

# Teacher Labor Markets In Wyoming

Report to the  
Wyoming Select Committee  
on School Finance Recalibration

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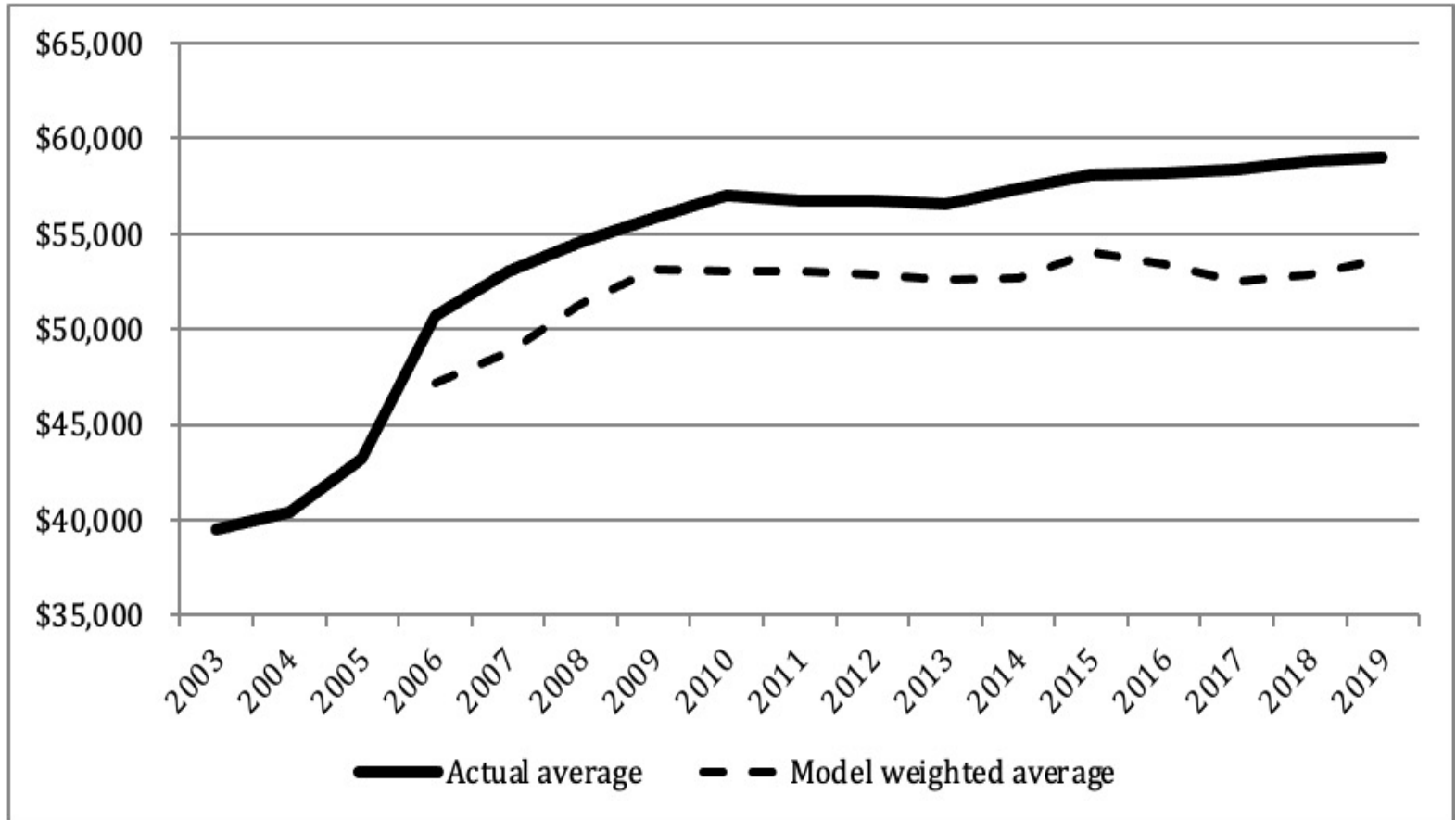
October 2020

These slides are based on the data and analysis provided in the companion report

# Outline

1. How do teacher salaries in WY compare with salaries for other professionals in WY?
2. How do teacher salaries in WY compare with teacher salaries in other states?
3. How has teacher retention changed over time?
4. How have teacher recruitment and training changed over time?
5. Summary
6. Recommendations

# Context: Actual Average Teaching Salaries and Average Teaching Salaries in the Wyoming Funding Model



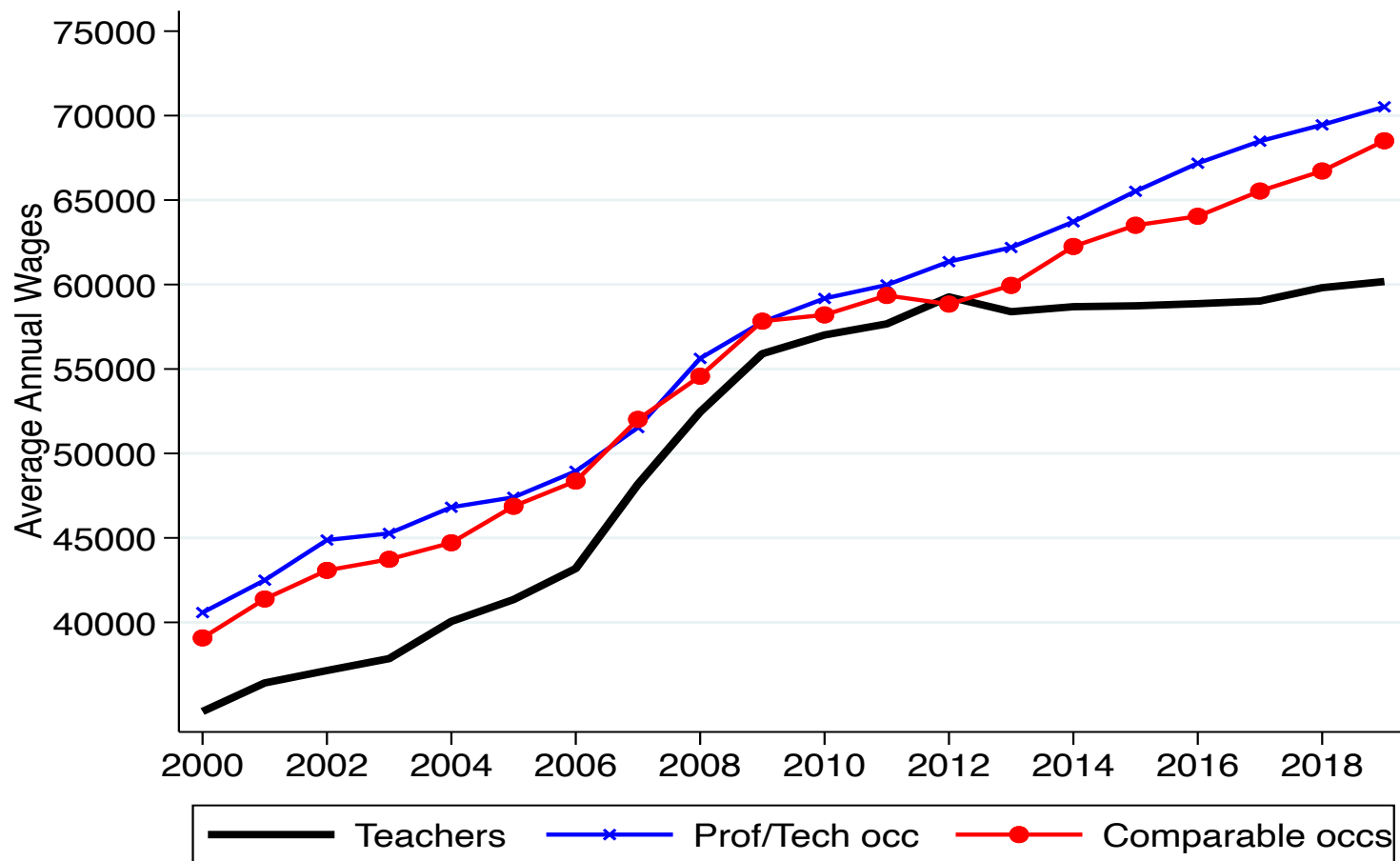
Source: Wyoming Department of Education staffing files. Model salaries from Wyoming Legislative Service Office.

