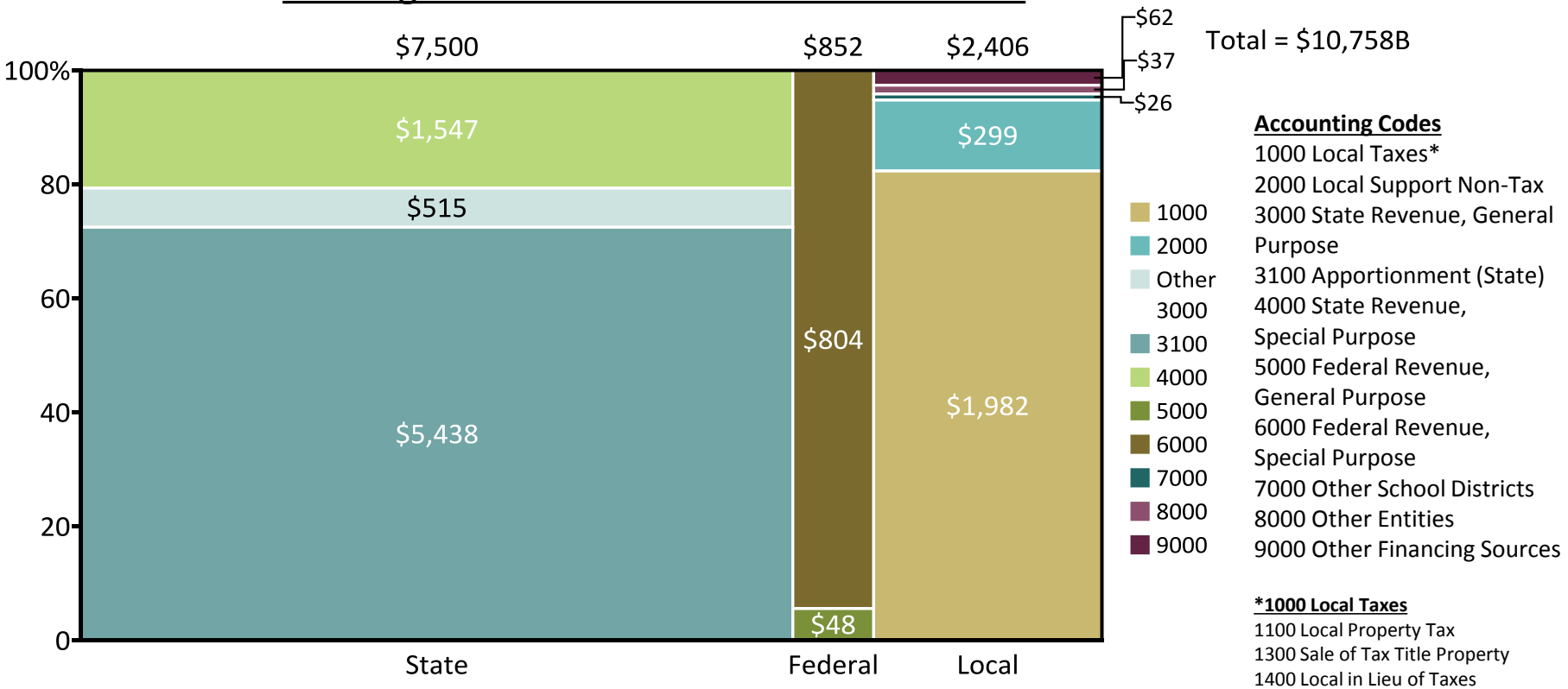
Limited analysis is possible given the lack of a cost accounting system linking expenditures with sources of funding

Note: See following slide for full list of local tax sources; In the 2014-15 school year 9 districts did not have levies

Data in the revenue to expenditure files is self-reported by districts

Revenue to Expenditure Data

249 districts reported $2.4B or 22% of K-12 funding comes from local sources with local taxes as the majority of local funds

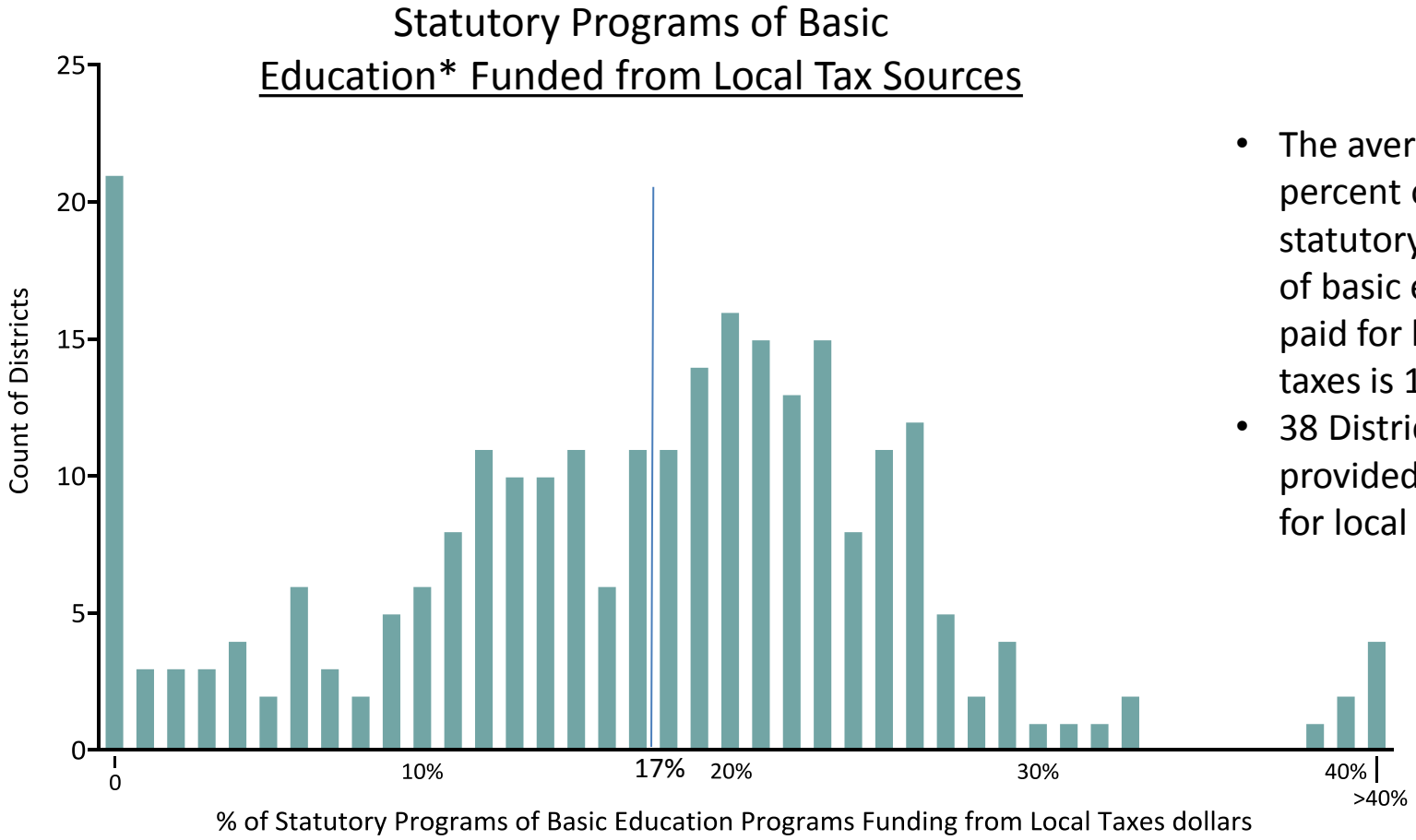


Data in the revenue to expenditure files is self-reported by districts

Source: Data collected for E2SSB 6195 as of 10/30/2016; Accounting code source: http://www.k12.wa.us/safs/INS/ACC/1516/05FC.pdf

Revenue to Expenditure Data

Local funds are spent across all K-12 programs including on the statutory programs of basic education



- The average percent of the statutory programs of basic education paid for by local taxes is 17%
- 38 Districts provided no data for local taxes

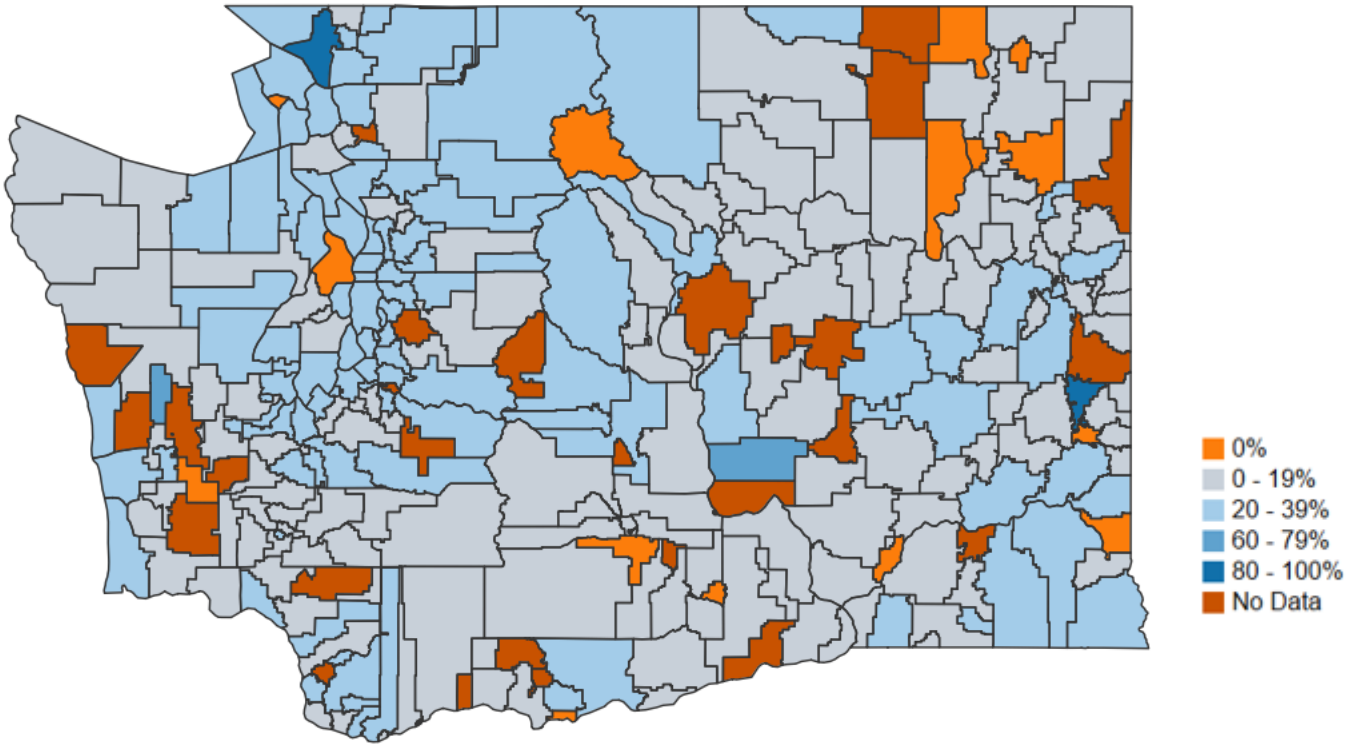
*See the appendix for a list of the statutory programs of basic education

Source: Data collected for E2SSB 6195 as of 10/30/2016; Data in the revenue to expenditure files is self-reported by districts

Local Dollars Spending Across the State

District spending on the statutory programs of basic education varies throughout the state

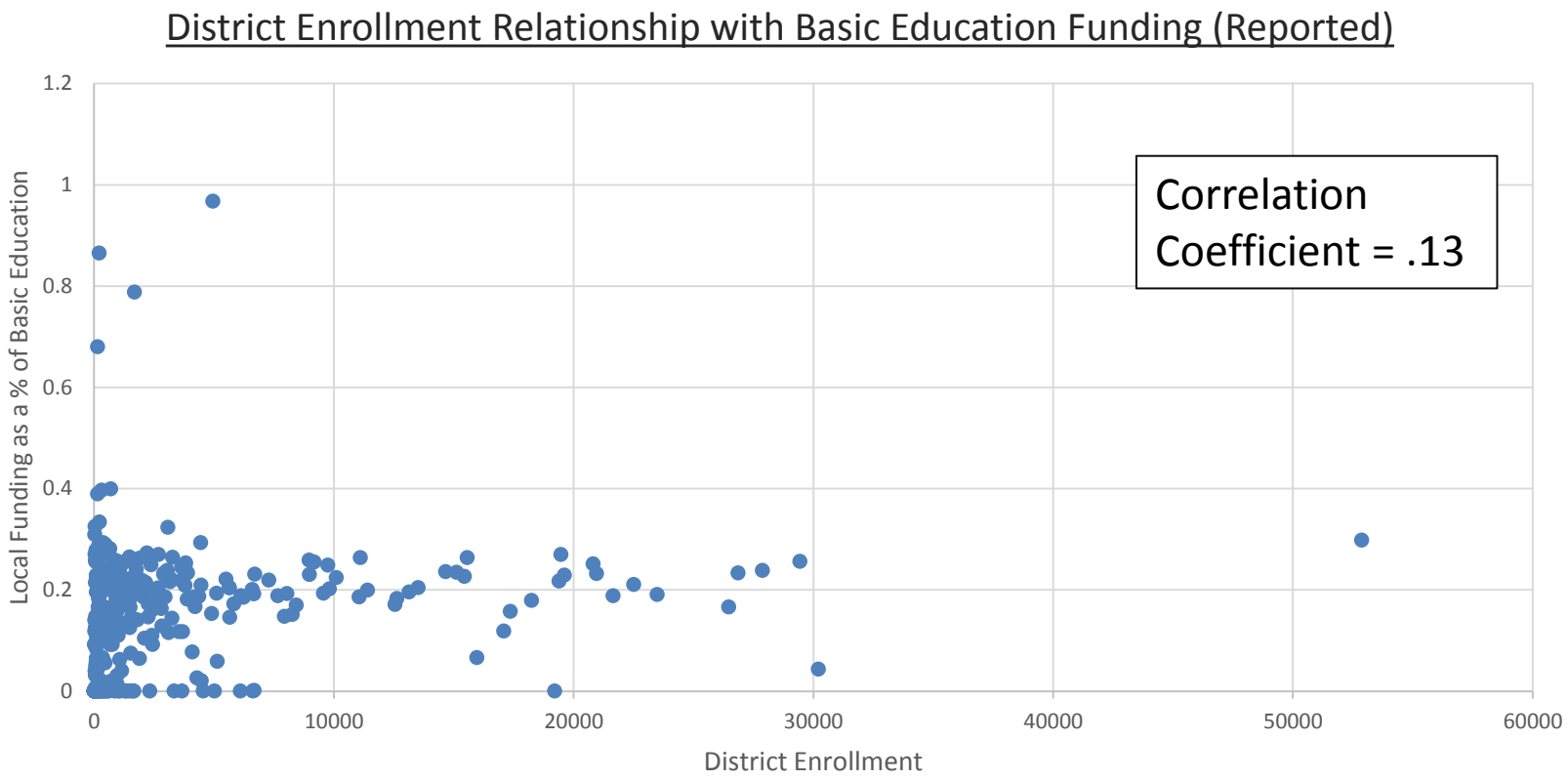
Local Taxes Spent as a % of Total Spending
in the Statutory Programs of Basic Education (Reported)



*Statutory programs of basic education
Source: Data collected for E2SSB 6195 as of 10/30/2016; Data in the revenue to expenditure files is self-reported by districts

Revenue to Expenditure Relationships

There is not a specific relationship between district size and local funding for the statutory programs of basic education



A **correlation coefficient** is a number that quantifies some type of correlation and dependence, meaning statistical relationships between two or more random variables or observed data values

Source: Data collected for E2SSB 6195 as of 10/30/2016; Data in the revenue to expenditure files is self-reported by districts

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Comparable Positions Salary Analysis Results

Prototypical school model positions were compared to a range of private sector positions chosen based on previous work in the field

Approach and Findings

Relationships between Salaries of Education Staff and Comparable Positions	• Most school positions have directly comparable professions however, teachers necessitate reviewing a range of positions with similar skills • Teachers' salaries (both direct and annualized salaries) are compared to the set of positions used in previous work by the Compensation Technical Working Group.* • Other CIS salaries (Teacher Librarians, Counselors, School Nurses, Psychologists and Social Workers), CAS positions (Principals and Central Office CAS staff), and CLS positions (Teaching Assistants, Parent Involvement Coordinators, Office Staff, Custodians, Student and Staff Safety) are compared to similar private sector positions
Adjustments to Comparable Salaries to Draw Conclusions	• Teacher's salaries are analyzed as a full year salary and annualized using the "83% rule" • All salaries have been normalized to a full time equivalent position (FTE of 1)

Source: Compensation Technical Working Group Final Report 2012; "How Does Teacher Pay Compare? Methodological Challenges and Answers", Allegretto, et al, Economic Policy Institute, 2004

Classroom Teachers Comparables

For each K-12 staff position the analysis provides two views of comparable salary

Comparison of Annual Wages

Direct comparison of:

- WA State average total salary for school position
- Annualized WA State total salary for school position (using 83% rule)
- Average WA State total salary for all comparable positions

WA State Indexed to National Average

$$\frac{\text{Teacher WA State Average Salary}}{\text{Teacher National Average Salary}} \quad \textbf{Compared to} \quad \frac{\text{Comparable Position WA State Average Salary}}{\text{Comparable Position National Average Salary}}$$

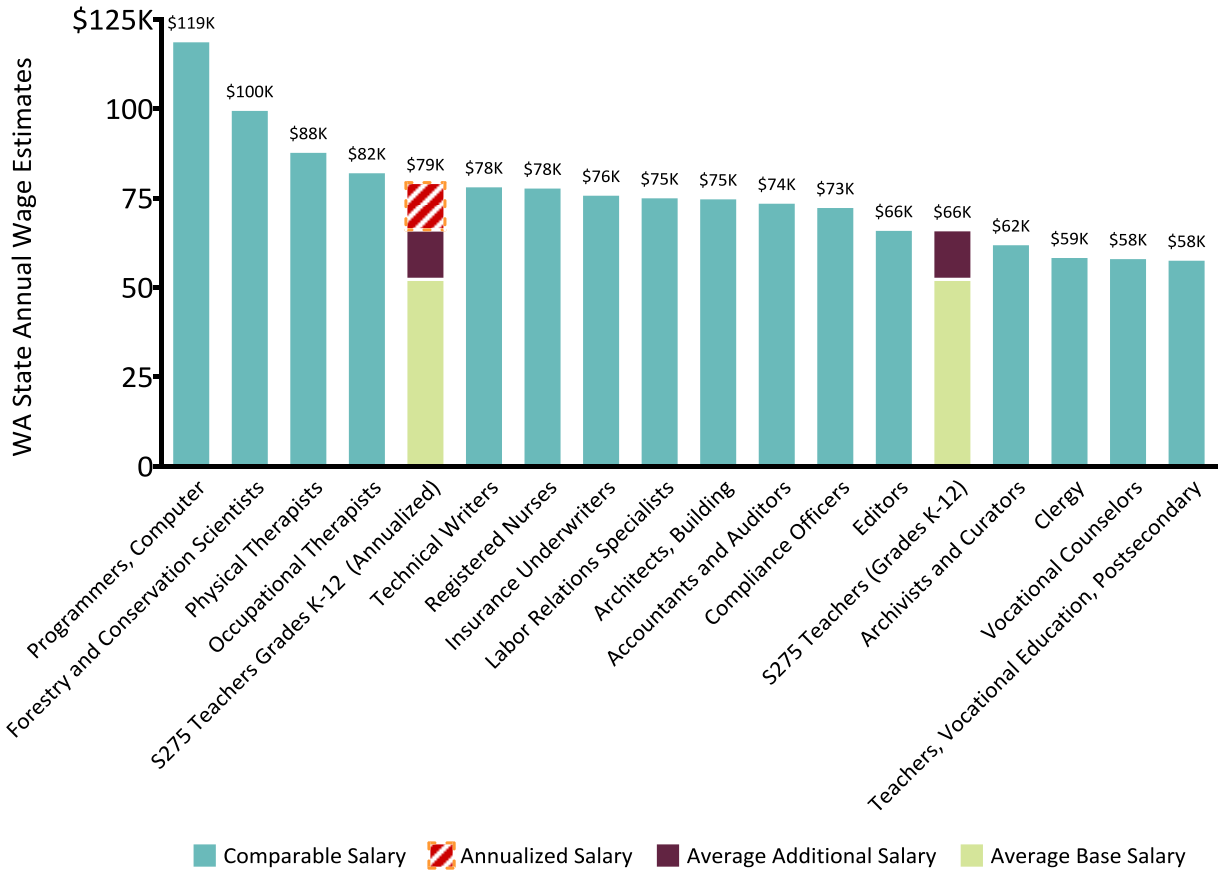
Direct comparison provides context for comparable positions' salaries in Washington State

Indexing to a national benchmark avoids the issue of partial vs. full-year employment

Note: Comparable salaries reflect average salary and are not adjusted for caseload, work conditions, expectations, cost of living, etc. which may be reasons for variations within and across markets. Source: "How Does Teacher Pay Compare? Methodological Challenges and Answers", Allegretto, et al, Economic Policy Institute, 2004; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016)

Classroom Teachers

Teacher annual wages when annualized (using the 83% rule) are near the average for the comparable positions



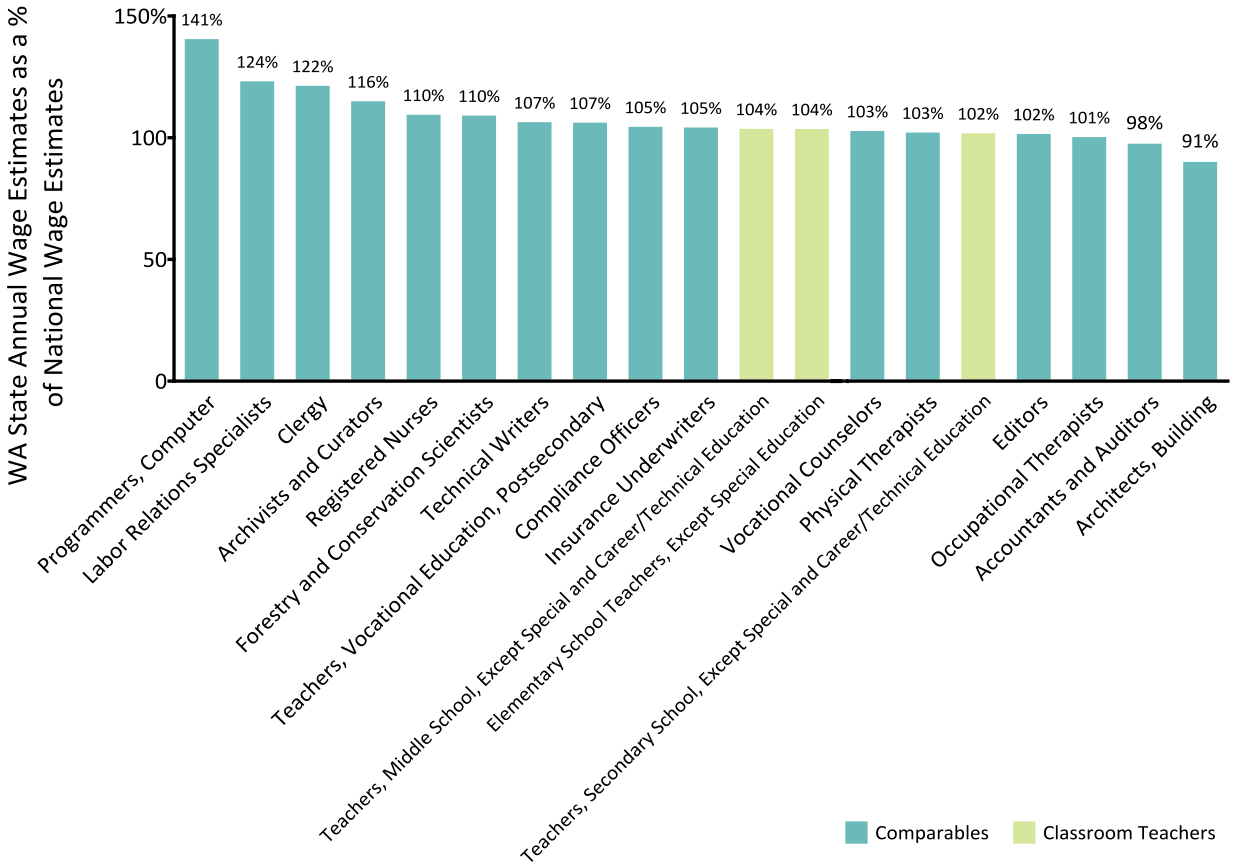
- The average FTE for Classroom Teachers was 0.96
- Classroom Teacher total salaries are $66K and when annualized using the 83% rule*, they earn $79K
- In the 2014-15 school year, the state allocated $34,048 for a first year teacher with a Bachelor's degree, $45,516 for a Bachelor's, 90 credit hours and 8 years of teaching experience, and $64,174 for a Masters or PhD, 90 credit hours and 16 plus years of teaching experience

*The 83% rule, as cited on pp. 109-110 of the Compensation Technical Working Group Final Report, June 30, 2012, refers to using a 10-month school year assumption for comparisons to other occupations reporting salary based on 52-week employment (10 months divided by 12 months equals 0.833).

Source: Comparable positions for Teachers from "How Does Teacher Pay Compare? Methodological Challenges and Answers", Allegretto, et al, Economic Policy Institute, 2004; WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Classroom Teachers Comparable Positions

Teachers in WA State earn 102-104% of the national average teacher salary



- The average index (unweighted) for comparable occupations is 109%, 5% higher than the teacher index
  - Excluding computer programmers, who earn significantly more in WA State than in the rest of the country, the average index for comparable occupations falls to 107% (3% higher than the teacher index)
- The indexed value for classroom teachers includes private school teachers

Source: Comparable positions for Teachers from "How Does Teacher Pay Compare? Methodological Challenges and Answers", Allegretto, et al, Economic Policy Institute, 2004; WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels; BLS OES data for teachers is reported separately for Elementary, Middle, and Secondary Schools.

