



TEACHERS COLLEGE, COLUMBIA UNIVERSITY

**Building Transfer Student Success at Macomb Community College:
A Report on Transfer and Degree Completion**

October 2017

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1. Introduction

Beginning at a local two-year college and then transferring to a four-year institution has been one of the most affordable ways for students to earn a bachelor's degree. Many students—especially low-income students, adults, and beginning part-time college students with jobs—choose to follow this path because starting at a community college offers both dramatically lower costs and flexibility for those with busy schedules and substantial nonacademic commitments. Yet transfer pathways from two- to four-year institutions are often complex and confusing, and too many students who begin at a community college and aspire to earn a bachelor's degree fail to do so. Macomb Community College has taken a number of significant steps to address this issue. Macomb has developed over 200 transfer plans with partner institutions to facilitate transfer and to improve success rates for transfer students. It has partnered with its most popular transfer destinations to form the University Partners Advisory Council (U-PAC)¹ to study and improve transfer pathways for students who begin their studies at Macomb and want to eventually earn a bachelor's degree. And in partnership with 12 colleges and universities, some of which are U-PAC partners, it has established the Macomb University Center, which provides access to more than 75 bachelor's and master's programs directly from the Macomb Center Campus.

The Community College Research Center (CCRC) is leading research on some of these transfer efforts in collaboration with Macomb and the members of the U-PAC. Through an analysis of student data, this report provides information on the transfer and completion outcomes of students who attended Macomb during or after 2003 and who transferred to U-PAC institutions between fall 2007 and spring 2009. Outcomes are tracked through June 2017. It is worth noting that the efforts of Macomb and its U-PAC partners are taking to improve transfer outcomes occur in the context of a comprehensive reform, carried out in conjunction with the Michigan Student Success Center, to implement a guided pathways model. There are four broad elements in the guided

¹ The U-PAC includes the following colleges and universities: Central Michigan University, Eastern Michigan University, Ferris State University, Lawrence Technological University, Madonna University, Michigan State University, Oakland University, Rochester College, University of Detroit Mercy, University of Michigan-Ann Arbor, University of Michigan-Dearborn, Walsh College, Wayne State University, and Western Michigan University.

pathways model: (1) mapping pathways to student end goals, (2) helping students get on a path, (3) helping students stay on a path to completion, and (4) ensuring that students are learning and that pathway learning outcomes are aligned with the requirements for success in further education and employment. Because so many community college students aspire to earn a bachelor's degree, any comprehensive guided pathways reform effort must include components designed to improve transfer and bachelor's completion. In addition, improvements in transfer will be more likely to be successful if they are accompanied by strengthening other practices and policies of a particular college. So while in this report we focus on transfer and particularly on bachelor's completion of students once they transfer, it is important to keep in mind the broader context in which these efforts are taking place.

This study examines two issues. The first is the rate at which students earn bachelor's degrees. We report on this for U-PAC colleges as a group and in some cases for each individual de-identified U-PAC member. Second, we examine whether transfer students earn more credits than necessary for a degree. This phenomenon is known as excess credit accumulation. We report on those excess credits earned at Macomb in by students who eventually transfer as well as those earned at the U-PAC colleges in pursuit of a bachelor's degree. The excess credit analysis is based on a smaller sample of students for which we have linked transcript data from both Macomb and the U-PAC colleges.

Following this introduction, we begin by presenting the research questions, describing the data and concepts used in the report, and describing the characteristics of the students in the samples we use. We then present our findings, including analysis of transfer patterns, associate and bachelor's degree outcomes, and excess credits. We then describe the limitations of the analysis and conclude with a discussion of findings and some suggestions for improving transfer outcomes.

2. Research Questions

In order to better understand the transfer process between Macomb and its U-PAC partners, we explore the following research questions:²

- 1) To what extent do Macomb students who transfer to U-PAC colleges earn associate and bachelor's degrees?
 - a. How does the bachelor's degree completion rate differ for students who start at Macomb and those who transfer into Macomb before transferring to a U-PAC institution?
 - b. How does the bachelor's completion rate differ for students who earn an associate degree and for those who transfer without completing a degree at Macomb?
- 2) How many credits do Macomb transfer students earn in excess of those needed to complete a bachelor's degree?
 - a. How many of those excess credits are earned at Macomb and the U-PAC institutions respectively?
 - b. To what extent do switching major fields and dual enrollment experience contribute to excess credit accumulation?

3. Data and Sample

3.1 Data Sources

We make use of data from three sources: (1) Macomb Community College, (2) the fourteen participating U-PAC institutions, and (3) the National Student Clearinghouse (NSC). Macomb provided us with detailed data on all students who were first enrolled at the college in 2003 or later and who transferred from Macomb to another college between fall 2007 and spring 2009. These data include student background and financial aid

² Research Question #2 was not a formal part of the initial research plan; rather, we adopted it because the topic of excess credits is relevant to the transfer process and because the data used in the study shed some light on the accumulation of credits by students.

information and transcript information, which contains grades, courses attempted and completed, and credits earned.

Macomb also provided us with NSC data for all transfer students in the sample. The NSC data include information on enrollment and degree completion for most colleges; they allow us to track students from Macomb into most of the U-PAC colleges as well as other colleges in Michigan and across the nation. We then matched the NSC data to the more detailed Macomb data (which include transcripts). We use the NSC data to track student term-by-term enrollments and completions through June 2017. We refer to this as the *U-PAC Transfers sample*; it is our primary source of data for students' transfer patterns and degree attainment, which we use to address Research Question #1.

In addition, the U-PAC institutions provided similar data, including transcripts, on a subset of their students who transferred from Macomb during the same period. We created a separate dataset on all students for whom we could match their Macomb and U-PAC transcripts. We refer to this dataset as the *Matched Transcripts sample*; we use it to answer Research Question #2.

3.2 Defining Types of Transfer Students

In the typical transfer model, students enroll in a community college, complete an associate degree, then transfer to a four-year college where they complete their bachelor's degree. But only a minority of transfer students follow this model. First, nationally, only about 29 percent of transfer students earn an associate degree or certificate before they transfer (Jenkins & Fink, 2016). Moreover, some of those who transfer before completing their associate degree eventually are awarded that degree after they have been enrolled at the four-year college. Next, many students who enroll at a community college are not first-time students when they do so and therefore transfer in some credits. Finally, many students who transfer from a two- to a four-year college subsequently transfer again to another four-year college or even back to a two-year college, either the one from which they originally transferred or a different one. Any policy to improve transfer and transfer success must take account of these transfer patterns and the effects that they may have on student outcomes.