## Use this pattern to compare effects over time

- Sharp rise in actual salaries in 2004
- Moderate rise until 2010
- Slow increases in actual salaries since
  
- Can only look at actual salaries when analyze effects as teacher recruitment/retention responds to actual salaries received
- Will provide comparisons with model and actual where possible

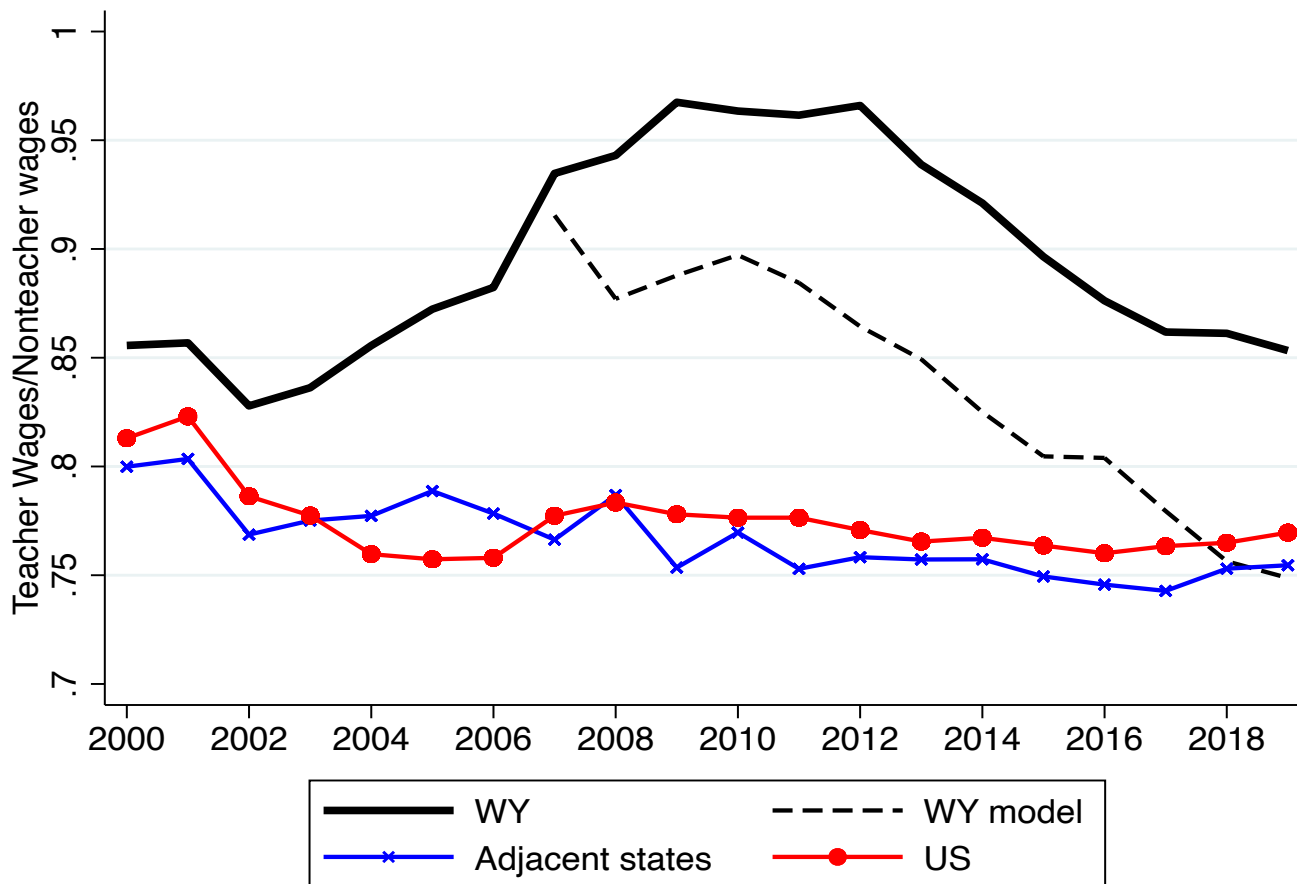
# How do Teacher Salaries in WY Compare with Professional Non-Teachers?

# Teaching wages have declined relative to comparable workers



Source: U.S. Bureau of Labor Statistics May Quarterly Occupational Employment Statistics. All ownerships across all NAICS.

# Ratio remains high in Wyoming but is falling relative to other states



Source: U.S. Bureau of Labor Statistics May Quarterly Occupational Employment Statistics. All ownerships across all NAICS.

# What is an appropriate ratio?

## Hours of work per week are similar

- American Community Survey (ACS), teachers average 44 hours per week compared to 45 hours for the average college educated non-teacher

