



WESTERN MICHIGAN  
UNIVERSITY

# 2nd-year Retention Updates

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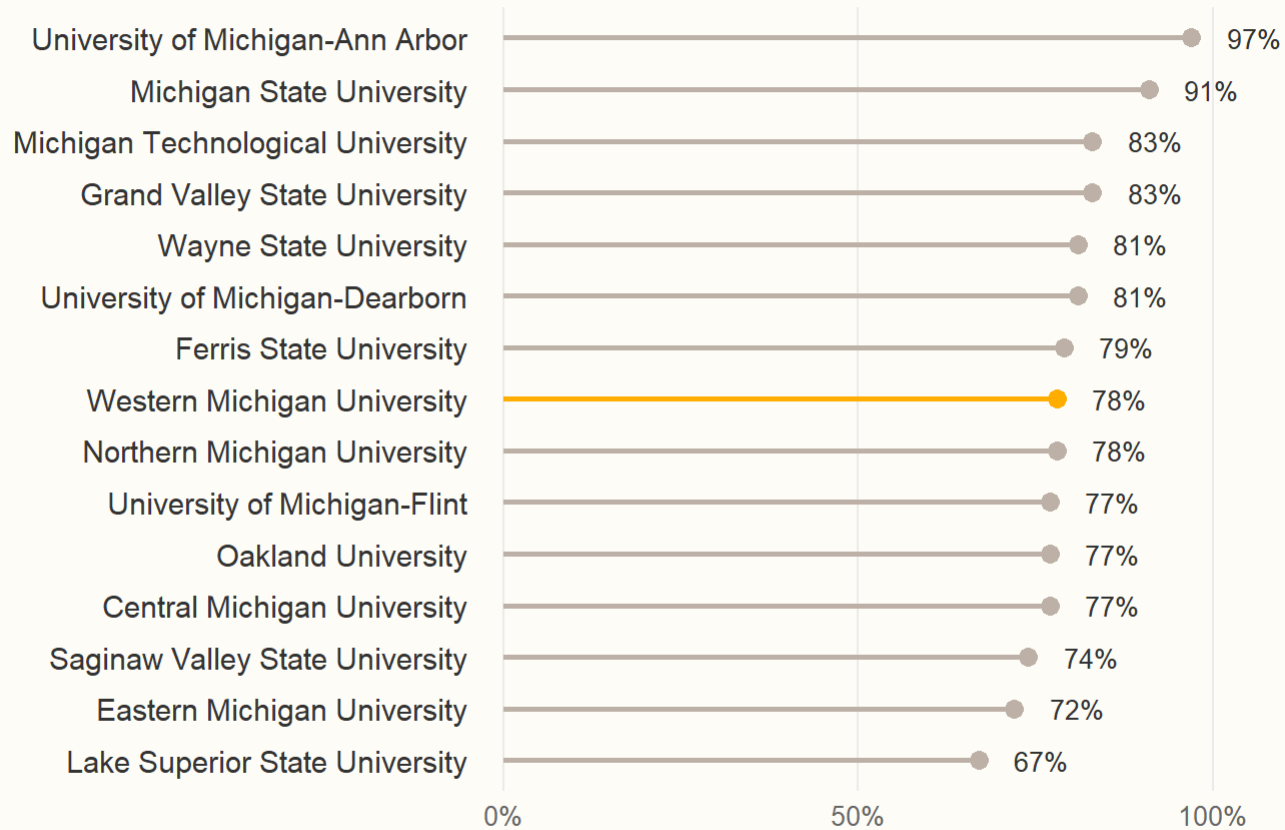
## Talk Outline

1. Updated peer comparisons for 2nd-year retention
  - most recently available data from IPEDS
  - retention vs. SAT scores
2. Updates (minor) to the second-year retention model
  - added gender
  - added HSGPA x residency interaction
  - added additional model assessment metrics
3. Transfer retention
  - students arriving with  $\geq 30$  credit hours
  - students arriving with  $< 30$  credit hours

**1. Updated peer comparisons  
for retention**

## WMU retention compared to 4-Year Michigan Public Schools

Second year retention (%) for full-time, first-year students (2016 cohorts)