In the current study, we group transfer students according to four types of transfer patterns each followed based on Townsend's (2001) and Adelman's (2006) method of

classifying students using their own enrollment behaviors. The four groups are direct transfer, swirler, reverse transfer, and transfer-in students:

- **Direct Transfer:** First-time-in-college students who transferred once, from Macomb to a U-PAC institution.
- **Swirler:** First-time-in-college students who began at Macomb, transferred to a U-PAC institution, and subsequently transferred to another institution. These students began at Macomb and then transferred two or more times.
- **Reverse Transfer:** First-time-in-college students who enrolled at Macomb, transferred to a U-PAC institution, and then eventually transferred back to Macomb. They may have attended other institutions prior to returning back to Macomb.
- **Transfer-in:** Students who went to college elsewhere and then transferred to Macomb (and therefore were not first-time-in-college when entering Macomb), and who then transferred out to a U-PAC institution.

Note that all of these groups include some students who completed a degree or certificate at Macomb before transferring and some who transferred without any award.

3.3 Students Included in the Analyses

Table 1 shows the student sample selection we use in the study. Overall, 20,657 students enrolled at Macomb Community College and transferred between fall 2007 and spring 2009. Of these transfer students, 15,853 earned 9 or more credits at Macomb, which we use as an indicator of students who had longer term educational intentions—in effect we define them as either associate or bachelor’s degree seeking students.³ Of these students who transferred and earned at least 9 credits, 13,835 transferred to a four-year institution, and 10,511 of those students transferred to a U-PAC institution.⁴ We refer to these 10,511 students as the U-PAC Transfers sample, which is used to answer Research

³ These numbers come from student transcripts provided by Macomb Community College.

⁴ The data on the institution to which students transferred is from the NSC, but note that one institution did not have such NSC data available for part of the period under study.

Question #1. In the U-PAC Transfers sample, 6,455 students were first-time-in-college students. The other 4,056 students transferred into Macomb from another college.

In addition, for a group of 2,352 students from those 10,511 students in the U-PAC Transfers sample, we obtained matched transcripts from both Macomb and the U-PAC colleges to which the students transferred. These transcripts allow us to count the number of credits earned by these transfer students at both the sending and receiving institutions. These 2,352 students comprise the Matched Transcripts sample, which is used to answer Research Question #2. Table 1 presents these sample numbers. The Matched Transcripts sample is much smaller than the U-PAC Transfers sample; this results from problems in the matching process, which was inhibited by name changes and errors in dates of birth. Macomb staff used Unique Identification Code (UIC) information from the Michigan Student Database System to make the matches, but at the time of the study period (2007-2009), UIC information was in its infancy and data were missing in some cases.

Table 1
Analytic Sample Selection

Sample	Number of Students
Transferred from Macomb between fall 2007 and spring 2009	20,657
The above, and earned 9 or more credits before transfer	15,853
All of the above, and transferred to a four-year institution	13,835
All of the above, and transferred to a U-PAC institution – <i>U-PAC Transfers sample</i>	10,511
All of the above and included in U-PAC transcript data – <i>Matched Transcripts sample</i>	2,352

Note. If a Macomb student enrolled for only one summer at another institution, we do not count this enrollment as a transfer. If a student earned credit for courses taken at Macomb or U-PAC institutions during summer terms, those course credits are counted in credit accumulation totals.

Table 2 displays the number of students in each sample by U-PAC transfer destination. Roughly three quarters of the students in both samples transfer to four U-PAC institutions; these are the most important transfer destinations for Macomb students.

Table 2
Number and Proportion of Sample Students by U-PAC Transfer Destination

U-PAC Destination	U-PAC Transfers Sample		Matched Transcripts Sample	
	<i>N</i>	% of sample	<i>N</i>	% of sample
M	3,136	29.8%	892	37.9%
E	2,566	24.4%	507	21.6%
D ^a	1,124	10.7%	296	12.6%
G	843	8.0%	168	7.1%
A	481	4.6%	78	3.3%
L	428	4.1%	77	3.3%
I	420	4.0%	34	1.4%
F	357	3.4%	83	3.5%
H	305	2.9%	40	1.7%
K	296	2.8%	21	0.9%
J	178	1.7%	44	1.9%
C	155	1.5%	29	1.2%
B	127	1.2%	17	0.7%
N ^b	95	0.9%	66	2.8%
Total	10,511		2,352	

^a This institution started verifying degree with NSC in April 2016, though it started verifying enrollment in 1997, so while enrollments are accurate, bachelor's degree completion is undercounted. This influences only the U-PAC Transfers sample.

^b This institution started verifying enrollment with NSC in October 2014 and degree in April 2015, so these numbers are severely undercounted. This influences only the U-PAC Transfers sample.

3.4 Descriptive Characteristics of Transfer Students

Table 3 shows similarities and differences between students in the U-PAC Transfers and Matched Transcripts samples. The table presents their background characteristics, including age, gender, race/ethnicity, first-time-in-college status, Pell status, and academic preparedness as measured by developmental education placement; their enrollment intensity and pattern; their intent; and their completion outcomes. Students in the Matched Transcripts sample were more likely to be first-time-in-college, younger, more academically prepared, less likely to have received a Pell grant, more likely to have followed the “direct transfer” pattern, and more likely to have completed a bachelor's degree than students in the U-PAC Transfers sample.

Table 3
Descriptive Statistics on Macomb Transfer Students

Variable	U-PAC Transfers	Matched Transcripts
	Sample	Sample
	%	%
<i>Previous college experience</i>		
First time ever in college	61	74
Transferred into Macomb	39	26
<i>Age</i>		
Under 18	14	16
18-20	49	55
21-30	26	20
30+	11	8
<i>Gender</i>		
Female	55	54
<i>Race/Ethnicity</i>		
White	80	82
Black	5	3
Hispanic	6	4
Missing	9	10
<i>Pell status</i>		
Received Pell in first term	23	21
<i>Academic preparation</i>		
Dev. ed. Placement - English	76	84
Dev. ed. Placement - Math	80	87
<i>Enrollment Intensity</i>		
Full-time in first term	40	47
Part-time in first term	60	53
<i>Intent</i>		
Other	27	27
Degree	20	18
Transfer	30	36
Recreation	23	19
<i>Transfer pattern</i>		
Direct Transfer	40	48
Reverse Transfer	2	2
Swirler	20	25
Transfer-in	39	26
<i>Completions</i>		
Earned certificate	10	9
Earned associate degree	24	26
Earned bachelor's degree	63	78
Number of students	10,511	2,352

Overall, Table 3 illustrates that students in the Matched Transcripts sample, for whom we have transcript data, are not representative of the overall U-PAC Transfers sample. Students in the Matched Transcripts sample were more likely to have characteristics associated with better outcomes, and the data show that they were in fact more likely to complete a bachelor's degree.