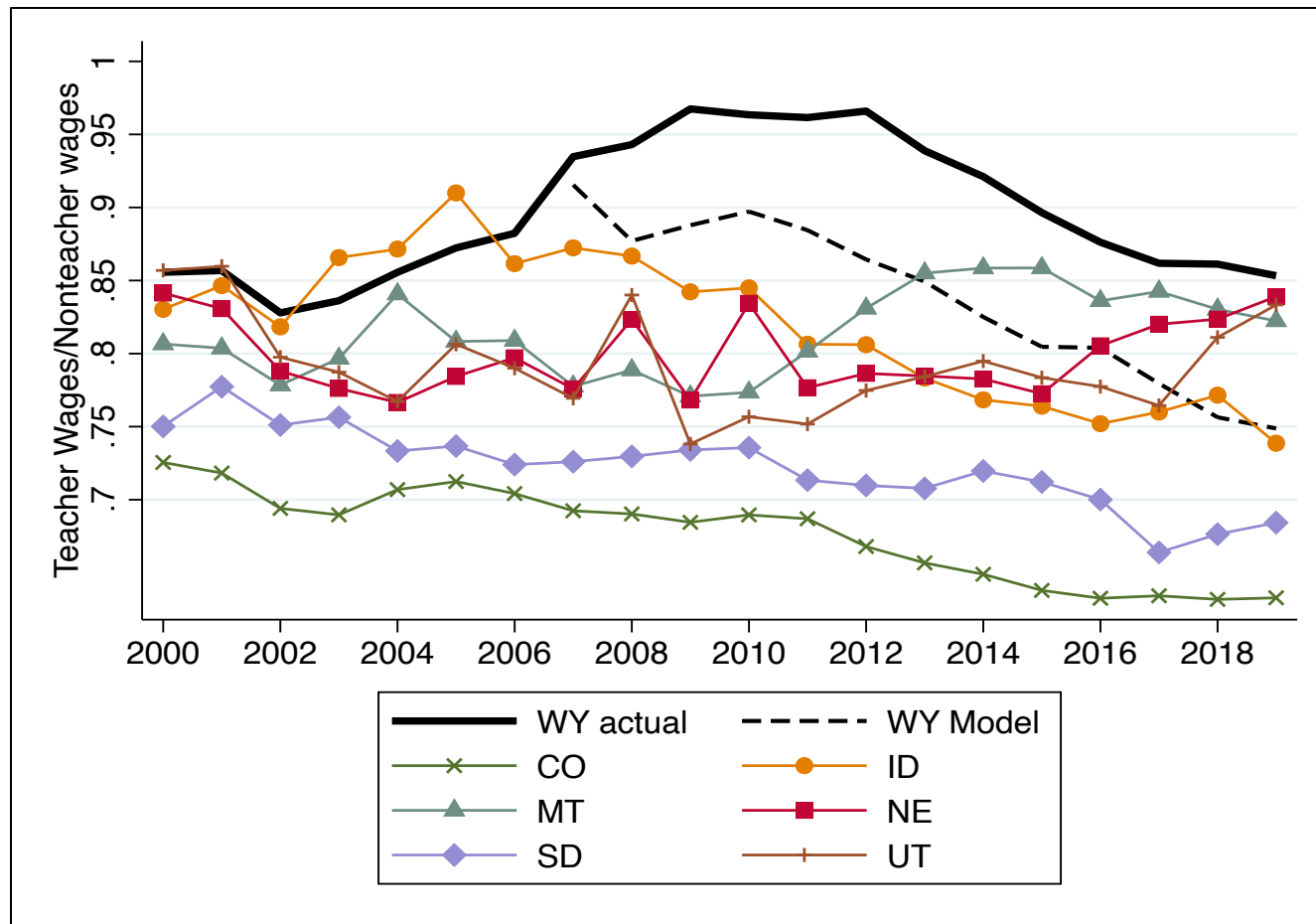
## Weeks of work are much different

- Can't use ACS, because reports weeks of work for all jobs (also most workers report 52 weeks so ignore vacation time)
- Bureau of Labor Statistics National Compensation Survey
  - average private industry worker: 15 days of paid vacation after 5 years of work and 20 days after 20 years of work
  - → 48 to 49 weeks per year.
- 185 contract days in Wyoming → teachers work 37 weeks per year
- Of the teachers in the ACS who report working less than 52 weeks a year, large cluster (about a third) report working 40 weeks

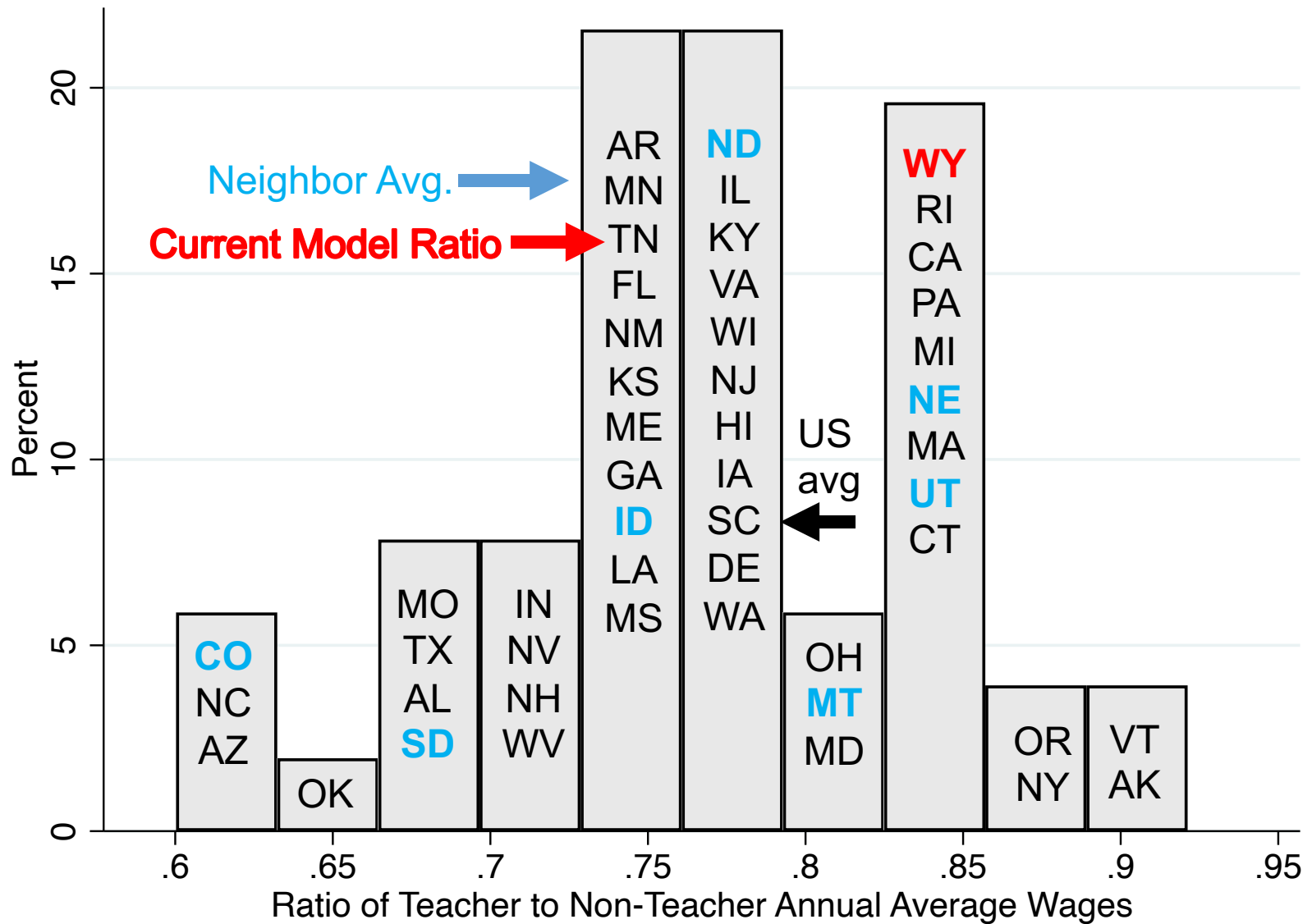
Largest ratio would be  $(40/48 =)$  83 percent [e.g., new teacher]

Smallest ratio would be  $(37/49 =)$  76 percent

# The weeks ratio is consistent with wage ratios across states



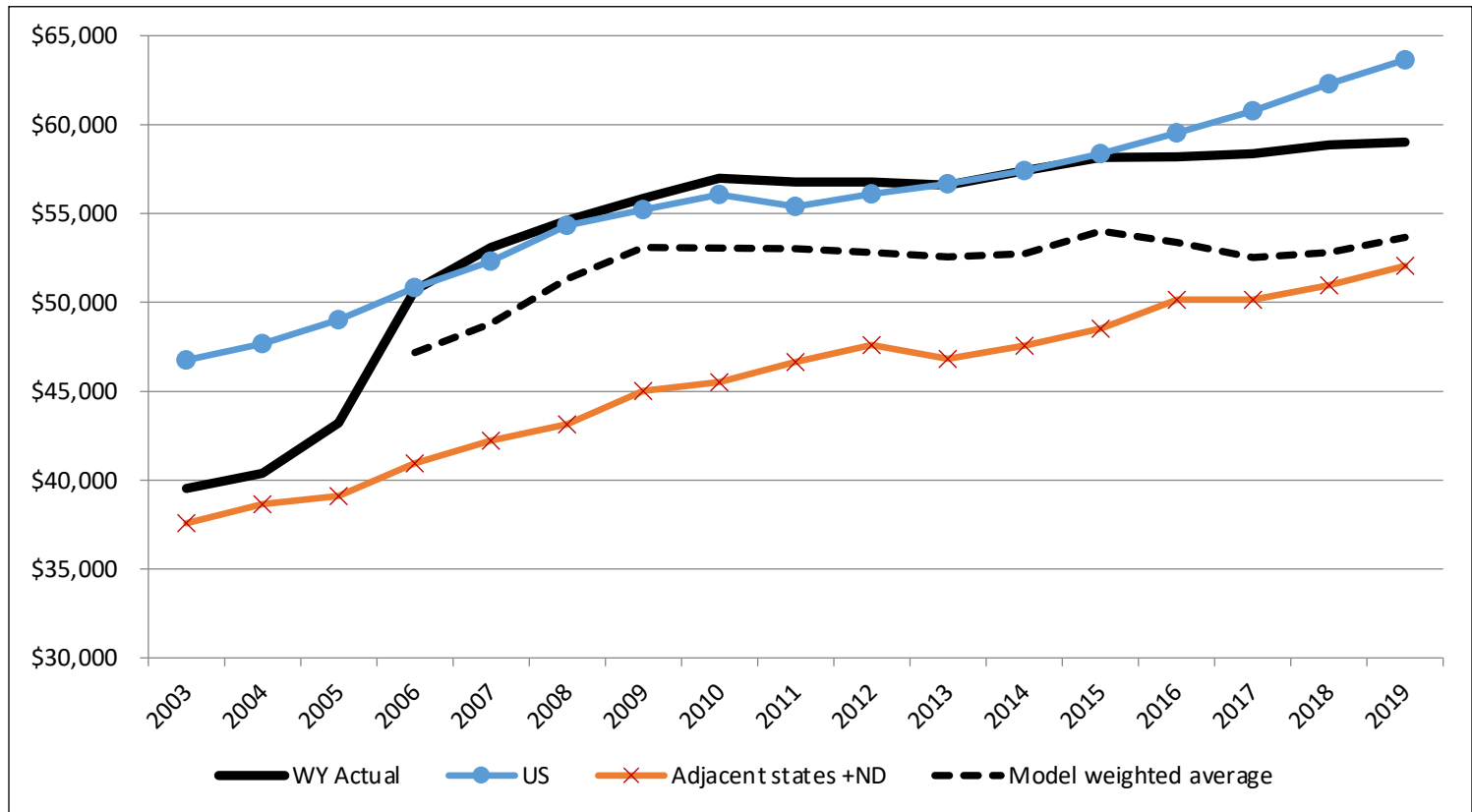
Source: U.S. Bureau of Labor Statistics May Quarterly Occupational Employment Statistics. All ownerships across all NAICS.