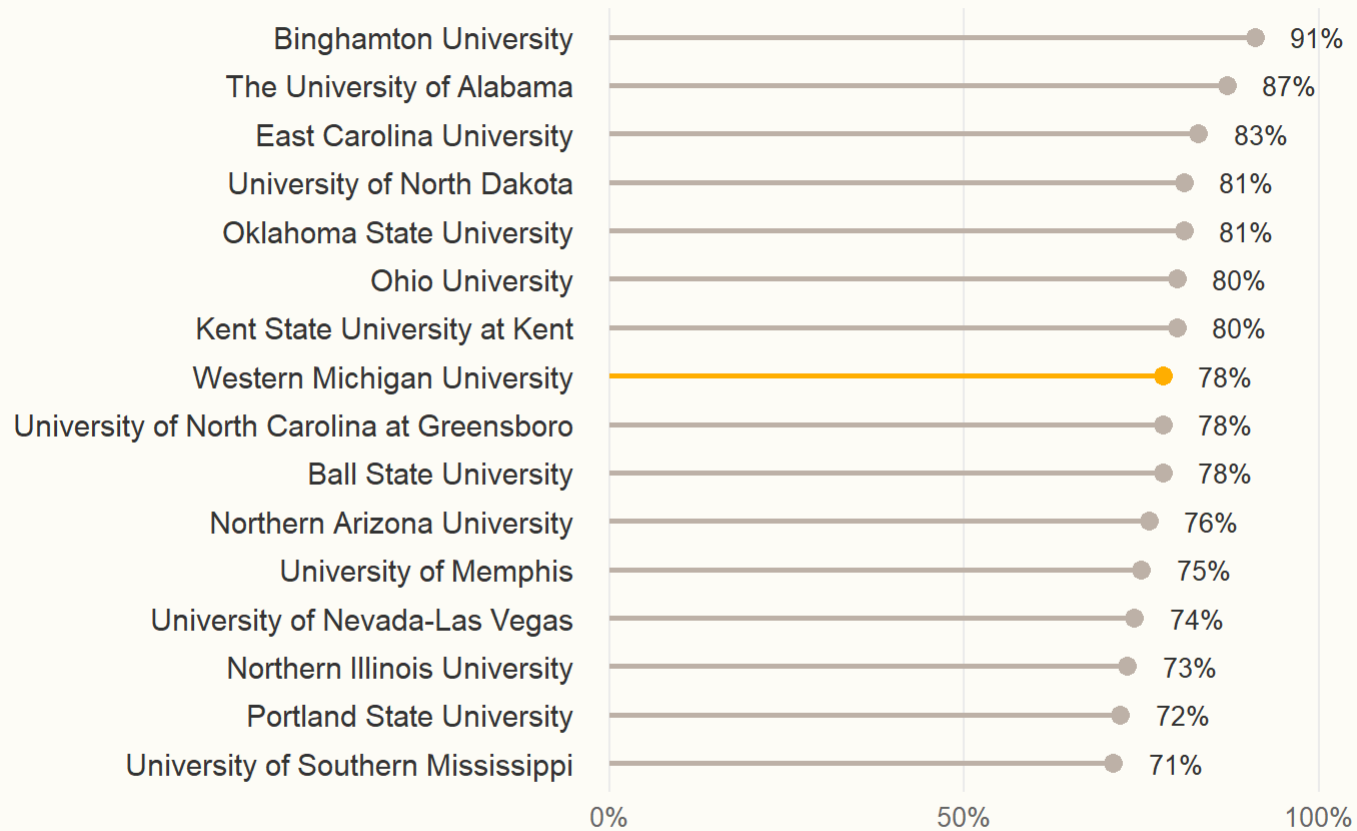


Source: U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

Credit: Office of Institutional Research | Western Michigan University

## WMU retention compared to Carnegie Peers

Second year retention (%) for full-time, first-year students (2016 cohorts)