4. Findings

4.1 Transfer Patterns

As shown in Figure 1, only 40 percent of Macomb students who transferred to a U-PAC destination between fall 2007 and spring 2009 followed the traditional transfer pattern—what we refer to as the *direct transfer* pattern—by starting at Macomb as a first-time-in-college student and transferring once to a U-PAC institution. Almost the same proportion of students transferred into Macomb before transferring to a U-PAC institution (*transfer-in* pattern), and another 20 percent started at Macomb, transferred to a U-PAC college, and then transferred out of the U-PAC college to another two- or four-year college (*swirler* pattern). A very small proportion of students started at Macomb, transferred to a U-PAC institution, and then eventually transferred back to Macomb (*reverse transfer* pattern).⁵

How do these transfer patterns vary by U-PAC destination? Figure 2 shows the percentage of students with each type of transfer pattern at the various U-PAC colleges. Each bar represents the total number of Macomb transfer students that transferred to that U-PAC destination during the study transfer window (between fall 2007 and spring 2009), and each colored section of the bar represents the percentage of students who followed different transfer patterns. Note that while all the bars sum to 100 percent, each U-PAC college may serve substantially different numbers of transfer students.

⁵ While we report the number of reverse transfer students, the numbers are so small that we do not discuss them in any detail in the report.

Figure 1
Percentage of Macomb Transfer Students by Transfer Pattern

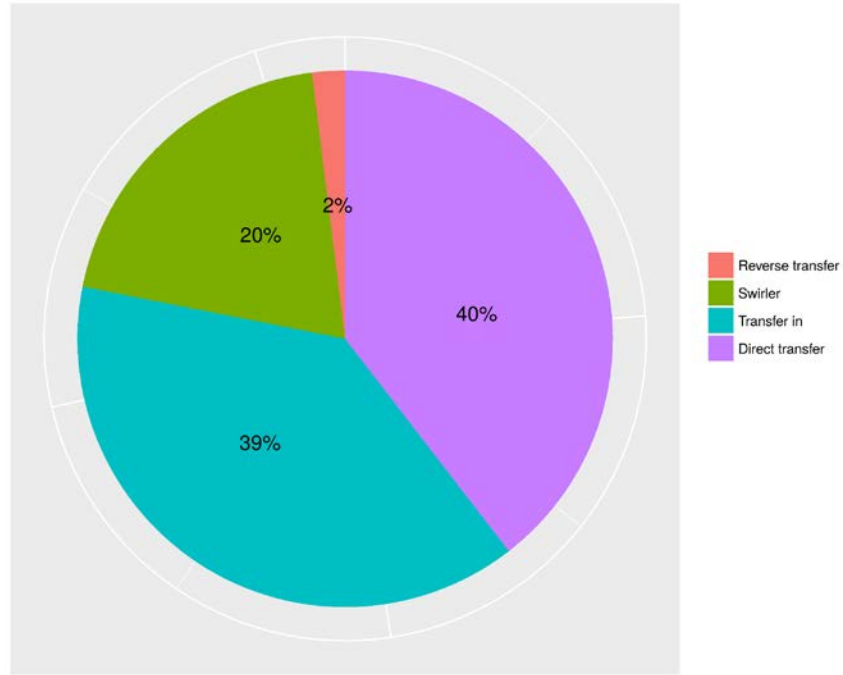
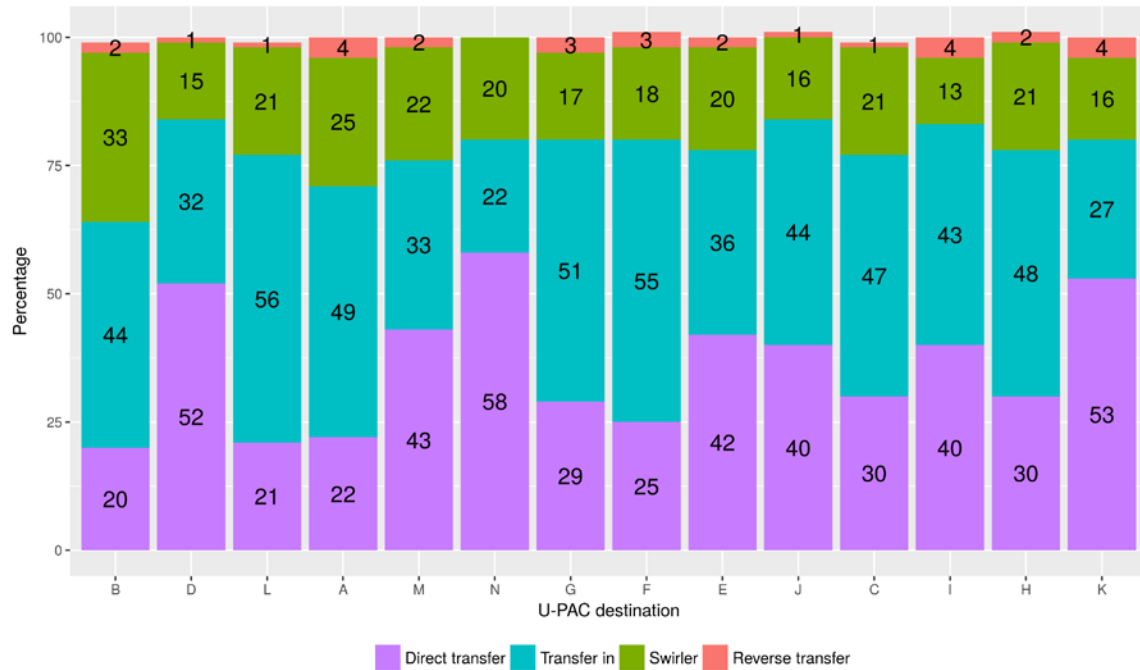


Figure 2
Percentage of Macomb Transfer Students by Transfer Pattern at Each U-PAC Institution



Note: The graph is sorted by institution from the highest (left) to lowest (right) bachelor's degree completion rate among Macomb transfer students. Bars may not sum to exactly 100 percent due to rounding.

Across the U-PAC institutions the percentage of direct transfer, swirler, and transfer-in students varies substantially. About half of the destination U-PAC institutions attracted more direct transfer than transfer-in students, and the other half attracted more transfer-in students. But note that the majority of students at almost all of the colleges stayed at the U-PAC destination after transferring from Macomb. At only two of the colleges did more than one quarter of all of the Macomb transfer students subsequently transfer to another institution—that is, they “swirled.” Transfer back to Macomb (reverse transfer) was negligible for transfer students at all of the U-PAC institutions.

