MLDS Center

Maryland Longitudinal Data System

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Maryland Public School Teachers Working Secondary Jobs: Predicting Wages and Attrition from the Teaching Profession

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Background and Policy Relevance:

- Teacher attrition (e.g., when teachers leave the teaching profession) is an issue for schools and local school systems across the country
- A recent report published by the National Center for Education Evaluation (NCEE) and Regional Education Laboratories (REL) showed that 10% of teachers left teaching and 8% moved to a different teaching position (Espel, Meyer, & Weston-Sementelli, 2019)
- Nationally, approximately 44% of new teachers leave the profession within five years (OECD, 2017)

Background and Policy Relevance:

- Identifying teacher and school characteristics that are associated with attrition can help to identify intervention points to promote retention and prevent attrition from teaching
- Prior research indicates that attrition is linked with the following characteristics (Espel, Meyer, & Weston-Sementelli, 2019):
  - Age (older teachers and newer teachers)
  - Salary
  - School characteristics (e.g., racial/ethnic composition; low average starting salaries)

Background and Policy Relevance:

- Teacher's salary has been a large focus in research examining teacher attrition
- On average teachers in the United States earn 60% of what other professionals with similar educational levels earn (OECD, 2017)
- The report by NCEE and REL linked teachers' salary with the likelihood of attrition in Colorado, Missouri, and South Dakota, with teachers earning lower salaries being more likely to leave the teaching profession (Espel, Meyer, & Weston-Sementelli, 2019)
- Among all the teachers who leave the profession, 18% of them leave because of financial reasons (Thomas & Hammond, 2017)

The Current Study

- Data from the MLDS offer a unique opportunity to study teacher attrition
- Data are linked from postsecondary into the teaching profession with the ability to link the teacher to the K-12 school to examine public school and local school system characteristics
- Additionally, workforce data can be used to examine secondary jobs and the industries to which teachers may attrite

We aim to answer the following research questions:

1. What percentage of Maryland public college graduates employed as Maryland public school teachers hold additional employment in Maryland?
2. What are the common out-of-school employment industries for Maryland public college graduates employed as Maryland public school teachers?
3. What is the average additional wages earned in out-of-school employment industries for Maryland public graduates employed as Maryland public school teachers?

We aim to answer the following research questions:

4. What are the individual teacher characteristics and the school employment characteristics of Maryland public graduates employed as Maryland public school teachers who also are employed out of school?

5. For teachers who have been teaching 3-5 years, to what extent does their teaching wages predict the likelihood of working out of school ?

6. Are teachers who work out of school more likely to attrite from the teaching profession?

7. What percentage of teachers who attrite do so to the employment industry of their out of school employment?

MLDS Data and Sample

- The data used for this report are from the Maryland Longitudinal Data System
- Our full sample used in this study consisted of 12,681 graduates of Maryland public colleges between 2008-2017 who were employed as full-time Maryland public-school teachers in the academic year 2017-2018
- Some research questions required further restriction of the sample:
  - research questions 2, 3 and 4 focus on the subset of teachers who have out-of-school employment
  - research question 5 focuses on teachers who have 3-5 years of experience
  - research question 6 and research question 7 exclude all teachers who retired in 2018 or 2019

Defining Out-of-School Employment

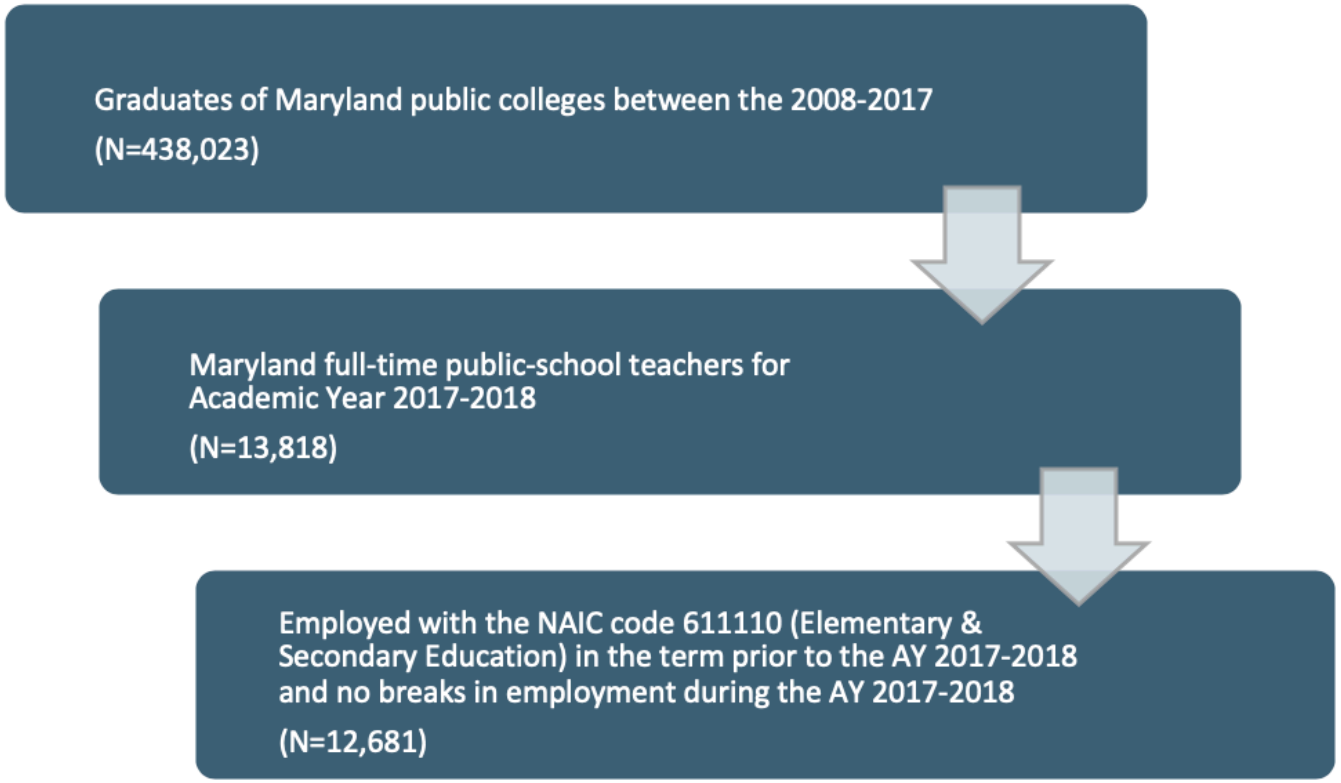
- The North American Industry Classification System (NAICS) code identifies the industry and job subtype for an entry in the employment database
- Out-of-school employment for Maryland public-school teacher was defined as earning any wages from an industry with a NAIC Code other than 611110

