

2018 Hope College Enrollment Projection Model

An Update of the 2010, 2013, and 2016 Models

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In the summer of 2010 we ran a model that projected Hope College enrollments up to the 2019-2020 academic year based on the projected number of high school graduates by state over the same period of time. The projections produced by this model predicted a significant decrease in the Hope enrollment in the ensuing ten years due to a sharp projected decrease in the number of high school graduates from the state of Michigan and other Midwest states. In 2013 and 2016, that model was updated based on actual Hope enrollment in the intervening years and more recent projections of the number of high school graduates by state. Two years have passed since the 2016 model was run. This study is an update of the 2016 model with two additional years of actual Hope enrollment data. The source of the high school graduation projections are a series of editions of the report *Knocking at the College Door* from the Western Interstate Commission for Higher Education (WICHE), the latest of which is December 2016.

Description of the Enrollment Model

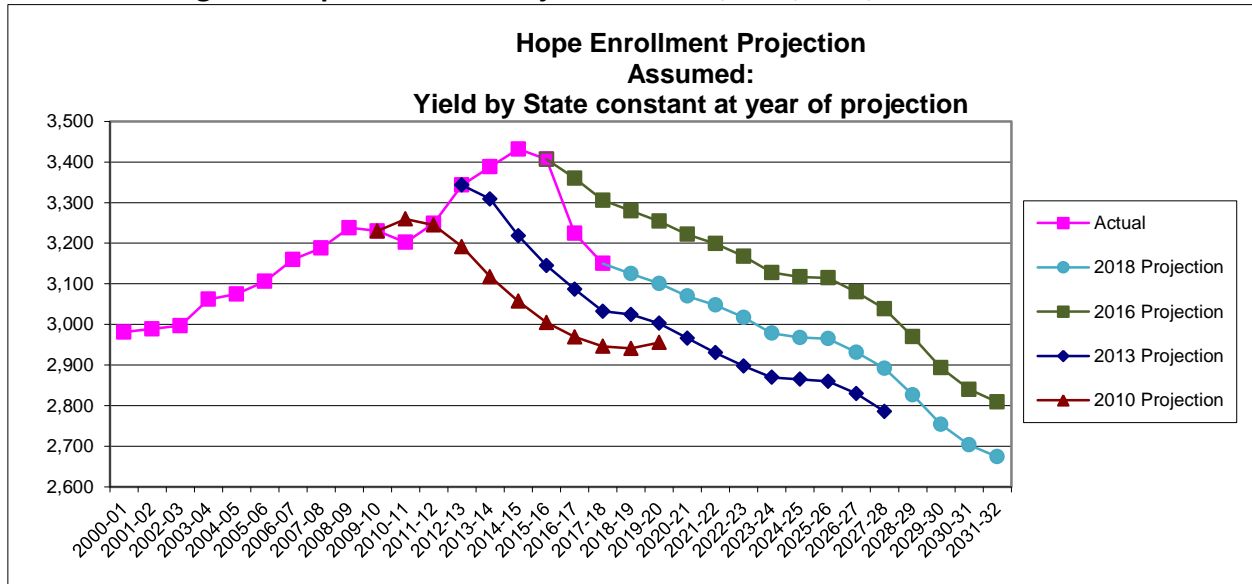
The enrollment model divides the Hope College student body into five categories based on their state of residence prior to enrolling at Hope. These categories are Michigan, Illinois, Indiana, Ohio, and other. The four states chosen are the home states of 88.5% of Hope students. Every other state is home to less than 1.2% of the student body. For each of the four specified states, we calculate the percentage of high school graduates from the state in the preceding four years who are enrolled at Hope for the present academic year (2017-18). For those in the “other” category, we calculate the percentage of high school graduates in the preceding four years from the entire United States who are enrolled at Hope from outside of the four selected states. These calculations are summarized in the table below

	Michigan	Illinois	Indiana	Ohio	Other
2009-12 high school graduates	480,248	595,879	276,173	537,570	13,497,043
2012-13 Hope enrollment	2,272	467	95	71	438
Hope enrollment as % of total	0.473%	0.078%	0.038%	0.013%	0.003%
2014-17 high school graduates	425,412	591,641	289,338	496,714	13,663,332
2017-18 Hope enrollment	2,141	447	138	62	362
Hope enrollment as % of total	0.503%	0.076%	0.048%	0.013%	0.003%

The basic assumption of the enrollment model is that the percent of students enrolling at Hope from each of the five pools of students above remains constant at the current year’s percentage for all future years. Based on this assumption and based on the WICHE projections for the number of high school graduates by state, the 2018 model projects the Hope enrollment size for the next 14 years.