The colleges in Figure 2 are presented in order of the institution’s bachelor’s completion rate. Institutions with the highest graduation rates appear on the left side of the graph, and the institutions with the lowest rates appear on the right. There does not appear to be any relationship between the predominant transfer pattern at a U-PAC destination and the bachelor’s completion rate among Macomb transfer students to that institution.

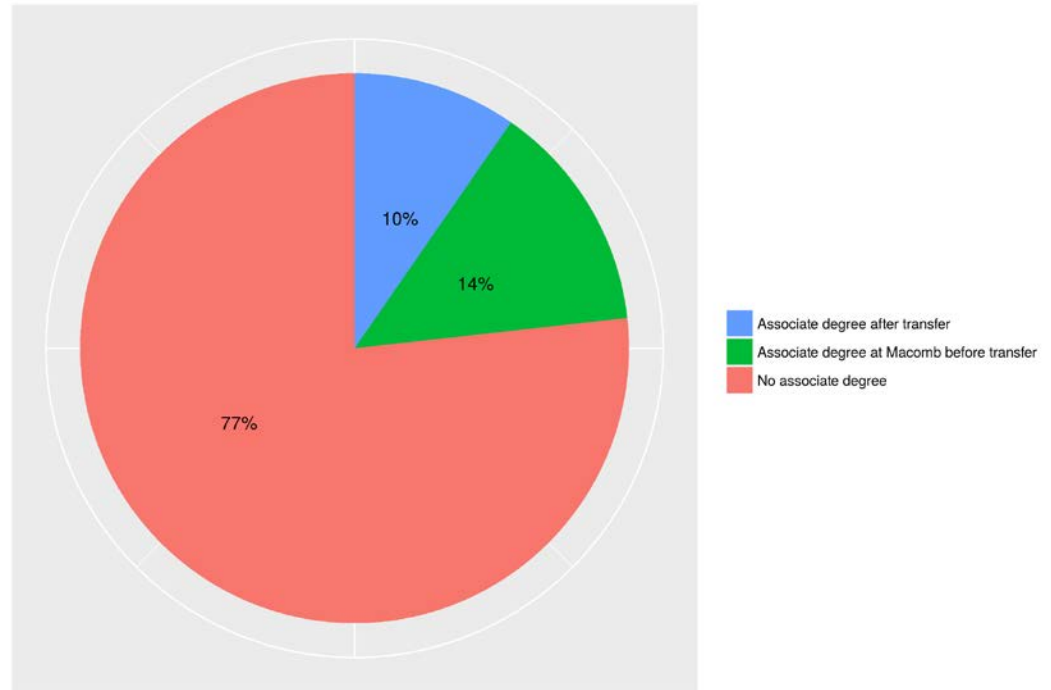
4.2 Associate Degree Completion

Figure 3 presents associate degree completion rates among students in the U-PAC Transfers sample. As we have said, in the typical transfer model students earn associate degrees at the community college before they transfer, but national data suggest that only about 29 percent of transfer students follow that path. The others transfer before they complete an associate degree or certificate. The same data show that only 24 percent of transfer students in Michigan earn an associate degree (or certificate) before they transfer (Jenkins & Fink, 2016). According to the NSC data for our U-PAC Transfers sample, this is an even less common phenomenon at Macomb. Only 14 percent of the transfer students in that sample earned a degree before transferring. Another 10 percent earned an associate degree after transferring, most likely through “3 + 1” agreements Macomb maintains with four-years colleges, in which students continue to take courses at Macomb after transferring.⁶ If we add these together, 24 percent of Macomb transfer students ended up with an associate degree. This is well below the comparable national figure.

⁶ Macomb has also created agreements with several colleges, including U-PAC members, to encourage students to earn an associate degree by counting credits earned at a four-year institution through the reverse transfer of credits; see <https://www.macomb.edu/future-students/apply-admissions/reverse-transfer.html>.

The national data suggest that 7.5 percent of transfer students earn an associate degree after they transfer.⁷ So while 24 percent of the Macomb transfer students earned an associate degree before or after transfer, the comparable national figure is about 36.5 percent.⁸

Figure 3
Percentage of Macomb Transfer Students By Associate Degree Completion Status



4.3 Bachelor's Degree Completion

Our most important goal in this report is to assess the extent to which Macomb transfer students earn bachelor's degrees after they transfer. For this analysis we rely on the NSC data from our U-PAC Transfers sample. National NSC data that are reasonably comparable indicate that about 64 percent of community college transfer students complete a bachelor's degree within six years of transfer (Shapiro et al., 2013). In the U-

⁷ Unpublished calculations from Jenkins and Fink (2016).

⁸ Note that the national numbers and the Macomb numbers are not directly comparable since the national sample includes only direct transfers, so we present these just to give a sense of the comparison.

PAC Transfers sample of the current study, 63 percent of the Macomb transfer students completed a bachelor's degree within a somewhat longer tracking period.⁹

Some research has suggested that students who complete degrees before transferring have a higher probability of completing a bachelor's degree (Crook, D., Chellman, C. C., & Holod, A., 2012; Crosta, P. M., & Kopko, E. M., 2014). Using data from North Carolina, Belfield (2013) found that that 53 percent of transfer students with an associate degree completed a bachelor's degree but that only 41 percent of transfer students without an associate degree did so. Descriptive national data from the NSC also show that students who complete an associate degree before transferring are 28 percent more likely to earn a bachelor's degree than students without one (Shapiro et al., 2013, Figure 4).

The NSC data from Macomb do not show such a large difference in bachelor's degree completion rates between students who did or did not complete an associate degree before transferring. Figure 4 presents bachelor's degree completion rates by associate degree completion status among students in the U-PAC Transfers sample. The completion rates among students who never earned an associate degree and those who earned an associate degree at Macomb are 62 percent and 63 percent, respectively. It appears that the students who earned an associate degree *after* they transferred were those most likely to complete a bachelor's degree.

Bachelor's degree completion rates among Macomb transfer students at the U-PAC destination colleges¹⁰ vary considerably. As we have seen, the overall completion rate is 63 percent, but this number varies across colleges from 22 percent to 84 percent (see Figure 5). The weighted average completion rate for the top four destinations is 64.5 percent.