Private School Data

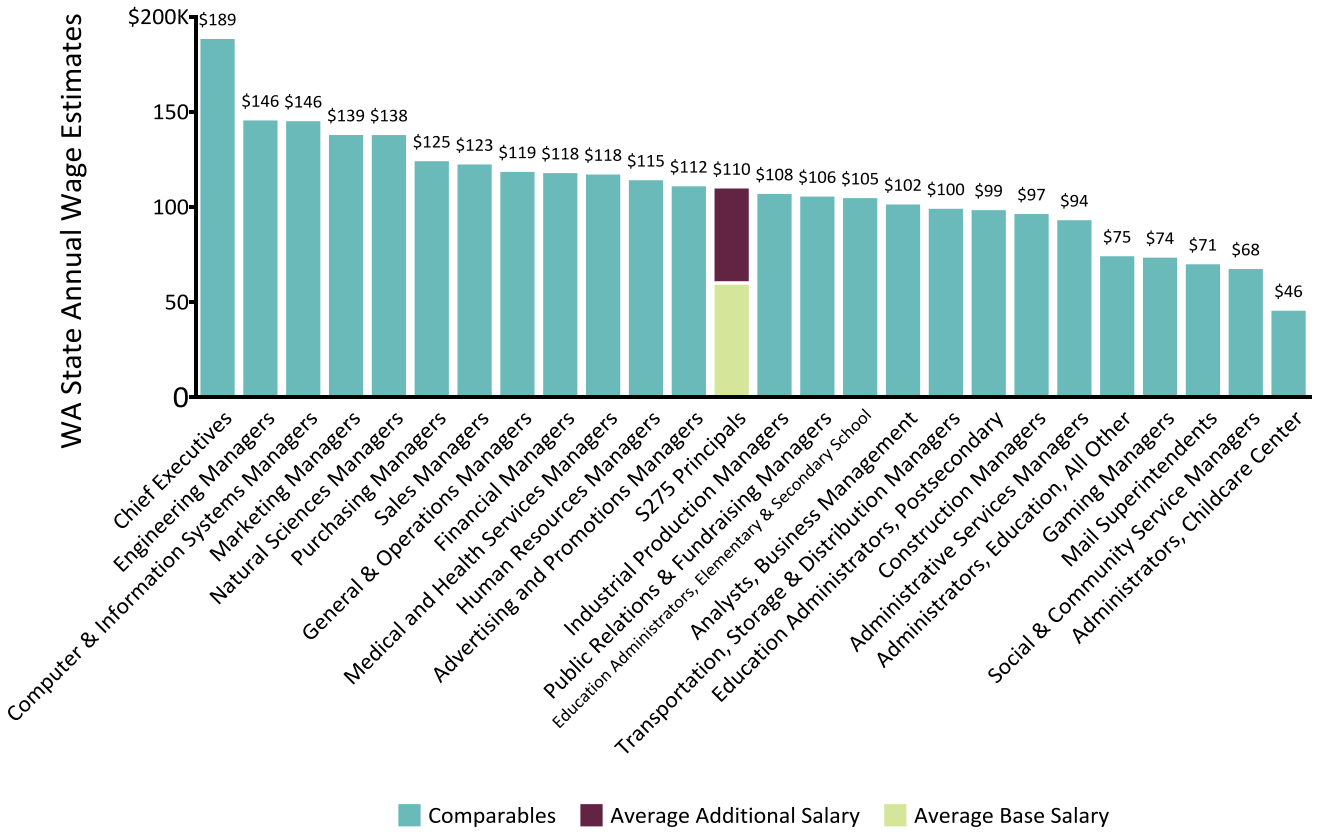
National private school teacher salary data was available from two sources, however, WA State salaries were not available

- Two sources with different methodologies suggest a similar relationship between pubic and private teacher salaries:
  - National Center for Education Statistics (NCES): School-year earnings based on 2011-12 Schools and Staffing Survey
  - Bureau of Labor Statistics (BLS): Weekly earnings based on Current Population Survey
- Both sources report that public school teachers are paid more than private school teachers:
  - The NCES data reports that public school teachers received about 28% more than private school teachers (measured by either base or total salary) in 2011-12.
  - The BLS data reports that public school teachers received about 21% more than private school teachers in 2012.
- Both sources show year-to-year variations of a few percentage points in pay gap
- Private school teachers do not have the same certification and continuing education requirements as public school teachers

Note: NCES and BLS Average Private School Teacher Salary represents an approximation based on Washington State average public school teacher salary
Sources: NCES: Digest of Education Statistics: 2014 (NCES 2016-006 April 2016), Table 211.10 and BLS: Monthly Labor Review, September 2014 (Allegretto & Tojerow), http://www.bls.gov/opub/mlr/2014/article/teacher-staffing-and-pay-differences-5.htm

Principals

Principals' salary estimates fall roughly in the middle among comparable occupations in WA State

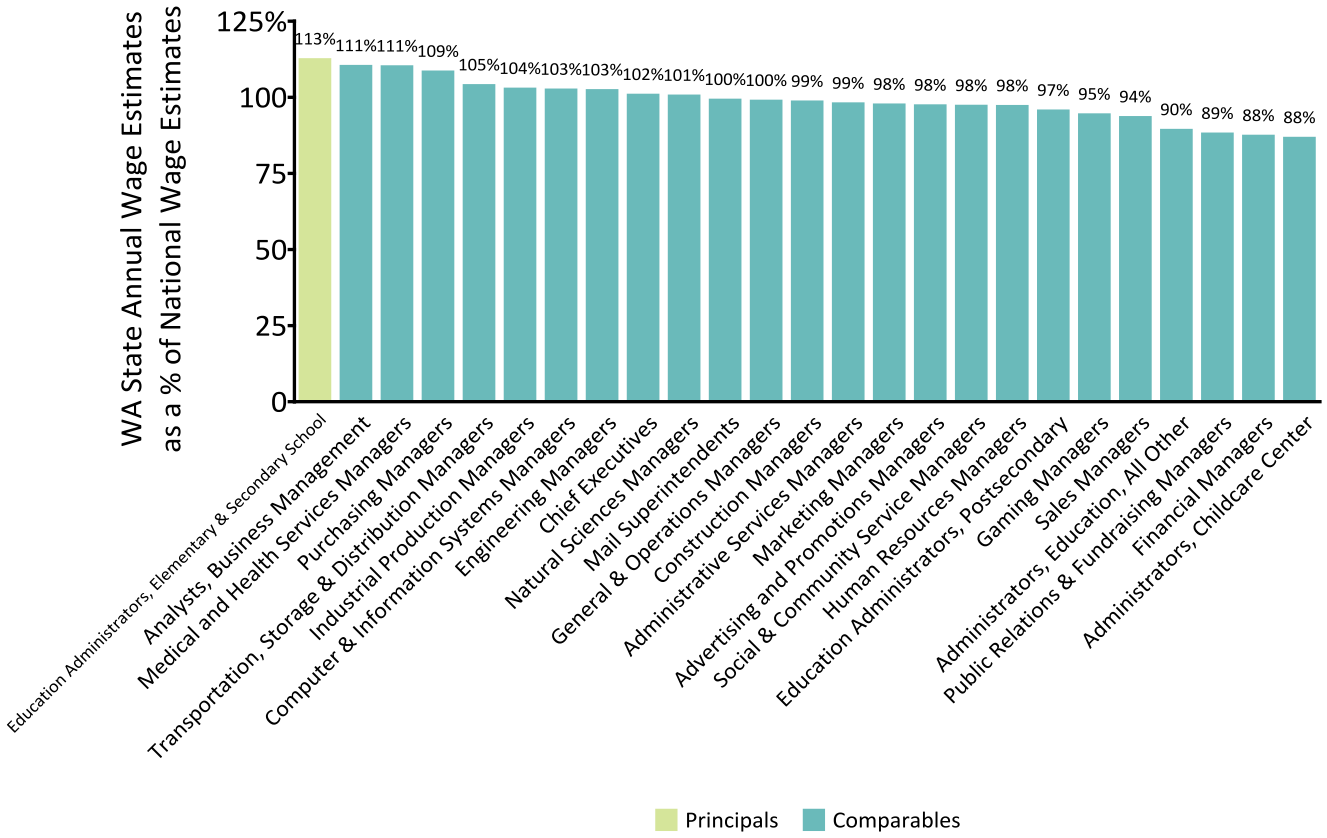


- The average school year FTE for Principals was 0.99

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Principals

With additional district salary, Principals in WA State are paid 113% of the national average for Principals

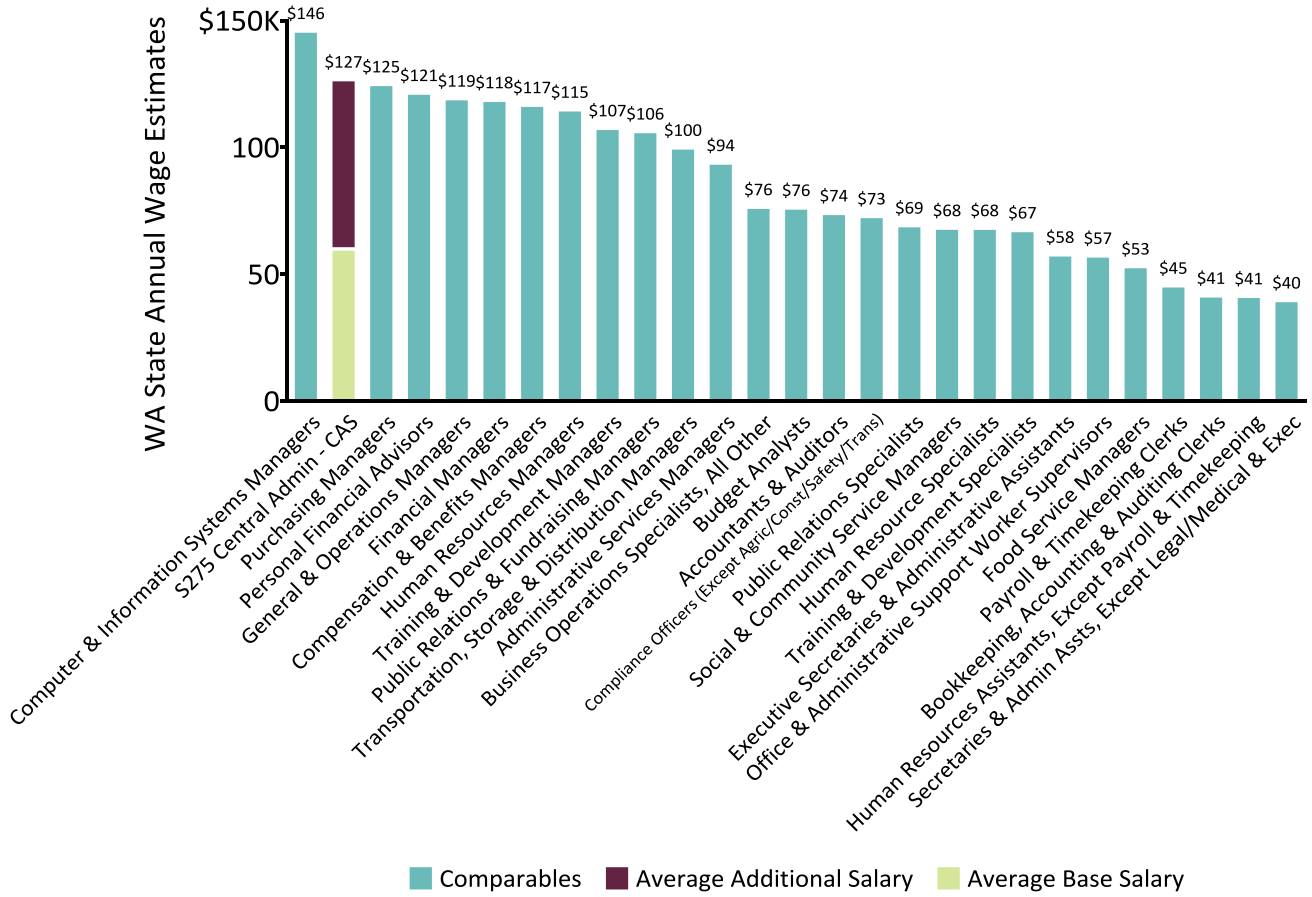


- The indexed value for Principals includes private school workers, who may earn less, on average, than their public school counterparts

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Central Admin - CAS

Central Office Admin salaries fall in the upper range of comparable occupations in WA State

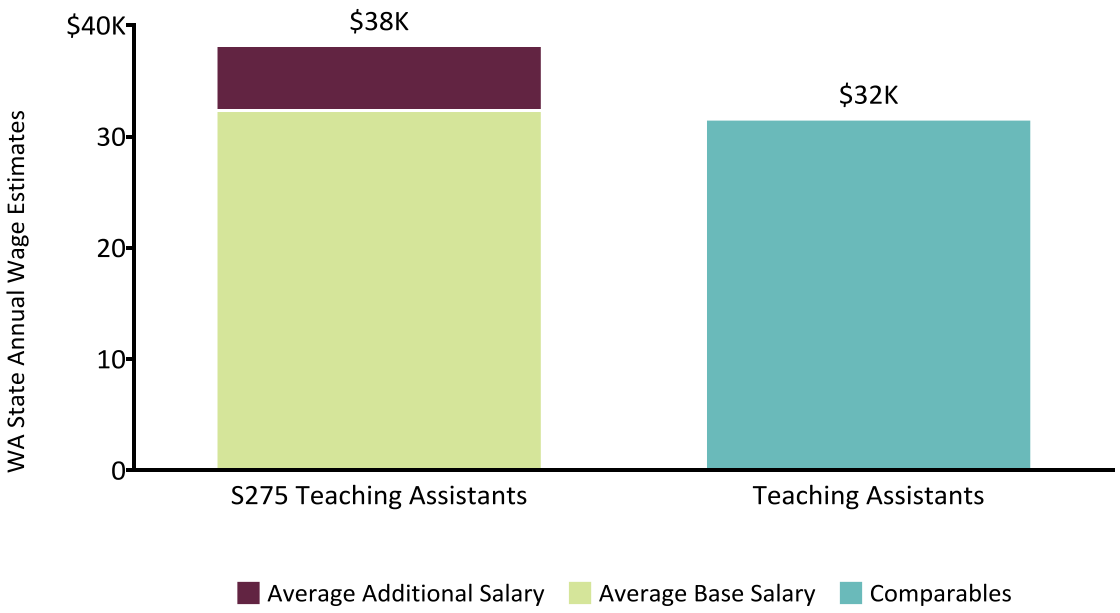


- The average school year FTE for Central Admin was 0.97
- No closest match SOC Code is available from the BLS, so comparisons cannot be made from indexing to national wage estimates

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Teaching Assistants

After adjusting for their FTE status, public school Teacher Assistants may be paid salaries above that of other teaching assistants



- The average school year FTE for Teacher Assistants was 0.52
- State public school Teaching Assistants earn more, assuming the reported BLS wage estimate including other teacher assistants does not also require FTE adjustment
- Teaching Assistants is both the only comparable occupation cited by the ESD and the closest match SOC code from the BLS, so no comparisons can be made from indexing to national wage estimates
  - Teaching Assistants in WA State earn 119% of the national average wage estimate

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels; May 2015 OES data does not report Graduate Teaching Assistant wages for WA State.

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Local Labor Market Adjustments Findings

An index of local labor market factors can be applied to districts

Relationships of Local Labor Market Factors with Current Salaries

Other Indicators of Local Labor Market Conditions

Summary of Findings

- Higher average total final salaries for teachers are associated with lower turnover
- Teacher total final salaries show statistically significant associations with enrollment, years of education experience, Comparable Wage Index (CWI), unemployment (inverse) and percent bilingual students
- Free or Reduced Price Meals, Urbanicity by County, and Crime Rate by County were not found to be statistically significant explanatory variables
- Districts in counties with higher unemployment tend to exhibit lower salaries (independent of mix factor), lower mix factors, and higher turnover
- Adjusted Turnover is associated with the largest number of market factors

Local Labor Market Adjustments Variables

Thirteen local market conditions were tested to explain the observed variation in measures of district's ability to attract and retain staff

Dependent Variables*

1. Adjusted Total Final Salary
2. Mix Factor
3. Adjusted Turnover

Analysis used simple and multi-variate regressions to explain the observed variation in each dependent variable

Results and amount explained varied by dependent variable

Independent Variables

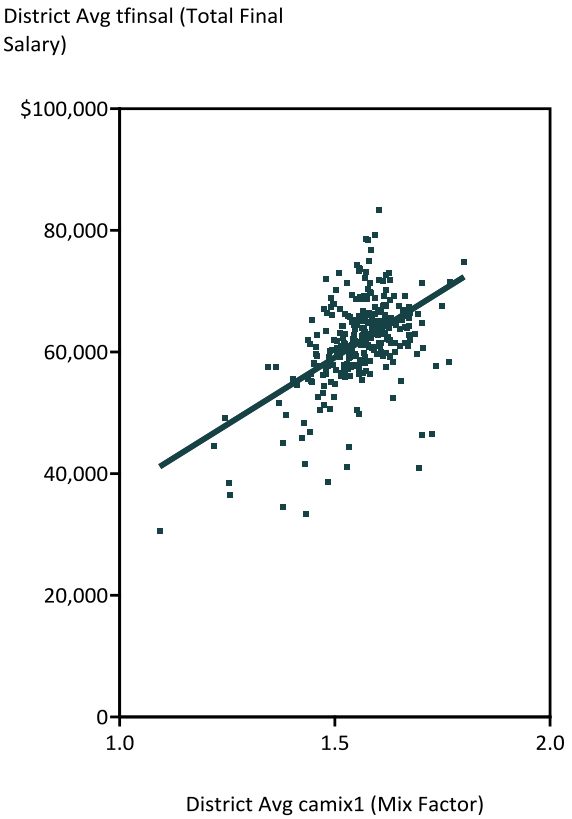
1. Total Enrollment
2. Average Years of Education Experience
3. Comparable Wage Index (region)
4. % Students Transitional Bilingual
5. % Teachers with at least a Masters Degree
6. Levy per student
7. LEA per student
8. % Students in Special Education
9. Average students per classroom teacher
10. County median home list price
11. % Free and Reduced Priced Meals
12. Urbanicity by county
13. Crimes per 1,000 citizens by county

*Adjusted Total final Salary = district average total final salary divided by district average staff mix factor
Staff Mix factor = quantifies the education and experience levels of certificated staff
Adjusted Turnover = Adjusted Turnover represents the four-year average % of Teachers leaving the district (including those 'moving' to other Districts), minus the % of Teachers who joined from other Districts in the state (i.e., reflecting an ability to recruit new staff)

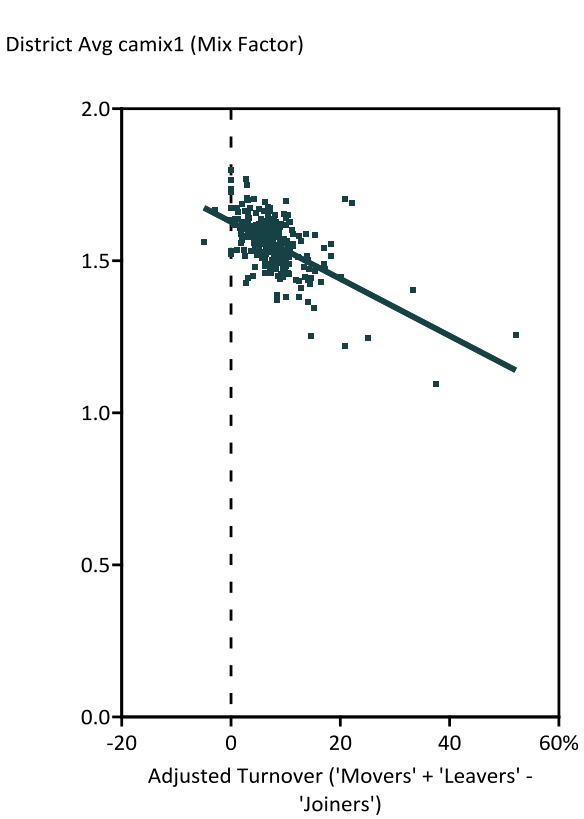
Total Final Salary, Mix Factor, and Turnover

S275 data associates higher average total final salaries for teachers with higher mix factors and lower turnover

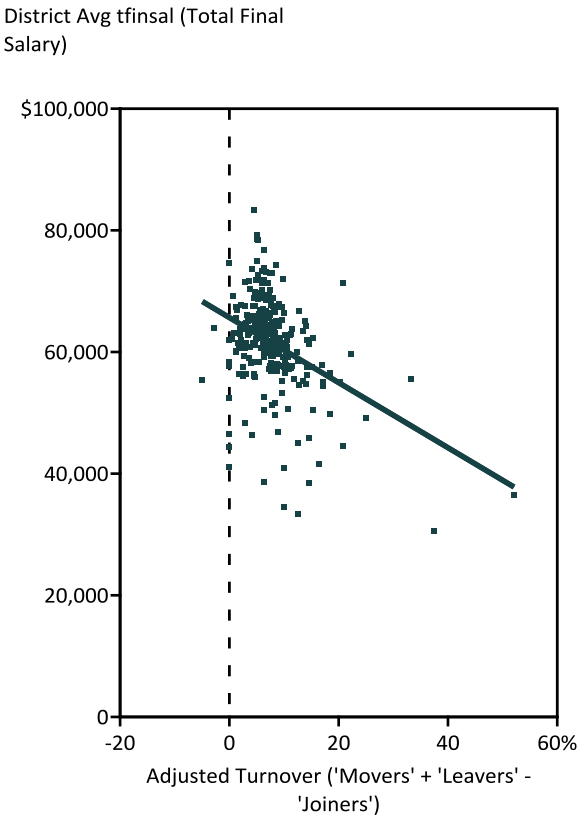
District Total Salary vs. Staff Mix Factor*



District Turnover vs. Staff Mix Factor*



District Turnover vs. Total Salary*



*Staff Mix factor = quantifies the education and experience levels of certificated staff

Note: tfinsal (Total Final Salary), camix1 (Mix Factor), and Adjusted Turnover includes only K-12 Teachers in the charts above; Adjusted Turnover represents the four-year average % of Teachers leaving the district (including those 'moving' to other Districts), minus the % of Teachers who joined from other Districts in the state (i.e., reflecting an ability to recruit new staff).

Source: WA State 2014 S-275

Total Final Salary and District Characteristics

Summary list of statistically significant explanatory variables for adjusted total final salary, mix factor, and adjusted turnover

KEY

↑ Positively correlated

↓ Inversely correlated

	Adjusted Total Final Salary	Mix Factor	Adjusted Turnover
Total Enrollment	↑	↑	↓
Average Years of Education Experience	↑	↑	↓
Comparable Wage Index (Region)	↑	↓	
County Unemployment %	↓	↓	↑
% of Students Transitional Bilingual	↑	↓	
% of Teachers with at least a Masters Degree		↑	↑
Levy per Student			↓
LEA per Student			↓
% of Students in Special Education			↑
Average Students per Classroom Teacher			↓
County Median Home List Price			↑
% Free or Reduced Price Meals (FRPM)			
Urbanicity by County			
Crimes per 1000 Citizens by County			

- All relationships were evaluated for K-12 Classroom Teachers only
- Adjusted Total Final Salary is normalized for (i.e., divided by) Mix Factor, to remove the effects of Mix Factor differences between districts
- Adjusted Turnover represents Teachers leaving the district (including those 'moving' to other Districts), minus the % of Teachers who transfer in from other Districts (i.e., reflecting an ability to recruit new staff)
- Free or Reduced Price Meals, Urbanicity by County, and Crime Rate by County were not found to be statistically significant explanatory variables

= No statistically significant relationship found with the dependent variable, or the variable was deemed unimportant in the reduced model (i.e., evaluated through a Partial-F Test)

Source: WA State 2014 S-275; 3SI Analysis

Total Final Salary and District Characteristics

Teacher Total Final Salaries, after normalizing for Mix Factor, show several statistically significant associations

Adjusted Total Final Salary*

- ↑ Total Enrollment
- ↑ Average Years of Ed. Experience
- ↑ American Community Survey (ACS) - Comparative Wage Index (CWI)
- ↓ County Unemployment
- ↑ Percent Transitional Bilingual

Observations

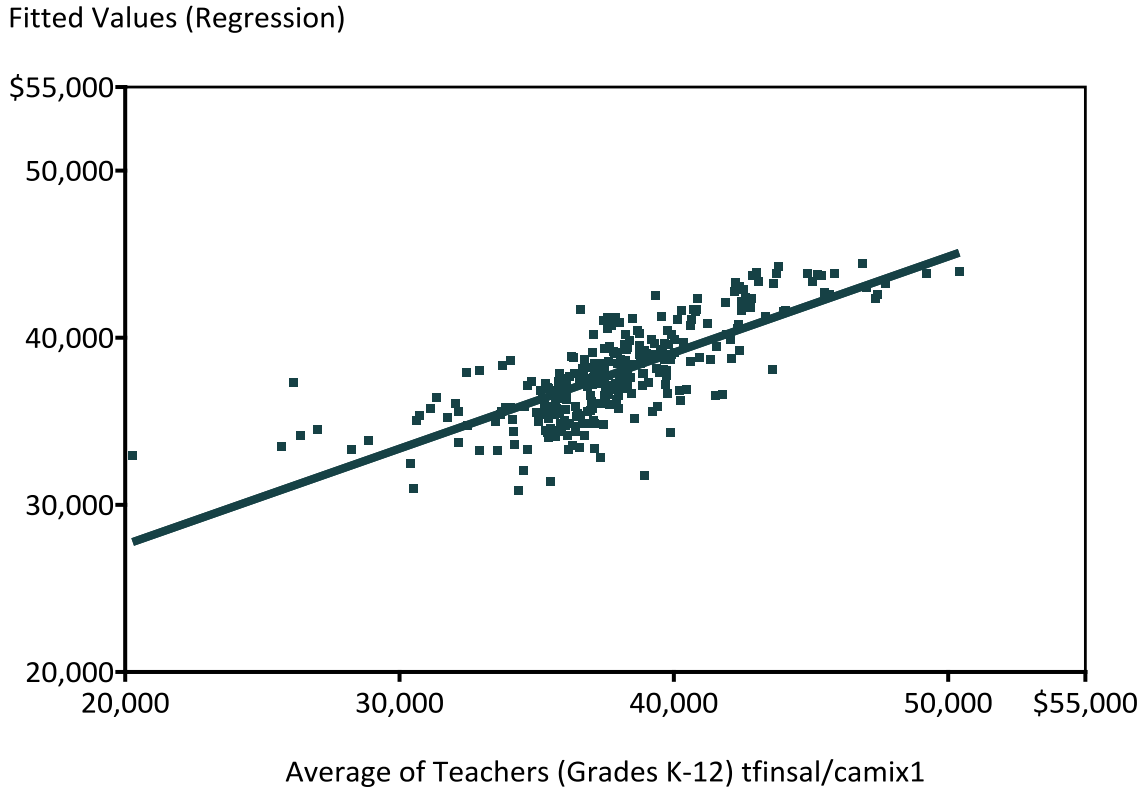
- Larger Districts and those in more expensive parts of the state are associated with higher Teacher Total Final Salaries
- Districts in counties with higher unemployment are associated with lower salaries
- Additional salary premiums may be placed on educational experience, net of Mix Factor, as well as for serving transition bilingual students

*Adjusted Total Final Salary is Total Final Salary divided by Mix Factor, and is intended to isolate District salary differences, i.e., excluding the effects of differences in average Mix Factor between Districts.

Source: WA State 2014 S-275; 3SI Analysis

Total Final Salary and District Characteristics

57% of the observed variance between District average Total Final Salaries (for K-12 Teachers), net of Mix Factor, can be explained with five variables



- Regression X-Variables:
  1. Log(Total Enrollment)
  2. Avg Years of Ed. Experience
  3. Region ACS-CWI
  4. County Unemployment (%)
  5. Transitional Bilingual (%)
- A total of 14 variables were initially considered, and those not demonstrating a significant relationship with adjusted total final salaries were dropped

Note: First Charter, Lummi, Muckleshoot, and Suquamish School Districts were excluded from the analysis for a lack of market data; Damman and Shaw Island were excluded for returning errors in turnover calculations. The R-Square of the regression was 0.57.
Source: WA State 2014 S-275; 3SI Analysis

Total Final Salary and Turnover

District characteristics that proved important as explanatory variables for salaries also display logically consistent associations with mix factor and turnover

KEY: ↑ Positively correlated; ↓ Inversely correlated

	Adjusted Total Final Salary	Mix Factor	Adjusted Turnover
Total Enrollment	↑	↑	↓
Average Years of Education Experience	↑	↑	↓
Comparable Wage Index (Region)	↑	↓	
County Unemployment %	↓	↓	↑
% of Students Transitional Bilingual	↑	↓	

Larger districts tend to exhibit higher salaries (independent of mix factor), more experienced/educated staff, and lower turnover

Even after normalizing for staff mix factor, districts appear to place a salary premium on years of education experience

Districts in regions with higher salaries for college graduates are associated with higher salaries and lower mix factors

Districts in counties experiencing higher unemployment tend to exhibit lower salaries (independent of mix factor), lower mix factors, and higher turnover

Districts with higher percentages of students who are transitional bilingual are associated with higher salaries (independent of mix factor), but lower mix factors

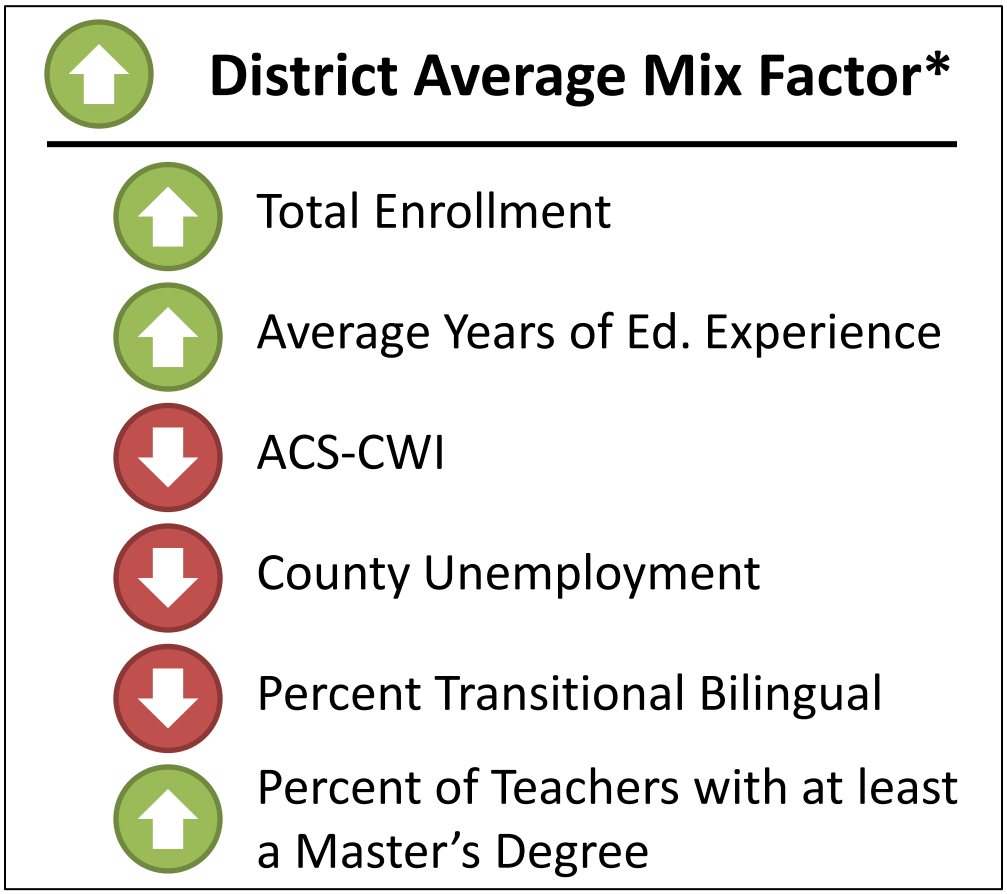
= No statistically significant relationship found with the dependent variable, or the variable was deemed unimportant in the reduced model (i.e., evaluated through a Partial-F Test)