Characteristics of Teachers with Out-of-School Employment

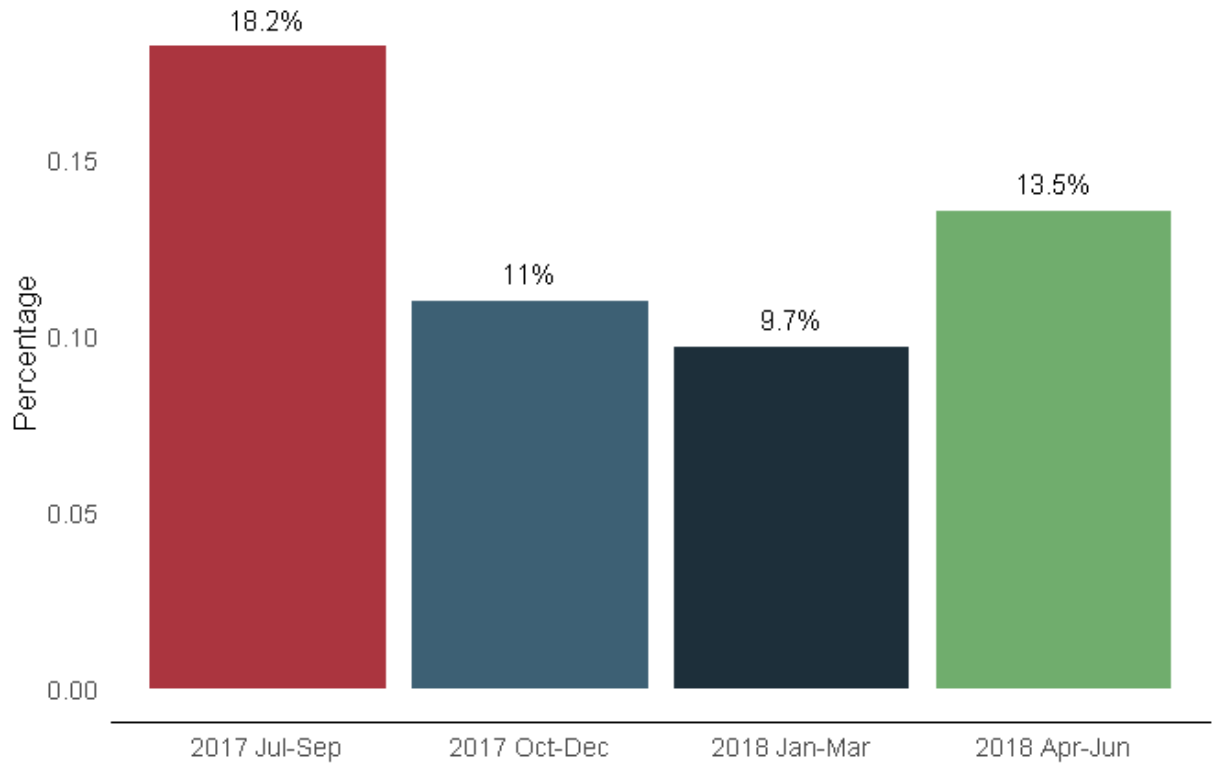
The findings presented in this section address RQ1-RQ4

Research Question 1:
What percentage of Maryland public college graduates employed as Maryland public school teachers hold additional employment in Maryland?