⁹ Shapiro et al. (2013) tracked students who transferred during the 2005-2006 academic year and who had been enrolled in a community college within the previous four years of their first enrollment in a four-year college. Those students were tracked until the summer of 2013. In the current study, we track students who transferred between 2007 and 2009 until the spring of 2017, so while these are not exactly comparable, they are reasonably close. Our data track them for a longer period—8 to 10 years—so the Macomb numbers may be slightly inflated relative to the national numbers.

¹⁰ The number of students who earned a bachelor's degree divided by the total number of students who transferred to that institution.

Figure 4
Percentage of Macomb Transfer Students Who Earned a Bachelor's Degree
by Associate Degree Completion Status

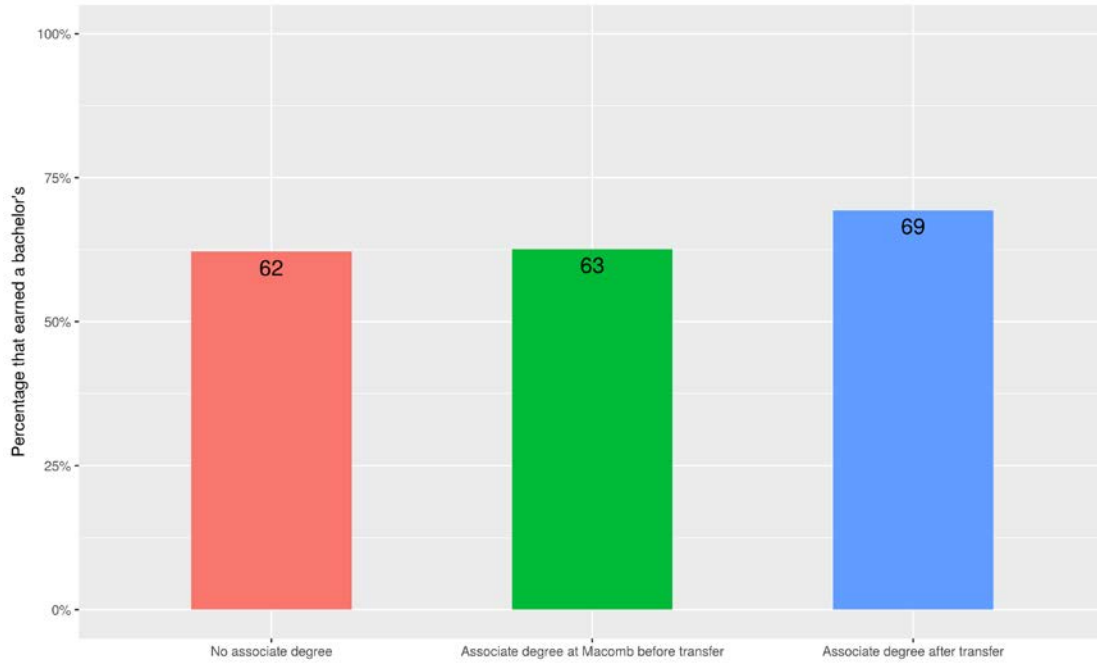
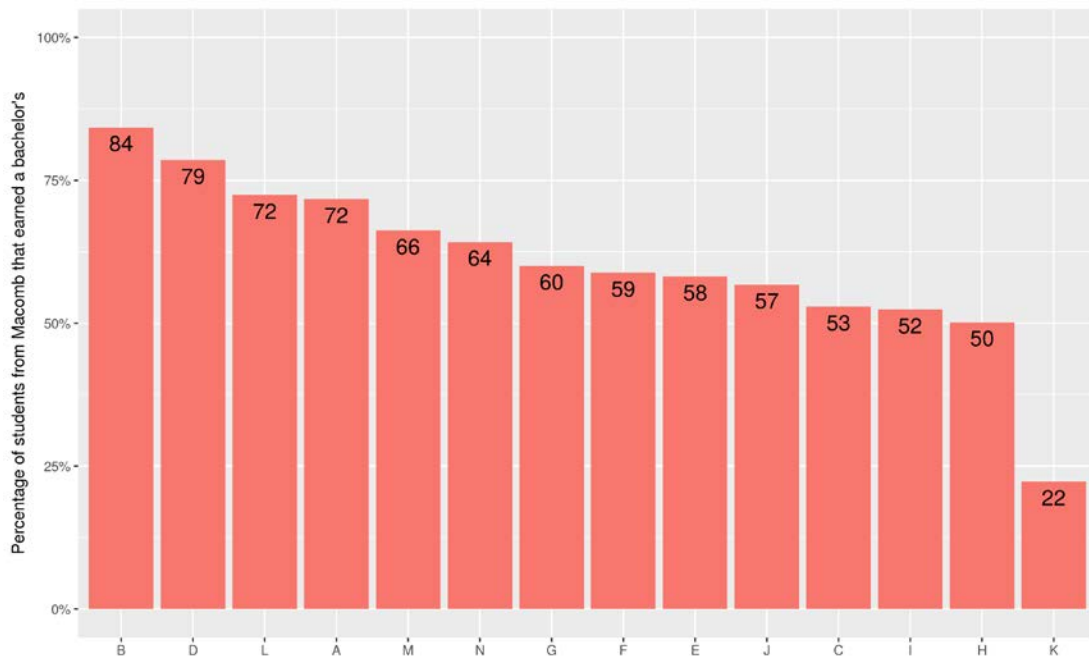
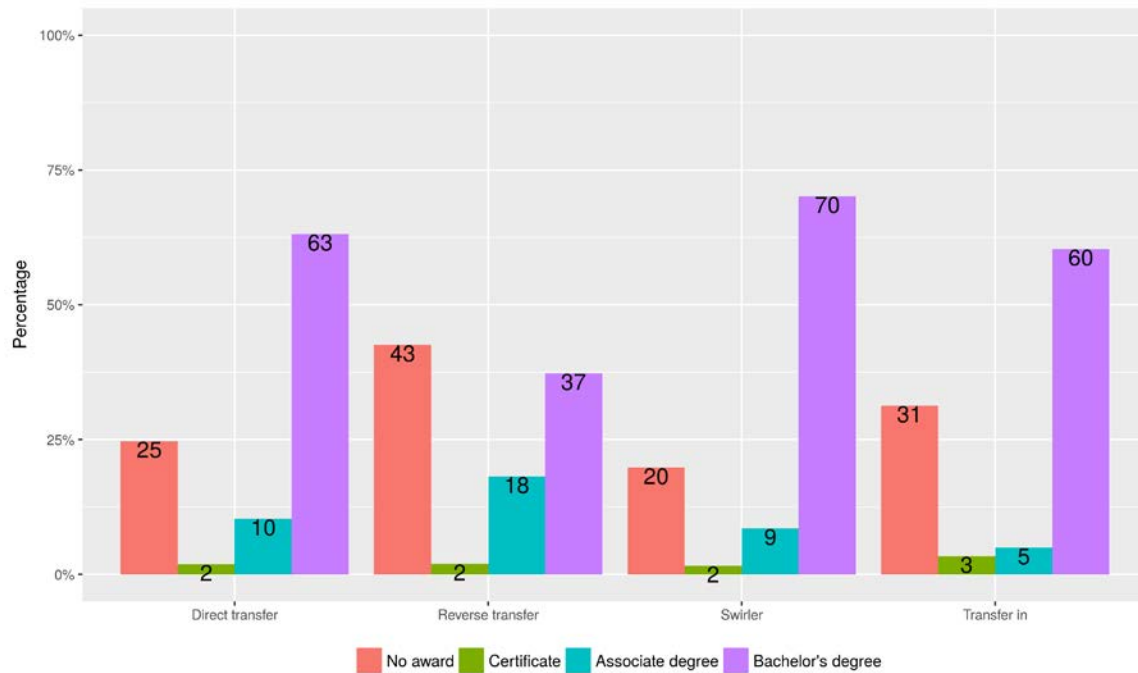