Note: All relationships were evaluated for K-12 Classroom Teachers only; Adjusted Total Final Salary is normalized for (i.e., divided by) Mix Factor, to remove the effects of Mix Factor differences between Districts; Adjusted Turnover represents Teachers leaving the district (including those 'moving' to other Districts), minus the % of Teachers who transfer in from other Districts (i.e., reflecting an ability to recruit new staff)

Source: WA State 2014 S-275; 3SI Analysis

Mix Factor and District Characteristics

District Average Mix Factor shows several statistically significant associations



Observations

- Similar to Adjusted Total Final Salary, Mix Factor tends to increase with increasing District Size
- Districts in regions with higher salaries for college graduates, higher unemployment, and higher percentages of students who are transitional bilingual are also associated with lower Mix Factors
- Mix Factor displays strong associations with Years of Education Experience and Percent of Teachers with at least a Master's degree, which is to be expected

*District Average Mix Factor is derived from a weighted average, summing individuals' camix1*certfte*assfte within a District and then dividing the result by the sum of individuals certfte*assfte within the District

Source: WA State 2014 S-275; 3SI Analysis

Turnover and District Characteristics

Adjusted turnover by district shows several statistically significant associations with explanatory variables

Adjusted Turnover*

- ↓ Total Enrollment
- ↓ Average Years of Ed. Experience
- ↑ County Unemployment
- ↑ Percent of Teachers with at least a Masters Degree
- ↓ Levy per Student
- ↓ LEA per Student
- ↑ Percent Special Education
- ↓ Average Students per Classroom Teacher
- ↑ County Median Home List Price

Observations

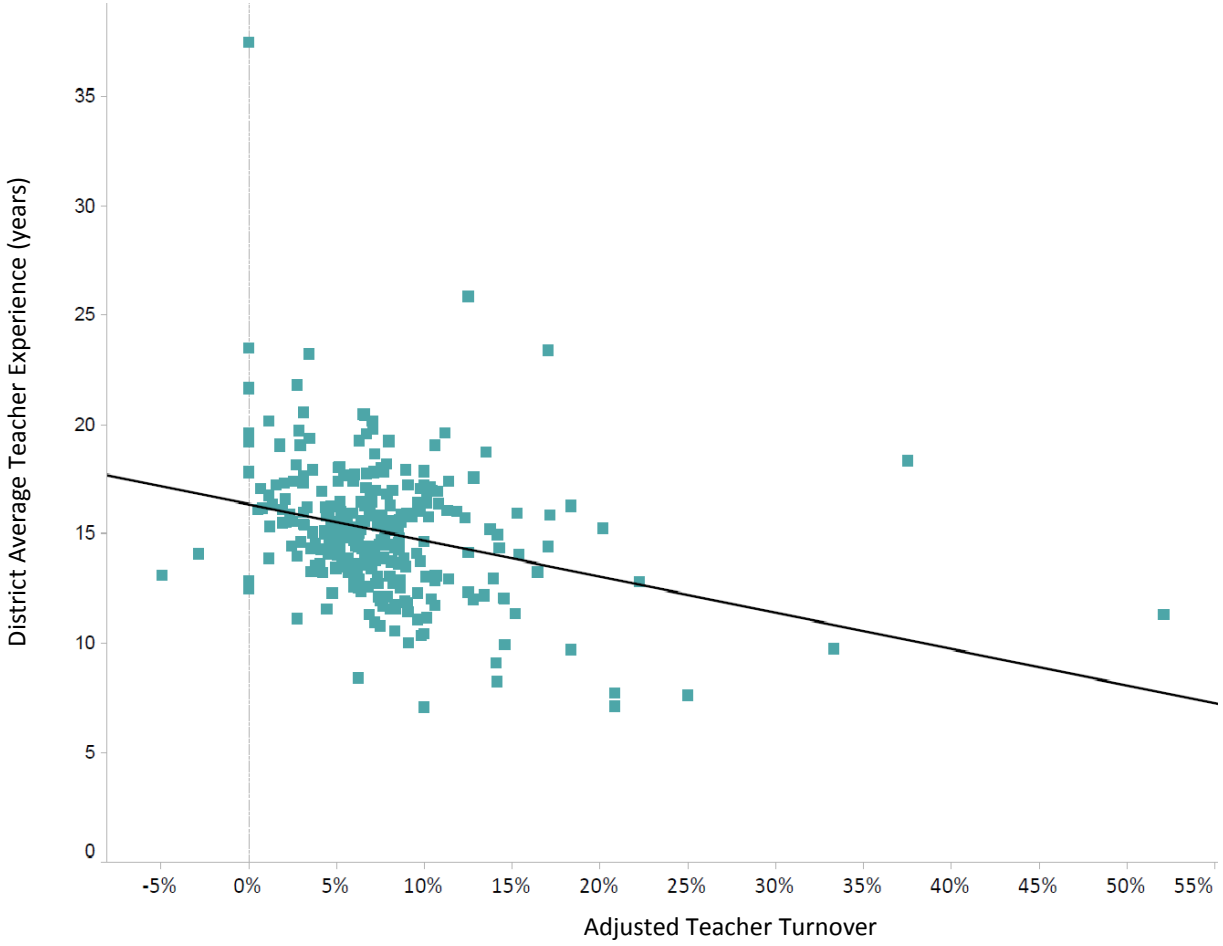
- District Size, Years of Education Experience, and County Unemployment are explanatory variables for both Turnover and Adjusted Total Final Salary
  - These variables increase with increasing Salary, and increase with decreasing Turnover, implying a relationship may exist between Turnover and Total Final Salaries
  - Using Turnover as an explanatory variable in the Salary regression indicates that Districts may be attempting to address higher turnover by paying higher Total Final Salaries

*Adjusted Turnover is the % of Teachers leaving the District annually (including those 'moving' to other Districts), minus the % of Teachers who transfer in from other Districts (i.e., reflecting an ability to recruit new staff)

Source: WA State 2014 S-275; 3SI Analysis

Teacher Turnover and Experience

Higher turnover tends to be associated with less experienced teachers



Adjusted teacher turnover represents the four-year average % of K-12 teachers leaving the district (including those 'moving' to other districts), minus the % of Teachers who joined from other districts in the state (i.e., reflecting an ability to recruit new staff). Source: S-275, 3SI analysis

Conclusions

The results of the analysis indicate there is opportunity to apply market rate adjustments to allocate funding by district

- Measures of district ability to attract and retain staff include current total final salary, staff mix factor and turnover
- There is observable variation in these measures indicating that current district salaries reflect potential market conditions
- Total final salary as a means to attract and retain staff is associated with the following specific local market factors, that could be used to adjust salary allocations
  - Enrollment
  - Years of education experience
  - Comparable Wage Index (CWI)
  - Unemployment (inverse)
  - Percent bilingual students

The staff salary cost model will allow the EFTF to apply market rate adjustments along with scenarios on supplemental pay to evaluate whether revised district estimated allocations address EFTF goals

Outline

- Introduction and Executive Summary
- Summary of Data Collection, Cleaning and Consolidation
- Supplemental Pay Analysis
- Resources to Expenditures Analysis
- Comparable Position Salary Analysis
- Local Labor Market Adjustment Analysis
- Staff Salary Cost Model

Staff Salary Cost Model Goals

The cost model will explore how different inputs from the supplemental pay and market factors analyses impact total cost

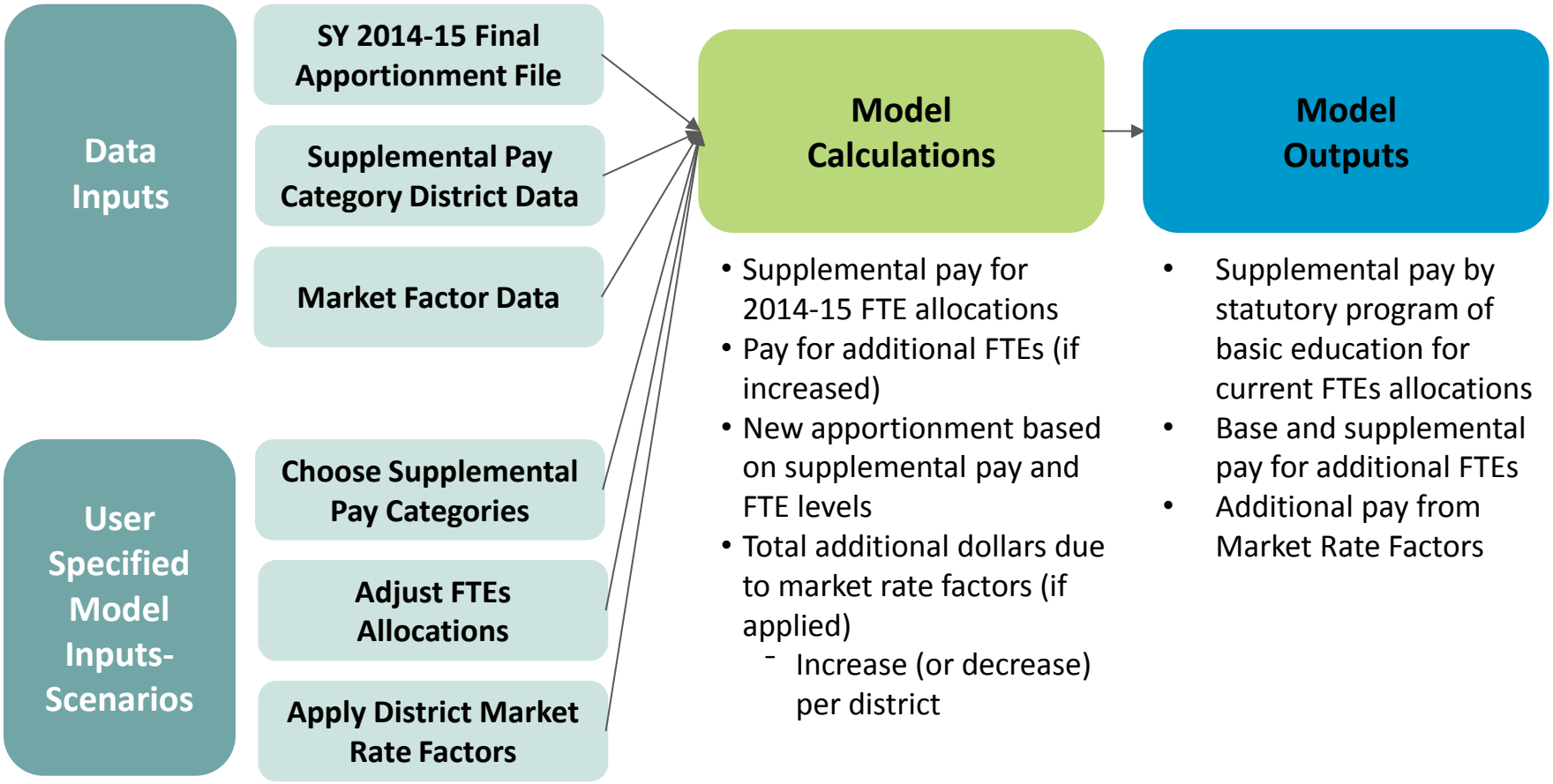
- Allow the user to toggle between different input factors and generate cost output to evaluate how staff positions in the prototypical school model and different districts would be affected
  - For example, if the supplemental pay category of deemed done activities are considered a component of basic education, the model will estimate the total cost to the state as well as the allocation to specific districts

- Model output will summarize the cost effects for the state given different choices around compensation factors

- Evaluate market rate adjustments effect on costs across the state dependent upon scenarios run by the task force

Staff Salary Cost Model Architecture

The Staff Salary Cost Model will support analyzing funding scenarios



- Supplemental pay for 2014-15 FTE allocations
- Pay for additional FTEs (if increased)
- New apportionment based on supplemental pay and FTE levels
- Total additional dollars due to market rate factors (if applied)
  - Increase (or decrease) per district

- Supplemental pay by statutory program of basic education for current FTEs allocations
- Base and supplemental pay for additional FTEs
- Additional pay from Market Rate Factors

Questions?

Appendix

Implementation of Sampling

Sampling was done at the position (duty root) level to ensure enough data is collected to support the intent of the analysis

All District Staff

- Total certificated instructional, administrative and classified staff

Statutory Programs of Basic Education

- Limited data collection to program account codes 01, 02, 03, 21, 22, 26, 31, 45, 55, 56, 59, 65, 74, 97, and 99

Statistical Sample

- Staff position specific sample to support analysis for each position (duty root)

Tier 1: Key Positions
(Elementary Teachers, Secondary Teachers, Other Teachers, Aides)

- Confidence interval of 80%
- Margin of error of 5%

Sample of 125 staff if district population is greater than 125

Tier 2: Other Staff Positions
(e.g., Psychologist, Principal, Office/Clerical, Superintendents, etc.)

- Confidence interval of 80%,
- Margin of error of 10%

Sample of 35 staff if district population is greater than 35

- Split into tiers for sampling based on:
  - Number of supplemental pay sub-categories and anticipated variance
  - Level of specificity needed for analysis

Detailed Sampling Methodology

The sampling methodology was designed to capture the diversity of supplemental pay across staff types

Supplemental pay categories (SPCs) refer to the frequency of categories and sub-categories developed by OSPI for this data collection effort

Situation

Total Supplemental Pay Wages = $\sum_i (SPC_i * Wage_{SPC_i})$

Supplemental pay wages refer to the dollar amount paid for each supplemental pay category.

Unknown factors that we're estimating include:

- The proportion of the SPCs in each population (staff position)
- The mean wage for each SPC in each population

Complication

- This is the first time data was collected using detailed supplemental pay categories therefore, the population was not well understood either in terms of prevalence of SPCs or the distribution of wages for the SPCs
- Designing a sample to estimate mean SPC wages (vs. the prevalence of SPCs) required identifying which staff members perform each SPC first and then sampling from those staff

Resolution

- Sample for the prevalence of supplemental pay categories in the population and derive the mean wage from the sample
- Maintain a confidence interval of 80%
- Maintain a margin of error of 5% for tier 1 and 10% for tier 2 staff positions

Specific Sample Size Calculations

The sample size is calculated using a formula that samples for the prevalence of supplemental pay categories in the population

The formula for estimating the required sample size at the 80% confidence level is:

$$n = (1.282)^2(p)(1-p) \div d^2$$

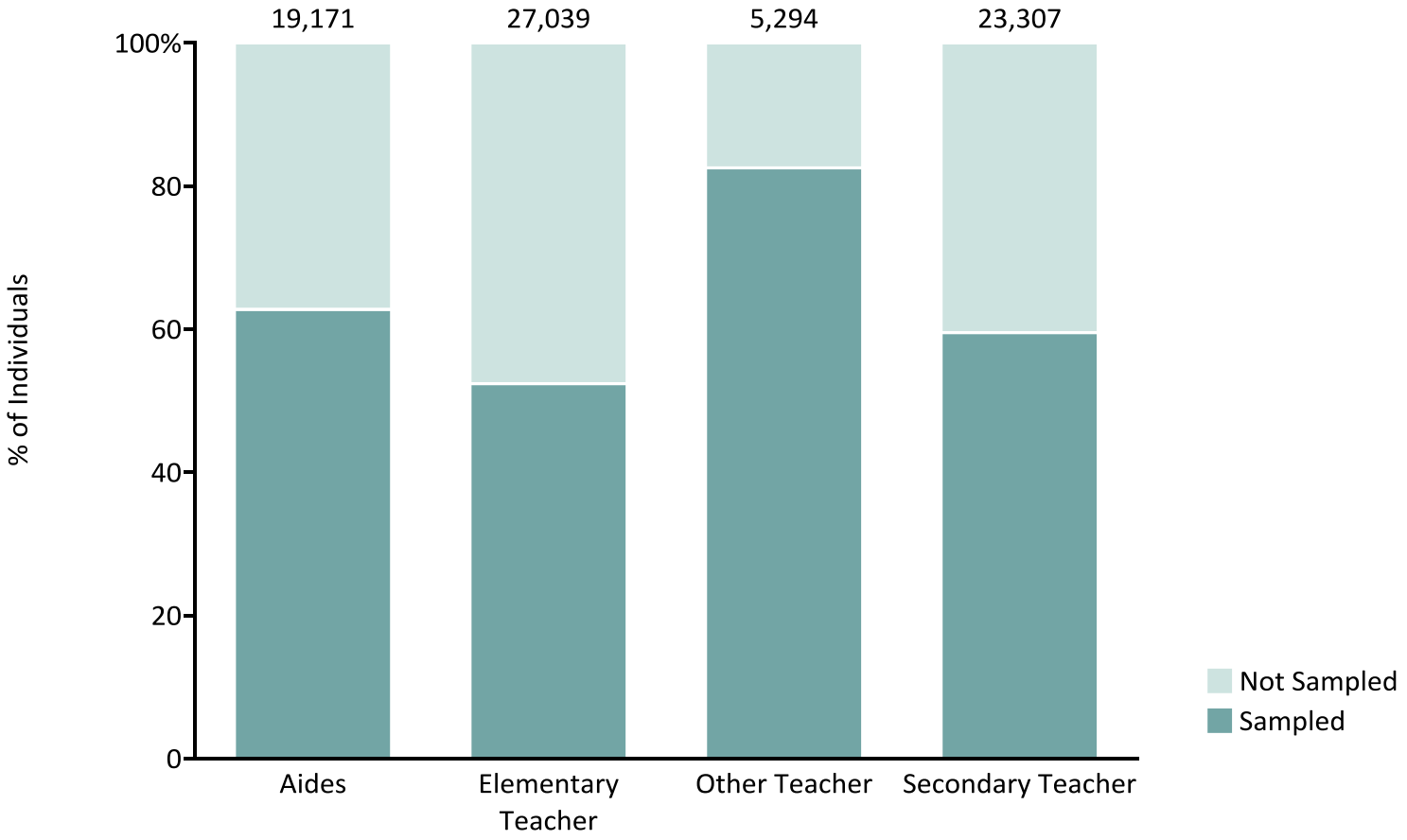
Z-score corresponding to a 80% confidence interval

Examples: For p = 25% (each SPC occurs for 25% of the population) & d = 5% (5% margin of error), the required sample size at the 80% confidence level is 123. This means that for 80% of our samples, the estimated SPC sample prevalence will be between 20% and 30%. In 20% of our district samples, the estimated prevalence will be outside of the 20-30% prevalence range, in spite of the true prevalence being 25%. Although the required sample size is 123, we round up to 125 for the purposes of this analysis since some staff members in the sample will have records that are unavailable or incomplete.

For Tier 2 duty codes we allow for a larger margin of error. For p = 25% & d = 10%, the required sample size at the 80% confidence level is 31 (rounded to 35 for the purposes of this analysis).

Tier 1 Sampling Implementation

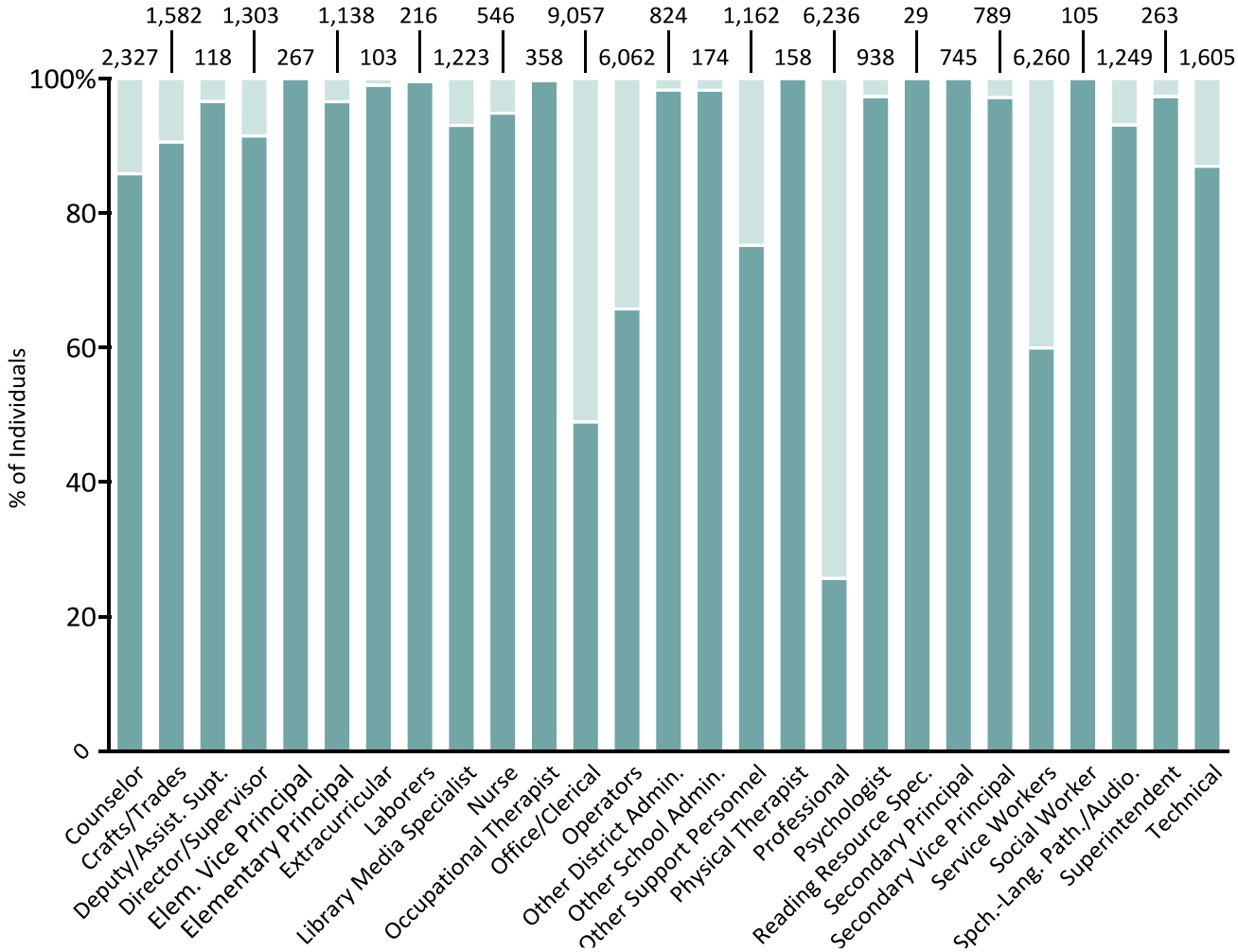
~60% of individuals in Tier 1 positions are captured in the data collection sample



Source: S275 and data collection sample for E2SSB 6195

Tier 2 Sampling Implementation

~66% of individuals in Tier 2 positions* are captured in the data collection sample



Duty root positions will be cross walked to prototypical school model positions for analysis

*Not all positions represented n the chart Source: S275 and data collection sample for E2SSB 6195

Data Collection: Salaries

Salary data collection tools captured the duties, uses or categories for which actual compensation is paid

Pay Type	Reason Categories	Reason Sub-Categories
• Additional hourly • Supplemental contract • Stipend	• Deemed done • Time outside of 180-day school year, not PD • Time outside of regular school day but during the 180-day school year, not PD • Professional development • Additional responsibilities/duties • Other	• 41 sub-categories for certificated instructional staff • 20 sub-categories for classified staff • 12 sub-categories for certificated administrative staff

- For each staff person districts provided three levels of detail per supplemental pay item in the compensation files
- Where the pay item did not match the standard categories districts provided a detailed description

Data Collection: Salaries

Data collection included details on reasons for supplemental pay

Pay Type	Reason Category	Reason Sub-Category
• Additional hourly • Supplemental contract • Stipend	• Additional responsibilities/ duties • Deemed done • Other • Professional development • Time outside the 180 day school year • Time outside the regular school day	• 41 sub-categories for certificated instructional staff (CIS) • 20 sub-categories for classified staff (CLS) • 12 sub-categories for certificated administrative staff (CAS)

Reason Category	Definition
Additional responsibilities/duties	Additional duties outside of regular school day responsibilities
Deemed done	Items not associated with time or responsibility; work not requiring documentation of additional time, responsibility or incentive
Other	All other items that we have not included that do not fall into one of the categories above
Professional development	Paid professional development time (developing, delivering & receiving)
Time outside of 180-day school year, not PD	Additional contractual paid time outside of a normal school year that is not professional development
Time outside of regular school day but during the 180-day school year, not PD	Additional contractual paid time outside of a normal school day

Supplemental Pay Categories

Certificated Instructional Staff

Deemed Done
Degrees / Credits
Experience (anywhere)
Combination of degrees / Credits & experience
Longevity (in district)
Hard-to-Staff positions
Professional responsibility stipend
Other (please describe)

Other
Planning period buyouts
Shift differential pay
Paid holidays/ vacation/ sick leave buyouts
Classroom supplies stipend
Fieldtrips
Data entry
Other (please describe)

Time Outside Regular School Day
Parent / Teacher conferences
Open House
Staff meetings
Home visits
Attending student dances/sporting events/concerts/other performances
Tutoring / one-on-one student assistance
Zero Period
Special Education IEP
Student assessment / grading / evaluation of student work
Combination of some or all of above
Other (Please describe)

Time Outside 180 Day School Year
Classroom Prep / Wrapup
Extra Days
Summer School
Other (please describe)

Additional Responsibilities
Class Size Overload
Self-contained Special Education Classroom
Department head
Technology leader
Emergency preparedness
Mentoring
Curriculum development
Developing school improvement days
Academic advising
Leadership stipend
Extracurricular
Other (please describe)

Professional Development
Support pursuing Prof Cert (incl NBPTS prep)
Professional Learning Community (PLC)
District directed PD days
Self directed PD days
Other (please describe)

Supplemental Pay Categories

Certificated Administrative Staff

Deemed Done
Degrees / Credits
Experience (anywhere)
Combination of degrees / credits & experience
Longevity (in district)
Hard-to-staff positions
Professional responsibility stipend
Other (please describe)

Additional Duties
Travel
Per Diem Days
Extracurricular Activities
Other (please describe)

Other
Phone and car stipends
Vacation/ Sick Leave Buyout
Other (please describe)

Supplemental Pay Categories

Classified Staff

Deemed Done
Degrees / Credits
Experience (anywhere)
Combination of degrees / Credits & experience
Longevity (in district)
Hard-to-Staff Positions
Professional responsibility stipend
Other (please describe)

Professional Development
District-directed PD days
Self-directed PD days
Other (please describe)

Time Outside 180 Day School Year
Extra Days before or after SY
Other (please describe)

Time Outside Regular School Day
Staff Meetings
Other (Please describe)

Additional Responsibilities
Self-contained special education classroom
Department head
Technology leader
Emergency preparedness
Mentoring
Extracurricular
Other (please describe)

Other
Tools / Uniform / Phone Stipend
Shift Differential Pay
Paid holidays / vacation / sick leave buyouts
Other (please describe)

Statutory Programs of Basic Education

Sample included only individuals from the programs below

Program Accounting Code	Program Accounting Name
01	Basic (General) Education
02	Basic Education – Alternative Learning Experience
03	Basic Education – Dropout Reengagement
21	Special Education – Supplemental, State
22	Special Education – Infants and Toddlers, State
26	Special Education, Institutions, State
31	Vocational – Basic, State
45	Skills Center - Basic, State
55	Learning Assistance, State
56	State Institutions, Centers & Homes, Delinquent
59	Institutions – Juveniles in Adult Jails
65	Transitional Bilingual, State
74	Highly Capable
97	Districtwide Support
99	Pupil Transportation

Data Collection: Reason Sub-Categories (1 of 3)

Sub-categories vary by position type

Additional Responsibilities	**CIS**	**CLS**	**CAS**
Academic advising	■		
Class size overload	■		
Curriculum development	■		
Department head	■	■	
Developing school improvement days	■		
Emergency preparedness	■	■	
Extracurricular	■	■	■
Leadership stipend	■		
Mentoring	■	■	
Other (please describe)	■		■
Per diem days			■
Self-contained special education classroom	■	■	
Technology leader	■	■	
Travel			■
Deemed Done	**CIS**	**CLS**	**CAS**
Combination of degrees / credits & experience	■	■	■
Degrees / credits	■	■	■
Experience (anywhere)	■	■	■
Hard-to-staff positions	■	■	■
Longevity (in district)	■	■	■
Other (please describe)	■	■	■
Professional responsibility stipend	■	■	■

Key:
CIS = Certificated Instructional Staff
CLS = Classified Staff
CAS = Certificated Administrative Staff

■ Indicates sub-category was an option for staff type in the data tool

■ Not applicable

- Not all sub-categories are applicable for all staff types in the data collection tools
- Deemed Done is the only category that is uniform across all staff types

Data Collection: Reason Sub-Categories (2 of 3)