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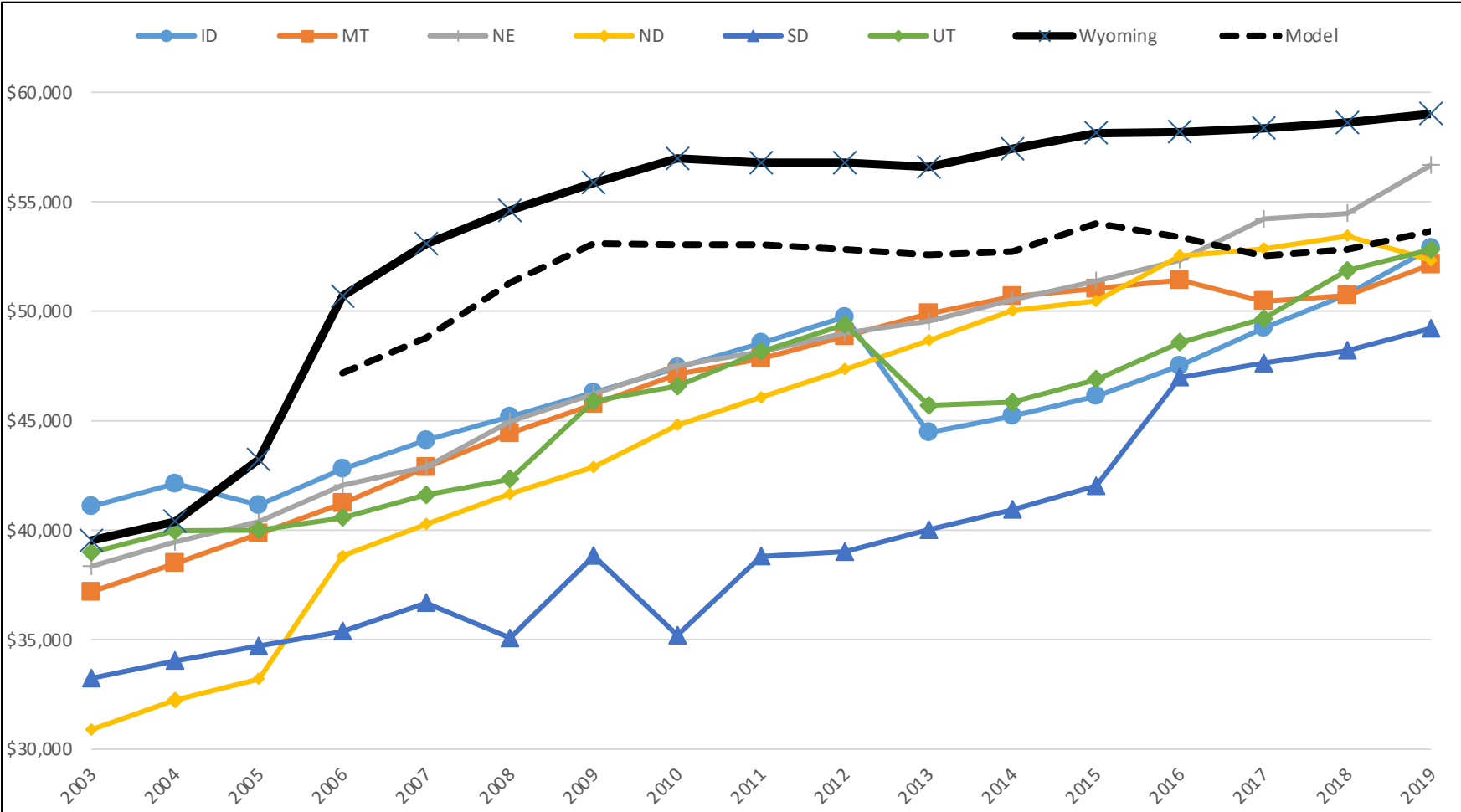
# How do Teacher Salaries in WY Compare Teacher Salaries in Neighboring States?

# Average salaries in WY have fallen below US average And gap relative to adjacent states + ND is narrowing



Source: Adjacent and U.S. National Education Association, Estimates of School Statistics, 2019. Model and average WY salaries from Wyoming Legislative Services Office and Wyoming Department of Education staffing files.

# Average Teaching Salaries in Neighboring States + ND



Source: National Education Association, Estimates of School Statistics, 1959-60 through 2018/19. The 2018/19 salary figures are estimates; all other years are actual.

# District level salaries in neighboring states

	# districts with avg >\$65K	Highest paid district	95 <sup>th</sup> percentile	90 <sup>th</sup> percentile	75 <sup>th</sup> percentile	Median	10 <sup>th</sup> percentile
CO	4/199	\$80,329	\$61,207	\$57,823	\$49,656	\$44,055	\$36,827
UT	2/154	\$65,440	\$65,070	\$56,271	\$51,858	\$46,158	\$39,554
ID*	11/177	\$75,183	\$65,194	\$62,769	\$55,382	\$52,321	\$47,915
MT	No state collected salary data						
NE	5/246	\$69,450	\$59,587	\$56,995	\$54,910	\$52,357	\$47,857
SD	0/149	\$55,869	\$51,572	\$49,574	\$46,875	\$44,750	\$41,056
WY Actual	2/49	\$73,347	\$64,513	\$62,084	\$58,891	\$56,393	\$51,018
WY Model	1/49	\$72,851	\$54,834	\$54,491	\$52,137	\$50,567	\$48,549

Source: Author collection of salary data from individual state reports for 2018-19. Wyoming model and actual average salaries from CRERW report, Appendix A, 2020. Idaho salaries are for *all* certified employees, not just teachers.

# Working conditions in K-12 schools in WY and neighboring states

	Contract days	Contract hours	Average Class sizes
		Elem/Middle/HS	Elem/HS
<b>CO</b>	160	968/1056	22.8/29.1
<b>ID</b>	No state requirement (district option)	810/900/990	24.5/25.4
<b>MT</b>	No state requirement	Gr 1-3 720/1080	18.9/21.7
<b>ND</b>	182 (175 students)	952/1038	17.8/19.2
<b>NE</b>	No state requirement	1032/1080	25.3/34.5
<b>SD</b>	No state requirement	875/962	20.4/22.3
<b>UT</b>	180 (some are in-service)	810/990	27.4/31.5
<b>WY</b>	185 (175 students)	900/1050/1100	17.0/19.6