The chart and table in Figure 1 show the projections from this model. The pink entries on the chart and in the first column of the table represent actual Hope enrollments. The maroon entries on the chart and in the second column of the table represent the projections from the model run in 2010. The blue entries on the chart and in the third column of the table represent the projected enrollments from the 2013 model and green entries represent the 2016 model. The light blue entries represent the model generated for this 2018 report.

Figure 1. Hope Enrollment Projections – 2010, 2013, 2016, and 2018 Models



Year	Actual Hope Enrollment	2010 Hope Projected Enrollment	2013 Hope Projected Enrollment	2016 Hope Projected Enrollment	2018 Hope Projected Enrollment
2000-01	2,981				
2001-02	2,989				
2002-03	2,997				
2003-04	3,062				
2004-05	3,075				
2005-06	3,106				
2006-07	3,160				
2007-08	3,188				
2008-09	3,238				
2009-10	3,230				
2010-11	3,202	3,260			
2011-12	3,249	3,245			
2012-13	3,343	3,191			
2013-14	3,388	3,117	3,309		
2014-15	3,432	3,057	3,218		
2015-16	3,407	3,005	3,145		
2016-17	3,224	2,969	3,089	3,360	
2017-18	3,150	2,946	3,032	3,306	
2018-19		2,941	3,024	3,280	3,125
2019-20		2,956	3,003	3,254	3,101
2020-21			2,966	3,222	3,070
2021-22			2,930	3,199	3,047
2022-23			2,898	3,168	3,017
2023-24			2,870	3,128	2,978
2024-25			2,865	3,117	2,968
2025-26			2,860	3,114	2,965
2026-27			2,830	3,080	2,931
2027-28			2,785	3,039	2,892
2028-29				2,970	2,826
2029-30				2,893	2,754
2030-31				2,840	2,703
2031-32				2,809	2,674

Observations

The most striking feature of Figure 1 is the dramatic drop in actual enrollment over the most recent two years. This is a result of a smaller than usual incoming class in 2016 in conjunction with the graduation of two large classes in 2016 and 2017. As a result, actual Hope College enrollment has under-performed the model by 156 students. It is important to note that current enrollment of 3,150 aligns with financial planning targets of 3,000 – 3,200.

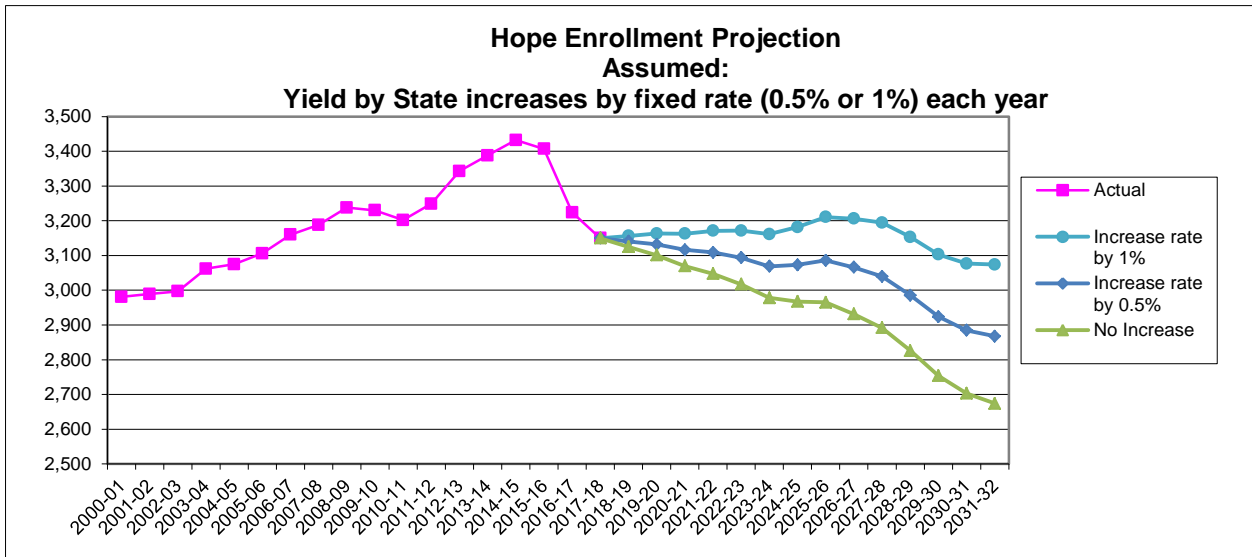
While this is a discouraging result, the 2017-18 enrollment is still higher than the 2010 and 2013 projections though the surplus has now been cut in half. While the model recalibrates around the most recent enrollment count each time it is updated, the future trends are always the same due to the projected decrease in the pool of students. This is true because the model holds constant the percent of students from each state's pool who will be attending Hope each year. The December 2016 edition of the WICHE report has extended the projections by four year to 2031-32. It predicts that between 2017-18 and 2031-32, the number of Michigan high school graduates will decrease by 16%, Illinois and Ohio will be down 12%, and Indiana 7%.