Sub-categories vary by position type

Other	**CIS**	**CLS**	**CAS**
Classroom supplies stipend	■		
Data entry	■		
Field trips	■		
Other (please describe)	■	■	■
Paid holiday / vacation / sick leave buyouts	■	■	■
Planning period buyouts	■		
Shift differential pay	■	■	
Tools / uniform / phone stipend		■	■
Professional Development	**CIS**	**CLS**	**CAS**
District directed PD days	■	■	
Other (please describe)	■	■	
Professional learning community (PLC)	■		
Self directed PD days	■	■	
Support for pursuing professional certification*	■		
Time Outside 180 Day School Year	**CIS**	**CLS**	**CAS**
Classroom prep / wrapup	■		
Extra days	■	■	
Other (please describe)	■	■	
Summer school	■		

Key:
CIS = Certificated Instructional Staff
CLS = Classified Staff
CAS = Certificated Administrative Staff

■ Indicates sub-category was an option for staff type in the data tool

Not applicable

- CLS have fewer stipend options for these supplemental pay categories
- CAS do not receive stipends for professional development or time outside 180 day school year
- The “other/other” category includes district specific explanations

* Including National Board for Professional Teaching Standards

Data Collection: Reason Sub-Categories (3 of 3)

Sub-categories vary by position type

Time Outside Regular School Day	CIS	CLS	CAS
Attending student dances/sporting events/concerts/other performances	■		
Combination of some or all of above	■		
Home visits	■		
Open house	■		
Other (please describe)	■	■	
Parent / teacher conferences	■		
Special education IEP	■		
Staff meetings	■	■	
Student assessment / grading / evaluation of student work	■		
Tutoring / one-on-one student assistance	■		
Zero period	■		

Key:
CIS = Certificated Instructional Staff
CLS = Classified Staff
CAS = Certificated Administrative Staff

■ Indicates sub-category was an option for staff type in the data tool

■ Not applicable

- CAS do not receive stipends for time outside the regular school day
- CLS have a few options in this category

Frequency Calculation Detail

Analysis Question: How often was a duty or activity assigned to a certain staff type to describe extra pay

State Level Calculations

- For each PSM position
- For each SPC category & sub-category combination
- Where SPCs are detailed flag 1 (detailed records)

&

District Level

- For each district

$$Frequency = \frac{Count\ of\ SPC\ Contracts}{Count\ of\ Staff}$$

- For each PSM position
- Where the staff member has a detail flag of 1 or 2 (staff member has clean detailed SPC data)

&

- For each district

Results & Interpretation:

36% of Teachers (Grades K-12) were paid a stipend or additional salary for Additional Responsibilities > Extracurricular duties

27% of Prosser School District Teachers (Grades K-12) were paid a stipend or additional salary for Additional Responsibilities > Extracurricular duties

Magnitude Calculation Detail

Analysis Question: How much was paid for a duty or activity assigned to a certain staff type

State Level Calculations		District Level
• For each PSM position • For each SPC category & sub-category combination • Where SPCs are detailed flag 1 (detailed records)	&	• For each district

$$Magnitude = Median^{*}\ (Total\ Dollars)$$

• For each PSM position • Where the staff member has a detail flag of 1 or 2 (staff member has clean detailed SPC data)	&	• For each district

Results & Interpretation:

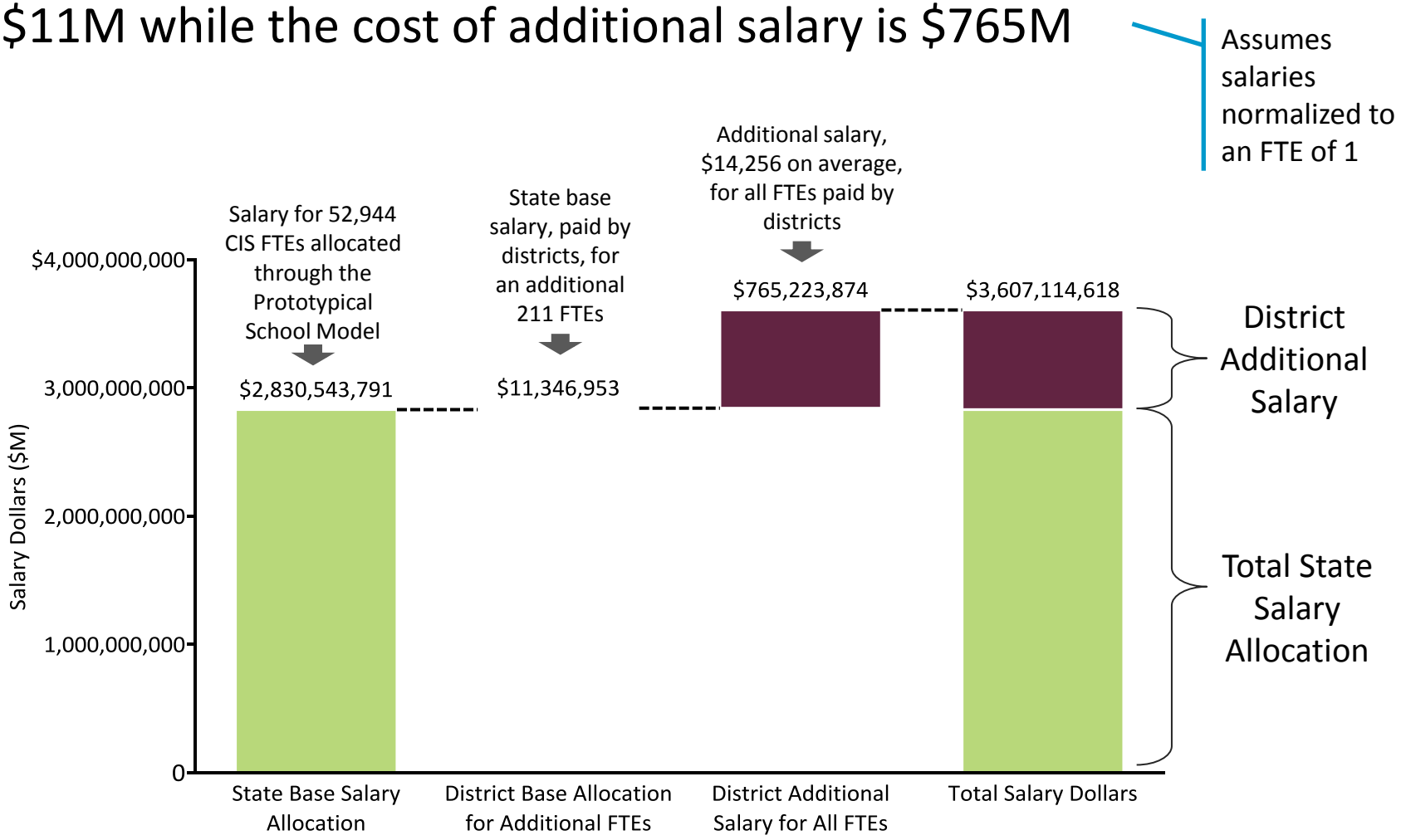
$2,046 was the median compensation for Teachers (Grades K-12) for a stipend or additional salary for Additional Responsibilities > Extracurricular duties

$1,532 was the median additional compensation for Prosser School District Teachers (Grades K-12) for a stipend or additional salary for Additional Responsibilities > Extracurricular duties

* Median definition – ½ of the data points are larger and ½ of the data points are smaller

CIS: Total Salary Dollars

The total cost of base salary for additional CIS FTEs is estimated at $11M while the cost of additional salary is $765M

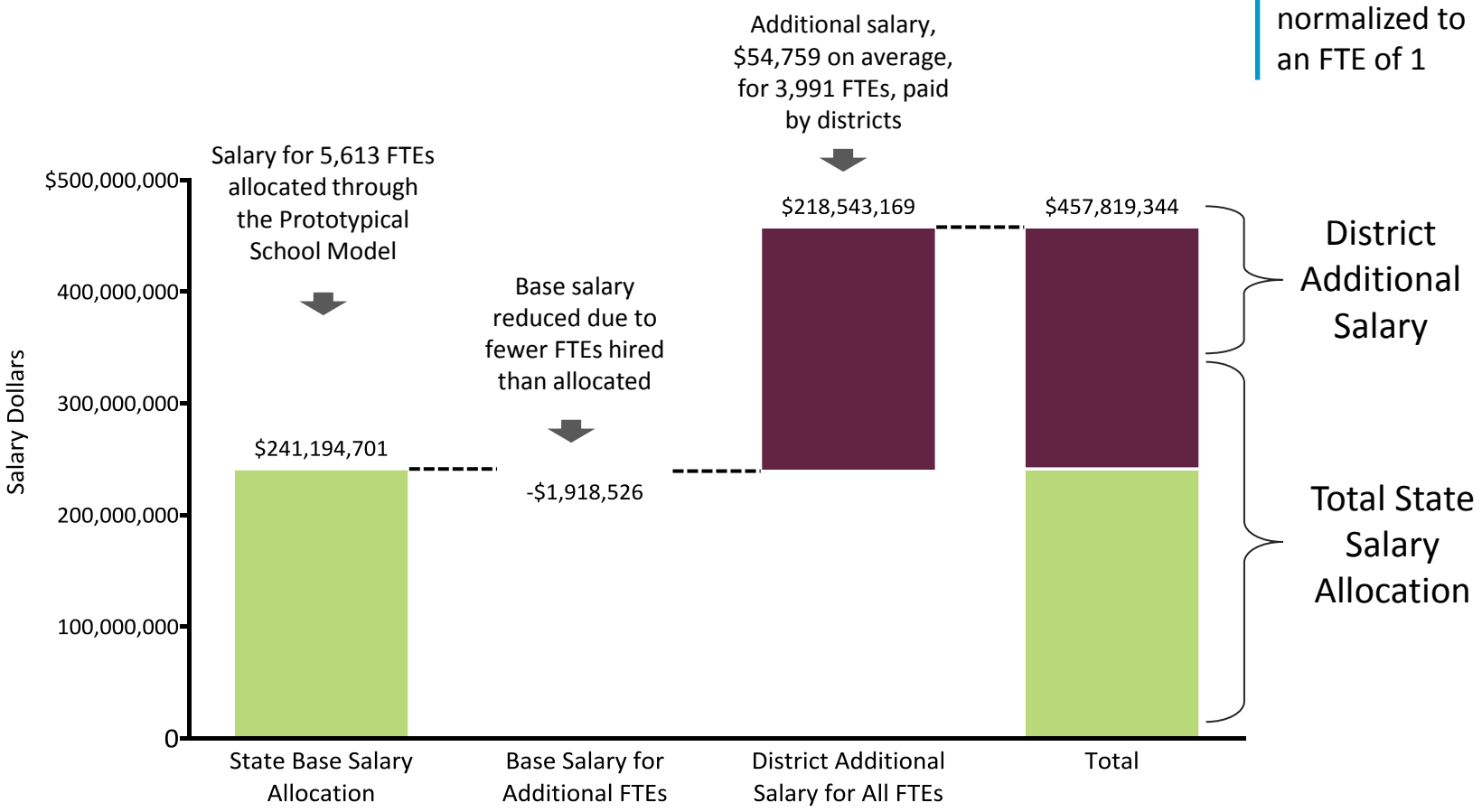


Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set). District additional salary includes all funding sources, state sources cannot be isolated

CAS: Total Salary Dollars

The total cost of base salary for additional CAS FTEs is estimated at -$1.9M while the cost of additional salary is $218M

Assumes salaries normalized to an FTE of 1

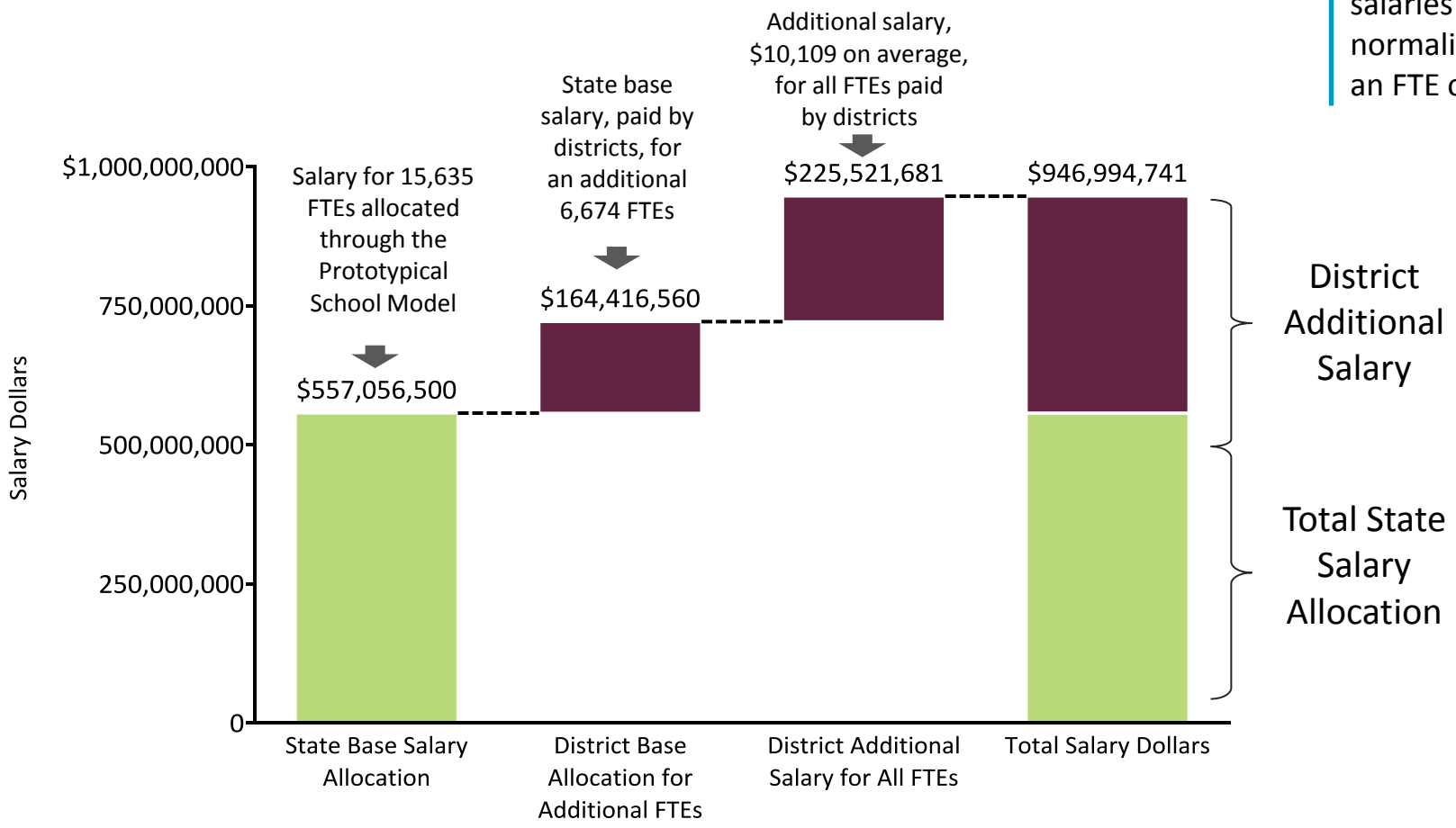


Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set). District additional salary includes all funding sources, state sources cannot be isolated. Salaries normalized to an FTE of 1.

CLS: Total Salary Dollars

The total cost of base salary for additional CLS FTEs is estimated at $164M while the cost of additional salary is $225.5M

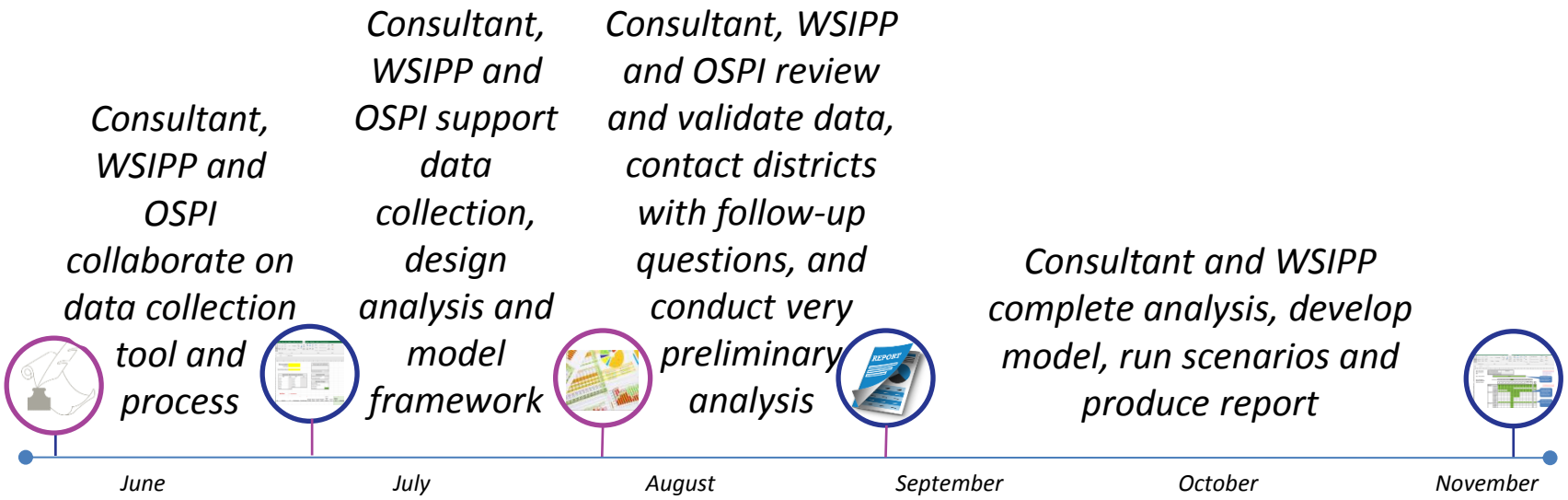
Assumes salaries normalized to an FTE of 1



Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set). District additional salary includes all funding sources, state sources cannot be isolated. Salaries normalized to an FTE of 1

Project Timeline

The first half of the project focused on data collection while the second half focused on analysis



May 31
Consultant contract signed

June 27
Data collection tools available to districts

July 29/Aug 8
Data due to OSPI from districts

Sept 1
Interim report due

Nov 15
Final report due including analyses covering all three components of the Consultant's assignment in the bill

Data Collection

Districts completed a worksheet for each staff category (1-3) and a worksheet to indicate funding sources (4)"

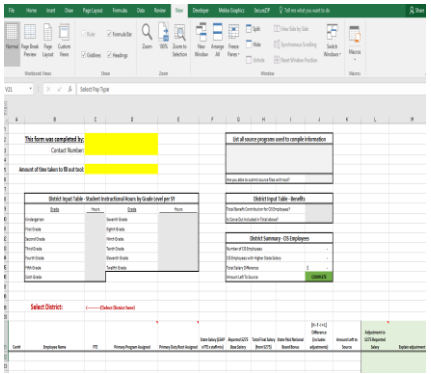
1

Certificated Instructional Staff (CIS) Additional Pay

- Classroom teachers
- Guidance Counselors
- Nurses
- Social Workers
- Psychologists
- Librarians

2

Certificated Administrative Staff (CAS) Additional Pay



- Central Admin - CAS
- CTE Admin
- Highly Capable Certificated Admin Staff
- LAP Certificated Administrative
- Principal/School Admin
- SC Admin
- TBIP Certificated Administrative

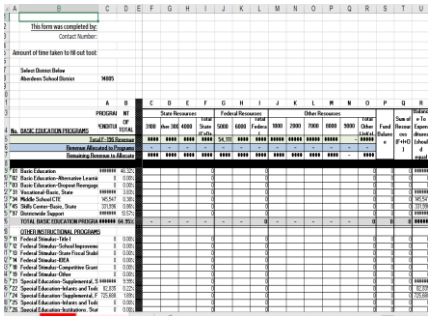
3

Classified Staff (CLS) Additional Pay

- Bus Driver
- Central Admin - CLS
- Central Admin CLS Clerical
- Classified on Leave
- CTE Classified
- Custodians
- Facilities/ Maintenance/ Grounds
- Highly Capable Classified Staff
- LAP Classified Staff
- Other Classified Staff
- Parent Involvement Coordinators
- School Office/Other Support
- Skill Center Classified
- Student and Staff Security
- TBIP Classified Staff
- Teaching Assistance
- Technology
- Transportation
- Warehouse/Laborers/Mechanics

4

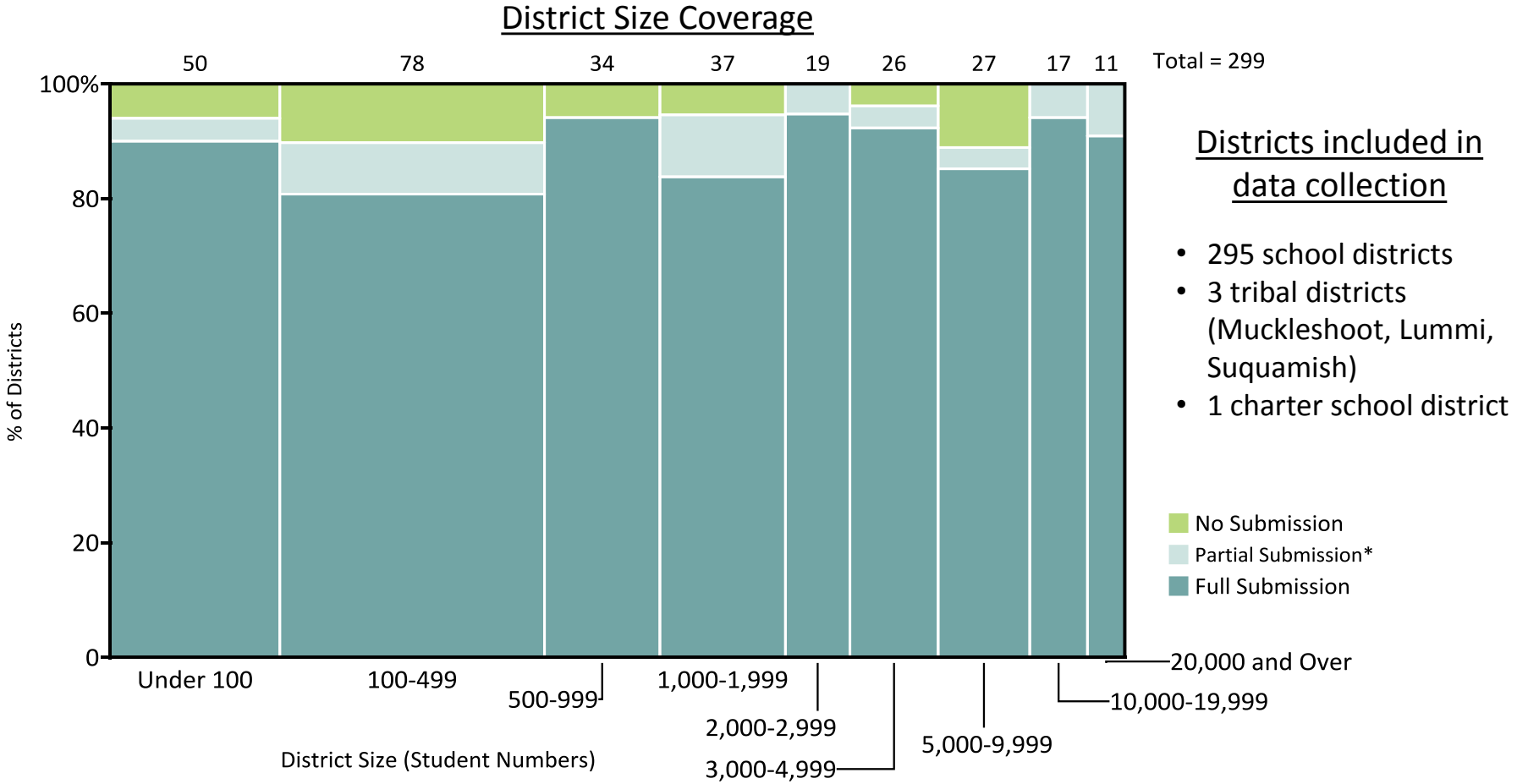
Revenue to Expenditure



- Source of funds collected maps state, federal and local funds to the statutory programs of basic education

Data Received Represents Districts

87% of districts submitted data ensuring representation of district sizes across the state

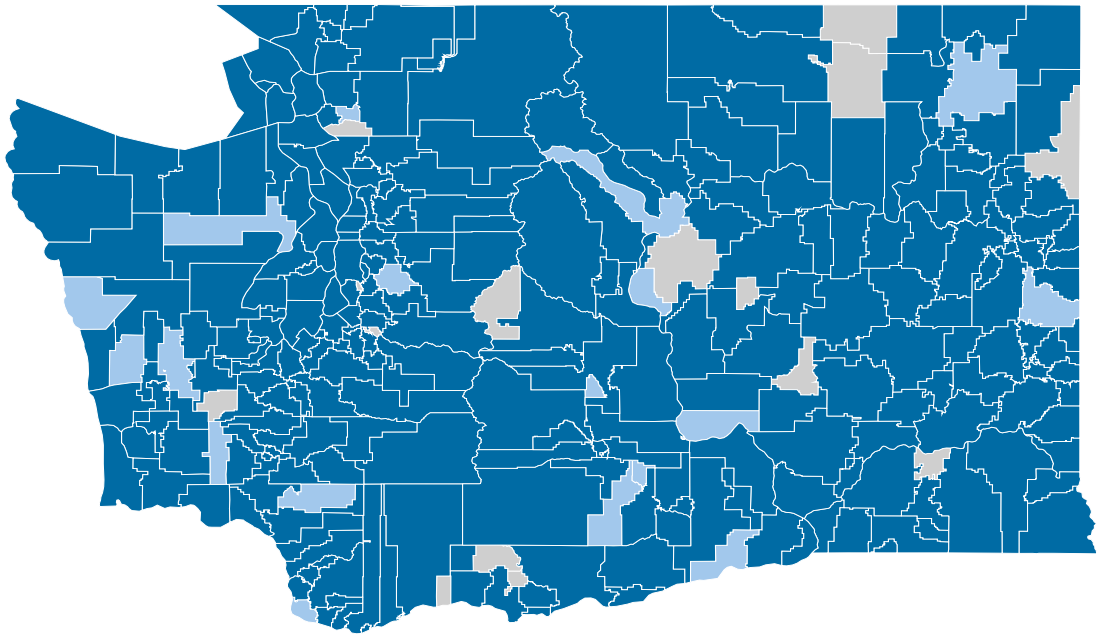


*Partial Submission = district submitted some but not all of the 4 requested data files to OSPI

Source: Data collected for E2SSB 6195 as of 9/1/2016

Data Collection Submission Status

Districts of all sizes and locations submitted salary and resource to expenditure data



Submission Status
- Full Submission
- Partial Submission
- No Submission

<u>Districts included in data collection</u>

- 295 school districts
- 3 tribal districts (Muckleshoot, Lummi, Suquamish)
- 1 charter school district

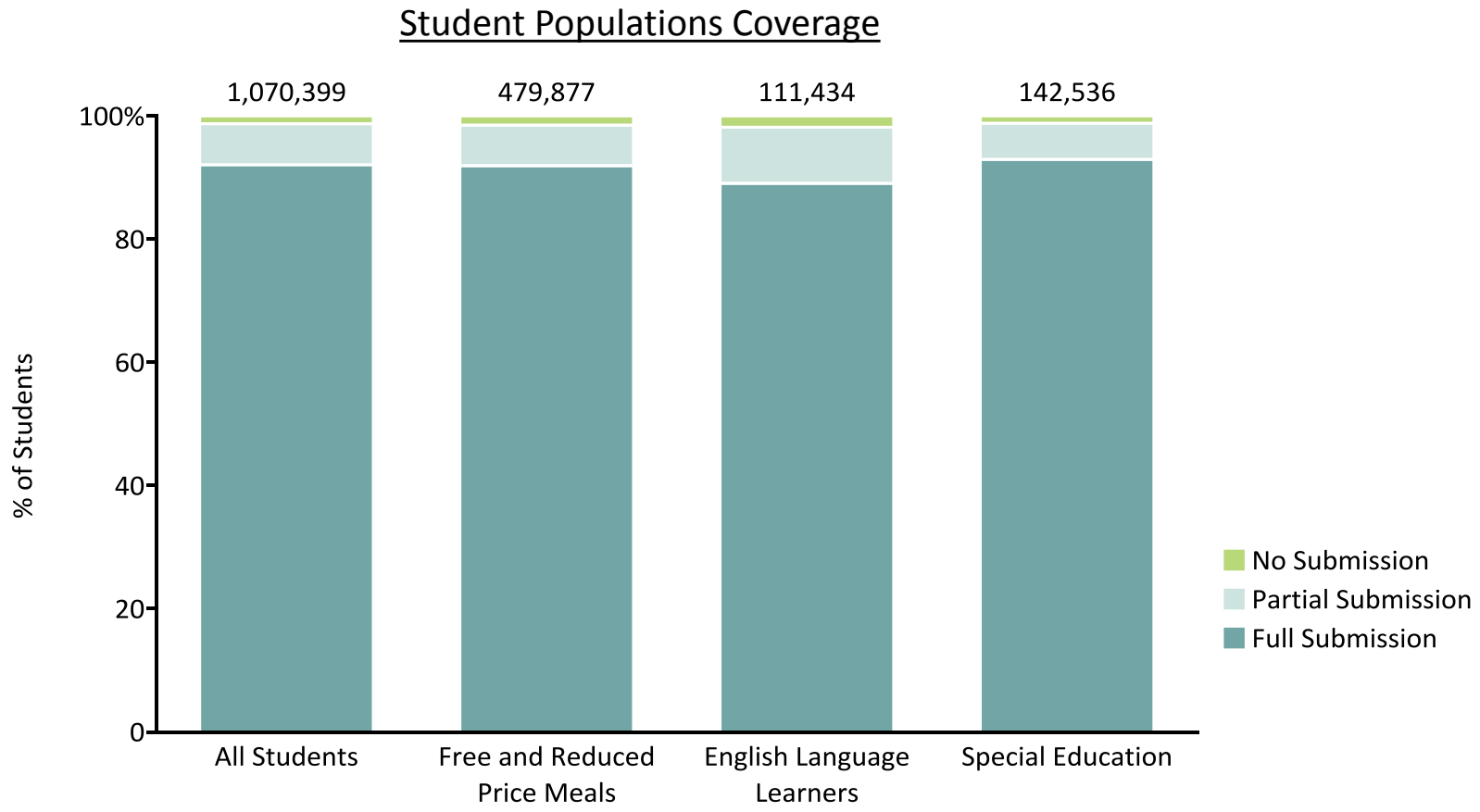
All district submissions were cleaned and reviewed for completeness and level of detail