Sample Selection for RQ1



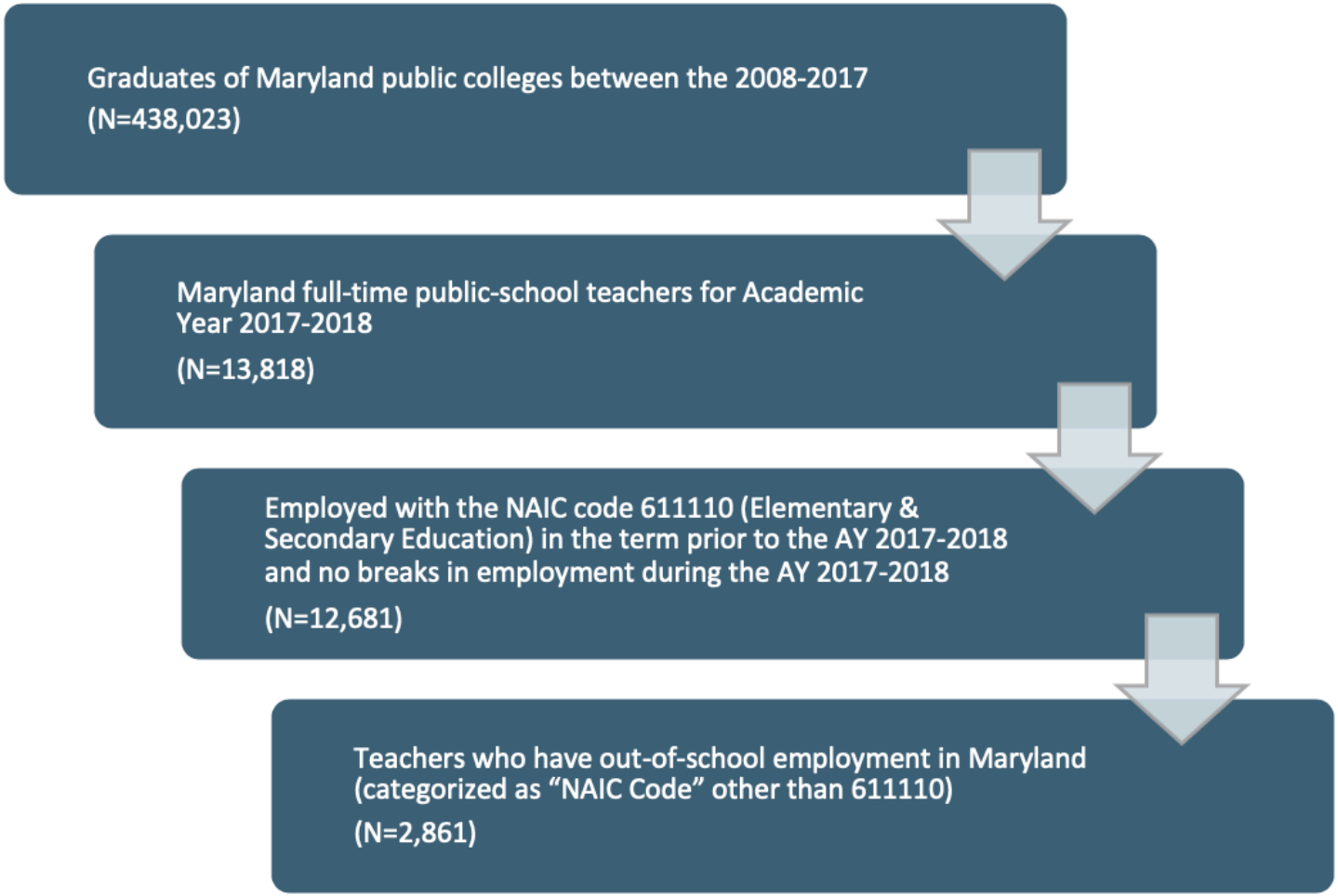
Percentage of Maryland Public College Graduates Working Multiple Jobs



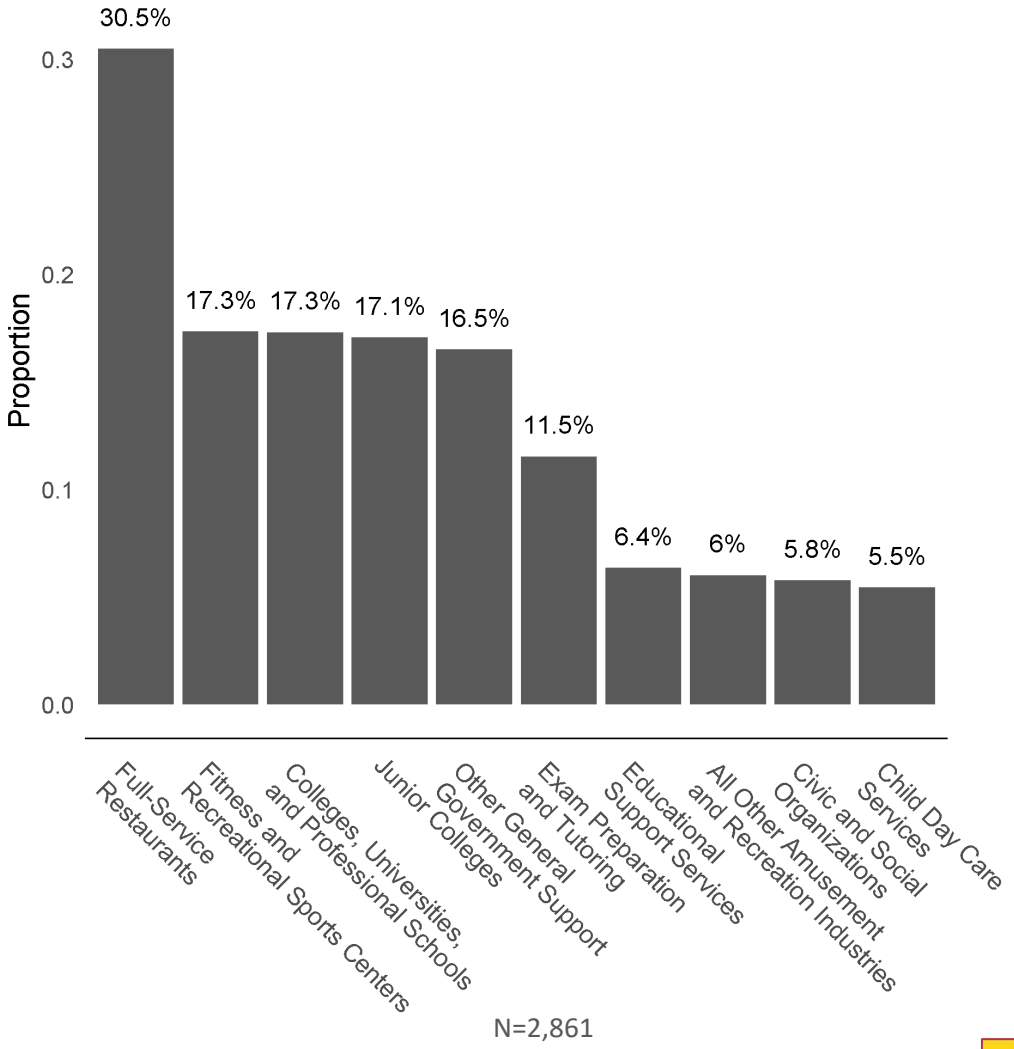
(N= 12,681)

Research Question 2:
What are the common out-of-school employment industries for Maryland public college graduates employed as Maryland public school teachers?