A Model with Increasing Pool Share

Since the assumption of a constant percentage of students enrolling at Hope from each state's pool of students makes decreasing projected enrollment inevitable, an adjusted model was constructed to determine how much of an increase in the percent of each state's pool enrolling at Hope would be required to stabilize Hope's projected enrollment. Results of this experiment are found in Figure 2.

Figure 2 shows that if Hope College increases its draw from each pool by 1% every year, a stable enrollment will be maintained between now and 2032. Even that 1% growth results in a slight decrease in enrollment over the next 14 years, though there is moderate increase projected in the next decade. The 1% growth model projects that between 2017-18 and 2031-32, Michigan enrollment at Hope will decrease by over 100 despite the significant growth in Hope's percentage draw from this pool. The other three states' enrollments are projected to remain essentially unchanged and areas outside of those four states are projected to have a Hope enrollment that is 33 higher in 2031-32 than it is in 2017-18.

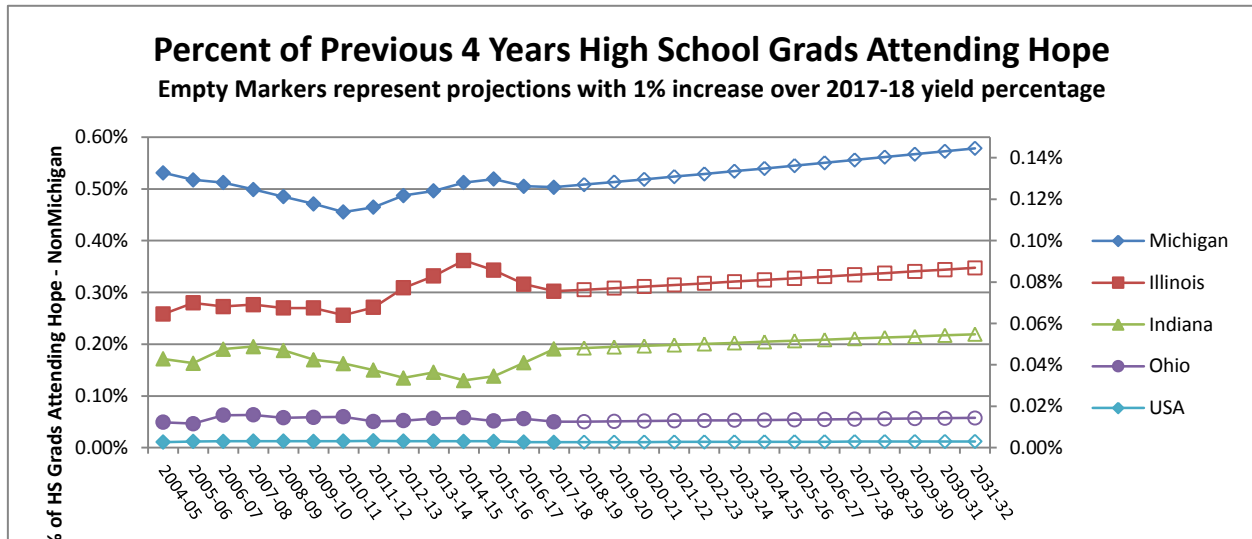
Figure 2.