Note Tableau data only supports 293 districts in the map and shows 15 of the 19 districts with no submission, 260 of the 262 districts with full submissions and all partial submissions (18) are displayed

Source: Data collected for E2SSB 6195 as of 9/1/2016 and 9/20/2016 (no additional data was submitted)

Data Received Reflects Students

Data represents 92% of students ensuring representation of different student populations across the state

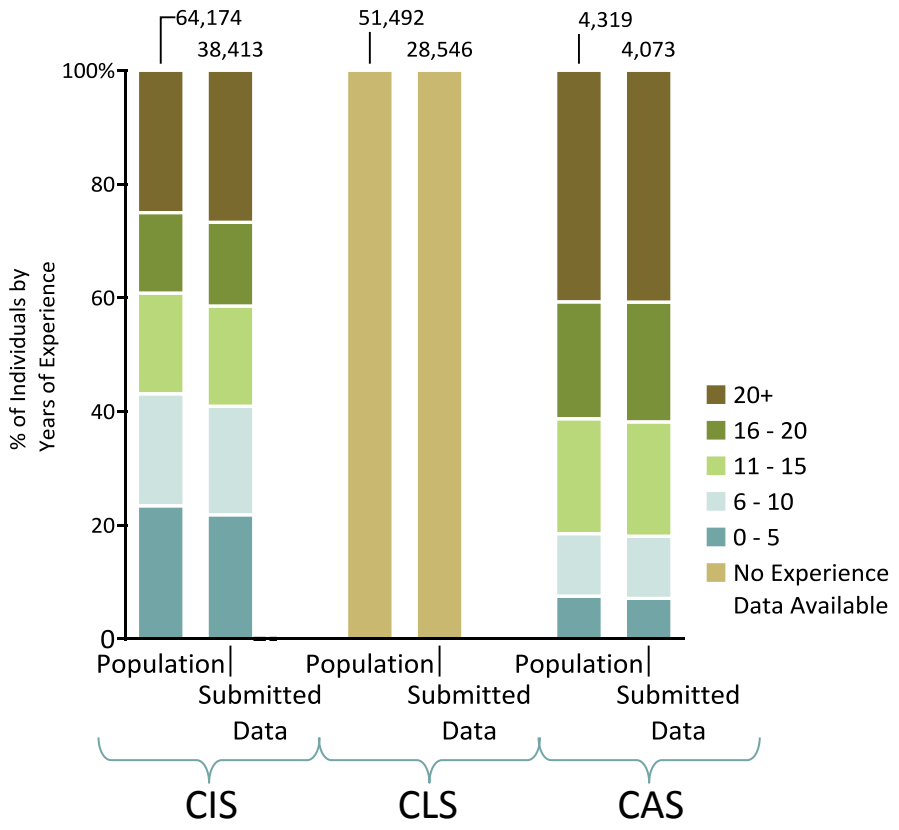


Note: categories are not mutually exclusive
Source: Data collected for E2SSB 6195 as of 9/1/2016; http://reportcard.ospi.k12.wa.us/DataDownload.aspx

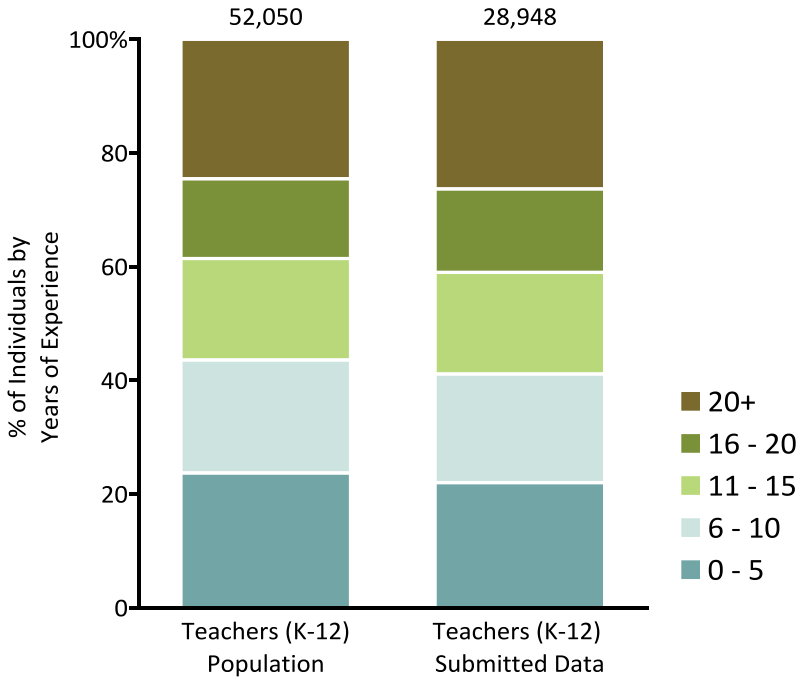
Data Received Reflects Staff Population

Data submissions have the same proportion of staff counts by years of experience as the population

K-12 School Staff by Years of Experience
(Population vs. Submitted Data)



Teachers (K-12) by Years of Experience
(Population vs. Submitted Data)



Source: Population for sample data set for E2SSB 6195 (taken from S275 2014-15 SY final data set) and data submission for E2SSB 6196 as od 9/20/2016

Data Submission Inconsistency

Many district submissions were not consistent with the data collection tool and required standardization before they could be consolidated

Common Issues with Original Submission

Data Tool's Functionality Altered
- Formulas replaced with hard coded values
- Data entered in columns outside formulas
- Text entered in fields intended for numbers

Data Tool Template Altered
- Additional rows added
- Data provided outside of template
- Submissions linked to external data sources

Steps Taken to Standardize Submissions

Restored Formula Functionality
- Manually updated formulas, including entries outside original calculation, and reviewed for accuracy
- Removed text from data fields where appropriate

Formatted Submitted Data to Original Template
- Removed inserted blank rows from templates and standardized to template
- Removed links to external sourced to enable data transformations

All data submission were standardized to the original tool before cleaning and assessing level of detail

Data Cleaning Required

After data submissions were standardized, data entries required extensive cleaning in order to asses levels of detail

District data was first concatenated by staff type; three phases of data cleaning were performed prior to evaluating level of detail

Category and Sub-Category Standardization

- Incorrect iterations of categories and sub-categories were crosswalked to the original data tool options
- The majority of files required this step

Standardize Data to Staff Type

- Standardize category and sub-category combinations to staff type
- Where entries did not match staff type information was moved to "Other"

Review "Explain if Other" Free Form Entries

- Additional salary above state base but considered base pay was standardized to the extent possible in the CAS file but not the CIS or CLS files

Thorough cleaning and standardization increased data detail

Data Detail Review Process

Standardized and cleaned data was flagged according level of detail to determine suitability for analysis

Supplemental Pay Record Ratings

1 = Valid category and sub-category combination by staff type or supplemental pay categorized as additional base pay but considered district base

2 = Category combined with Other (please describe) and free form text

3 = District provided no information for the corresponding dollar amount, dollar amount was negative (leave without pay adjustments)

Example: 23% of the CIS supplemental pay records (47,071 records) were rated a 3 (3,000 negative values and the remainder were rounding error or free form text in the "Explain if Other" category)

Employee Record Ratings

1 = Supplemental pay rated a 1 explains 80% or more of a person's total variance

2 = Supplemental pay rated a 2 explains between 79% and 30% of a person's total variance

3 = Supplemental pay rated a 3 explains less than 30% of a person's total variance

Thresholds were set for this work to include explanatory data while excluding records with negative values, outliers and non-specific information (e.g., Other: Other: Unexplained variance)

Standardization, cleaning, and flagging resulted in >80% of employee records being flagged a 1 or 2 and can be included in analysis

1 = Data can be evaluated at the sub-category level, 2 = Data can be evaluated at the category level, 3 = Data cannot be included in analysis

Implications of Original Data Collection

There is a large amount of complex data that needed to be cleaned and standardized in order to be analyzed

Data Challenges

- Extremely large quantity of data from districts resulting in long analysis time and need to optimize analysis tools
- Original data, pulled manually from district HR and payroll systems and mapped to supplemental pay categories developed specifically for this project required district discretion
- Data collection tool and supplemental pay categories complex and layered (categories and sub-categories)
  - Categories could be interpreted differently by districts (e.g., additional base salary (market pay) with large dollar amounts can be classified in "Other – Other (please describe)" as the OSPI FAQ* instructed or as "Deemed Done" or "Additional Responsibilities"

*To review the FAQ see here: http://www.k12.wa.us/SAFS/ESSB6195.asp

Supplemental Pay Analysis Plan

Collected data was used to analyze the duties, uses or categories and source of funding for actual compensation

	Analysis Questions	**Detailed Analysis Plan**
Supplemental Pay Frequency	What supplemental pay categories apply to each staff type or position?	• Types of supplemental pay for each staff type (duty root code) and compare across districts • Patterns in supplemental pay for each staff position and across staff positions
Supplemental Pay Magnitude	How much supplemental pay is contracted for staff positions?	• Size of supplemental pay for each staff type including aggregate levels for CIS, CLS, CAS and at the detailed position level • Analysis of the variance in supplemental pay between staff positions and between districts
Relationships Between Pay and District Factors	How are districts similar and different in how they pay staff?	• Patterns between supplemental pay and district size, location (urban/rural), levy dollars, wealth/poverty in an area (levy valuation, FRPL, and ELL)

Analysis Methods

Calculations for analysis were standardized and executed across the data to create consistent analytic output while aggregating the data at different levels

	Calculation	**Description**	**Rationale**
Supplemental Pay Frequency	$\frac{Count\ of\ SPC\ Contracts}{Count\ of\ Staff\ by\ Type}$	• The rate at which something occurs in a given sample (i.e., how often a duty or activity was assigned to a certain staff type to describe extra pay)	• Count contracts and staff because supplemental pay can be assigned on a one-to-one basis or multiple contracts can be given to a staff member (frequency can be > 100%)
Supplemental Pay Magnitude	• 1st quartile • 2nd quartile = Median • 3rd quartile	• The midpoint of a distribution of observed values, such that there is an equal probability of falling above or below (i.e., how much were staff paid for that duty or activity)	• Medians are more stable and because of wide variation in payments by districts and the presence of possible outliers

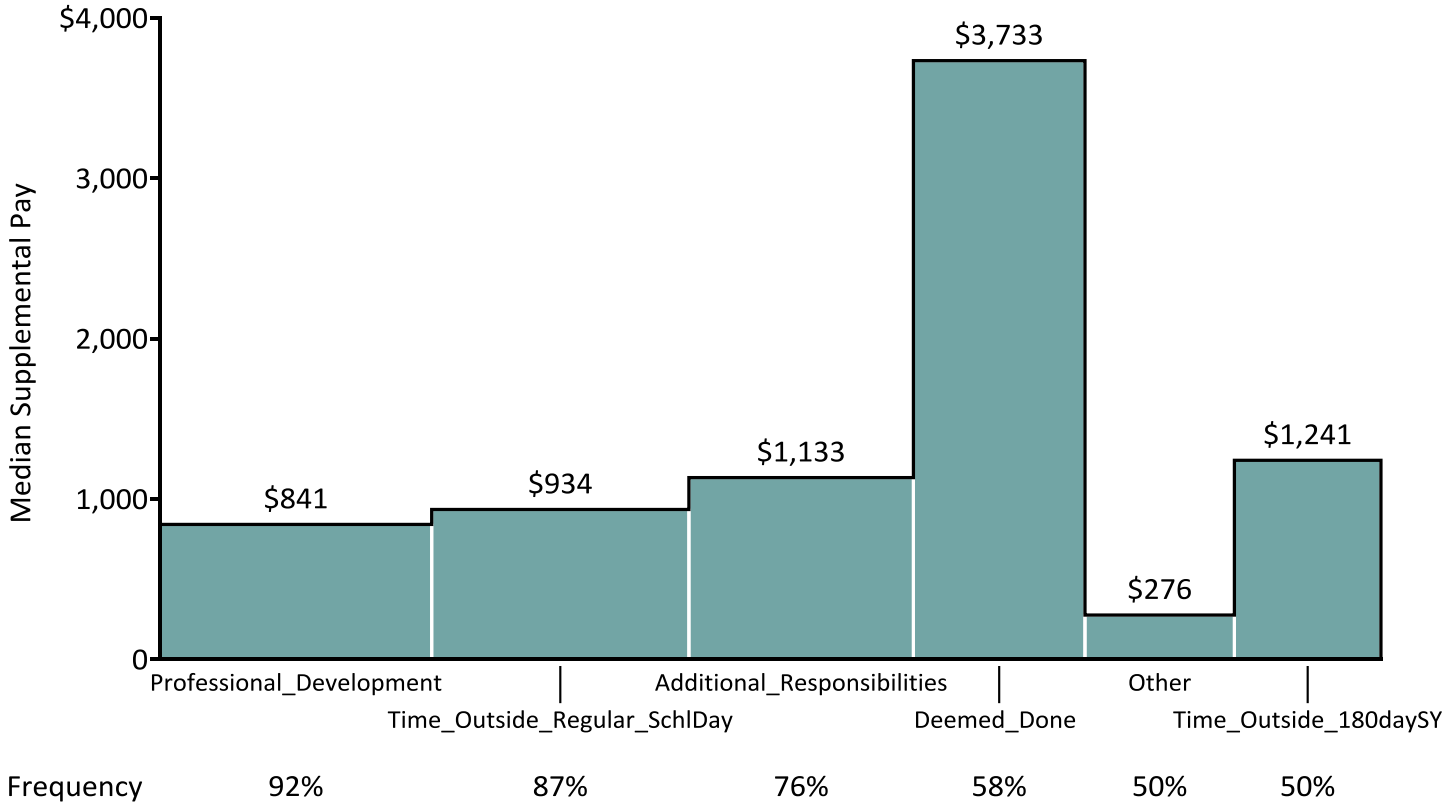
Adjustments to calculations

- Excluded supplemental pay records rated 2 or 3 (negative values, no detail, etc.)
- Staff records rated a 3 not included
- Normalized for FTE of 1 based on FTE status
- Cross-walked duty root to PSM

CIS: Teacher Supplemental Pay Overall

Like CIS staff overall, for Teachers Professional Development is most frequent category but Deemed Done has the highest compensation

Frequency and Magnitude of Supplemental Pay Categories



Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher (Grades K-12) Sub-categories

Teacher compensation mirrors CIS additional pay overall with the same seven categories used most frequently

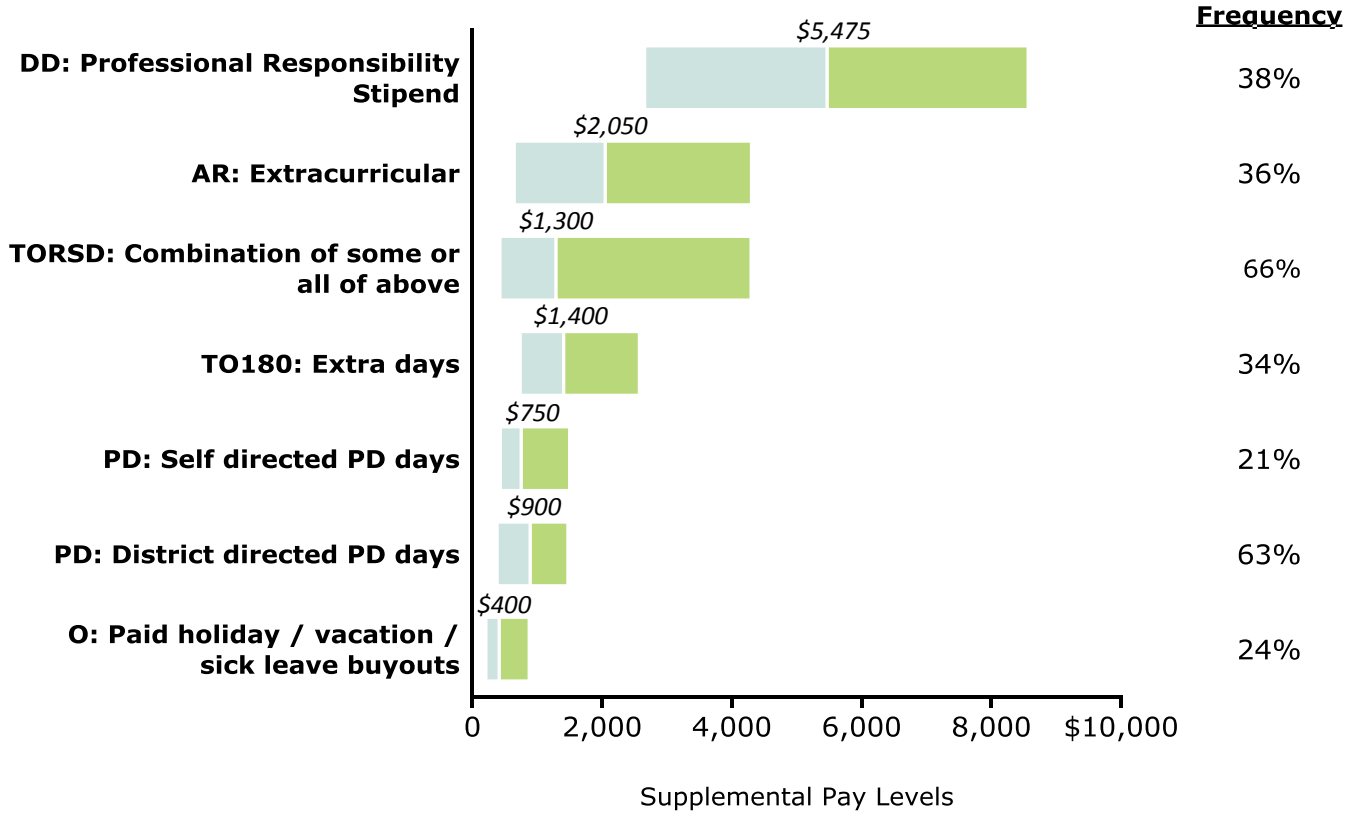
Key: Median - 3rd quartile; 1st quartile - Median

$xxx Italics number = Median value

Bold text = > 20% frequency

Most Frequent sub-categories:

Teachers (K-12) Sub-category Supplemental Pay Amounts



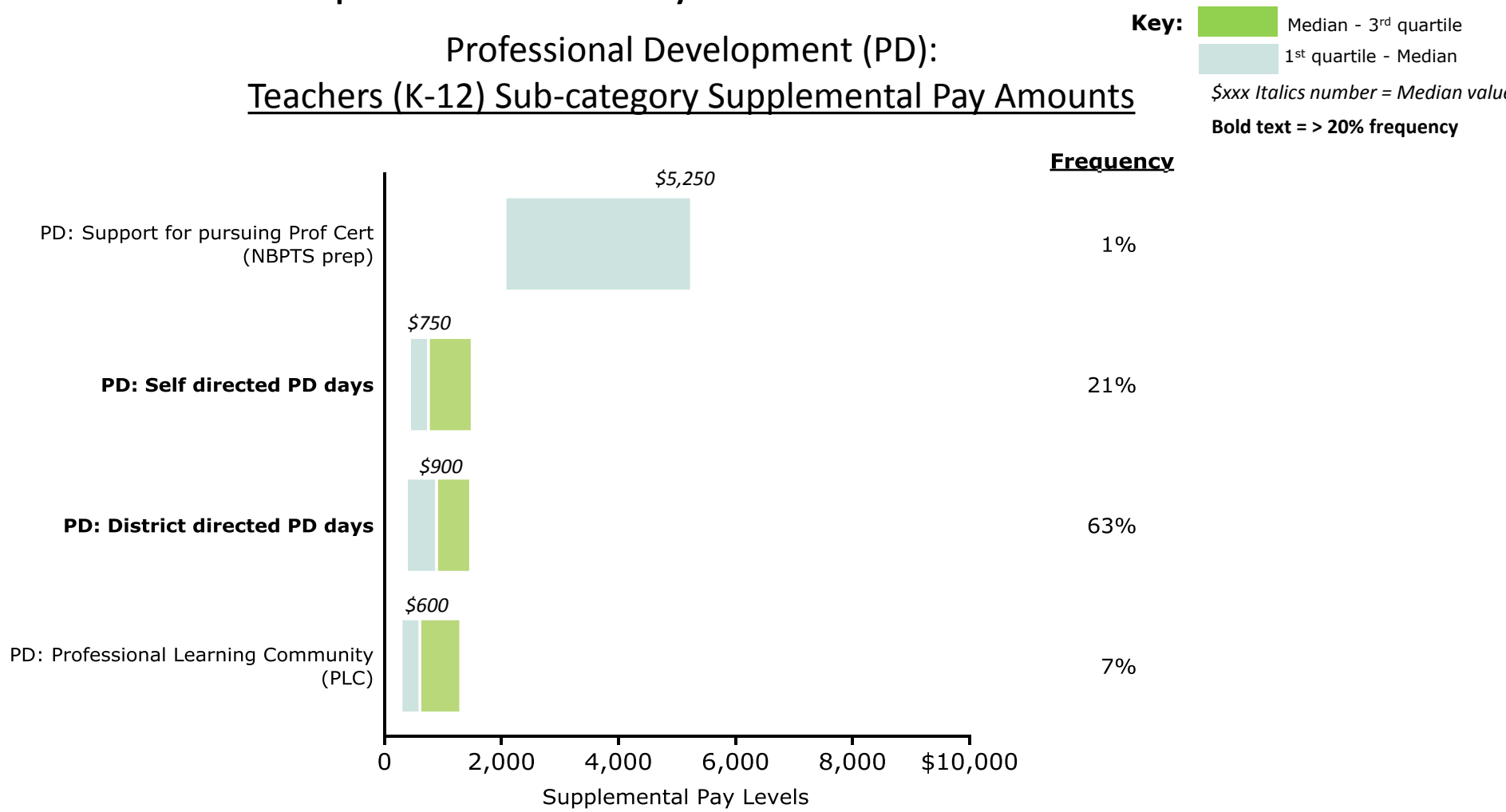
Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher (Grades K-12) Sub-categories

In the Professional Development category, District directed PD is the most frequent followed by Self-directed PD

Professional Development (PD):

Teachers (K-12) Sub-category Supplemental Pay Amounts



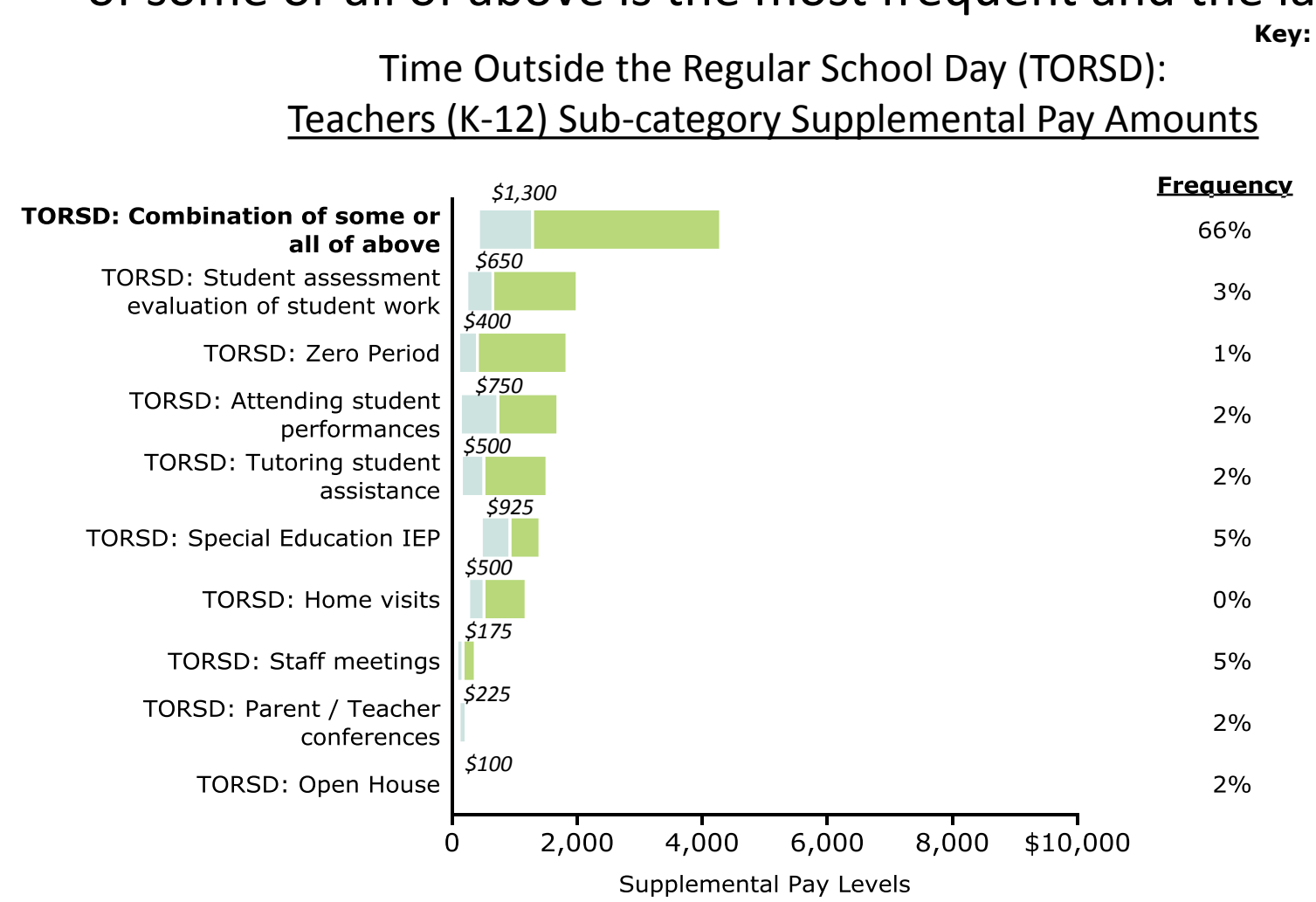
Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher (Grades K-12) Sub-categories

In the Time Outside the Regular School Day category, Combination of some or all of above is the most frequent and the largest

Time Outside the Regular School Day (TORSD):