Figure 5
Bachelor's Degree Completion Rates
Among Macomb Transfer Students at U-PAC Institutions



Do students with different transfer enrollment patterns complete bachelor's degrees at different rates? Data presented in Figure 6 indicate that bachelor's degree completion rates are similar for the two largest transfer patterns—direct transfer and transfer-in. If there is much of a difference, it is that the transfer-in students were somewhat more likely to leave without any award. Interestingly, swirlers had the highest chance of completing a bachelor's degree. Perhaps their willingness to transfer again suggests that they were taking initiative to find the best four-year college match for themselves.

Figure 6
Percentage of Macomb Transfer Students by Highest Award Earned for Each Transfer Pattern



4.4 Excess Credit Accumulation

Community college students face many barriers to college completion. Most community college students work, and many have dependents. Many have trouble financing their education. A substantial number have insecure housing, and some even

struggle to adequately feed themselves. Attending college is therefore expensive and complicates family and employment responsibilities. Because of these factors, when students take excess credits to graduate, their chances of successful completion go down.¹¹

There can be many causes for the accumulation of excess credits by students, including exploration of interests through course-taking, switching from one chosen program of study to another, repeating courses with low grades, or, for transfer students, encountering articulation issues between the community college and transfer destination. Many students do not have a clear set of goals, or if they do, they may not understand what they need to do to achieve those goals. As a result, they may take courses that do not count toward their degrees. Students who change their programs may also have to take extra credits to make up for lost time pursuing credits aimed at a different degree (Bailey, Jaggars, & Jenkins, 2015).

In addition to the challenges for all community college students, those who transfer face greater problems with excess credits because degree and general education requirements at the community college and the four-year college may not line up well. For example, a student may complete general education requirements for an associate degree, but those courses may not meet the general education requirements at the transfer college. Also, a course in a particular subject area, say accounting, may transfer as an elective rather than as meeting a requirement for an accounting degree (Jenkins & Fink, 2016; Wyner, Deane, Jenkins, & Fink, 2016).

Transfer students can accumulate excess credits either at the community college—where they may, for example, take more than 60 credits (or whatever credits are required) to complete an associate degree—or at the receiving four-year institution—where they may accumulate more credits than the difference between 120 credits (or whatever credits are required) for a bachelor’s degree and the number of credits that they can transfer in from the community college. Nationally, most community college students who complete associate degrees earn many more the 60 credits that are typically required

¹¹ Excess credits are defined as an accumulation of credits over the threshold required to earn a degree.

for an associate degree.¹² At Macomb, most associate degrees require between 62 and 65 credits, so in this study we define excess credits earned toward an associate degree as those earned in excess of 65 credits. Although we use this definition, some students who are in 3 + 1 programs may accumulate more than 65 credits at Macomb that would not be considered excess credits. But even in these cases if there are excess credits they would be reflected in the credits accumulated by bachelor's degree completers. At the U-PAC destination institutions, most bachelor's degrees require between 120 and 128 total credits, so we define total excess credits toward a bachelor's degree as those earned in excess of 130 credits. We apply the excess credit thresholds for all students, regardless of whether they earned a degree or not.

The Matched Transcripts sample allows us to analyze the number of credits and excess credits earned by Macomb transfer students. Among these transfer students, whether they earned degrees or not, 50 percent earned excess credits at Macomb, and 48 percent earned more than 130 credits overall (our definition of the excess credit threshold for a bachelor's degree).

In Table 3, above, we compared the characteristics of students in the completion and Matched Transcripts samples. Overall, as we have noted, this table illustrates that the students in the Matched Transcripts sample (those with matched transcripts from both Macomb and a U-PAC institution) are not representative of the overall U-PAC Transfers sample and were more likely to complete a bachelor's degree. They were also more likely to have characteristics associated with greater success in college; therefore, to the extent that excess credits reflect barriers or mistakes on the part of students, the measured excess credit problem for students in the Matched Transcripts sample may actually understate the accumulation of excess credits for a more representative sample of students.

¹² Earning excess credits is common. For example, according to data gathered by Complete College America (CCA) (see <http://completecollege.org/college-completion-data/>), associate degree completers in Ohio and Indiana earn, on average, 86 and 91 credits respectively. Bachelor's degree completers at non-flagship public four-year colleges in Ohio and Indiana (the non-flagship designation excludes those at Ohio State University and Indiana University Bloomington) earn 134 and 138 credits respectively. Data are not shown for Michigan.

In the Matched Transcripts sample, the transfer students who earned associate degrees accumulated on average 78 credits at Macomb.¹³ If we define any credits over 65 as excess credits, then 71 percent of Macomb transfer students who earned associate degrees accumulated excess credits, although some of these students may be in 3 + 1 programs. Macomb transfer students in our sample who completed bachelor's degrees at a U-PAC college earned 141 credits on average,¹⁴ and about 56 percent of them earned over 130 credits, which we define as having earned excess credits.