Sample Selection for RQ2-RQ4

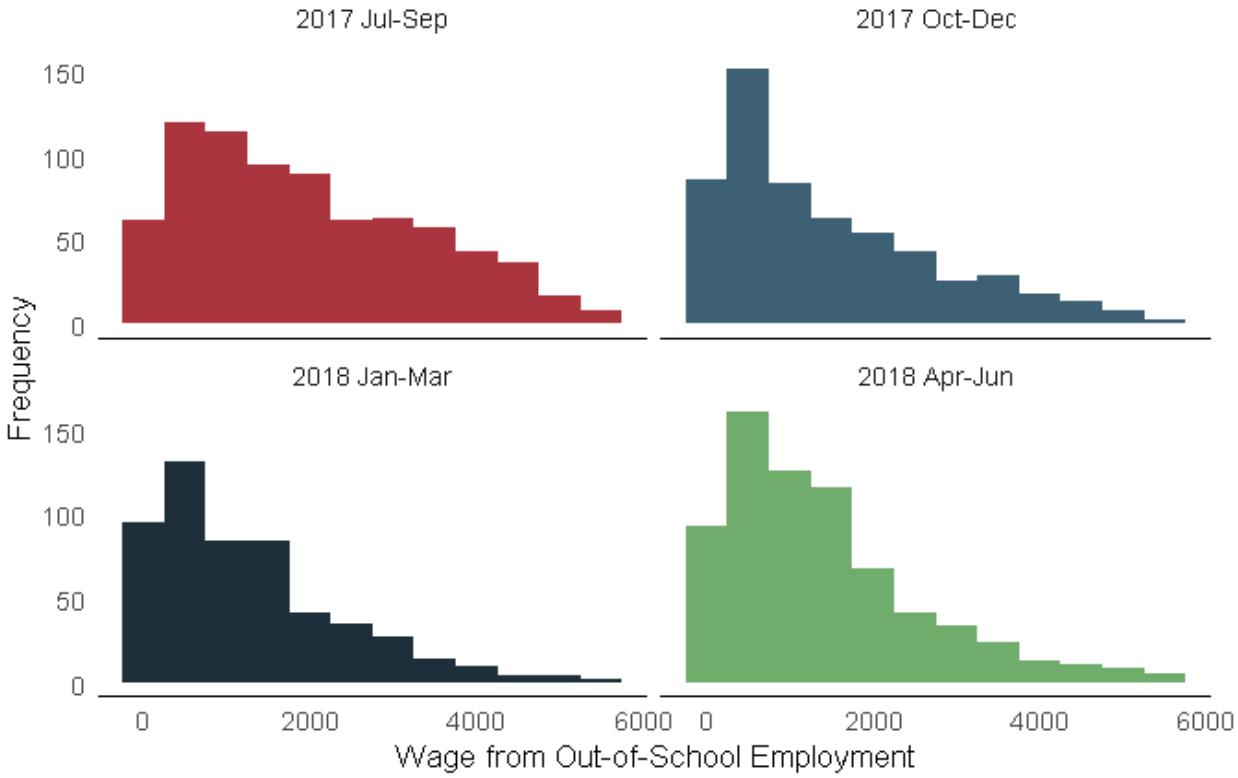


Common Out-of-School Employment Industries

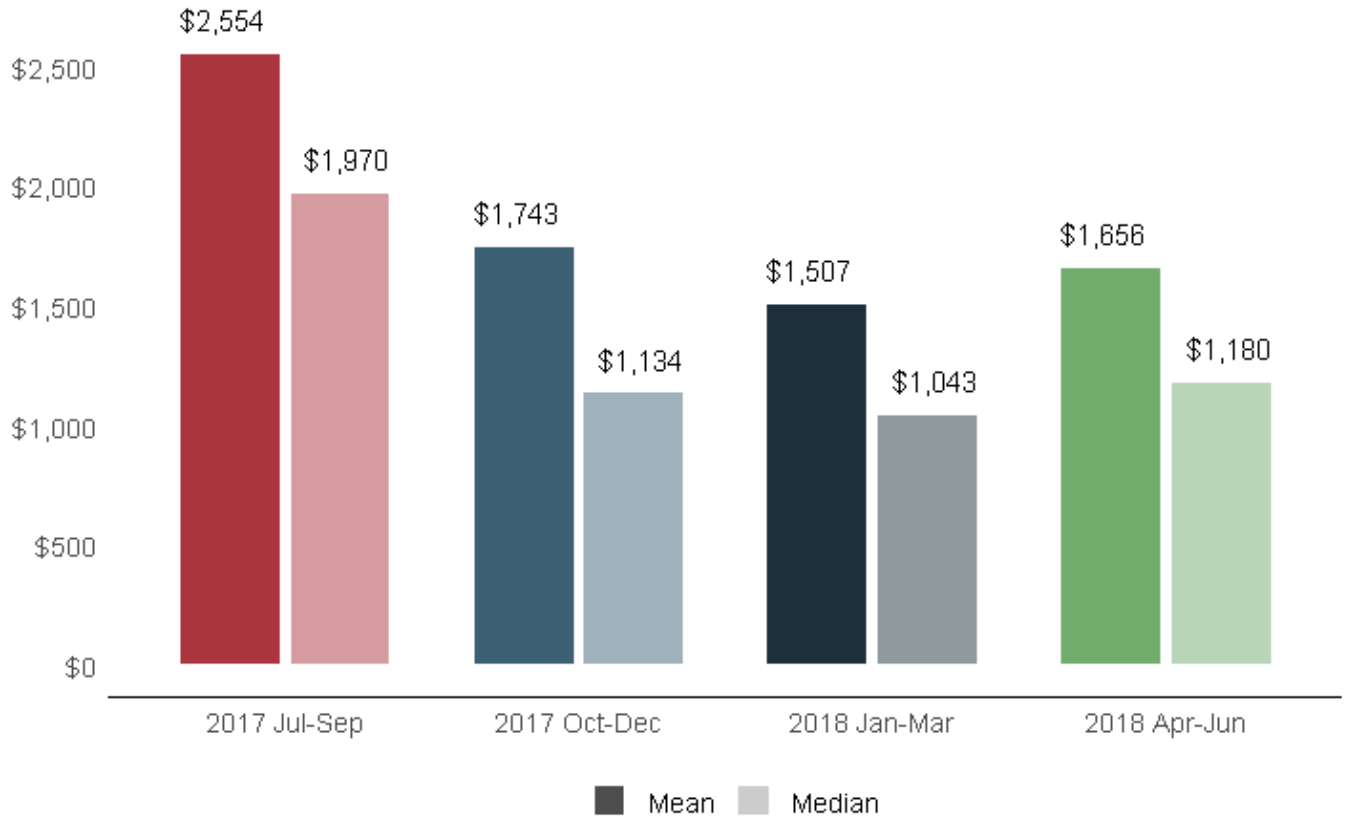


Research Question 3:
What is the average additional wages earned in out-of-school employment industries for Maryland public graduates employed as Maryland public school teachers?

Wages Earned from Out-Of-School Employment



Wages Earned from Out-Of-School Employment



Research Question 4:
What are the individual teacher characteristics and the school employment characteristics of Maryland public graduates employed as Maryland public school teachers who also are employed out of school?