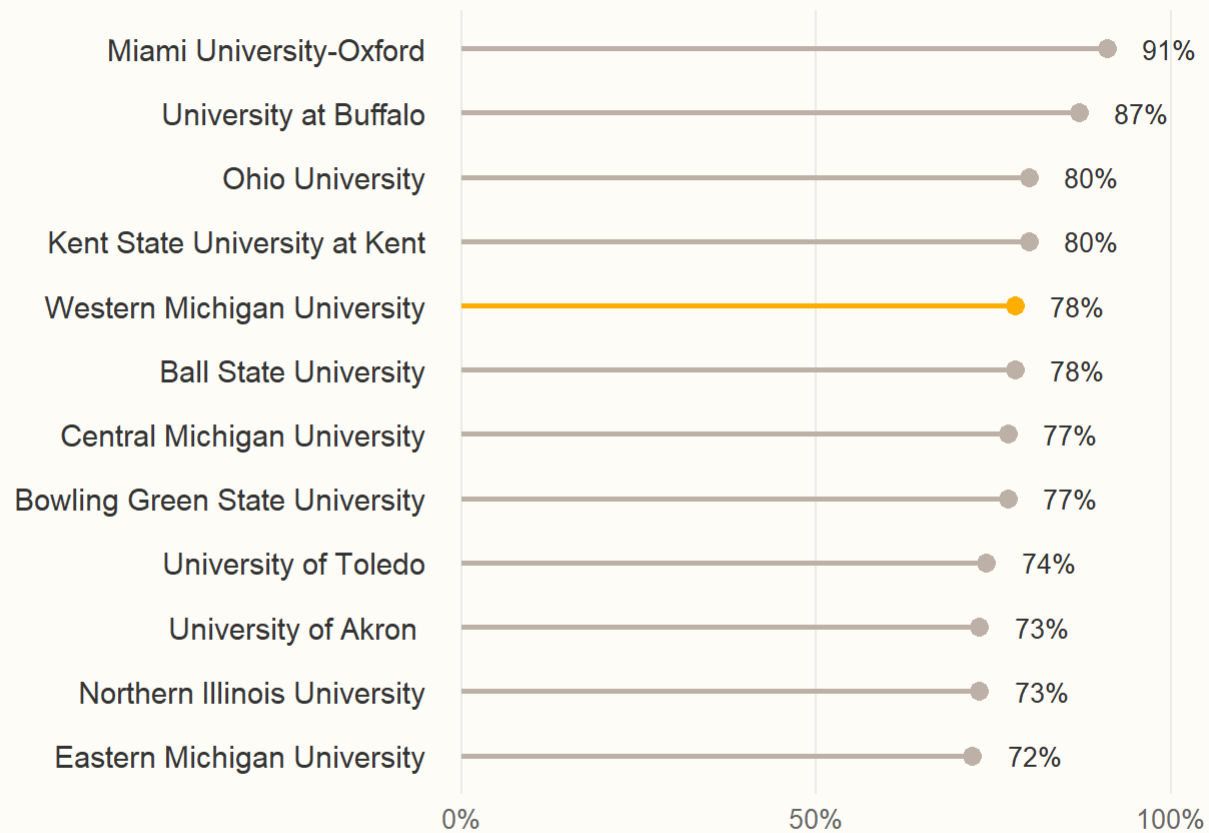


Source: U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

Credit: Office of Institutional Research | Western Michigan University

## WMU retention compared to MAC Schools

Second year retention (%) for full-time, first-year students (2016 cohorts)

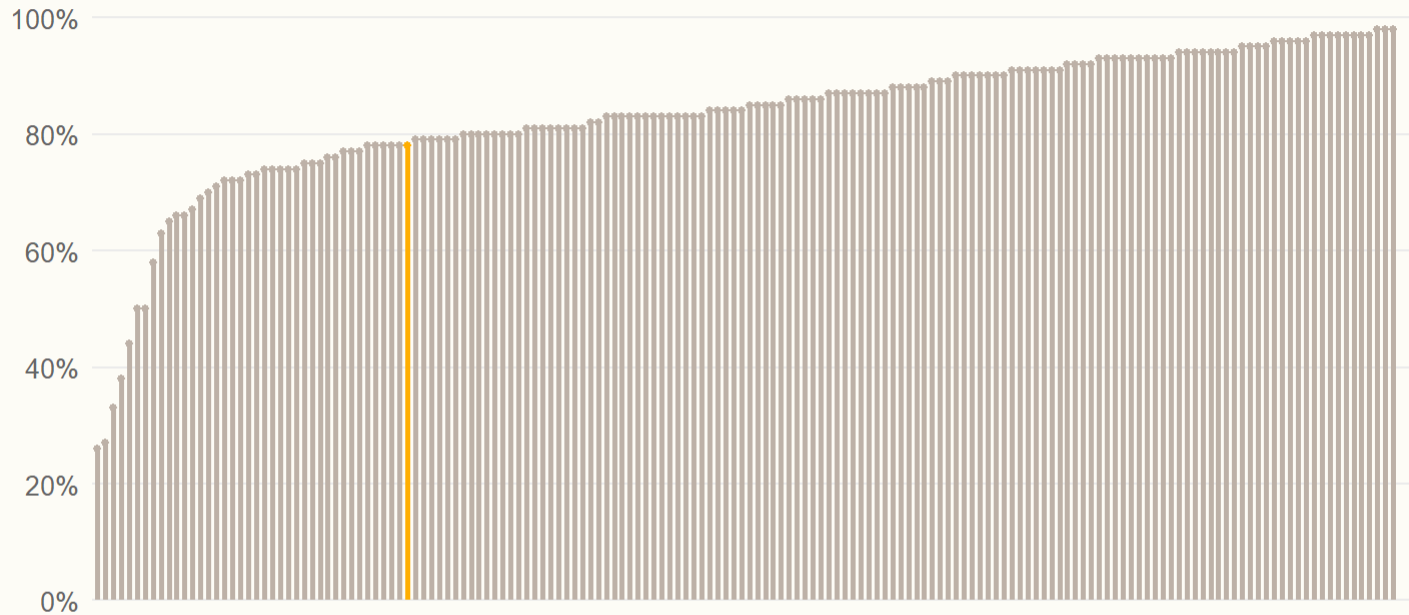


Source: U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

Credit: Office of Institutional Research | Western Michigan University

## WMU retention compared to other large U.S. Universities

Second year retention (%) for full-time, first-year students (2016 cohorts)