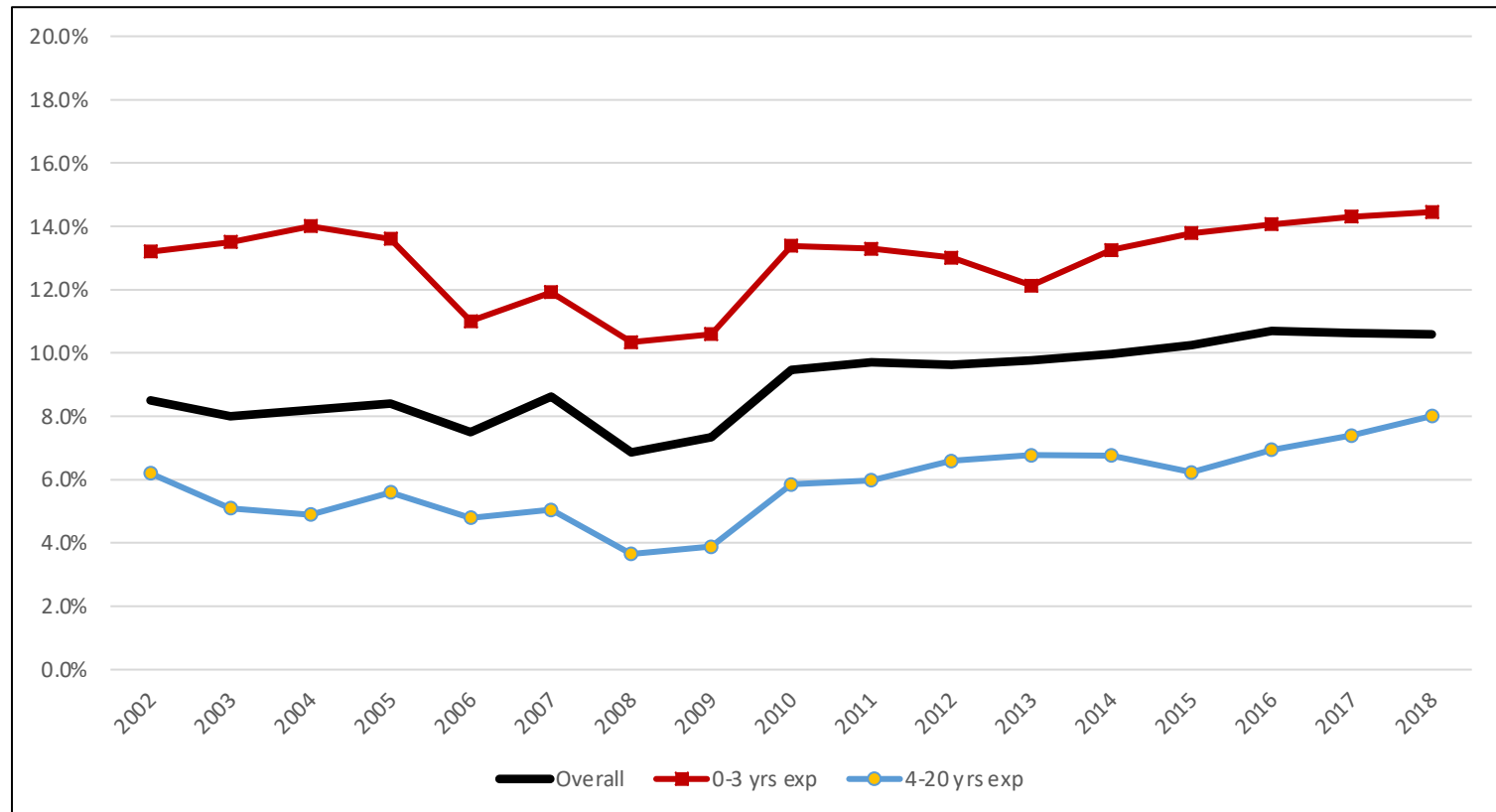
Contract days and hours from [https://nces.ed.gov/programs/statereform/tab5\\_14.asp](https://nces.ed.gov/programs/statereform/tab5_14.asp)

WY is listed by NCES as having 180 contract days, but communication with the Wyoming Legislative Service Office puts contract days in Wyoming at 185. Average class sizes from

[https://nces.ed.gov/programs/digest/d18/tables/dt18\\_209.30.asp](https://nces.ed.gov/programs/digest/d18/tables/dt18_209.30.asp)

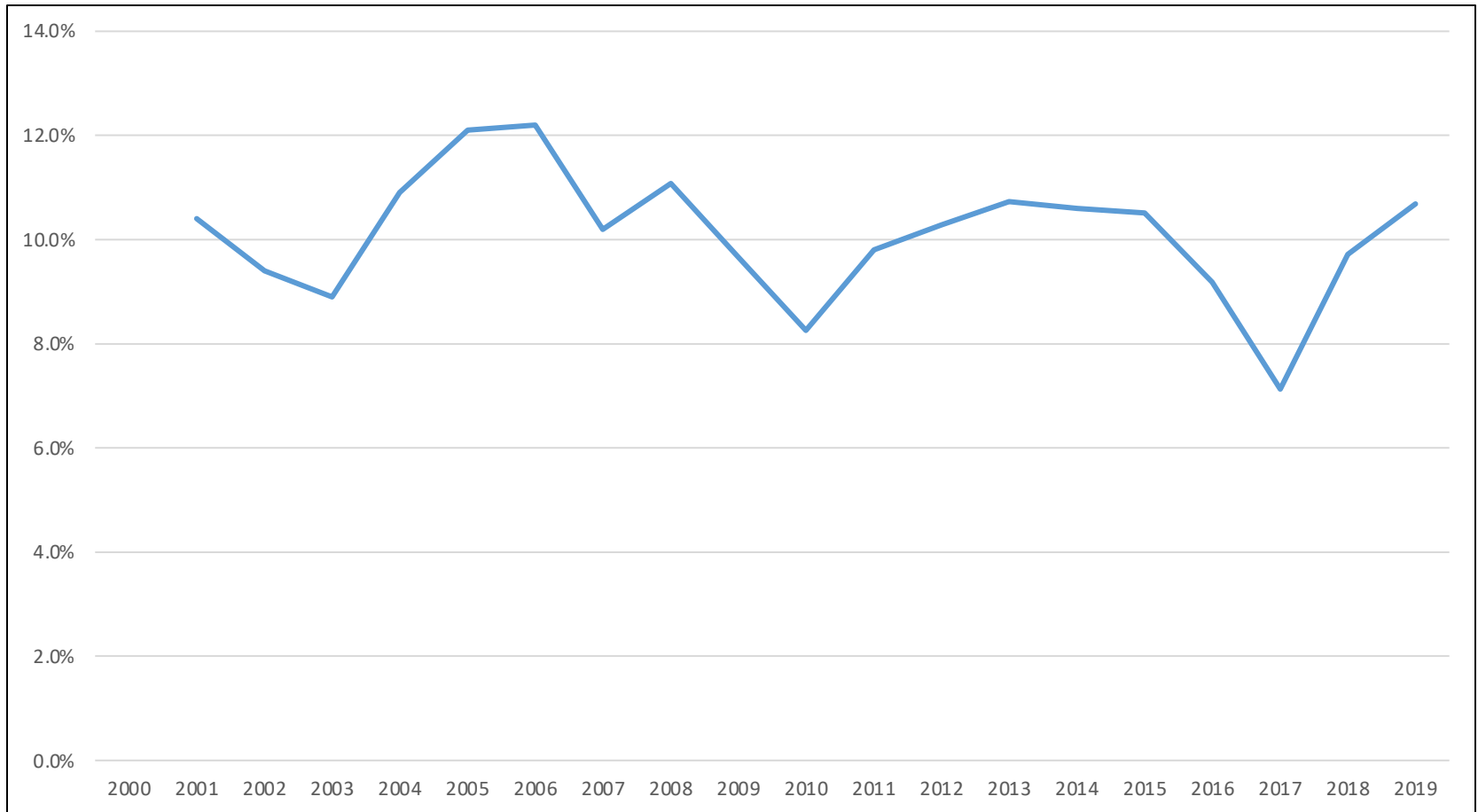
# How Has Teacher Retention Changed Over Time?

# Exit rates have shown a modest upwards trend since 2008



Source: Wyoming Department of Education Staffing Files (WDE 602). Note that some individuals have more than one occupational assignment. Following OES guidelines, this analysis only includes individuals where teaching was the occupation that required the highest level of skill.