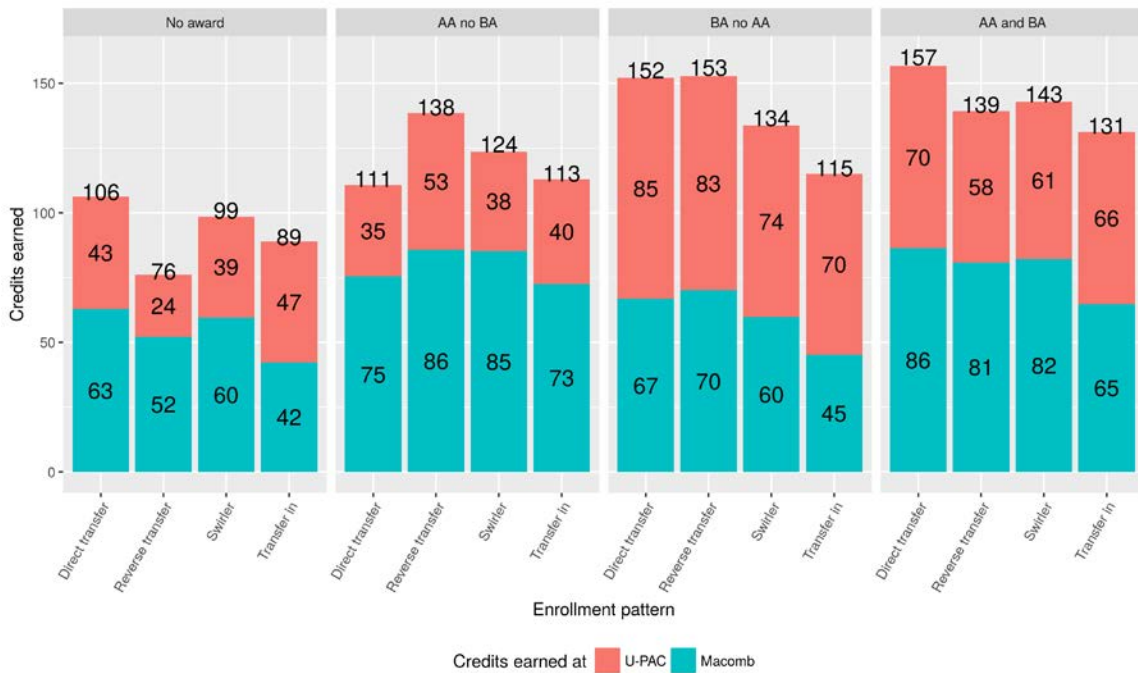
Figure 7 displays the number of credits earned by students with different transfer patterns for each of four completion categories. Note that we have complete credit data only for direct and reverse transfer students, because swirler and transfer-in students may have attended other institutions outside of Macomb and the U-PAC colleges, and these additional transcripts are not available to us. As a result, excess credits are underestimated for swirler and transfer-in students.

With respect to credits earned by bachelor's degree completers, the data show that there is no meaningful difference in the number of excess credits accumulated between direct transfer bachelor's degree completers who did and did not complete an associate degree. Despite the fact that we do not have full credit information for swirler or transfer-in students, on average these students earned enough credits at Macomb and the U-PAC college to earn a bachelor's degree, which suggests that some of their credits (wherever they were earned) may not have counted toward the bachelor's degree.

¹³ This is fewer credits than earned by associate degree completers in Ohio and Indiana according to the CCA data cited in the previous footnote, though we can make only a very rough comparison since the CCA data include all associate degree completers while the Macomb data include only transfer students who completed.

¹⁴ It may appear as though they earned more credits than the bachelor's degree completers in Ohio and Indiana cited in the prior footnote, but the comparison is misleading because all the Macomb students are transfer students while the CCA data include so-called "native" students who started at four-year colleges. Data from Virginia suggest that native bachelor's degree completers earn on average 8 fewer college-level credits than transfer students (Xu, Jaggars, & Fletcher, 2016).

Figure 7
Average Number of Credits Earned by Macomb Transfer Students
(Matched Transcripts Sample) by Transfer Pattern for Each Completion Category



Note: The label “AA” refers to any associate degree, and the label “BA” refers to any bachelor’s degree.

If students earn 157 credits for a 120-credit degree, then they are completing 27 credits that are not necessary or that do not count toward their degree, based on our assumption that credits over 130 are considered excess credits. Are these non-contributory excess credits earned from Macomb or the U-PAC college? For students who never earned an associate degree, we cannot determine from the transcripts which credits are not counted toward the eventual bachelor’s degree. However, we can get an idea about the location of the excess credits by looking at credits earned at Macomb and the U-PAC colleges for bachelor’s degree completers.

The direct transfer students are the most useful group to consider, because we have all of their credit information. Direct transfer students who earned both an associate and bachelor’s degree earned on average 86 credits at Macomb and 70 at the U-PAC college. This suggests that for these students, or at least those who were not participating

in 3 + 1 programs, it is primarily the Macomb credits that were not being counted toward the bachelor's degree.¹⁵

The best case for the argument that students earned excess credits at the U-PAC institutions can be made from the data on direct transfer students who earned a bachelor's degree but not an associate degree. On average these students earned enough credits at Macomb to earn an associate degree (although they did not) and then accumulated an average of 85 credits at the U-PAC colleges. They may have earned so many credits at the U-PAC colleges because many of their credits from Macomb were not accepted toward their U-PAC bachelor's degrees. So it still might be that the large majority of credits earned at the U-PAC colleges were counted, even for these students.

Finally, we can see that most of the groups in this sample who did not complete a bachelor's degree (either with or without earning an associate degree) nevertheless accumulated over three years' worth of credits (90 credits). Indeed 15 percent of Macomb transfer students who did not earn a bachelor's degree actually earned more than 130 credits and therefore had excess credits by our definition (not shown in table).

4.5 Two Possible Causes of Excess Credits

A strategy to eliminate excess credits must be based on an understanding of the factors that lead students to accumulate more credits than they need for their degrees. In this section, we examine the transfer patterns of students and two possible causes for earning excess credits: changing fields of study and accumulating dual enrollment credits.¹⁶

We have emphasized the importance of enrollment and transfer in this report by creating a typology of four transfer patterns, and it is likely that transferring two or more times (exhibited by swirler and transfer-in students) can force students to navigate

¹⁵ Data for students in other completion categories and with other transfer patterns can also be interpreted. Data for students who transferred and earned an associate but not a bachelor's degree suggest that these students were earning excess credits at Macomb. (Because they did not earn a bachelor's degree, the concept of excess credits at the U-PAC institution is not meaningful.) The direct transfer students and the swirlers who earned an associate but not a bachelor's degree, both of whom started college at Macomb, earned 75 and 85 credits at Macomb respectively. The data on transfer-in students are more difficult to interpret since we do not know how many credits they were able to transfer into Macomb. Still, transfer-in students who earned associate degrees accumulated an average 73 credits (among those who did not earn a bachelor's degree) and 65 credits (among those who did earn a bachelor's degree) at Macomb even though they transferred credits into Macomb that we cannot count.