### Notes

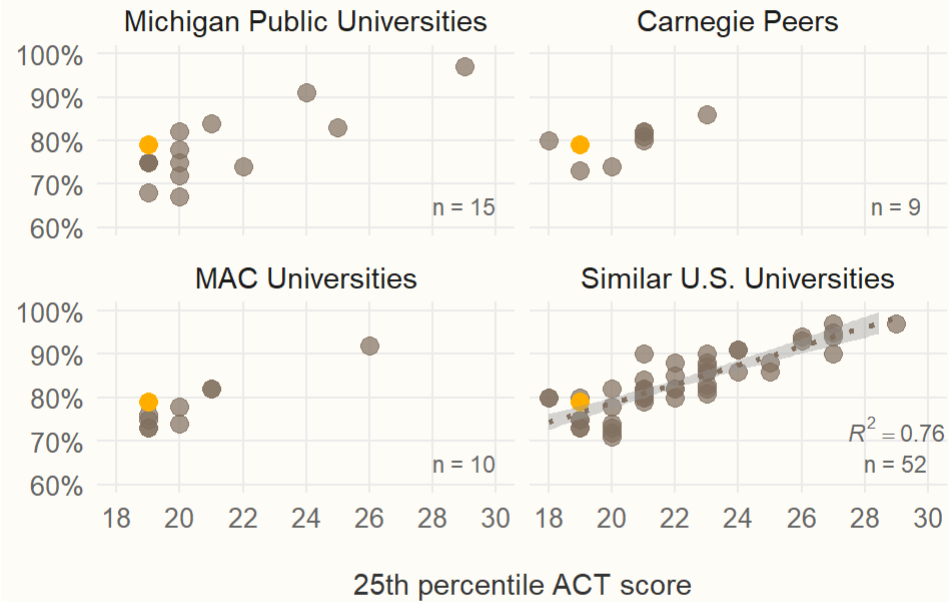
Includes all U.S. Universities that are categorized as 'Degree granting; primarily Bachelor and above' with at least 20,000 enrolled students

Source: U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

Credit: Office of Institutional Research | Western Michigan University

## WMU test scores and retention compared to peer institutions

Second year retention (%) by 25th percentile ACT Composite scores, for full-time, first-year students (2015 cohorts). WMU is highlighted in Gold.



'Similar U.S. Universities' are defined as 'Degree granting; primarily Bachelor and above' with 20,000+ annual enrollment. Only universities with >75% of incoming students reporting ACT scores are included. Dotted line indicates the best-fit least-squares regression.

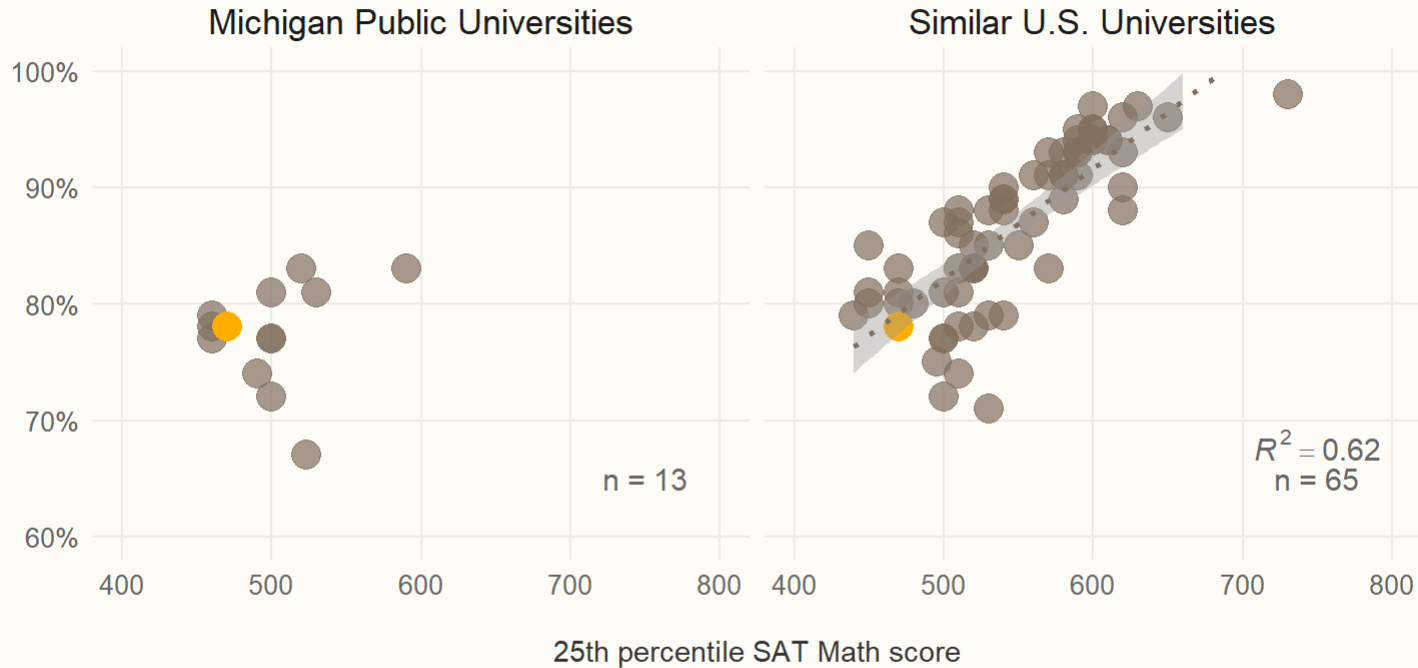
Source: U.S. Department of Education. Institute of Education Sciences, National Education Statistics.