Year	Actual Hope Enrollment	State Yield Increases by 1% each year	State Yield Increases by 0.5% each year	State Yield remains constant
2000-01	2,981			
2001-02	2,989			
2002-03	2,997			
2003-04	3,062			
2004-05	3,075			
2005-06	3,106			
2006-07	3,160			
2007-08	3,188			
2008-09	3,238			
2009-10	3,230			
2010-11	3,202			
2011-12	3,249			
2012-13	3,343			
2013-14	3,388			
2014-15	3,432			
2015-16	3,407			
2016-17	3,224			
2017-18	3,150			
2018-19		3,156	3,141	3,125
2019-20		3,163	3,132	3,101
2020-21		3,163	3,116	3,070
2021-22		3,171	3,109	3,047
2022-23		3,171	3,094	3,017
2023-24		3,161	3,069	2,978
2024-25		3,182	3,073	2,968
2025-26		3,211	3,086	2,965
2026-27		3,206	3,066	2,931
2027-28		3,195	3,040	2,892
2028-29		3,153	2,986	2,826
2029-30		3,103	2,924	2,754
2030-31		3,077	2,884	2,703
2031-32		3,074	2,868	2,674

Figure 3 puts this increase in the draw percentage into perspective. Here we see how Hope's draw rate has varied since 2004 along with the future rates resulting from a 1% annual increase. While this increase of 1% would result in draw rates for Illinois and Ohio that are within the range of those realized in recent years, this increase would require the Indiana and Michigan draw rates to extend far beyond largest rates Hope has experienced in the past decade. In Michigan, for example, the 1% increase would see Hope match its highest rate in the last decade (0.5188%) by 2021 and grow to 0.578% by 2031. This growth in Hope's share of the pool would be difficult to accomplish under any circumstances, but it will be even more so during a time of decreasing pool size and increased attention to recruiting from this same pool of students by competitor institutions.

Figure 3.

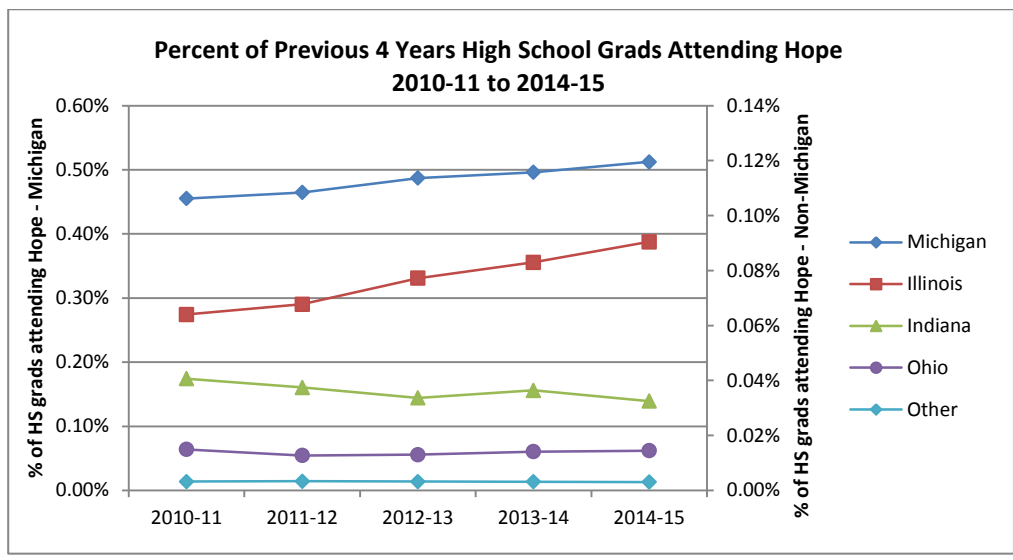


Analysis of 2010-11 to 2014-15

An interesting phenomenon in Figure 1 is that actual Hope College enrollment over-performed the projected enrollment model over the 2010-11 to 2014-15 time period. A closer look at the components of the model helps us to understand why this occurred. Figure 4 shows the actual percent of each state pool of students that attended Hope over that time period. The key to Hope's high enrollment numbers lies in the increasing enrollment rates of Michigan and Illinois students over those five years. The Illinois increase accounted for twice as much of the enrollment growth as did the Michigan increase, indicating that Hope's enrollment success in the first half of this decade was largely the result of a 9% annual increase in yield from the Illinois pool of students. Figure 3 shows that approximately half of that growth in the Illinois rate has been relinquished over the most recent three years.