Teacher Characteristics

Teacher Characteristic	Percent (OOSE Subset)	Percent (Full Sample)
Gender (Female)	77.0%	80.4%
Gender (Male)	23.0%	19.6%
Race (White)	73.5%	76.5%
Race (Black)	17.4%	14.4%
Race (Other)	9.1%	9.1%
Ethnicity (Not Hispanic or Latino)	96.1%	96.1%
Ethnicity (Hispanic or Latino)	3.9%	3.9%
Tenure Status	49.3%	61.8%
	Mean	Mean
Age (end of AY 2018)	32.2	34.1
Years of Teaching Experience	5.0	6.4

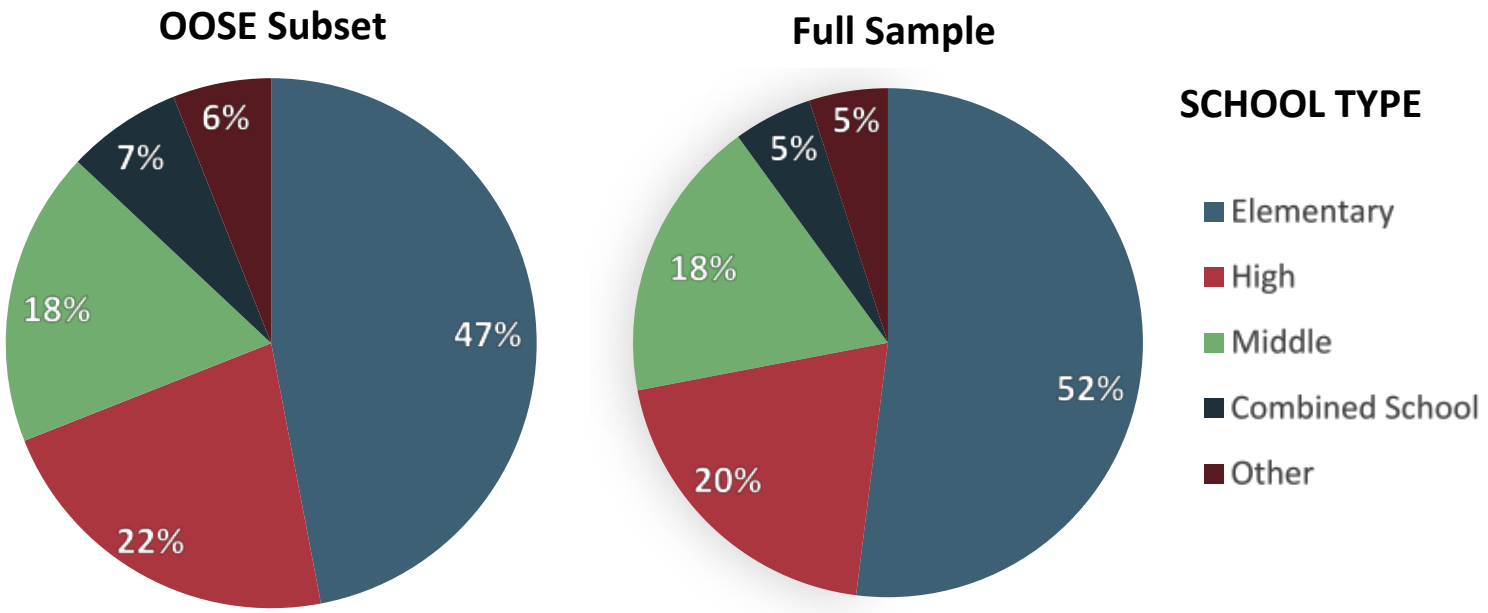
Note. OOSE – Teachers with out-of-school employment