Credit: Office of Institutional Research | Western Michigan University



## WMU test scores and retention compared to peer institutions

Second year retention (%) by 25th percentile SAT Math scores, for full-time, first-year students (2016 cohorts). WMU is highlighted in Gold.



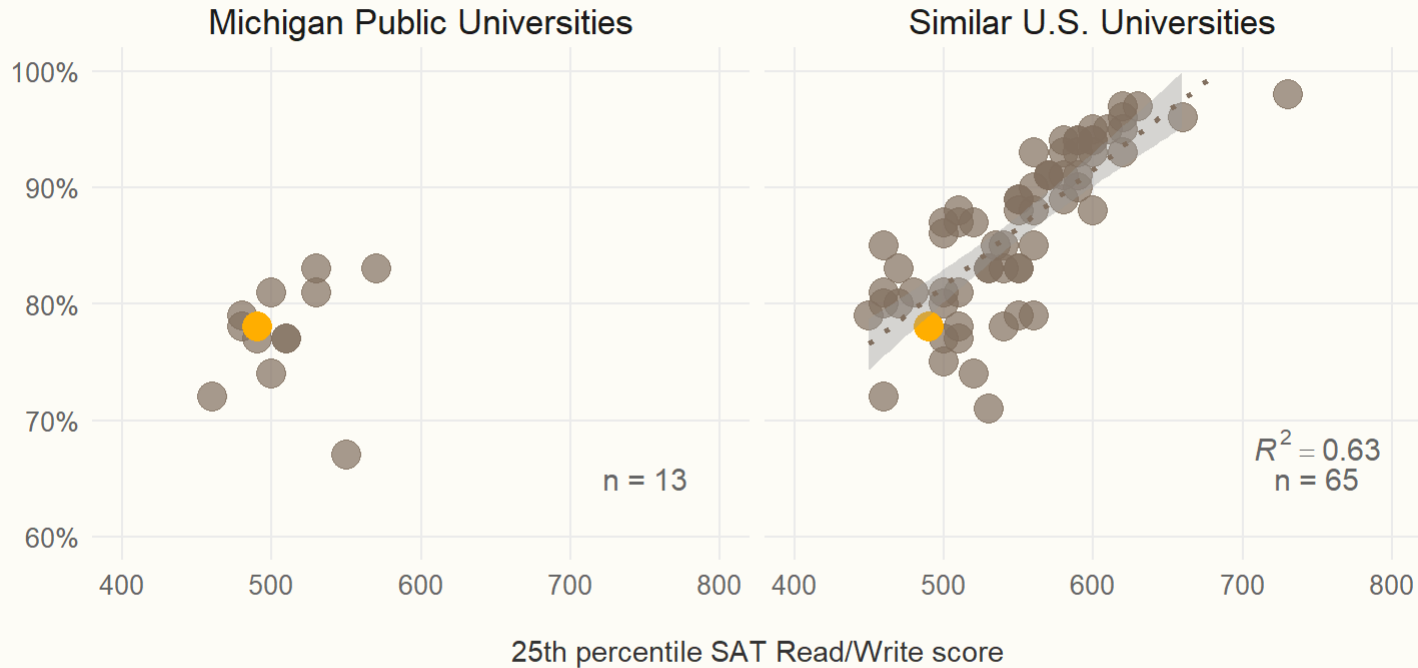
'Similar U.S. Universities' are defined as 'Degree granting; primarily Bachelor and above' with 20,000+ annual enrollment. Only universities with >65% of incoming students reporting SAT scores are included. Dotted line indicates the best-fit least-squares regression.

Source: U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

Credit: Office of Institutional Research | Western Michigan University

## WMU test scores and retention compared to peer institutions

Second year retention (%) by 25th percentile SAT Read/Write scores, for full-time, first-year students (2016 cohorts). WMU is highlighted in Gold.



'Similar U.S. Universities' are defined as 'Degree granting; primarily Bachelor and above' with 20,000+ annual enrollment. Only universities with >65% of incoming students reporting SAT scores are included. Dotted line indicates the best-fit least-squares regression.

Source: U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics.