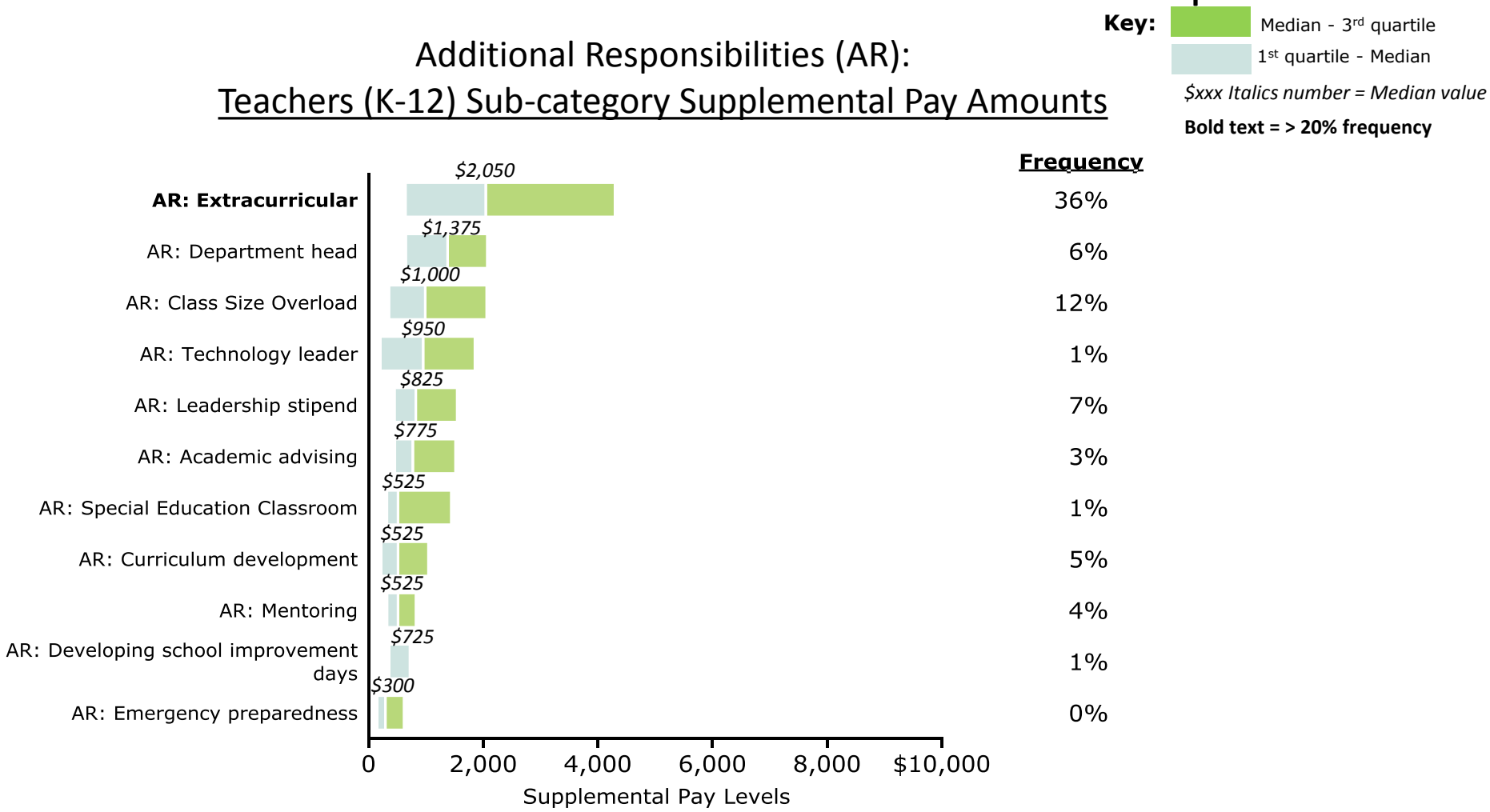
Teachers (K-12) Sub-category Supplemental Pay Amounts



Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher (Grades K-12) Sub-categories

In the Additional Responsibilities category, supplemental pay amounts are smaller and Extracurricular is the most frequent



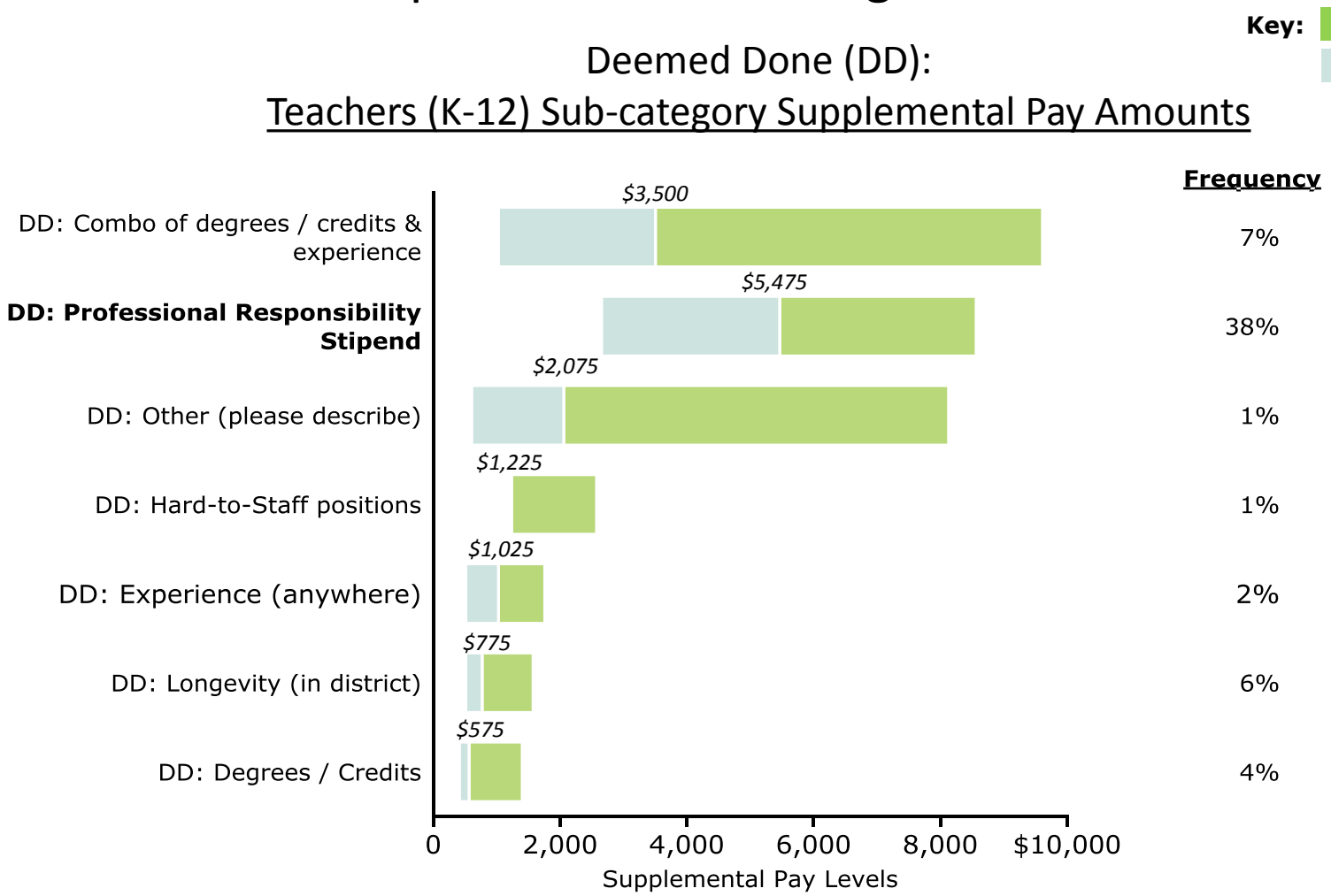
Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher (Grades K-12) Sub-categories

In the Deemed Done category, Professional Responsibility Stipend is the most frequent and has the highest median value

Deemed Done (DD):

Teachers (K-12) Sub-category Supplemental Pay Amounts



Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher (Grades K-12) Sub-categories

For teachers, Paid holiday/ sick leave buyouts is the most frequent while Other (please describe) is used infrequently

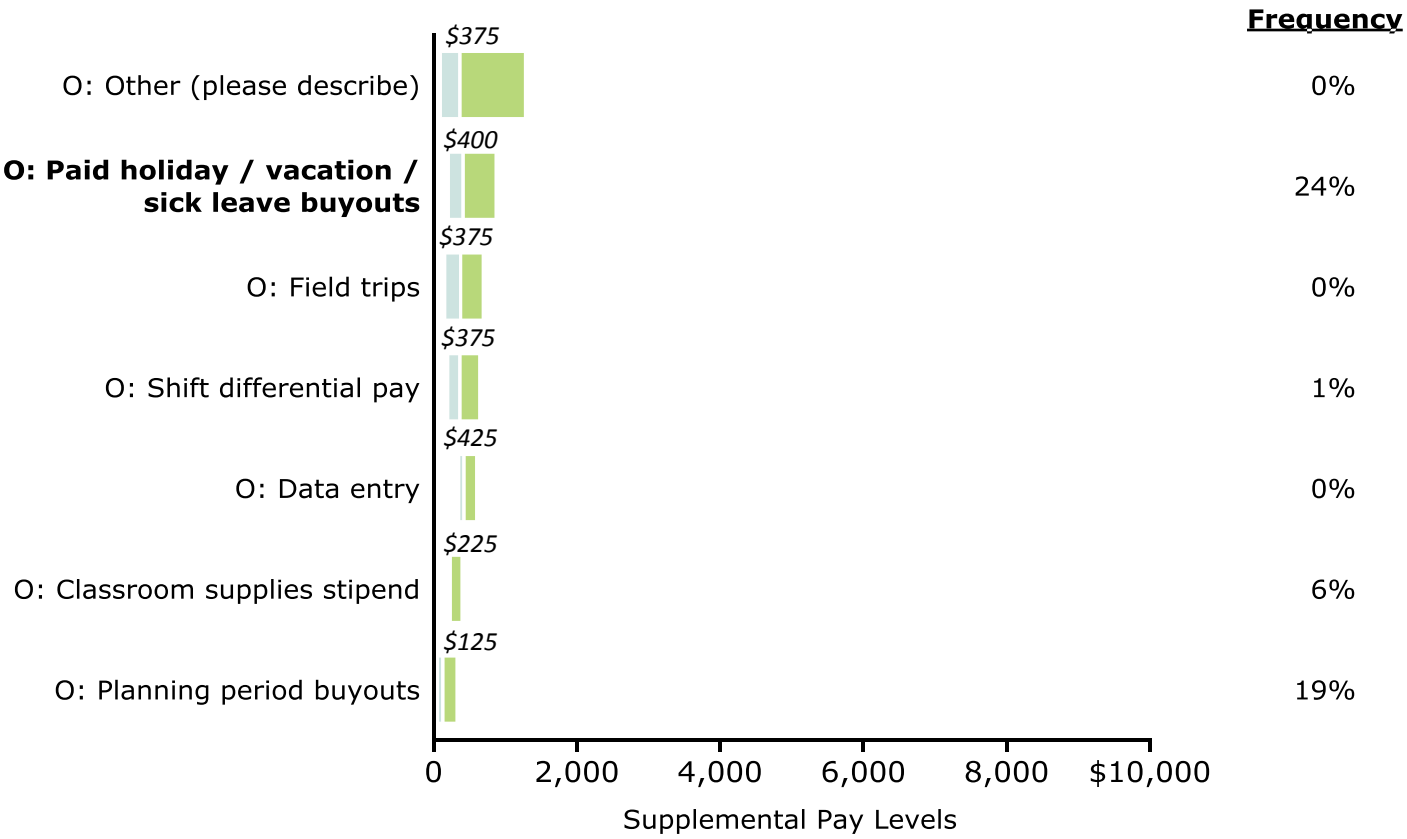
Key: Median - 3rd quartile; 1st quartile - Median

$xxx Italics number = Median value

Bold text = > 20% frequency

Other (O):

Teachers (K-12) Sub-category Supplemental Pay Amounts

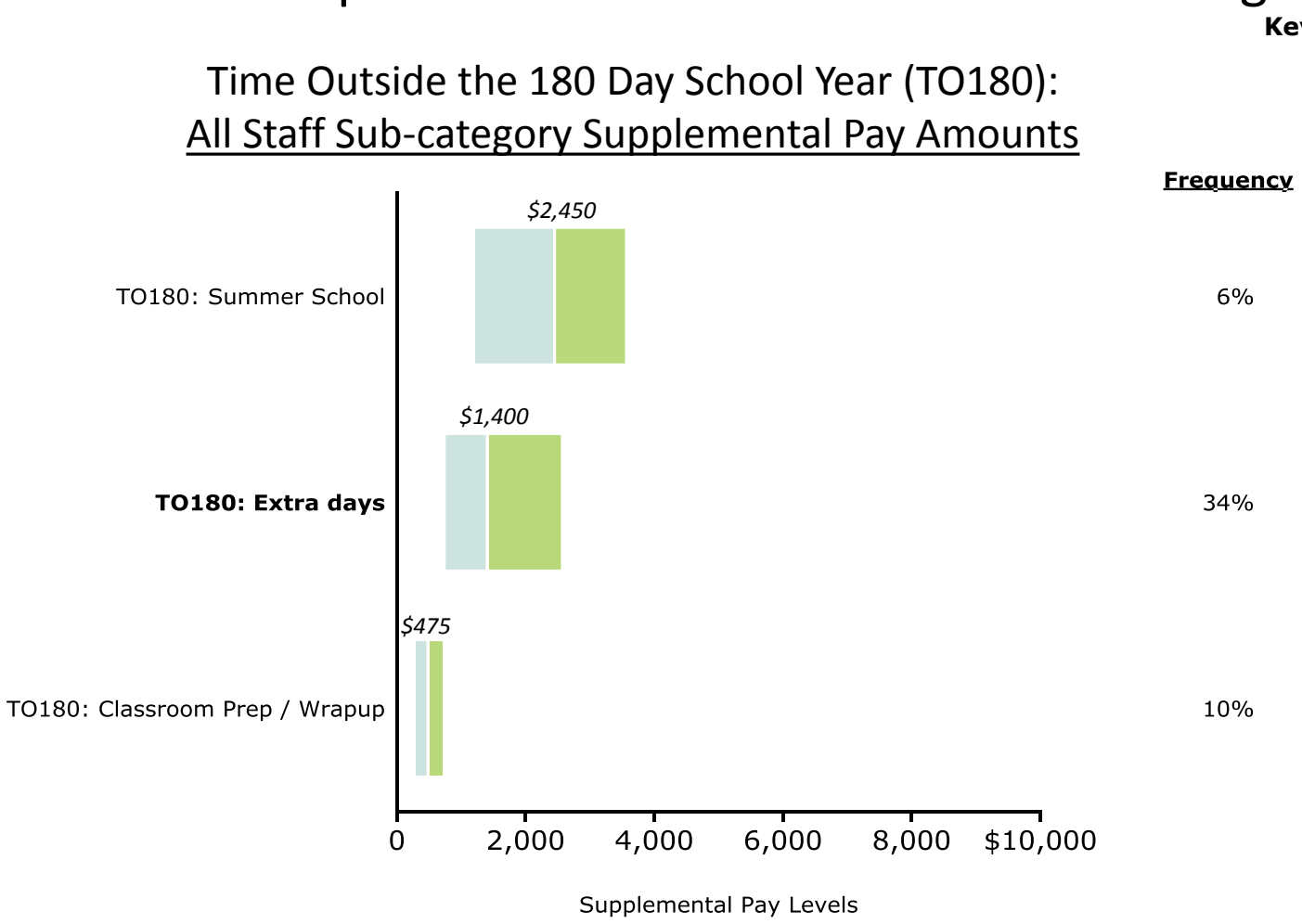


Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

CIS: Teacher (Grades K-12) Sub-categories

In the Time Outside the 180 Day School Year category, Extra days is the most frequent while Summer school has the highest median

Time Outside the 180 Day School Year (TO180):
All Staff Sub-category Supplemental Pay Amounts



Source: Data collected for E2SSB 6195 as of 10/30/2016; quartile values normalized for FTE status

Revenue to Expenditure Analysis Plan

Collected data was used to understand the sources and uses of funding in school districts across the state

	Analysis Questions	**Detailed Analysis Plan**
Sources and Uses of Funds	What sources of funds do districts use for statutory basic education?	• Link source of funds to the statutory programs of basic education • Inference on how levy dollars are used by districts and conclusions that can be drawn around funding for supplemental pay

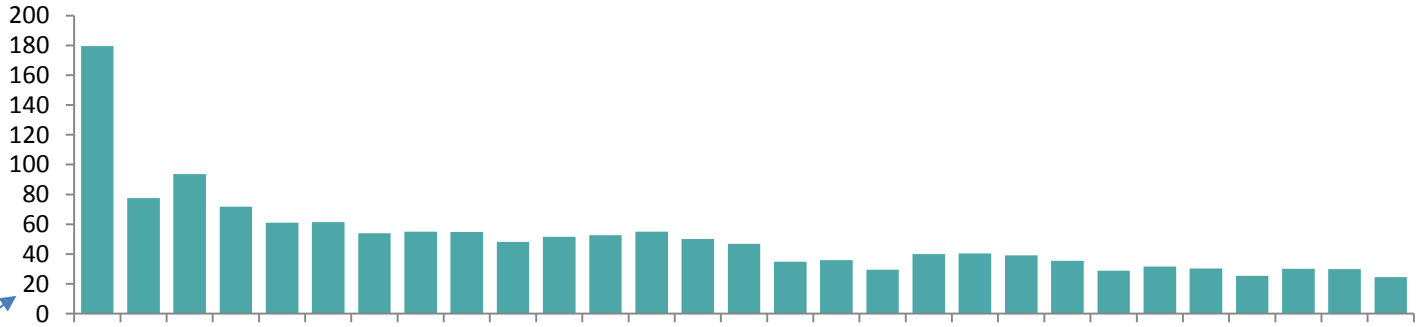
Limited analysis is possible given the lack of a cost accounting system linking expenditures with sources of funding

Note: full list of statutory programs of basic education available in the appendix
Data in the revenue to expenditure files is self-reported by districts

Levy and Local Effort Assistance Dollars

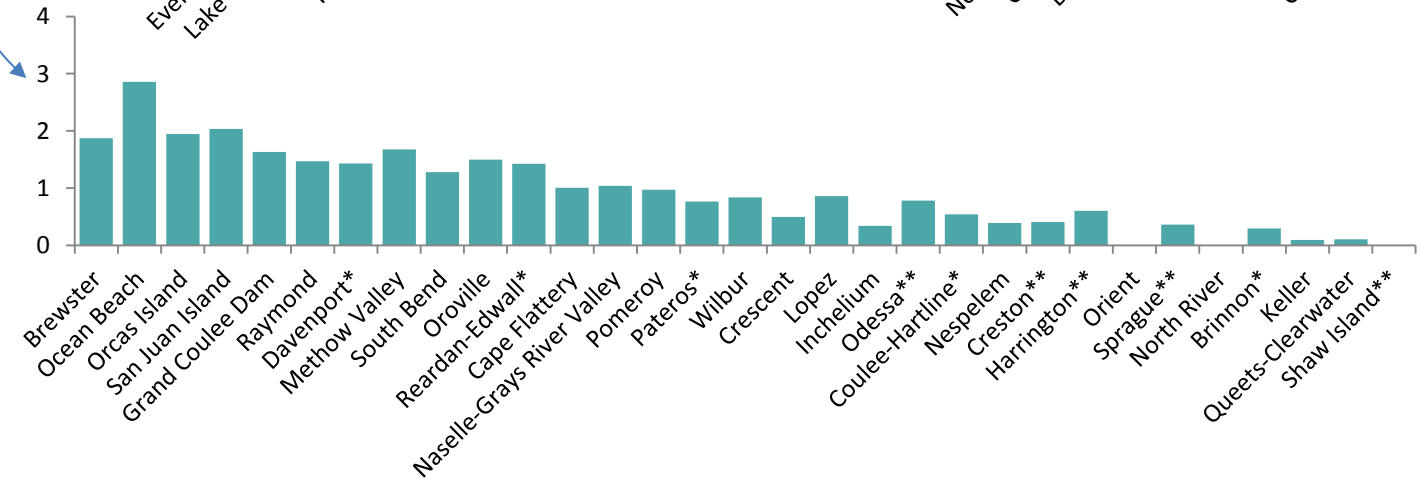
Levy dollars and are significantly higher in large urban districts

Total Levy and Local Effort Assistance (LEA) Large Urban Districts ($million)



Note 50x change of scale from one graph to the next

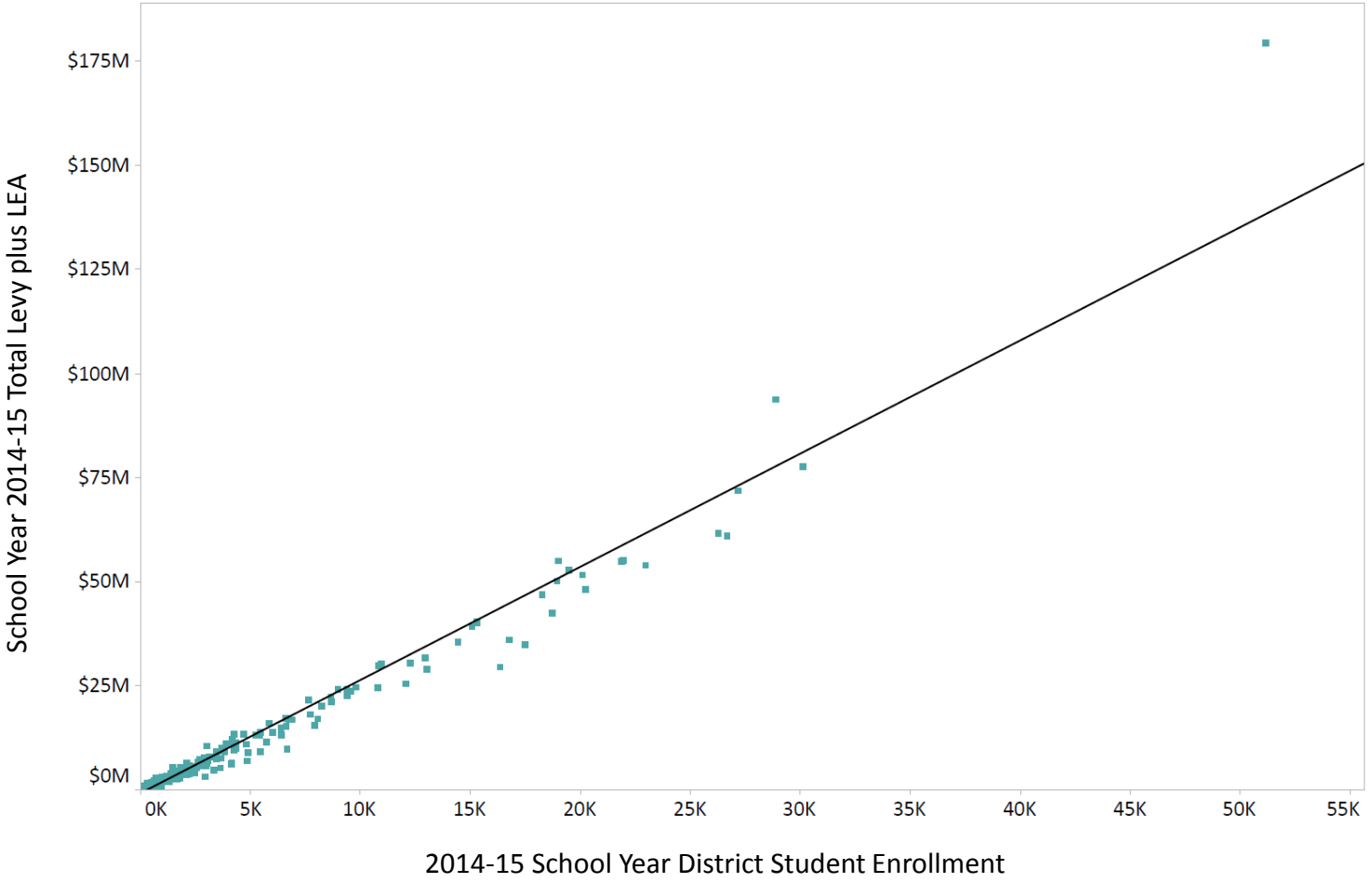
Total Levy and LEA Small Rural Districts ($million)



*Grandfathered levy authority 28% to 33%, **Grandfathered levy authority 33% to 38% , All other districts 28%, Large Urban= districts with enrollment above 10,000 and USDA urban influence codes 1 and 2, Small Rural = districts with enrollment under 1,000 and USDA urban influence codes 6, 7, 8, 9, and 12, Districts on graphs are order in descending size (by enrollment left to right), Data in the revenue to expenditure files is self-reported by districts

Levy Size and Student Enrollment

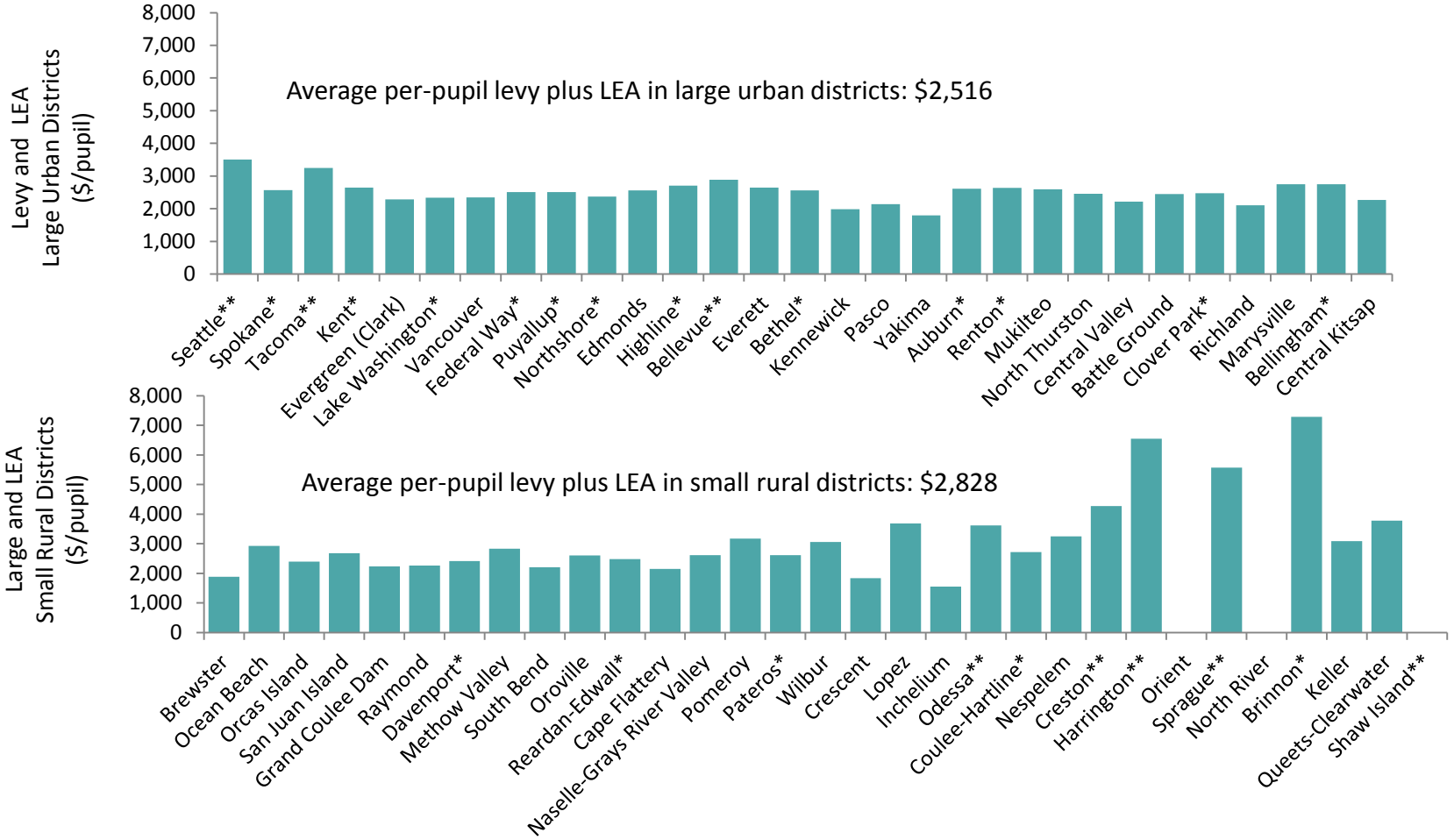
Larger districts (by enrollment) have larger levies, in aggregate



Source: Data collected for E2SSB 6195 as of 10/30/2016; Data in the revenue to expenditure files is self-reported by districts

Levy plus local effort assistance

Large districts have more levy dollars in total but per-pupil levy + LEA is not different by district size and urbanicity



* Grandfathered levy authority from 28% to 33%, ** Grandfathered levy authority from 33% to 38% , All other districts 28% levy authority, Large Urban = Sampled districts with enrollment above 10,000 and USDA urban influence codes 1 and 2, Small Rural = Sampled districts with enrollment under 1,000 and USDA urban influence codes 6, 7, 8, 9, and 12, Districts on graphs are order in descending size (by enrollment left to right), Data in the revenue to expenditure files is self reported by districts

Comparable Positions Salary Analysis Plan

Analysis will focus on comparing education staff salaries with comparable positions for WA State and national averages

	Analysis Questions	**Detailed Analysis Plan**
Relationships between Salaries of Education Staff and Comparable Positions	How do districts' salaries relate to comparable WA State salaries for other professions? How do districts' salaries compare to national averages for the same teaching professions?	• Identify appropriate comparable positions based on previous work • Assemble data for comparable positions for WA State and national salaries • Analyze salary ranges for education staff positions and how comparable salaries relate to ranges
Adjustments to Comparable Salaries to Draw Conclusions	What adjustments can be considered for comparisons between education staff salaries and other professions?	• Index and review comparable salaries for work days contracted for positions • Normalize district salaries for different levels of tenure and experience

Comparable Positions and Data Sources: Teachers

The plan for teacher comparable positions includes a range of similarly skilled positions identified in previous work