# Fraction of new hires has remained stable



Source: Wyoming Department of Education Staffing files (WDE 602) Years 2007/08 - 2019/20

# Destination wages do not indicate moves for higher pay on average

	All leavers	Moved to another WY job	Moved to another state w DWS agreement and hired in public schools	Moved to another state w DWS agreement and hired outside public schools	Unknown (left labor force OR left for unknown state)
Number of Exiters	N=1,545 (10.3% of teachers)	N=993 (64% of exiters)	N=118 (8% of exiters)	N=52 (3% of exiters)	N=382 (24% of exiters)
Teaching wage in WY before left	\$65,107	\$65,749	\$61,762	\$59,495	\$68,697
Wage in subsequent job	\$31,136	\$29,481	\$45,160	\$30,916	--
Fraction who are <35	33%	33%	48%	55%	24%
Fraction who are 55+	36%	34%	11%	--	50%

Source: Department of Workforce services calculations. Destination data for 2018/19 is available for CO, MT, NE, NM, SD. Data is not available for the most recent years in AK, ID, OH, OK, TX, UT.

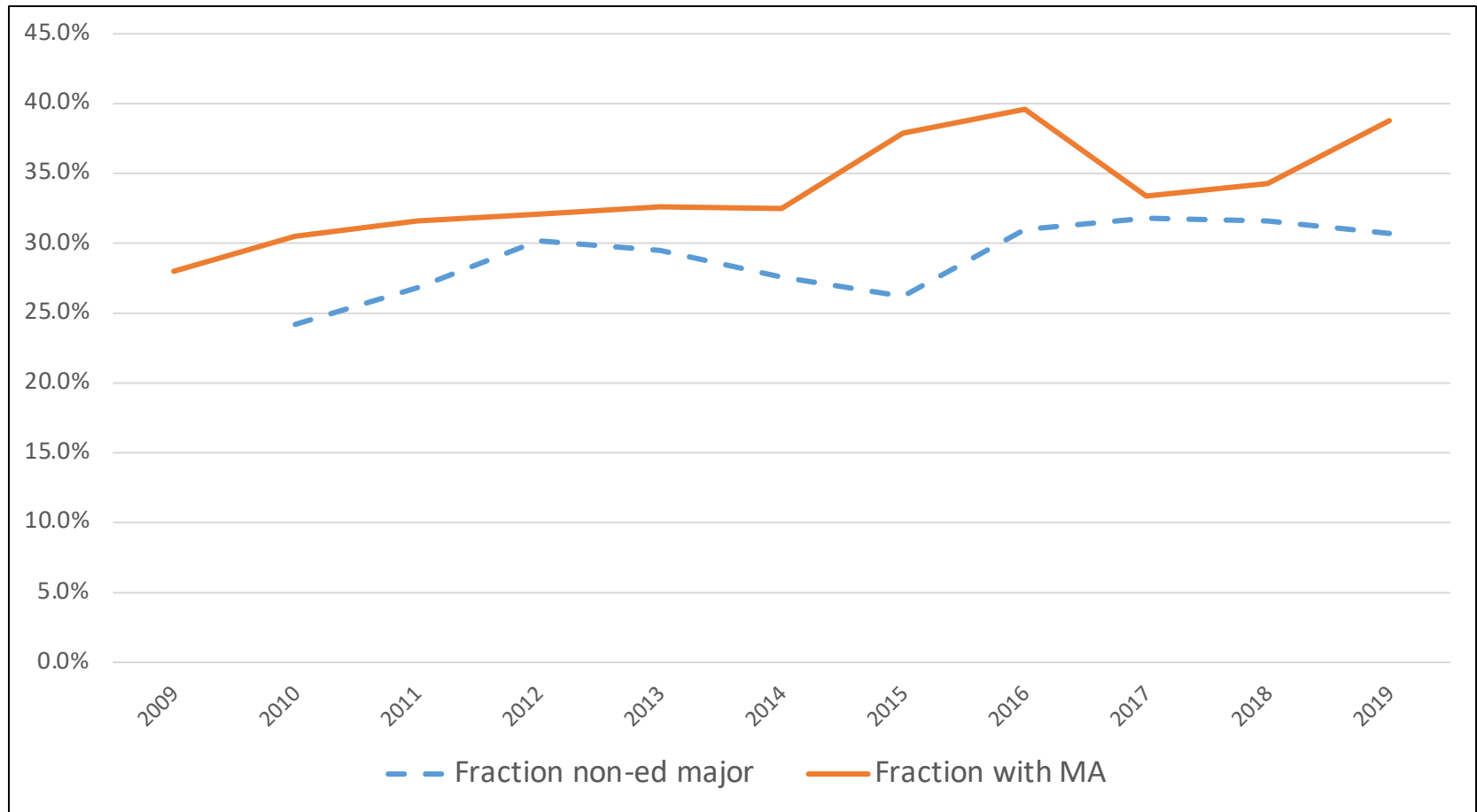
County	% Exiting	Average Annual Wage of Retained Teachers	Average Annual Wage of Exiting Teachers
<b>Total</b>	11.8%	\$66,259	\$64,325
<b>01-Albany County</b>	17.6%	\$63,199	\$53,160
<b>02-Big Horn County</b>	11.8%	\$66,560	\$62,306
<b>03-Campbell County</b>	10.3%	\$66,499	\$64,364
<b>04-Carbon County</b>	17.6%	\$58,510	\$58,650
<b>05-Converse County</b>	10.5%	\$66,296	\$61,109
<b>06-Crook County</b>	11.0%	\$63,105	\$60,827
<b>07-Fremont County</b>	15.4%	\$64,124	\$57,036
<b>08-Goshen County</b>	13.0%	\$67,168	\$65,599
<b>09-Hot Springs County</b>	23.1%	\$60,184	\$68,563
<b>10-Johnson County</b>	6.1%	\$63,144	\$74,477
<b>11-Laramie County</b>	9.0%	\$69,705	\$70,233
<b>12-Lincoln County</b>	9.9%	\$69,854	\$77,859
<b>13-Natrona County</b>	6.8%	\$64,483	\$75,098
<b>14-Niobrara County</b>	14.0%	\$61,813	\$61,488
<b>15-Park County</b>	8.6%	\$64,540	\$65,731
<b>16-Platte County</b>	21.0%	\$59,007	\$37,238
<b>17-Sheridan County</b>	15.8%	\$65,493	\$63,511
<b>18-Sublette County</b>	9.9%	\$68,564	\$70,717
<b>19-Sweetwater County</b>	16.5%	\$69,904	\$70,123
<b>20-Teton County</b>	6.8%	\$77,233	\$78,280
<b>21-Uinta County</b>	8.2%	\$62,811	\$65,277
<b>22-Washakie County</b>	10.4%	\$63,879	\$61,717
<b>23-Weston County</b>	32.5%	\$61,460	\$61,098