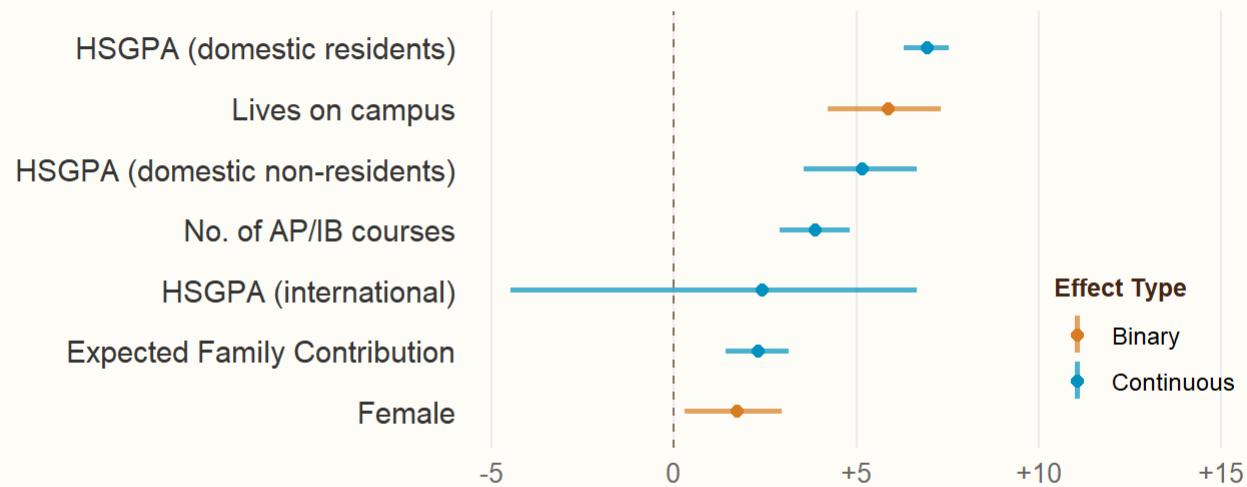
Credit: Office of Institutional Research | Western Michigan University

## 2. Updates to the second-year retention model

1. All results use data from the *six most recent (2012-2017) FTIAC cohorts*
2. Prior to fitting the model the data were randomly divided into:
  - **training** : 5/6 of the full data set used to 'fit' the model (i.e. estimate the parameters)
  - **testing** : 1/6 of the full data set used to 'test' the fitted model's ability to correctly predict retention

## WMU Retention Model: Continuous and Binary Marginal Effects

Posterior summaries (median +/- 90%) for all individual-level parameters. Estimates are reported as the effect on the probability (in percentage points) of a FTIAC returning for a second year.



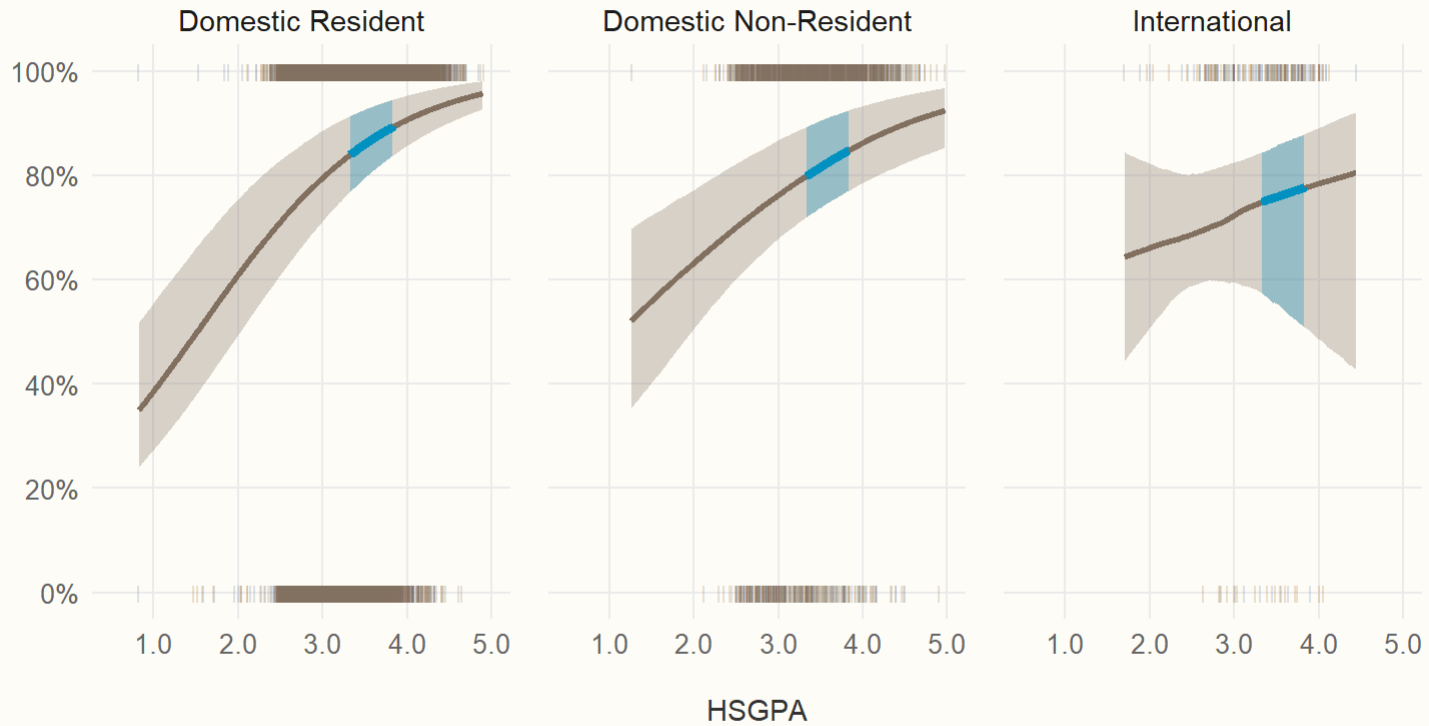
Continuous effects are scaled to a change of 1 standard deviation. Binary effects are not relative to the 'average' student: the 'Female' effect is relative to Males, and 'Lives on Campus' is relative to students living off campus.