Figure 5 shows that the period from 2014-15 to 2017-18 saw a reversal of these growth rates, with Michigan leveling out, Illinois, Ohio, and Other decreasing by 3.5-6.0% per year, and Indiana's Hope enrollment increasing by almost 50%. Even though Michigan's rate changed little, the decreasing pool of Michigan high school graduates decreased Hope's Michigan enrollment by 147 students.

Figure 4



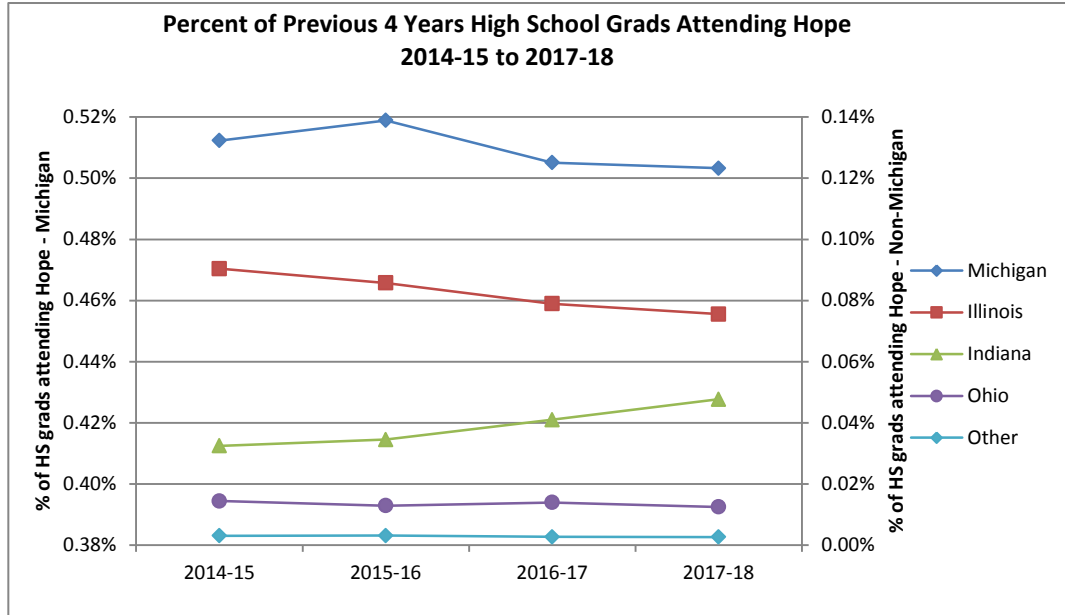
Hope College Enrollment by Percent of State 4 Year Pool

	2010-11	2011-12	2012-13	2013-14	2014-15	Annual Change
Michigan	0.455%	0.465%	0.487%	0.496%	0.512%	3.0%
Illinois	0.064%	0.068%	0.077%	0.083%	0.090%	9.0%
Indiana	0.041%	0.037%	0.034%	0.036%	0.032%	-5.5%
Ohio	0.015%	0.013%	0.013%	0.014%	0.014%	-0.8%
Other	0.003%	0.003%	0.003%	0.003%	0.003%	-1.0%

Hope College Enrollment by State

	2010-11	2011-12	2012-13	2013-14	2014-15	Enrollment Change 10-11 to 14-15
Michigan	2,204	2,217	2,272	2,263	2,288	84
Illinois	382	407	467	507	548	166
Indiana	110	104	95	104	94	-16
Ohio	80	69	71	77	77	-3
Other	426	452	438	437	425	-1

Figure 5.



Hope College Enrollment by Percent of State 4 Year Pool

	2014-15	2015-16	2016-17	2017-18	Annual Change
Michigan	0.512%	0.519%	0.505%	0.503%	-0.8%
Illinois	0.090%	0.086%	0.079%	0.076%	-6.0%
Indiana	0.032%	0.035%	0.041%	0.048%	14.2%
Ohio	0.014%	0.013%	0.014%	0.012%	-3.5%
Other	0.003%	0.003%	0.003%	0.003%	-5.8%

Hope College Enrollment by State

	2014-15	2015-16	2016-17	2017-18	Annual Change
Michigan	2,288	2,287	2,190	2,141	-147
Illinois	548	522	474	447	-101
Indiana	94	100	119	138	44
Ohio	77	67	71	62	-15
Other	425	431	370	362	-63