# How Have Teacher Recruitment and Training Changed Over Time?

# Has teacher quality changed?

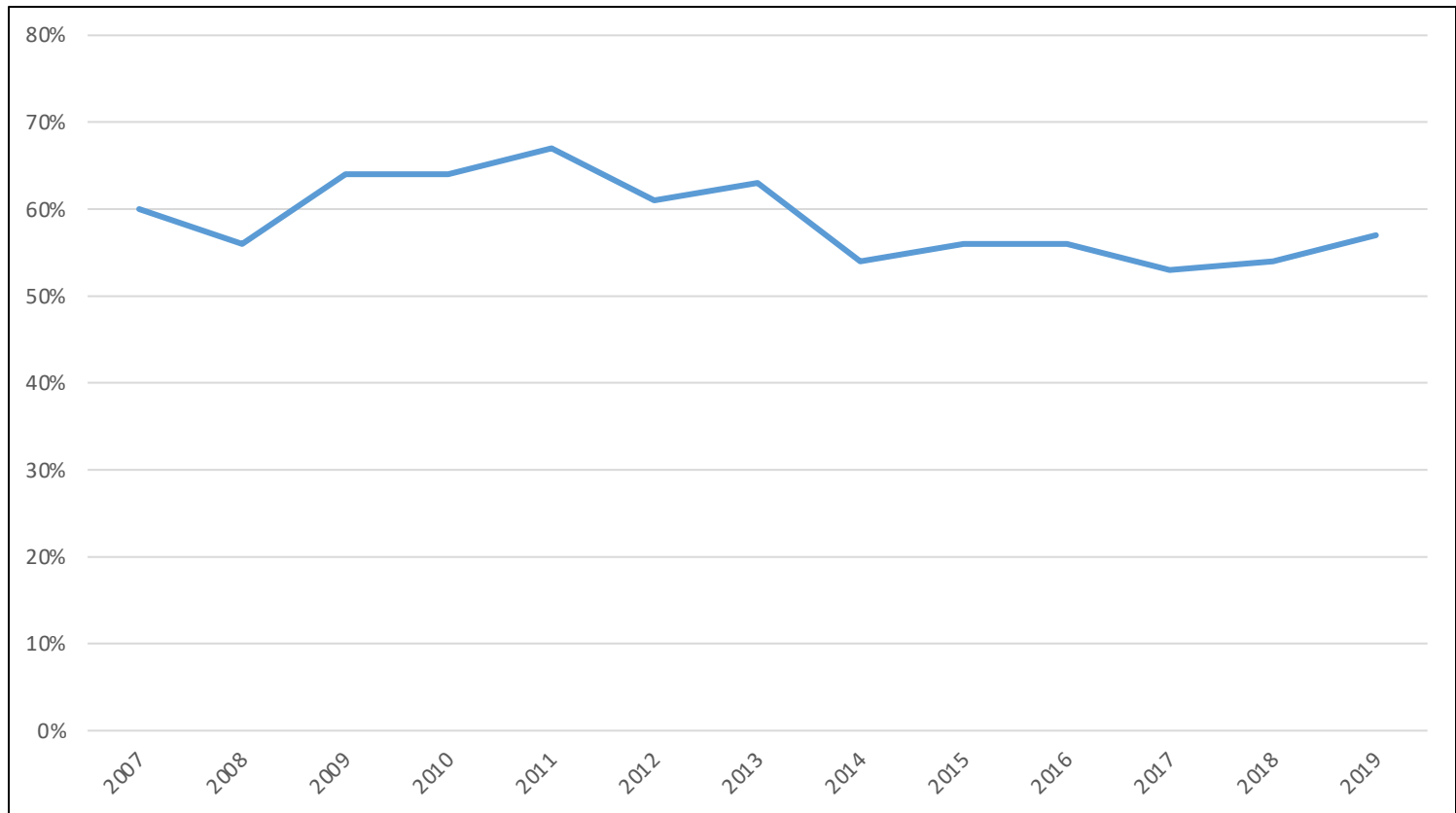
- Best data links teachers to students
- Without that, cannot say if new teachers are producing stronger student outcomes than former students or if teachers who exit are the worst teachers (bad fit) or the best (high ability leave for other jobs)
- Can look at
  - MA degrees (in research, not associated with student gains)
  - Subject matter expertise
  - Selectivity of college attended
  - ACT scores of ed majors vs other majors at UW
  - Temporary permits

# Slight increase in new hires with MA and subject matter degree



Source: Based on Wyoming Department of Education Contract Files (WDE 602).

# No major change in fraction new hires with BA from outside WY



Source: Based on Wyoming Department of Education Contract Files (WDE 602). Note that this figure uses percentages based on candidates with known BA institutions who graduated in past 5 years.

# Modest decline in degrees from traditional universities

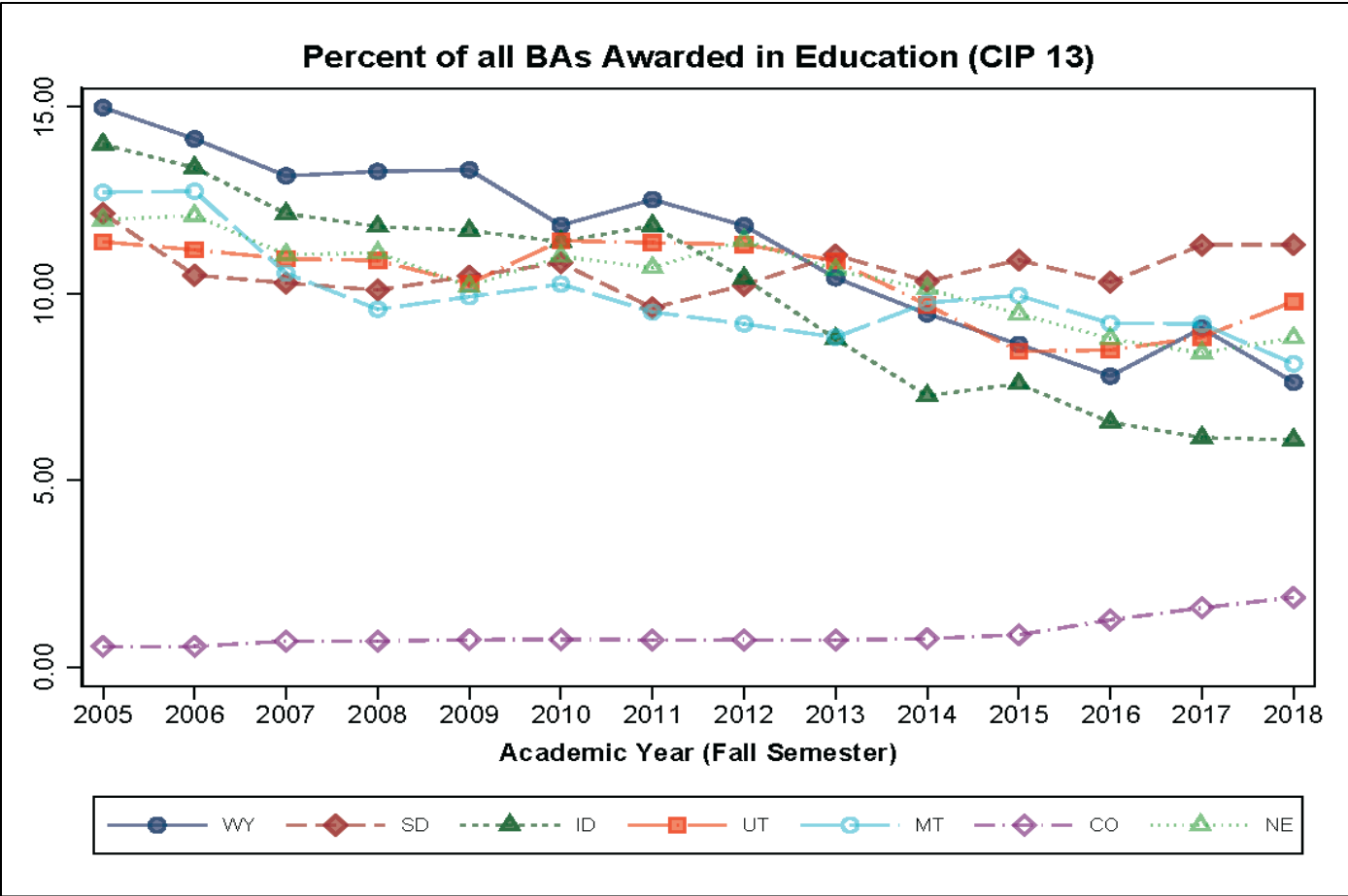
## Teachers with BA degree earned within 5 years of hire date

Bachelor's Degree Institution	Percent of 2010-2014 Hires	Percent of 2015-2019 Hires
University of Wyoming	57.1	56.7
Black Hills State University	8.4	7.6
Chadron State	5.7	5.7
Western Governor's University	4.5	9.8
Valley City State University	3.1	6.5
Regis	3.1	<1
Univ of Northern CO	2.8	2.1
MSU Billings	2.8	1.4
Utah State University	2.7	2.2
BYU Idaho	2.5	1.7
Montana State University	1.9	1.3
Univ of MT	1.8	1.1
Grand Canyon University	1.3	2.7
Brigham Young Univ Provo	1.2	<1
Colorado State Fort Collins	1	1.1
Other universities	4.2	2.8