Original data source: WMU Banner ODS Data Warehouse and Banner ODS Census Extracts.

Credit: Office of Institutional Research | Western Michigan University

## WMU Retention Model: Marginal Effect of High School GPA

Estimated marginal probability (%) of a FTIAC returning for a second year over the full range of HSGPA values



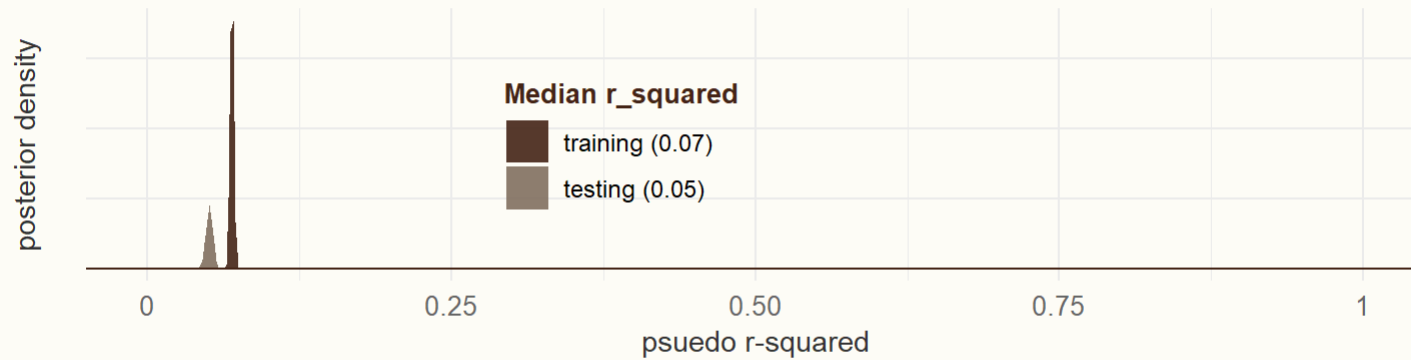
The gray ribbon around the trendline illustrates the estimated uncertainty (90% posterior probability) in the effect size. The raw retention data are plotted as rugs at the top and bottom of the figure.

Original data source: WMU Banner ODS Data Warehouse and Banner ODS Census Extracts.

Credit: Office of Institutional Research | Western Michigan University

## WMU Retention Model: "Goodness-of-fit"

Posterior distribution of the psuedo r-squared statistic for the full model applied to the training and testing data subsets.



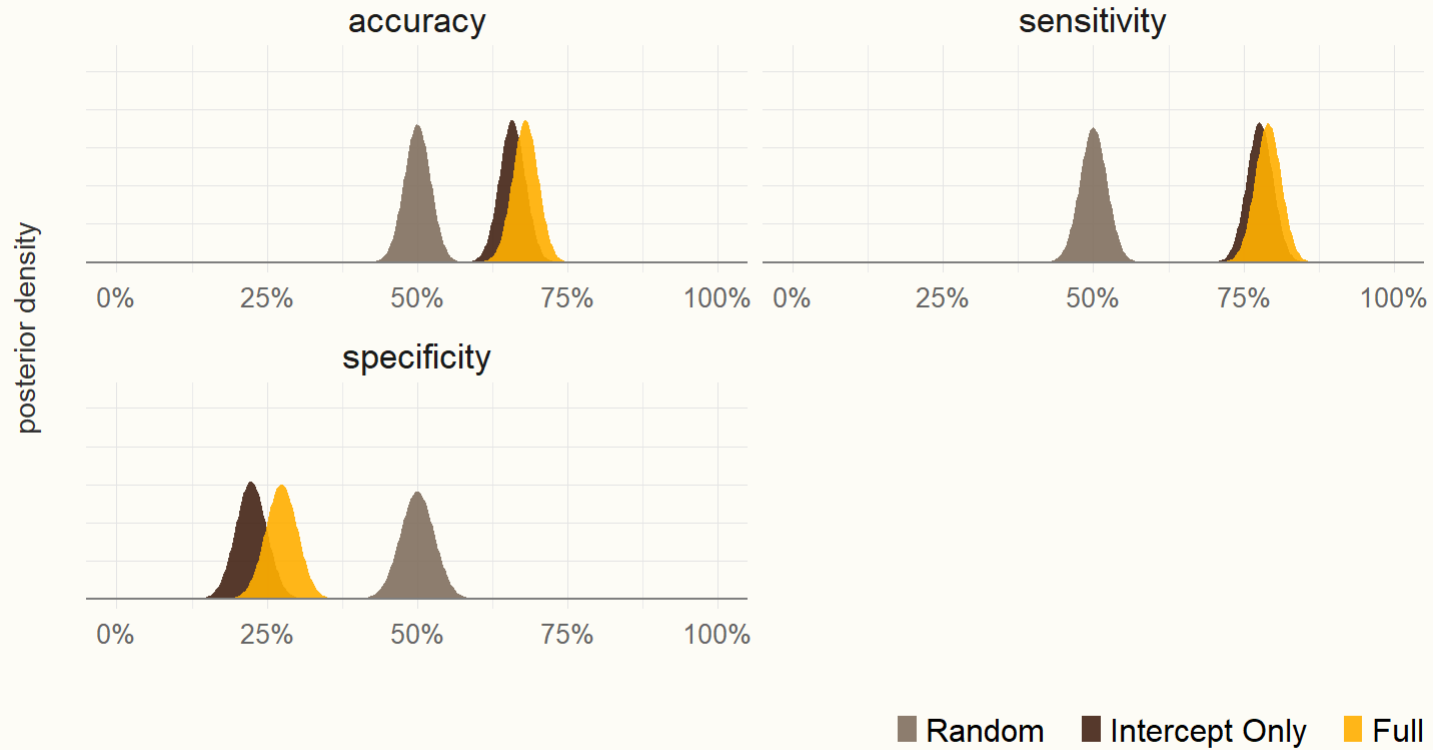
Pseudo r-squared calculated as:  $(\text{Null Deviance} - \text{Fitted Deviance}) / (\text{Null Deviance})$ . A r-squared value of 1 is equivalent to a fully saturated model.