School of Employment Characteristics

Top 10 Counties	Count (% of OOSE Subset) N = 2,861	Count (% of Full Sample) N = 12,681
Baltimore County	575 (20.1%)	2087 (16.5%)
Montgomery	508 (17.8%)	2315 (18.3%)
Baltimore City	286 (10.0%)	910 (7.2%)
Anne Arundel	273 (9.5%)	1267 (10.0%)
Prince George's	258 (9.0%)	1401 (11.0%)
Howard	196 (6.9%)	1045 (8.2%)
Harford	143 (5.0%)	637 (5.0%)
Wicomico	111 (3.9%)	409 (3.2%)
Frederick	70 (2.4%)	322 (2.5%)
Charles	67 (2.3%)	358 (2.8%)

Note. OOSE – Teachers with out-of-school employment

Teacher and School of Employment Characteristics



Combined Schools include: EMH, EM, EH, or MH
Other includes Charter, Vocational/Technical, Special Education, Alternative, and Program Schools

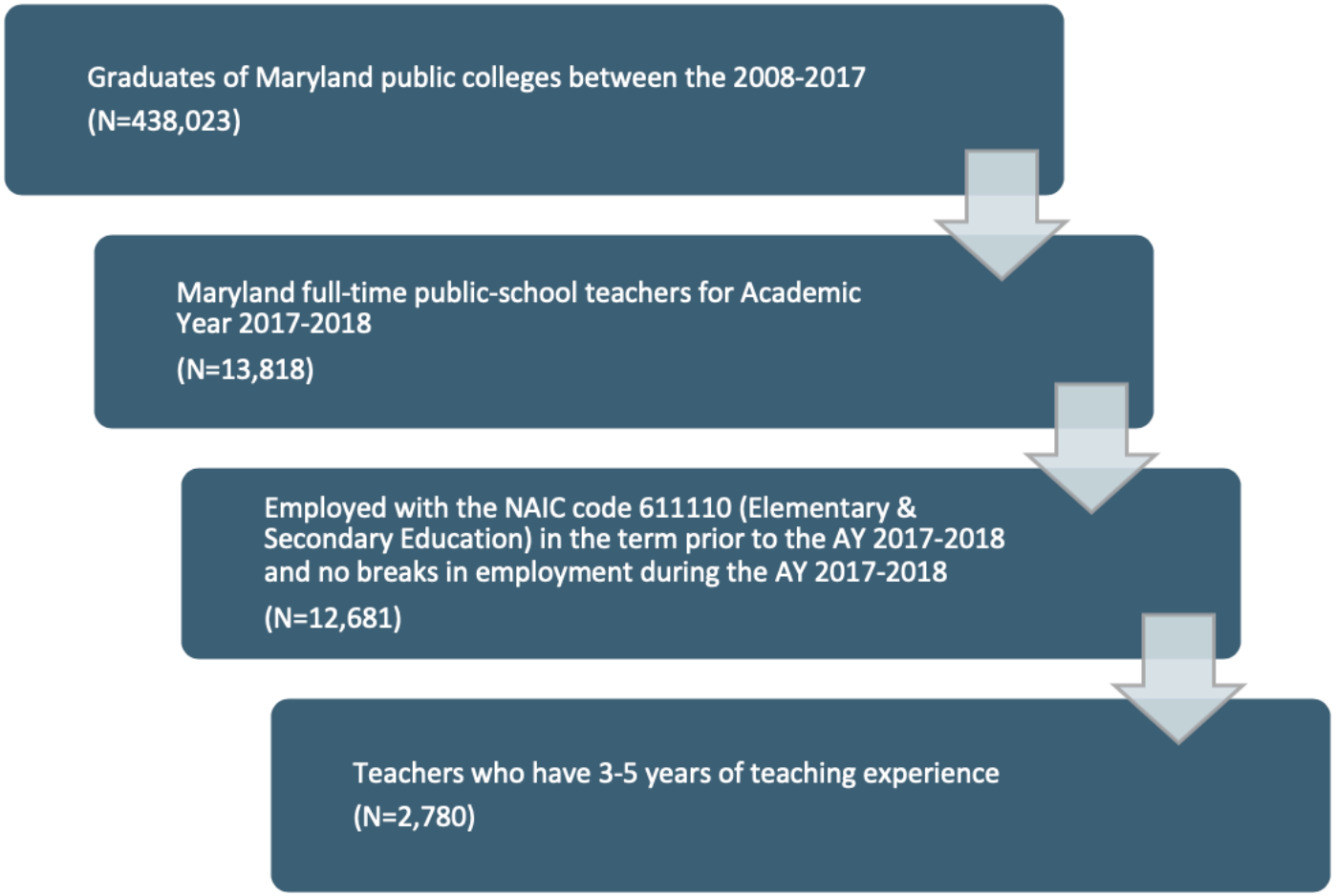
Note. OOSE – Teachers with out-of-school employment

Examining the Relationships among Wages, Out-of-School Employment, and Attrition in Maryland Using Data from the MLDS

The findings presented in this section address RQ5-RQ7

Research Question 5:
For teachers who have been teaching 3-5 years, to what extent does their teaching wages predict the likelihood of working out of school?

Sample Selection for RQ5



Predicting Out-of-School Employment from Teaching Wages

Predictors	*B*	*SE*		OR	OR 95% CI	
Race						
Black	0.395	0.129	*	1.484	[1.152,	1.911]
Other	-0.002	0.153		0.998	[0.739,	1.348]
Gender	0.298	0.111	*	1.347	[1.084,	1.673]
Wages	-0.058	0.073		0.944	[0.819,	1.088]
Experience	-0.146	0.072	*	0.864	[0.751,	0.994]
Wages X Gender	-0.388	0.175	*	0.678	[0.481,	0.955]