# No change in ACT scores of ed majors

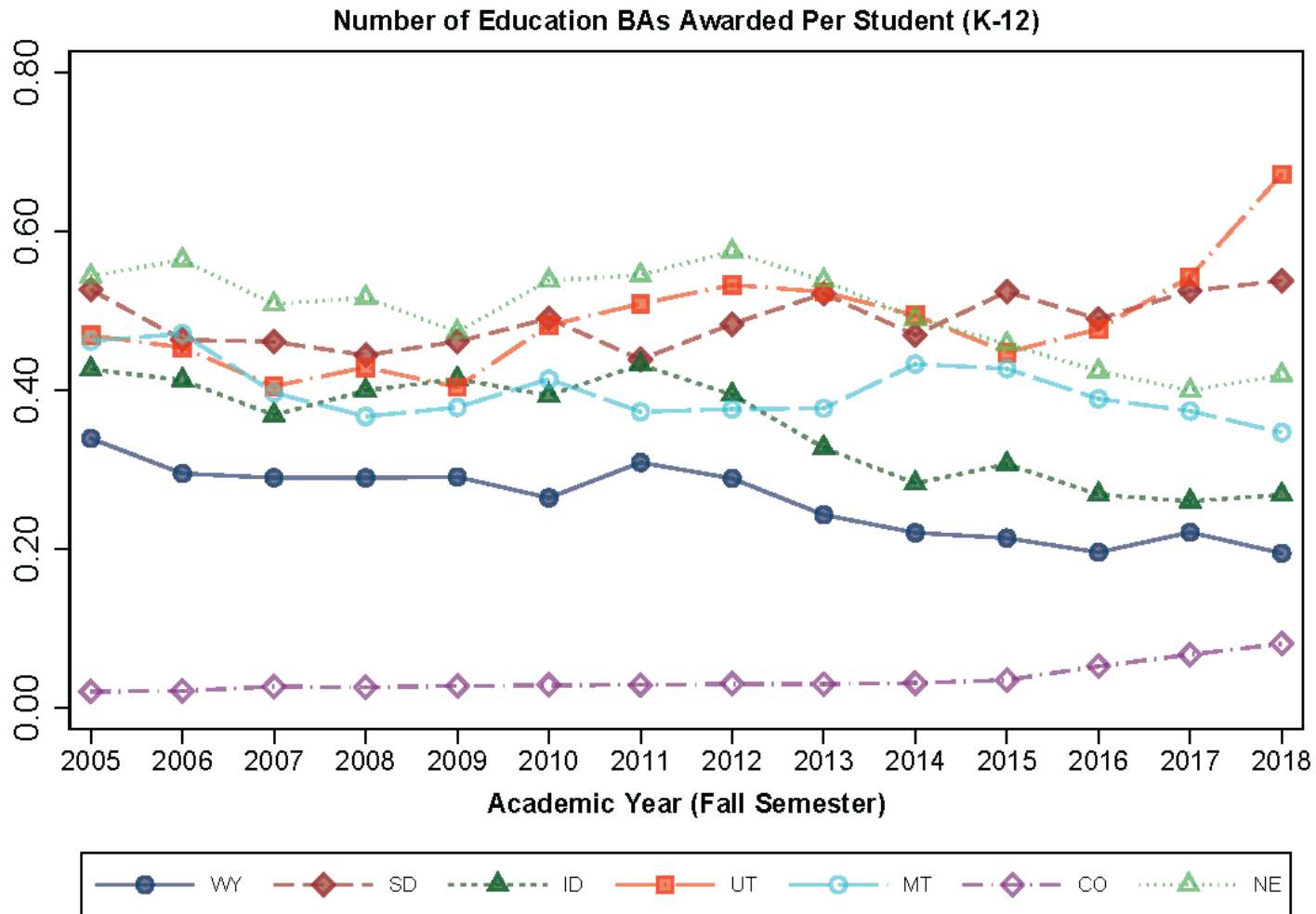
Year	Education BA Degrees Awarded	All UW BA Degrees	Ed as Percent of Degrees	Avg ACT for Education Graduates	Avg ACT for All Graduates
2010	256	1,783	14.4%	21.7	23.4
2011	235	1,853	12.7%	23	23.9
2012	278	2,062	13.5%	22.9	24.1
2013	264	2,053	12.9%	23.2	24.1
2014	225	2,007	11.2%	22.3	23.8
2015	206	2,022	10.2%	23.2	24.0
2016	202	2,159	9.4%	22.7	24.2
2017	184	2,204	8.3%	23.0	24.4
2018	208	2,127	9.8%	22.7	24.4
2019	182	2,228	8.2%	23.0	24.5

# Sharper decline in fraction of BAs in WY in education than other states



Source: Author's calculations based on IPEDS data

# WY is low in fraction of BAs in education per K-12 student



Source: Author's calculations based on IPEDS data

## District interviews indicate hiring challenges

- Many challenges in hiring are permanent issues (location, cost of living, lack of amenities)
- Districts adjacent to other states report most state competition, other report difficulty competing with other WY districts
- Most common difficulties reported in special education, Career and technical education
- Some reported filling positions with long term substitutes or emergency credentials.

# Non-Standard Permits

	Number of Professional, Industry, and Career (PIC) Permits	Number of Substitute Permits
	No data prior to 2014	
2014	Data appear inconsistent—2 permits reported	Data appear inconsistent—259 permits reported
2015	24	1212
2016	31	1443
2017	31	1269
2018	39	1344
2019	35	1223
2020	20	414

Source: PTSB. The number of substitute permits is for all active permits which includes those that have renewed their permits from when they initially received their first permit (every 5 years). The University of Wyoming and other programs require students to get a sub license, so the 2020 number will change.

# Summary and Recommendations

# Summary of WY labor market

- Actual teaching wages have fallen relative to salaries in other comparable occupations, from 97% in 2009 to 85% in 2019.
- The current ratio is still above that of most other states (Rank = 5 out of US states)
- The ratio of model to comparable worker salaries is (75%)
  - This is close to the average in neighboring states (75%)
  - This is below the US average (76%)
- Ratio of weeks of work for teachers to professional non-teachers consistent with these ratios
  - Range of 76% (assuming 37/49 weeks of work) to 83% (40/48 weeks of work)]

# Summary of regional teacher market

- Actual average salaries remain 13% higher than in other states, but the premium has declined over time.
- Model salaries are within the range of average teaching salaries in other states
- Both the highest and lowest paid districts in Wyoming have salaries well above those of comparable districts in the region
- There are more contract days in Wyoming than in other states, but class sizes are smaller.
- On average, the teachers who leave Wyoming and exit the public schools take lower paid jobs afterwards, whether they are working in Wyoming in a non-teaching field or are teaching in another state.

# Summary of effects of trends in salaries

- Wyoming lacks data on teacher quality → cannot say whether higher salaries have translated into better quality teachers
- Higher teacher salaries associated with lower turnover, especially for new teachers and teachers close to retirement
- Higher teacher salaries NOT associated with more recruitment of into teaching majors at the University of Wyoming or with hiring new teachers from stronger universities.
- Districts report that higher teacher salaries were associated with more competitive hiring conditions in the past, although data for this remains poor. The difficulties appear to be especially acute in special education and career and technical education.

# Recommendations

1. Set model salaries based on wages of professional and technical workers
  - Rapidly available data
  - Consistent with ECA index used by Taylor. ECA could be easily applied annually between recalibration years and ratio would stay close to original set point.
2. Consider a target within 76 to 85 percent
  - Consistent with ratio of weeks of work
  - Values in that range are above US average
  - Based on past patterns, if model = 80% of P&T worker salary, actual paid would be close to 90% and top of states in nation
3. Collect data that tracks teacher quality more explicitly
  - Low cost: Data on positions filled with long term subs, temporary certifications
  - Best: Data linking student outcomes and teachers
4. Place more emphasis on recruiting high ability students into teaching at University of Wyoming