Original data source: WMU Banner ODS Data Warehouse and Banner ODS Census Extracts.

Credit: Office of Institutional Research | Western Michigan University"

## WMU Retention Model: Model Classification Success

Posterior accuracy, sensitivity, and specificity of a random, intercept-only, and the full fitted model measured against the testing data subset.



Original data source: WMU Banner ODS Data Warehouse and Banner ODS Census Extracts.

Credit: Office of Institutional Research | Western Michigan University



## 3. Transfer retention

## Transfer students with at least 30 credit hours:

### University-wide Retention Rates

Cohort	Cohort Count	to year 2	to year 3	to year 4	to year 5	to year 6	to year 7	to year 8	to year 9	to year 10	to year 11
2008	851	82.6%	62.8%	30.5%	10.0%	4.2%	2.8%	1.9%	0.9%	0.5%	0.5%
2009	777	82.5%	58.5%	28.7%	9.9%	3.9%	2.2%	1.2%	1.0%	0.8%	
2010	917	81.8%	59.9%	27.8%	11.1%	4.2%	2.2%	1.6%	1.2%		
2011	855	80.0%	60.2%	30.0%	9.7%	4.7%	1.5%	1.0%			
2012	930	81.4%	61.5%	28.3%	11.2%	4.4%	2.5%				
2013	812	77.9%	59.1%	28.4%	9.0%	4.6%					
2014	844	79.4%	58.0%	24.0%	9.1%						
2015	792	82.2%	60.3%	25.6%							
2016	826	80.8%	58.1%								
2017	786	82.2%									

*Note:*

Rates are calculated for transfer student cohorts as defined by the Consortium for Student Retention Data Exchange (CSRDE). These cohorts include all new transfer students that: (1) arrived with at least 30 transfer credit hours (2) never attended a 4-year institution prior to WMU and (3) started in the Summer II or Fall terms (grouped together into a single cohort).

Original data source: WMU Banner ODS Data Warehouse and Banner ODS Census Extracts.

Credit: Office of Institutional Research | Western Michigan University

## Transfer students with less than 30 credit hours:

### University-wide Retention Rates

Cohort	Cohort Count	to year 2	to year 3	to year 4	to year 5	to year 6	to year 7	to year 8	to year 9	to year 10	to year 11
2008	267	63.2%	55.6%	40.2%	18.1%	6.8%	2.3%	2.6%	0.8%	0.8%	0.8%
2009	224	70.5%	58.5%	44.2%	17.0%	6.2%	2.2%	1.8%	0.9%	0.5%	
2010	277	70.3%	60.1%	42.4%	15.9%	6.2%	4.4%	2.2%	1.1%		
2011	314	67.2%	59.6%	41.7%	18.2%	5.4%	2.6%	0.3%			
2012	278	67.9%	56.7%	45.1%	18.8%	6.5%	3.6%				
2013	259	71.0%	59.8%	46.0%	20.5%	7.8%					
2014	271	70.5%	65.3%	46.5%	18.8%						
2015	268	69.4%	60.4%	44.4%							
2016	248	71.8%	62.5%								
2017	218	73.4%									

*Note:*

Rates are calculated for transfer student cohorts as defined by the Consortium for Student Retention Data Exchange (CSRDE) except that these students arrived with fewer than 30 transfer credit hours. Otherwise, these cohorts include all new transfer students that: (1) never attended a 4-year institution prior to WMU and (2) started in the Summer II or Fall terms (grouped together into a single cohort).

Original data source: WMU Banner ODS Data Warehouse and Banner ODS Census Extracts.

Credit: Office of Institutional Research | Western Michigan University