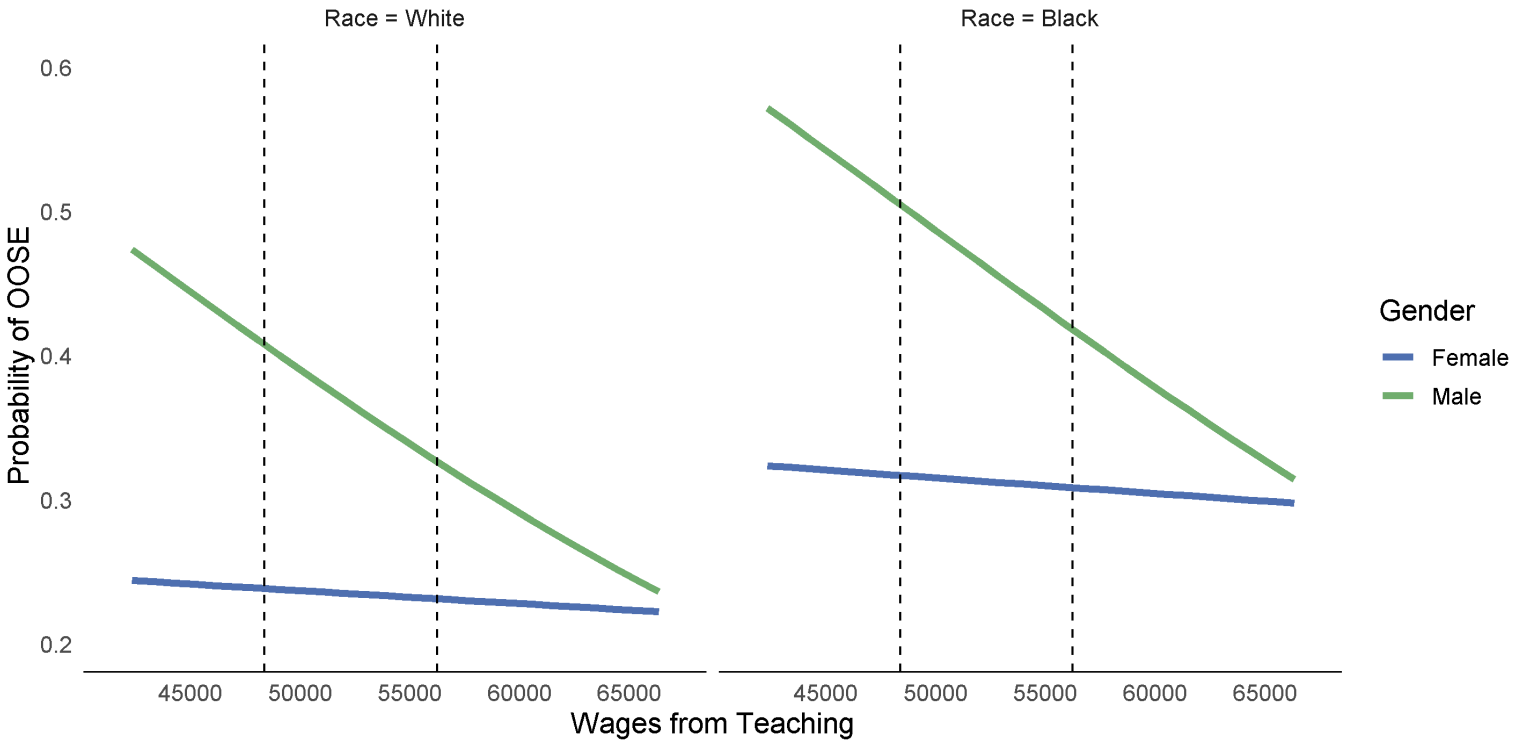
* = significant at the 0.05 level

White is the reference category for Race

Gender: 1=Male, 0=Female

Teaching wages is in units of $10,000 and is the sum wages over the year

Predicting Out-of-School Employment from Teaching Wages



Note. OOSE – Teachers with out-of-school employment

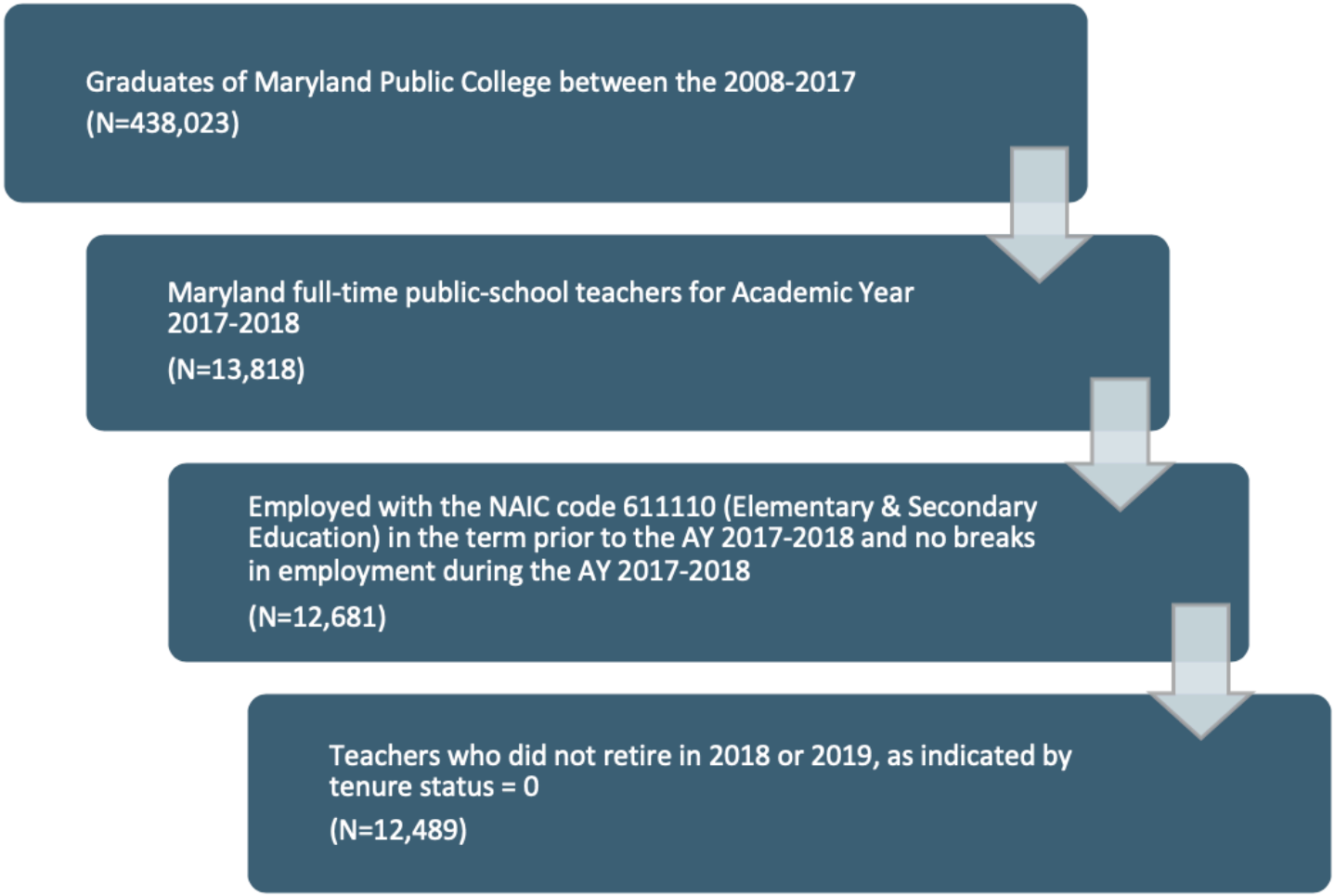
Predicting Out-of-School Employment Log Wages from Teaching Wages