Prototypical Position(s)	Comparable Group	Comparable Position(s)	Rationale for Comparable Position	Data Source
Classroom Teachers (Elementary Teachers, Secondary Teachers and Other Teachers)	Comparable occupations within Washington State & national averages	Accountants and Auditors	The list of comparables was sourced from the 2004 study by Allegretto, et al*	Washington State date source: Employment Security Department National data source: Bureau of Labor Statistics
		Insurance Underwriters		
		Labor Relations Specialists		
		Compliance Officers		
		Architects, building		
		Forestry and Conservation Science Teachers, postsecondary		
		Registered Nurses		
		Occupational Therapists		
		Physical Therapists		
		Vocational Education Teachers, postsecondary		
		Vocational Counselors		
		Archivists, Curators, and Museum Technicians		
		Clergy		
		Technical Writers		
		Editors		
		Programmers, computer		
	National teacher wages	Elementary School Teachers, except Special Education	The job codes for national teachers were sourced from the 2012 CTWG** Final Report	Bureau of Labor Statistics
		Middle School Teachers, except Special and Career/Technical Education		
		Secondary School Teachers, except Special and Career/Technical Education		
	Private school teachers	Teachers		BLS and NCES

Source: * "How Does Teacher Pay Compare? Methodological Challenges and Answers", Allegretto, et al, Economic Policy Institute, 2004;
**Compensation Technical Working Group

Comparable Positions: Other CIS*

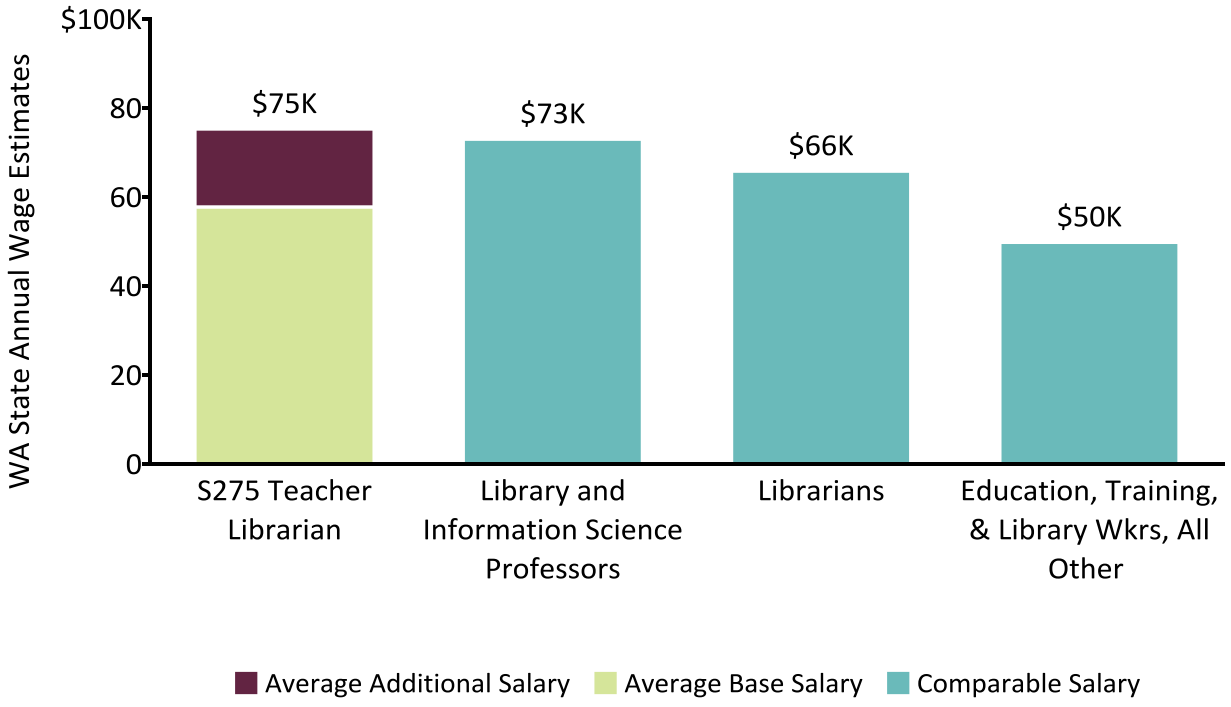
The plan for other CIS positions includes more direct matches

Prototypical Position(s)	Comparable Group	Comparable Position(s)	Data Source**
Teacher Librarian (Library Media Specialist)	Occupations in WA State	Library and Information Science Professors	ESD
		Librarians	
		Education, Training, & Library Wkrs, All Other	
	National Comparison	Librarians	BLS
	Private school comparison	Librarians (if available)	Not Available
Counselor	Occupations in WA State	Substance Abuse & Behavioral Disorder Counselors	ESD
		Educational, Vocational, & School Counselors	
		Marriage & Family Therapists	
		Mental Health Counselors	
		Rehabilitation Counselors	
		Counselors, All Other	
	National comparison	Educational, Vocational, & School Counselors	BLS
	Private school	Counselor (if available)	Not Available
Nurse	Occupations in WA State	Registered Nurses	ESD
		Nurse Practitioners	
		Licensed Practical & Licensed Vocational Nurses	
	National comparison	Registered Nurses	BLS
	Private school comparison	School nurse (if available)	Not Available
Psychologist	Occupations in WA State	Clinical, Counseling, & School Psychologists	ESD
		Psychologists, All Other	
	National comparison	Clinical, Counseling, & School Psychologists	BLS
	Private school	School Psychologist (if available)	Not Available
Social Worker	Occupations in WA State	Child, Family & School Social Workers	ESD
	National comparison	Child, Family & School Social Workers	BLS
	Private school	School Social Worker (if available)	Not Available

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels. *ESD = Employment Security Department, BLS = Bureau Labor Statistics

Teacher Librarians

Without an assumed annualization factor, Teacher Librarians earn salaries in line with or above comparable occupations

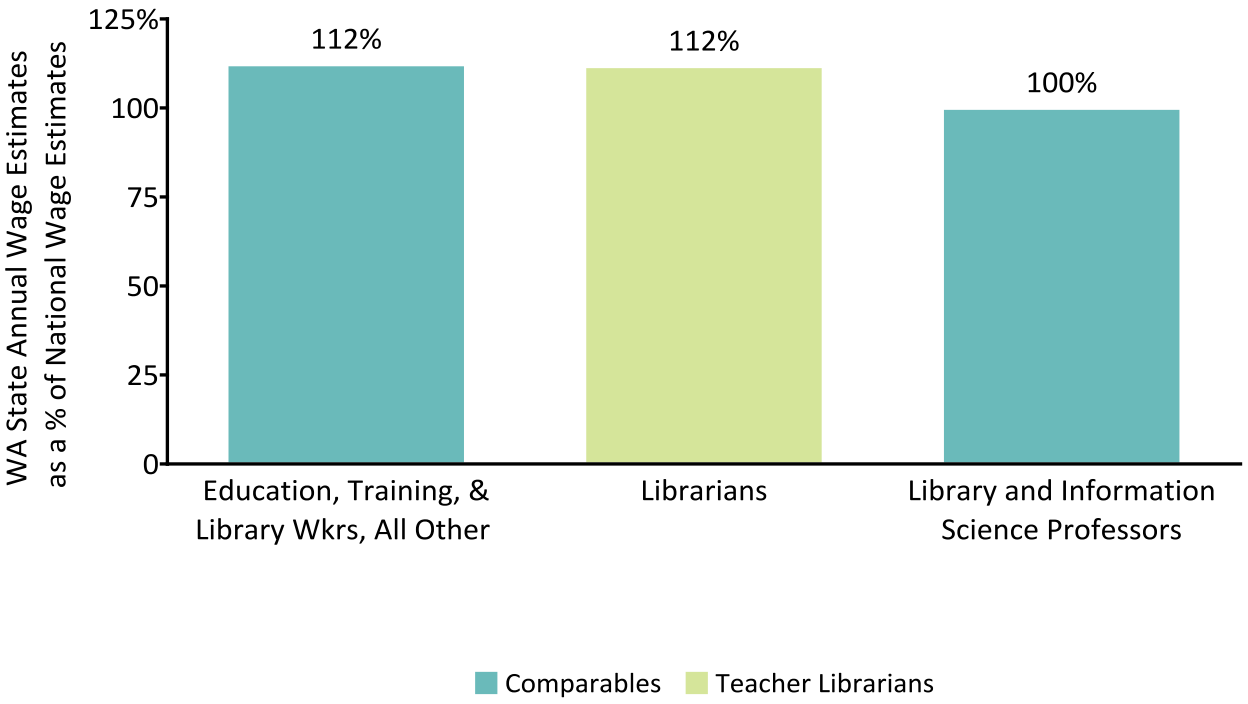


- The average school year FTE for Teacher Librarians was 0.93
- Teacher librarian state base salaries are below comparable professions but are similar when supplemental pay is included

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Teacher Librarians

Librarians in WA State make 12% more than the national average wage, in line with other comparable positions

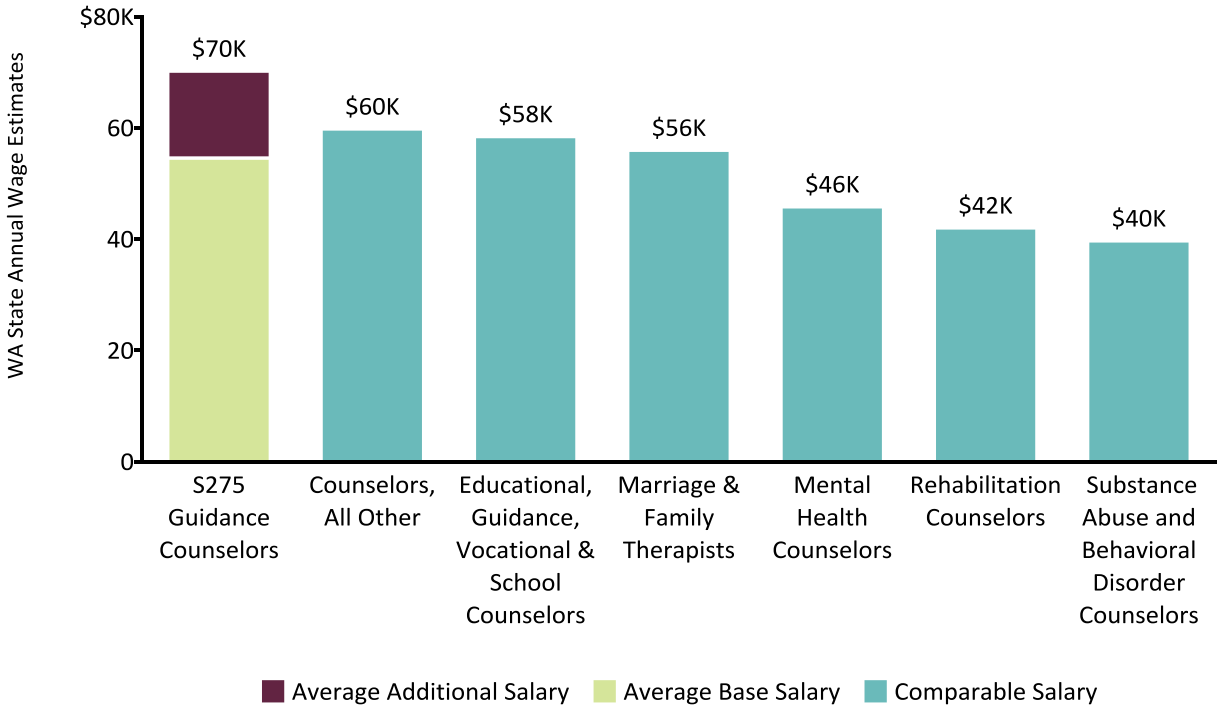


- The indexed value for Librarians includes librarians not employed at public schools, who may earn less, on average, than their public school counterparts

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Guidance Counselors

Even without an annualization factor, Guidance Counselors appear to earn more than comparable counseling occupations in WA State

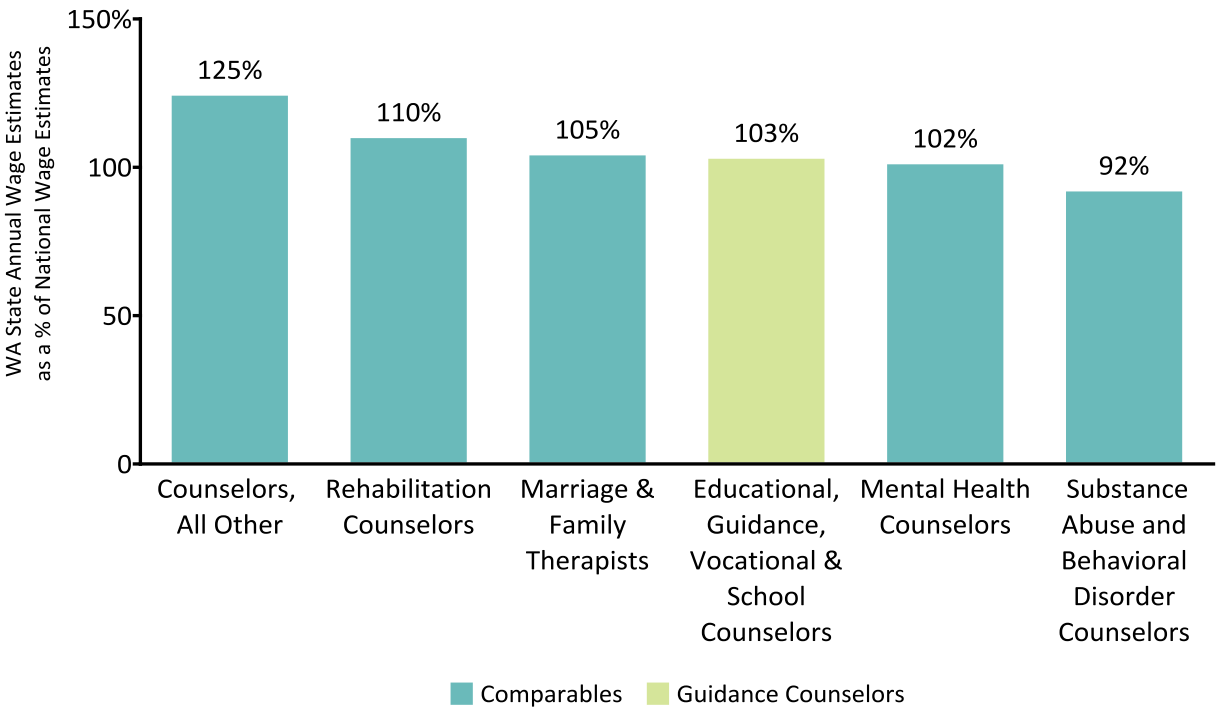


- The average school year FTE for Guidance Counselors was 0.94

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Guidance Counselors

The relative premium that Guidance Counselors earn in WA State, versus the U.S. as a whole, is in line with other comparable occupations

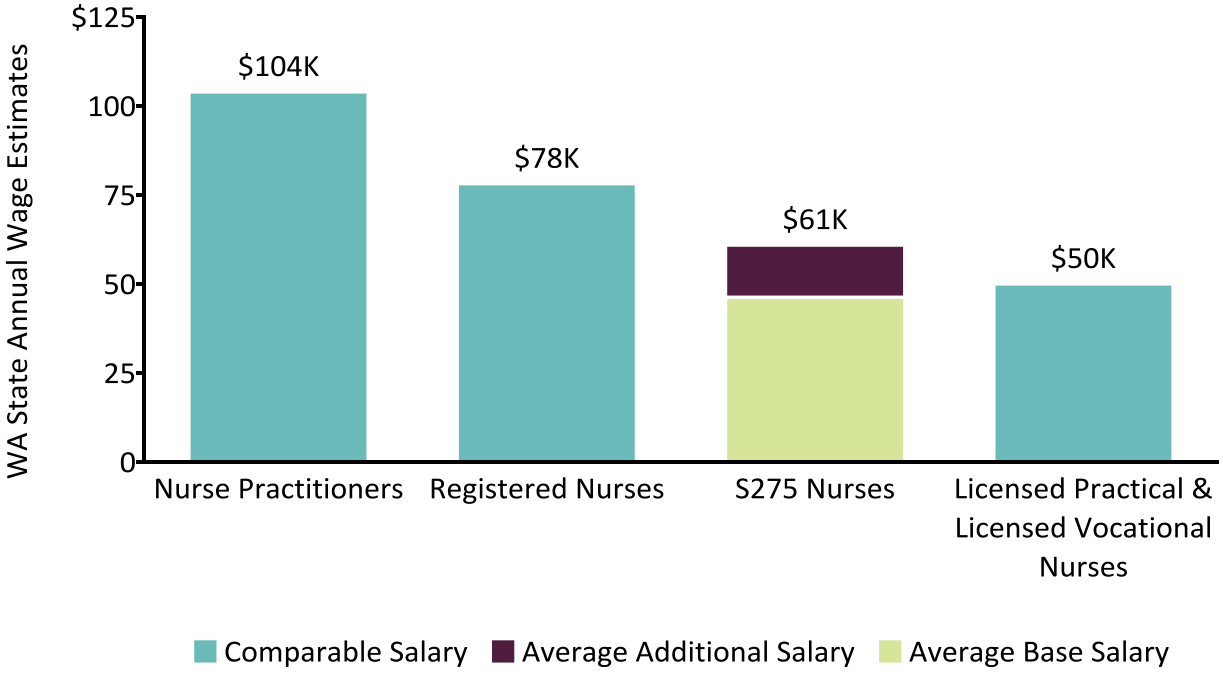


- The indexed value for guidance counselors includes vocational and other education counselors who may earn less, on average, than their public school counterparts

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

School Nurses

School Nurses earn salaries comparable to Licensed Practical Nurses, but may be employed less than full-time during the School Year

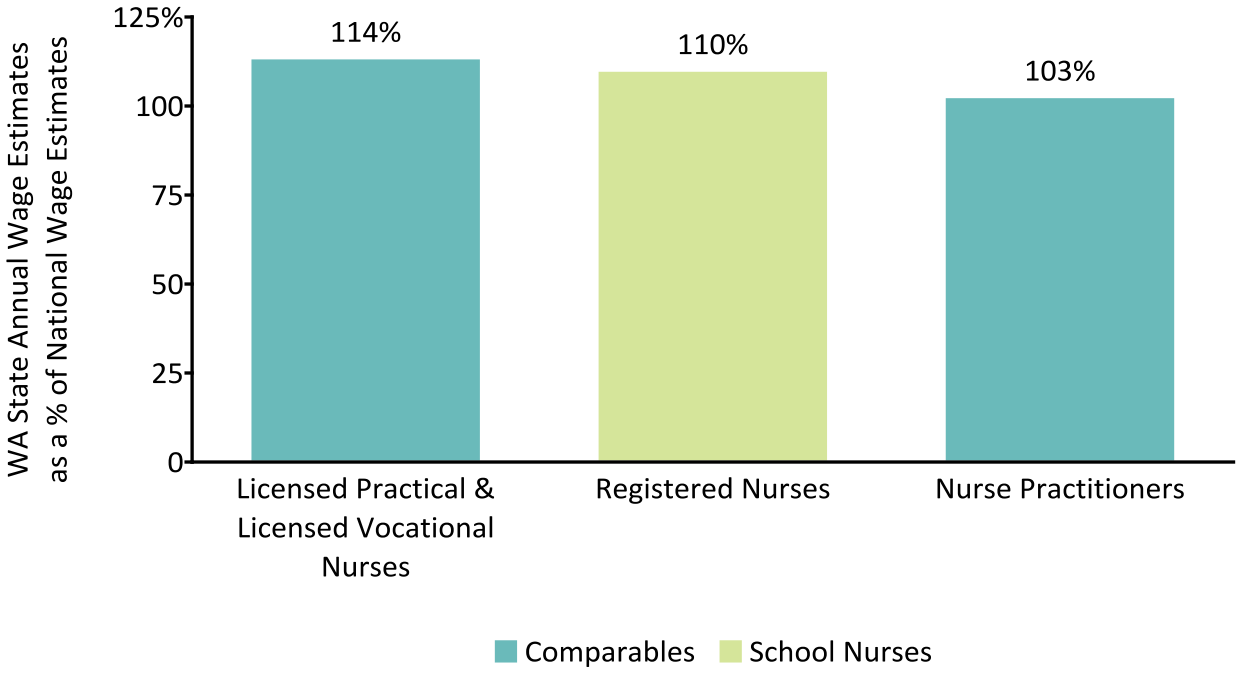


- The average school year FTE for School Nurses was 0.83

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

School Nurses

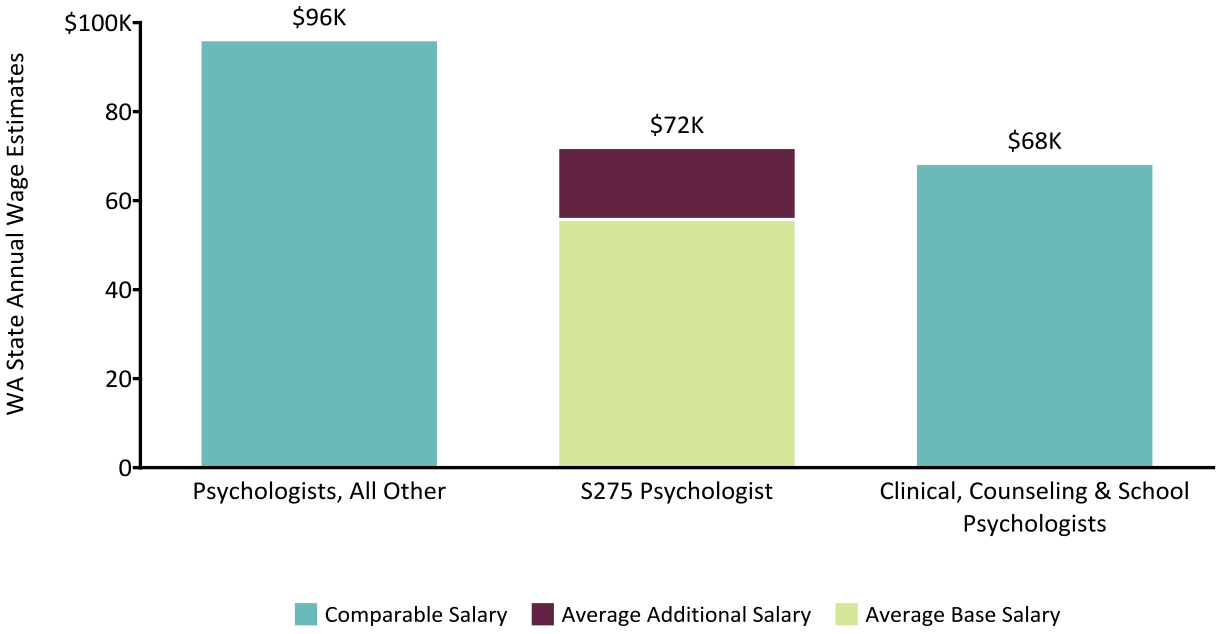
School nurses in WA State make 10% more than the national average wage, in line with other comparable positions



Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

School Psychologists

Public school Psychologists earn salaries comparable to clinical and counseling psychologists in WA State

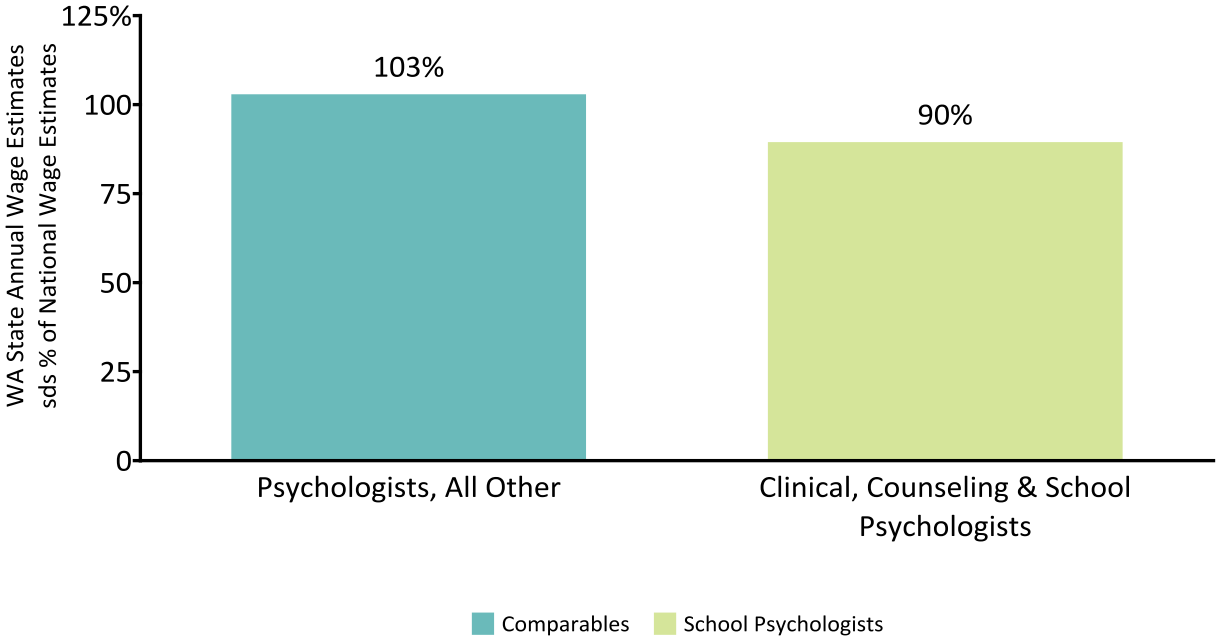


- The average school year FTE for School Psychologists was 0.91

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

School Psychologists

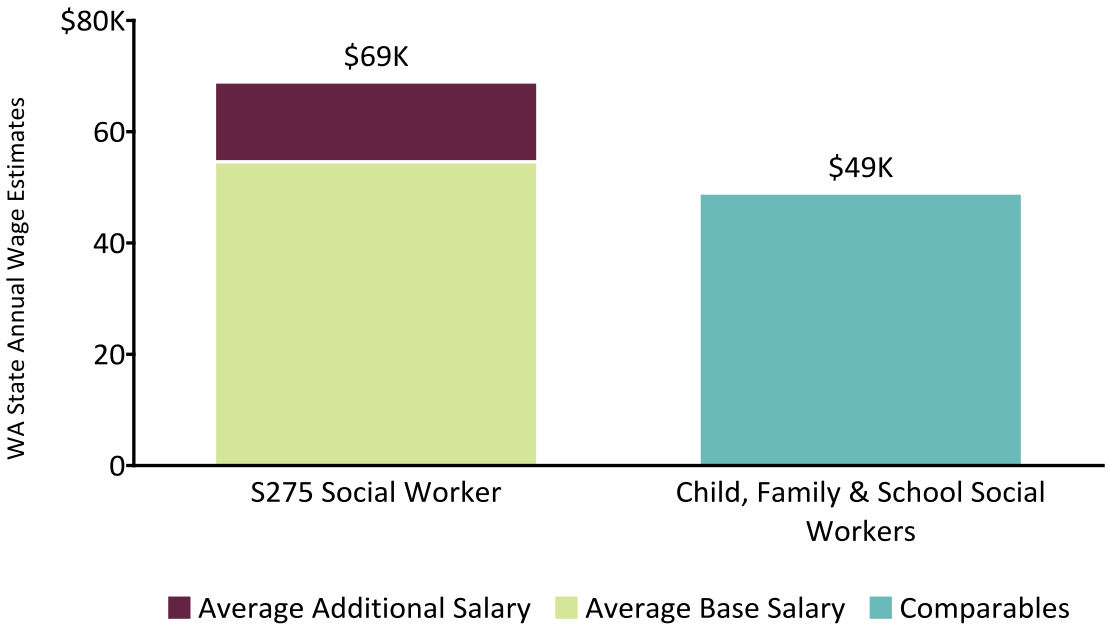
Clinical, Counseling & School Psychologists in WA State earn 10% lower salaries than the national average



Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Social Workers

School Social Workers may earn more than comparable child and family social workers in WA State



- The average school year FTE for Social Workers was 0.94
- Child, Family & School Social Workers is both the only comparable occupation cited by the ESD and the closest match Standard Occupational Classification Code (SOC) code from the BLS, so no comparisons can be made from indexing to national wage estimates
  - Child, Family & School Social Workers in WA State earn 105% of the national average wage estimate

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Comparable Positions: CAS*

Prototypical Position(s)	Comparable Group	Comparable Position(s)	Data Source**
Principal (Elementary and Secondary)	Comparable occupations within Washington State	Chief Executives	ESD
		General & Operations Managers	
		Advertising & Promotions Managers	
		Marketing Managers	
		Sales Managers	
		Public Relations Managers	
		Administrative Services Managers	
		Computer & Information Systems Managers	
		Financial Managers	
		Industrial Production Managers	
		Purchasing Managers	
		Transportation, Storage & Distribution Managers	
		Human Resources Managers	
		Construction Managers	
		Educ Administrators, Preschool/Child Care Center/Programs	
		Education Administrators, Elementary & Secondary School	
		Education Administrators, Postsecondary	
		Education Administrators, All Other	
		Engineering Managers	
		Gaming Managers	
		Medical & Health Services Managers	
		Natural Sciences Managers	
		Postmasters & Mail Superintendents	
		Social & Community Service Managers	
		Management Analysts	
	National comparison	Education Administrators, Elementary & Secondary School	BLS
	Private school comparison	Principal, Head of School	Not Available

