



# IRIM RESEARCH EXECUTIVE SUMMARY

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## **Student Success between Honors and Non-Honors Populations: A Comparative Analysis Using Matching Case Method** Research Executive Summary

Student success, frequently measured by retention and graduation rates for quantitative research purposes, is undoubtedly one of the most critical subjects in higher education. Many institutions put great effort into improving student retention and graduation rates through a variety of programs. As a result, establishing or expanding an honors program has become an important tool to improve overall student success. Nevertheless, the question on whether honors programs actually improve student success remains unanswered.

Eastern Michigan University (EMU) enrolls around 18,000 undergraduate students each fall, with an entering first-time freshman (FTIAC) class of 2,600 or thereabouts. EMU's FTIAC cohorts have had relatively decent first-year retention rates, hovering in the range of 72-77%; six-year graduation rates which have been between 36-40% are low in comparison with peer institutions. Since 2012, EMU has implemented multiple campus-wide strategies to improve student success, one of which is the fast expansion of its Honors College. The total number (unduplicated count by academic year) of students in the Honors College increased from 875 in 2012 to 1,686 in 2016, an expansion of 92.7%.

In this study, we want to test the hypothesis: whether students in an honors program present higher first-to-second year retention and six-year degree completion rates than non-honors students, *after* controlling for other input factors such as high school GPA, ACT score, and other demographic variables. Our research questions are:

1. Are higher 1<sup>st</sup>-year retention and 6-year graduation rates for honors students due to participation in the Honors College or students' stronger starting qualifications?
2. Is there a significant difference between aforementioned rates for honors and non-honors students?

## Research Executive Summary (continued)

For the purposes of this study, we defined our populations as:

*Experimental Group:* 646 FTIAC honors students that were enrolled between 2004 and 2009 and stayed in the Honors College at least 3 semesters, among them 532 students obtained bachelor degrees from EMU within six years.

*Control Group:* 5,276 non-honors FTIAC students that were enrolled between 2004 and 2009, among them 2,116 students obtained bachelor degrees from EMU within six years.

Results before using matching case analysis are:

- 1<sup>st</sup>-year retention rate: honors=97.99% non-honors=72.91%
- 6-year graduation rate: honors=82.35% non-honors=40.11%

To answer our research questions, we applied propensity score matching methods that included four matching variables: high school GPA, ACT score, ethnicity, and gender. Propensity score matching is a statistical matching technique that one treatment case is matched with one or more control cases. The matching can strengthen causal arguments in quasi-experimental and observational data by reducing selection bias. Two matching methods—exact and nearest—were used. The results are:

Methods	Cohorts	Retention rates	Graduation rates
<b>Exact Match</b> <i>N1 = 181, N2 = 199</i>	Honors ( <i>N1</i> )	97.24%	82.87%
	Non-honors ( <i>N2</i> )	74.87%	59.30%
<b>Nearest Match</b> <i>N1 = 646, N2 = 1,938</i>	Honors ( <i>N1</i> )	97.99%	82.35%
	Non-honors ( <i>N2</i> )	76.52%	53.35%

Fisher's Exact Test was used to test the significance of the differences, and the result showed extremely low *p* values (<0.0005) among all matches, indicating a significant difference between the two matching groups.

Based on our analysis, we conclude (1) there is a significant difference for both retention and graduation rates between honors and non-honors students, and (2) the honors program can improve student retention and graduations rates; the differences are significant and are independent from students' starting qualifications.

For questions about the study, contact *Drs. Bin Ning* or *Meng Chen* at IRIM.