Predictors	*B*	*SE*	
Teaching Wages	0.075	0.022	*
Minimum Wages	-0.067	0.133	
Teaching Wages X Minimum	-0.001	0.121	

* = significant at the 0.05 level

Research Question 6:
Are teachers who work out of school more likely to attrite from the teaching profession?

Sample Selection for RQ6 & RQ7



Predicting Teacher Attrition from Out-of-School Employment

Predictors	*B*	*SE*		OR	OR 95% CI
Race					
Black	-0.011	0.123		0.989	[0.778, 1.259]
Other	0.452	0.123	*	1.572	[1.235, 2.000]
Gender	0.033	0.104		1.033	[0.842, 1.268]
Teaching Wages	-0.326	0.054	*	0.722	[0.649, 0.802]
Experience	-0.008	0.013		0.992	[0.967, 1.018]
Wages X Experience	0.021	0.004	*	1.021	[1.013, 1.029]
OOSE	-0.103	0.099		0.902	[0.743, 1.095]

* = significant at the 0.05 level

White is the reference category for Race

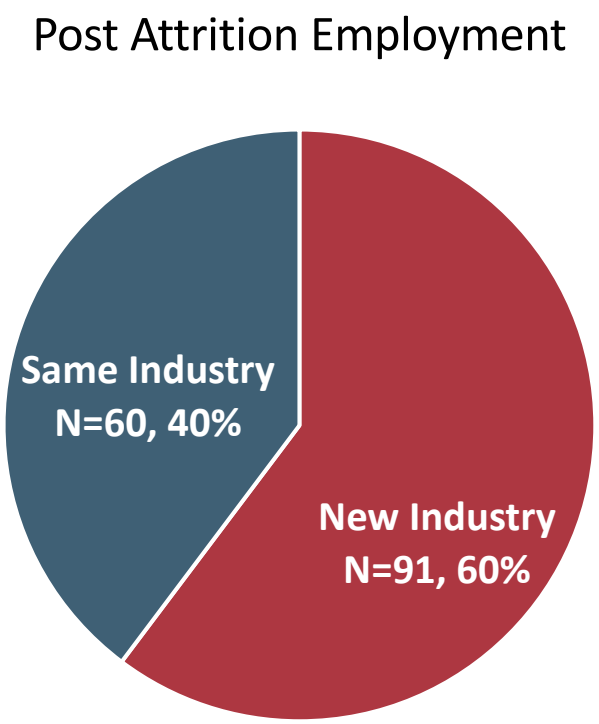
Gender: 1=Male, 0=Female

Teaching wages is in units of $10,000 and is the sum wages over the year

Note. OOSE – Teachers with out-of-school employment

Research Question 7:
What percentage of teachers who attrite do so to the employment industry of their out-of-school employment?

Teachers Attriting to the Industry of their Out-of-School Employment



- The North American Industry Classification System (NAICS) code identifies the industry and job subtype for an entry in the employment database
- A total of 151 teachers attrited after having out-of-school employment in 2018
- There were 105 different NAICS codes in this sub-sample
- 40% of teachers (39.7%) had at least one out-of-school employment NAICS code in the same industry of their post-attrition employment

Limitations

- MLDS data do not capture some common side jobs such as Uber/Lyft, Instacart etc. as well as any under-the-table payments
- We also limited our sample to teachers who earned wages in the term prior to the Academic Year 2017-2018 and therefore cannot provide inferences for first year teachers
- Our definition of attrition only considers the year following the collection of our sample, results could differ had we considered a longer window of time

Discussion

- What do these results mean for teachers employed in out of school positions?
- What do these results mean for teacher attrition?
- Policy implications: Can we intervene to prevent teacher attrition for newly employed Maryland public graduates employed in teaching?
- Both out-of-school employment and attrition decreased in likelihood as teaching wages increased
- Out-of-school employment was not associated with attrition, when controlling for teaching wages
- Low-wage male teachers sought out-of-school employment more often than low-wage female teachers. This difference was found to disappear for those with average to higher wages
  - Offers a subgroup for targeted prevention/intervention.

Thank you!

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