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels

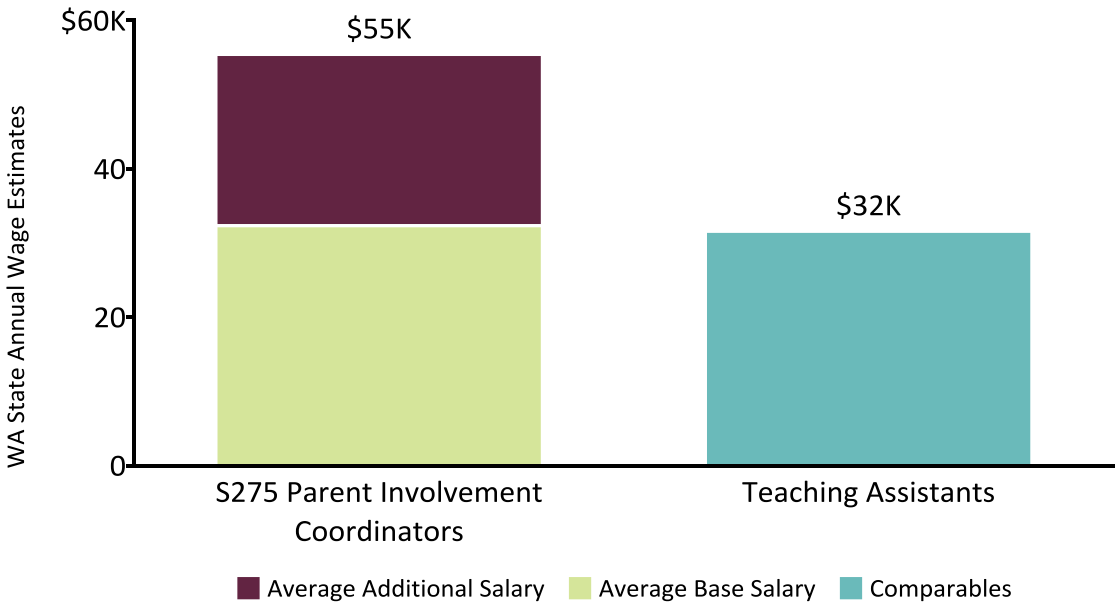
Comparable Positions: CLS*

Prototypical Position(s)	Comparable Group	Comparable Position(s)	Data Source**
Teacher Assistants; Parent Involvement Coordinators	Comparable occupations in WA State	Graduate Teaching Assistants	ESD
		Teacher Assistants	
	National comparisons	Teacher Assistants	BLS
	Private school comparison	Teaching Assistants (if available)	Not Available
Office Support	Comparable occupations in WA State	Office & Administrative Support Worker Supervisors	ESD
		Executive Secretaries & Administrative Assistants	
		Office Clerks, General	
		Security Guards	
		Childcare Workers	
		Medical Assistants	
		Secretaries & Admin Assts, Except Legal/Medical & Exec.	
		Data Entry Keyers	
		Human Resources Assistants, Except Payroll & Timekeeping	
		Interviewers, Except Eligibility & Loan	
		Customer Service Representatives	
		Receptionists & Information Clerks	
		Library Technicians	
		Library Assistants, Clerical	
	National comparison	Social & Human Service Assistants	
	Private school comparison	Office Support	Not Available
Custodians	Comparable occupation in WA State	Housekeeping & Janitorial Worker Supervisors	ESD
	National comparison	Janitors & Cleaners, Except Maids & Housekeeping	BLS
	Private school comparison	Custodians (if available)	Not Available
Student and Staff Safety	Comparable occupations in WA State	Security Guards	ESD
		Protective Service Workers, All Other	BLS
	National comparisons	Police & Sheriff's Patrol Officers	
	Private school comps	Student and Staff Safety (if available)	Not Available

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels. *ESD = Employment Security Department, BLS = Bureau Labor Statistics

Parent Involvement Coordinators

After adjusting for their FTE status, Parent Involvement Coordinators may be paid salaries above that of comparable positions

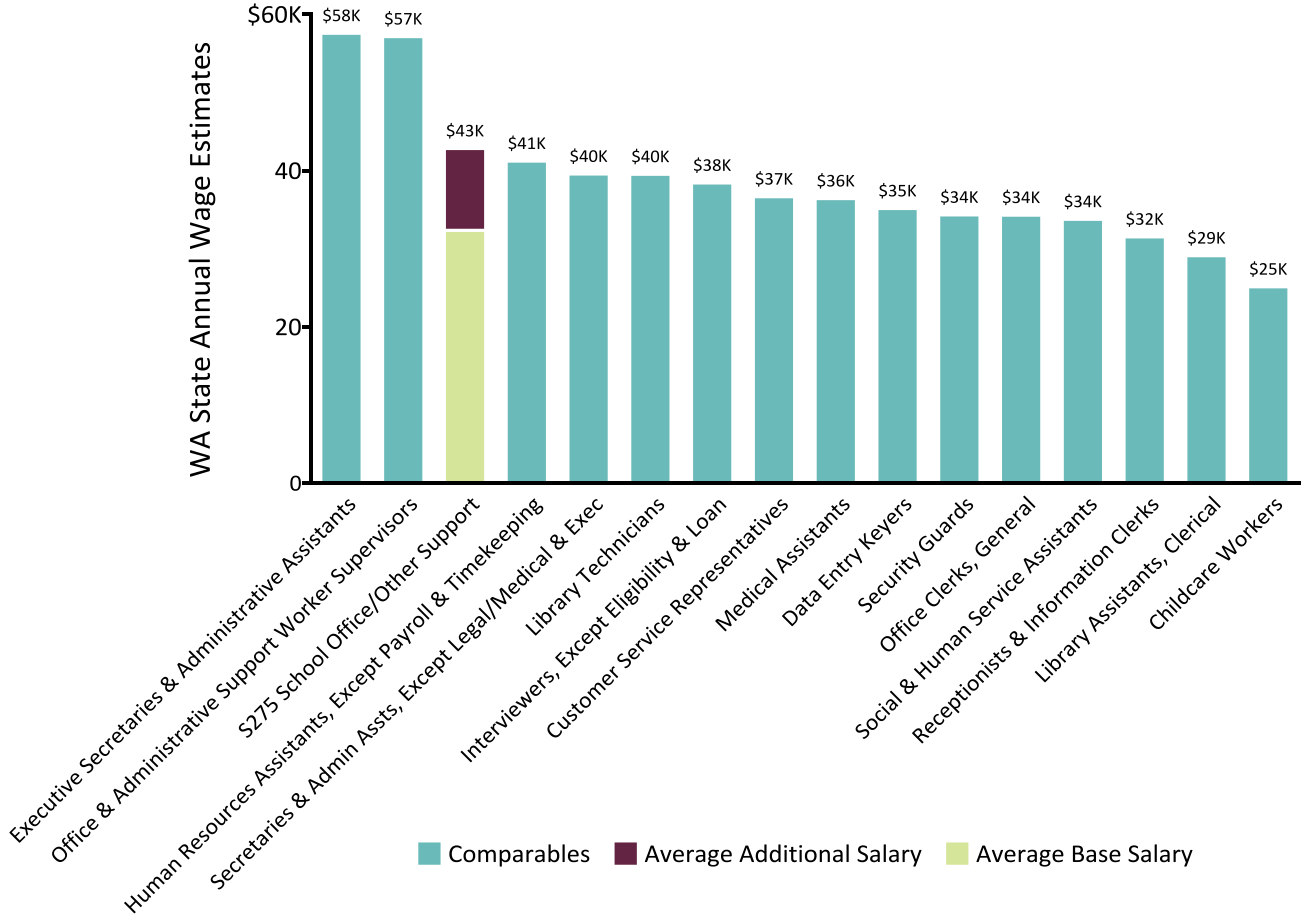


- The average school year FTE for Parent Involvement Coordinators was 0.69
- Parent Involvement Coordinators earn more, assuming the reported BLS wage estimate for teacher assistants does not also require FTE adjustment
- There is no closest match SOC code from the BLS for Parent Involvement Coordinators, so no comparisons can be made from indexing to national wage estimates
  - Teacher Assistants in WA State earn 119% of the national average wage estimate

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels; May 2015 OES data does not report Graduate Teaching Assistant wages for WA State.

Office Support

School Office Support workers earn salaries in line with comparable occupations in WA State

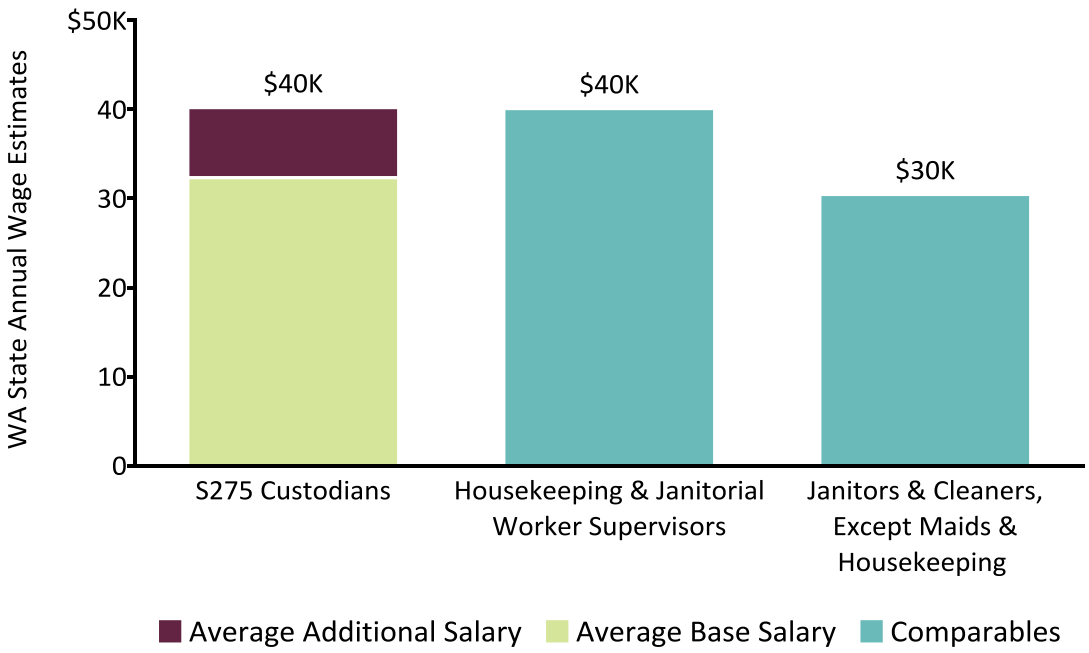


- The average school year FTE for Office Support was 0.64
- No closest match SOC Code is available from the BLS, so comparisons cannot be made from indexing to national wage estimates

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Custodians

School Custodians earn salaries in line with Housekeeping & Janitorial Supervisors in WA State

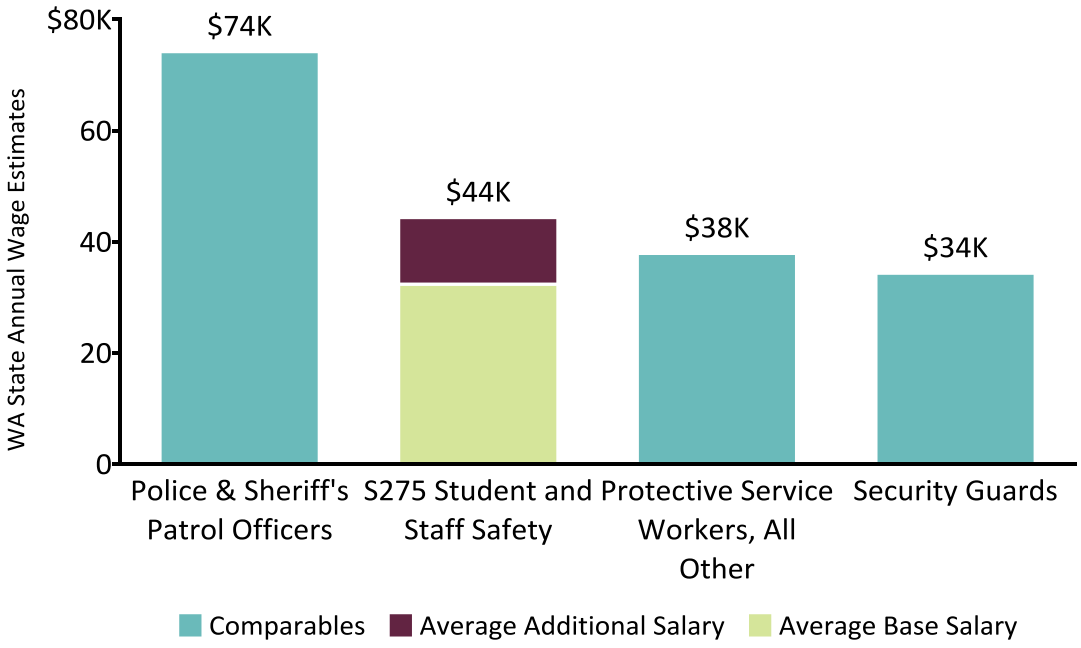


- The average school year FTE for Custodians was 0.92
- No closest match SOC Code is available from the BLS, so comparisons cannot be made from indexing to national wage estimates
  - In WA State, Housekeeping & Janitorial Worker Supervisors earn 100% of the national average, and Janitors and Cleaners earn 116% of the national average wage estimates

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Student and Staff Safety

Public school Student and Staff Safety workers in WA state earn salaries comparable to Protect Service Workers and Security Guards



- The average school year FTE for Student and Staff Safety was 0.69
- No closest match SOC Code is available from the BLS, so comparisons cannot be made from indexing to national wage estimates
  - In WA State, Police, Protective Service, and Security Guards earn 121%, 116%, and 121% of the national average wage estimates, respectively

Source: WA State 2015 S275 data; Compensation Technical Working Group Final Report, June 30, 2012; Occupational Employment Statistics (OES) Survey, May 2015 Wage Estimates (Published May 2016). Reported salaries are comprehensive of all career levels.

Local Labor Market Adjustments Analysis Plan

Better understand local labor market dynamics by analyzing the relationships between district salary levels and local market factors

	Analysis Questions	**Detailed Analysis Plan**
Relationships of Local Labor Market Factors with Current Salaries	Is there a correlation between local labor market factors or local market characteristics and observed salaries?	• Comparisons and correlations between salary and a range of local labor market factors • Patterns and relationships between salary and local labor market adjustors based on district descriptive characteristics
Other Indicators of Local Labor Market Conditions	Are recruitment and retention indicators related to variation in district salaries?	• Analysis of turn-over rates, average age of staff and average experience levels in districts for key staff positions and correlation with local labor market factors

Relationships between local labor market adjustments and salary may be weak in part because collective bargaining can include a variety of factors

Total Final Salary Regression

The multiple regression analysis entailed several steps to identify significant and important associations between variables

1. **Initial Examination** of linear/non-linear relationships
   - Bivariate plots (each x vs. y), standardized residuals vs. fitted values, standardized residuals vs. x-variables, and normal probability plots for 14 distinct x-variables
2. **Transformations** to attempt to remove non-linearity and non-constant variance
   - Log(District Total Enrollment)
   - (District % Free or Reduced Price Meals)^2
   - Log(District Average Students per Classroom Teacher)
   - Log(County Median Home List Price)
   - 1/Urbanicity
   - (County Crimes per 1,000 Citizens)^2
3. **Removal of correlated variables** to drop redundant variables and simplify the model
   - Total Levy Dollars is highly correlated with Total Enrollment (Variance Inflation Factor >10) and so Levy per Student, LEA per Student, and Total Enrollment were retained
4. **Removal of insignificant variables** at 95% confidence level (i.e., t-values < 2, P-Values > 0.05)
   - Crime rate was initially retained for testing near the threshold (t-value = 1.75, P-value = 0.08)
5. **Removal of unimportant variables to arrive at a reduced model** (Partial-F test)
   - Crime rate was subsequently dropped and did not surpass the F-statistic threshold of F(1,286) = 3.87

The resulting five explanatory variables in the reduced model include the following: Log(District Enrollment), District Average Years or Education Experience, Region ACS-CWI, County Unemployment %, and % of Students Transitional Bilingual

Source: WA State 2014 S-275; 3SI Analysis Note: First Charter, Lummi, Muckleshoot, and Suquamish School Districts were excluded from the analysis for a lack of market data; Damman and Shaw Island were excluded for returning errors in turnover calculations.

Total Final Salary Regression

The reduced model explains 57% of the observed variance by districts, with five explanatory variables

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.758015269
R Square	0.574587148
Adjusted R Square	0.567175774
Standard Error	2489.733641
Observations	293

Crimes per 1,000 Citizens was dropped from the reduced model for not passing a Partial-F Test

Partial F = 3.04584 *<<Drop Variables*
F(1,286) = 3.87418

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	5	2402884926	480576985.1	77.5277524	3.1187E-51
Residual	287	1779048025	6198773.605		
Total	292	4181932950			

District Size demonstrates the strongest relationship with Total Final Salaries

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	17559.25	2340.03	7.50	7.8205E-13	12953.46	22165.04	12953.46	22165.04
Log(District Total Enrollment)	2251.76	218.50	10.31	2.1452E-21	1821.69	2681.83	1821.69	2681.83
District Avg Years Educational Experience	171.71	47.50	3.62	0.000354	78.23	265.20	78.23	265.20
Region ACS-CWI	13432.06	2035.92	6.60	2.0101E-10	9424.83	17439.28	9424.83	17439.28
County Unemployment Rate	-26403.98	9612.52	-2.75	0.006398	-45323.96	-7484.00	-45323.96	-7484.00
District Percent Transitional Bilingual	31.23	12.73	2.45	0.014781	6.17	56.29	6.17	56.29

Note: First Charter, Lummi, Muckleshoot, and Suquamish School Districts were excluded from the analysis for a lack of market data; Damman and Shaw Island were excluded for returning errors in turnover calculations.
Source: WA State 2014 S-275; 3SI Analysis

Mix Factor Regression

The reduced model explains 69% of the observed variance by districts, but does include measures of education experience and degree level among teachers

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.832322
R Square	0.69276
Adjusted R Square	0.686315
Standard Error	0.051721
Observations	293

District Percent Special Education was dropped from the reduced model for not passing a Partial-F Test

Partial F = 3.55444278 *<<Drop Variables*
F(1,285) = 3.874294

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	6	1.725070002	0.287512	107.4781422	2.581E-70
Residual	286	0.765070321	0.002675		
Total	292	2.490140323			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.264669	0.049869002	25.35982	3.79012E-75	1.1665119	1.3628256	1.16651194	1.362825578
District Avg Years Educational Experience	0.019337	0.001053601	18.35334	2.94834E-50	0.0172633	0.0214109	0.0172633	0.021410895
Percent Teachers With At Least Master Degree	0.001463	0.000247857	5.901393	1.01779E-08	0.0009748	0.0019506	0.00097485	0.00195056
County Unemployment Rate	-0.44203	0.201150427	-2.19751	0.028785754	-0.837953	-0.046107	-0.8379531	-0.04610701
Region ACS-CWI	-0.095201	0.04236791	-2.24702	0.025401557	-0.178594	-0.0118089	-0.1785938	-0.0118089
Log(District Total Enrollment)	0.01776	0.00473441	3.751273	0.000212985	0.0084414	0.0270788	0.00844136	0.02707877
District Percent Transitional Bilingual	-0.000647	0.00026742	-2.4207	0.016113648	-0.001174	-0.000121	-0.0011737	-0.00012098

Note: First Charter, Lummi, Muckleshoot, and Suquamish School Districts were excluded from the analysis for a lack of market data; Damman and Shaw Island were excluded for returning errors in turnover calculations.
Source: WA State 2014 S-275; 3SI Analysis

Teacher (K-12) Turnover Analysis

Analyze teacher movement between districts and out of WA state public education between SY 2010-11 and 2014-15

Assumptions and Approach

- Findings are reported for Teachers only with a major assignment for one of the statutory programs of basic education in the S275; 52,460 Teachers were employed in SY 2010-11
- All employees who have non-zero FTE, combined certificated and classified, in any district are included; a few employees meet this threshold in more than one district
- Employment grew statewide in each year under study.
- Job changes *within* a single district are not reported; the objective of the analysis is to highlight labor market forces *between* districts across the state

Defined Groups Included in the Analysis

- **Stayers:** Employees who were in the same district at the end of the chosen time period for analysis as they were at the start
  - ~71% of those employees who worked in SY 2010-2011 worked in the same district in SY 2014-15
- **Movers:** Employees who changed districts during the chosen time period for analysis
  - ~5% of employees present in 2010-11 worked in a different district in 2014-15; these employees **Joiners** in their new district
- **Leavers:** Employees who are no longer present in the S-275 data at the end of the chosen time period for analysis
  - ~24% of those employed in SY 2010-11 were not in the 2014-15 S-275

Adjusted Turnover Regression

The reduced model explains 42% of the observed variance in turnover by districts

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.646264075
R Square	0.417657254
Adjusted R Square	0.39913752
Standard Error	0.042195829
Observations	293

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	9	0.36138227	0.040153586	22.55201153	8.84258E-29
Residual	283	0.5038781	0.001780488		
Total	292	0.86526037			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.05200452	0.142452056	-0.36507	0.71533	-0.33240	0.22840	-0.33240	0.22840
District Avg Years Educational Experience	-0.009483166	0.000851099	-11.14227	0.00000	-0.01116	-0.00781	-0.01116	-0.00781
Percent Teachers With At Least Master Degree	0.000555507	0.000204154	2.72102	0.00691	0.00015	0.00096	0.00015	0.00096
Log(District Total Enrollment)	-0.021895094	0.005052354	-4.33364	0.00002	-0.03184	-0.01195	-0.03184	-0.01195
District Average of Levy per Student	-8.17395E-06	2.57557E-06	-3.17365	0.00167	-0.00001	0.00000	-0.00001	0.00000
District Average of LEA Per Student	-1.38653E-05	5.18433E-06	-2.67447	0.00792	-0.00002	0.00000	-0.00002	0.00000
District Percent Special Education	0.001593435	0.000667802	2.38609	0.01769	0.00028	0.00291	0.00028	0.00291
Log(Average of Students Per Classroom Teacher)	-0.076177473	0.027786055	-2.74157	0.00650	-0.13087	-0.02148	-0.13087	-0.02148
Log(County Median Home List Price)	0.065394183	0.024532091	2.66566	0.00813	0.01711	0.11368	0.01711	0.11368
County Unemployment Rate	0.484418872	0.209507175	2.31218	0.02149	0.07203	0.89681	0.07203	0.89681

Note: Adjusted Turnover is the % of Teachers leaving the District annually (including those 'moving' to other Districts), minus the % of Teachers who transfer in from other Districts (i.e., reflecting an ability to recruit new staff). First Charter, Lummi, Muckleshoot, and Suquamish School Districts were excluded from the analysis for a lack of market data; Damman and Shaw Island were excluded for returning errors in turnover calculations.
Source: WA State 2014 S-275; 3SI Analysis

Additional Research Opportunities

Further research could be done with all data elements reported at the districts to better understand the impact of market rate factors

Data Limitations

- ACS-CWI data was available at only the region level (i.e., 14 discrete values in the state)
- Home values, unemployment, and crime rates were expressed in the regression at the county level, whereas District level data would have been preferable
  - City-level data was investigated but in order to derive an accurate District-level value, all cities within a district would first need to be identified—and no such source list could be identified
  - An attempt was made to use the city listed in each District's mailing address, but a large number of null values were returned (i.e., not all cities were included in the secondary data)

Additional Research Opportunities

- Investigate whether better secondary data sources (or methods) can be found that would enable compiling market rate data at the school district level, rather than the county or region level
- Perform additional statistical analyses
  - System of equations regression, using both Salary and Turnover (and possible Mix Factor), to better understand the relationships between these variables
  - Time series analysis to understand how Districts may be attempting to address their ability to attract and retain staff over time, using Salary as a lever, and how this may be affecting the regression results
- Explore whether similar analyses performed at the school level would strengthen the relationships observed at the district level

Staff Salary Cost Model Data Overview

2014-15 apportionment, supplemental pay survey data and district market data are combined in the model

Data Sources

- SY 2014-15 Final Apportionment – allocated position FTEs, base salaries, staff mix, enrollment
- Supplemental Pay Category (SPC) Survey – SPC frequency and payment magnitude, by position
- Market Factor Data – home values, wage index, average teacher experience, etc – characterization of local market conditions for school districts that could indicate challenges with attracting and retaining staff

User-Specified Model Inputs (Scenarios)

- **Supplemental Pay Categories** – For each position, the user selects which supplemental pay categories to include in the calculation of basic education costs
- **Additional FTEs** – For each position, the user may choose to increase the allocated FTEs by user-determined percentage (e.g., increase Teacher (K-12) FTEs by 10%)
- **District Market Factors** – The user may choose to apply a market rate adjustment at the district level

Model Calculations

- Based on the user inputs, the model calculates the additional cost of basic education for each district and position:
  - Supplemental Pay is calculated at the position level
  - Market factors are calculated at the staff type level

Model Outputs

- The total (incremental) cost of salaries in the statutory programs of basic education for the state
- The cost of salaries broken out by District, Position and Supplemental Pay Category
- The state-wide and per-district cost impact of the district market factor adjustment

Staff Salary Cost Model Calculations

Calculations are performed at the positions, program, and staff type level and produced by district and for the state in aggregate

SY 2014-15 Apportionment
+
Supplemental Pay for 2014-15 FTE Allocations* = Median supplemental pay (for chosen category > sub-category combination) X (2014-15 allocated FTEs X Frequency of supplemental pay category > sub-category)

+

Additional Pay for Additional FTEs (if increased) = Additional FTEs X (2014-15 average base salary + Supplemental pay**)

=

New apportionment based on supplemental pay and additional FTE choices (optional)

- New apportionment total is calculated by position or at the program level
- Market factors are applied to the new apportionment total at the district level

*Staff mix factor is not applied to supplemental pay categories

**Supplemental Pay for additional FTEs is calculated using the same formula as supplemental pay for 2014-15 FTE allocations

Note – both additional FTE counts and district market rate factors are applied as a percentage, where 100% represents no change.

Staff Salary Cost Model Assumptions

The model relies on OSPI SY 2014-15 data, original district data collection, and market factor data

- 2014-15 apportionment data for salaries, allocated FTEs, and staff mix factor are used
- The model user allocates supplemental pay by position for the following programs:
  - School and district generated FTEs for Program 01 – Basic Education
  - Learning Assistance Program
  - Highly Capable
  - Transitional Bilingual Instructional Program
  - CTE 7-8 and 9-12
  - Skills Centers
  - Supplemental pay is calculated at the program level for Special Education
  - The model does not calculate additional costs for the following programs:
    - Running Start
    - Basic Education – Alternative Learning Experience
    - Basic Education – Dropout Reengagement
    - Institutions
    - Pupil Transportation
  - Staff mix factor is not applied to supplemental pay
  - The model user can choose to change FTEs by positons, but allocation of market factors adjustments occurs at the staff type level (CIS, CAS, CLS)

Market Rate Factors from Regression Results

A District salary index for each market rate factor can be derived from the weighted contribution of the explanatory variable relative to the state average weighted contribution

1. The salary regression model predicts a dollar contribution from each explanatory variable, x_i, to the fitted regression value for each District, j

$$x_{i,District_j}$$

2. If this contribution is indexed to the state average contribution, then each District's contribution could be expressed relative to the state; however, this does not provide a relative weighting (i.e., all indices would carry the same weight

$$\frac{x_{i,District_j}}{x_{i,State}}$$

3. In order to provide a relative contribution for each explanatory variable, it can be shown that the appropriate index is defined as follows:

$$Index_{x_{i,District_j}} = 1 + \frac{x_{i,District_j} - x_{i,State}}{Fitted\ Value_{State}}$$

4. An overall District index can be expressed for any combination of market rate factors, by taking the sum and subtracting n-1, where n is the number of factors selected

$$Index_{District_j} = \sum_{i=1}^{n} Index_{x_{i,District_j}} - (n-1)$$

Note: Fitted Value refers to the predicted value from the regression for the State average, using the state average values for all explanatory variables.

Market Rate Factors from Regression Results

Applying market rate factors replicates the observed difference between districts, while omitting it removes the effect

Total Enrollment

- Turning "ON" the impact of District size shifts Basic Ed allocations per FTE to larger Districts
- Turning "OFF" this market rate factor would remove observed salary differences associated with District size

Average Years of Ed. Experience

ACS-CWI

County Unemployment

Percent Transitional Bilingual

- Similarly, turning "ON" each factor to the left results in the application of salary differences by District based the observed association with the market rate factor measurement, and turning each "OFF" serves to remove the explained variance