¹⁶ Dual enrollment credits are college credits earned by high school students.

different sets of requirements, causing them to accumulate credits that do not count for their eventual majors. Thus it appears likely that swirler and transfer-in students would accumulate more excess credits than direct transfer students. Unfortunately, we cannot test this hypothesis with our study data since we have complete credit counts only for direct transfer students.

Switching field of study. One of the potential ways that students earn excess credits is by changing field of study when they transfer institutions. A matching field of study increases the chance of earning a bachelor's degree because a student's coursework should be aligned between the two institutions, increasing the likelihood that credits earned at Macomb will be applicable for transfer to the U-PAC destination.

We explore the *percentage of students with a matching field of study* at Macomb and at the U-PAC destination college as a potential indicator of this mechanism. The percentage of students with a matching field of study can also indicate the ability of two-year institutions to assist students in exploring and entering their chosen field of study quickly. Overall, about 41 percent of all students in the Matched Transcripts sample had a matching field of study after transferring, which may be one of the key factors explaining the large percentage of students who earned excess credits.¹⁷

Figure 8 shows the percentage of students with matching fields of study at Macomb and their U-PAC college by transfer pattern. The data indicate that 45 percent of the direct transfer students had a matching field of study, which implies that they remained in the same or a similar instructional program after transferring. Swirler and transfer-in students were less likely to have matching fields of study, suggesting that their movement among institutions reflects somewhat less certainty about what these students wanted to study.

Finally, it may be that students who switch their majors may have a more difficult time finishing their degrees. In Figure 9, we present data on the relationship between switching majors and bachelor's degree attainment. These data suggest that Macomb

¹⁷ Using the method outlined on the Completion by Design (CBD) website (<https://powerofcommunity.force.com/education/s/cbd-toolkit-tracking-success#tip3>), we group students' declared programs of study into one of 14 fields of study (consolidating some of the 22 categories found in the taxonomy that CBD uses to classify courses and credentials by program or field of study: <https://na50.salesforce.com/sfc/p/#6A000000vBIJ/a/6A000000b1Vo/NczRiFMOhVYSGxz10N7kpZAxSvMHbdyM46IQgitXAk4>).

transfer students who did not switch majors may be slightly more likely to complete a bachelor's degree after transfer.

Figure 8
Percentage of Macomb Transfer Students (Matched Transcripts Sample) With Matching Two-Year and Four-Year Fields of Study, by Transfer Pattern

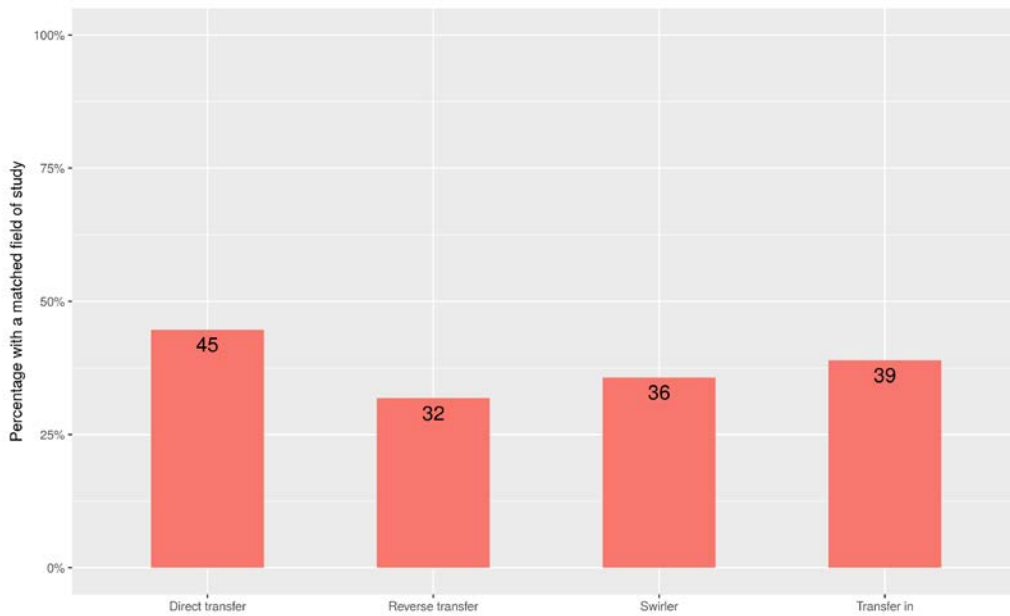
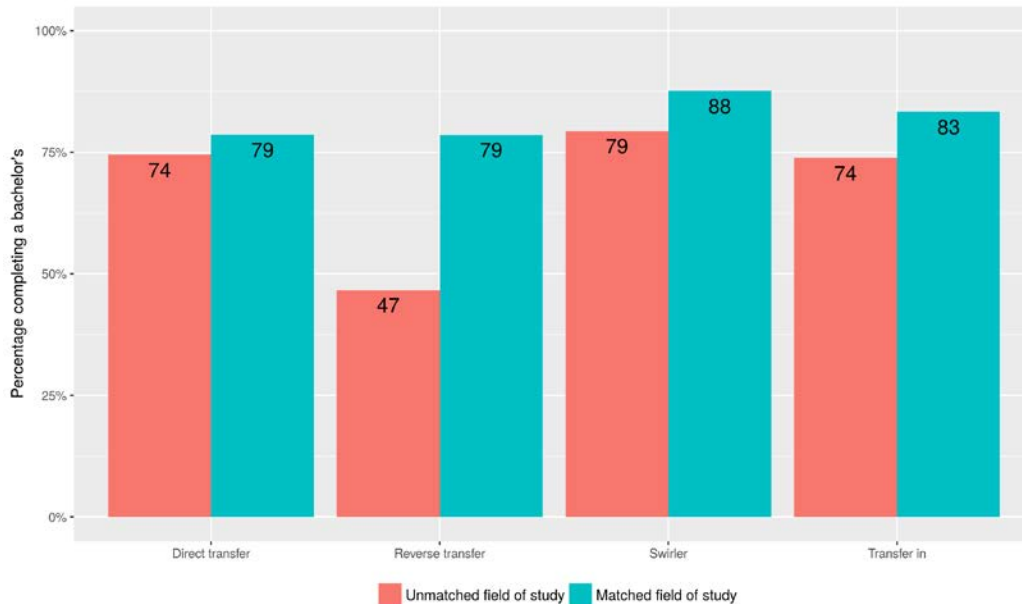
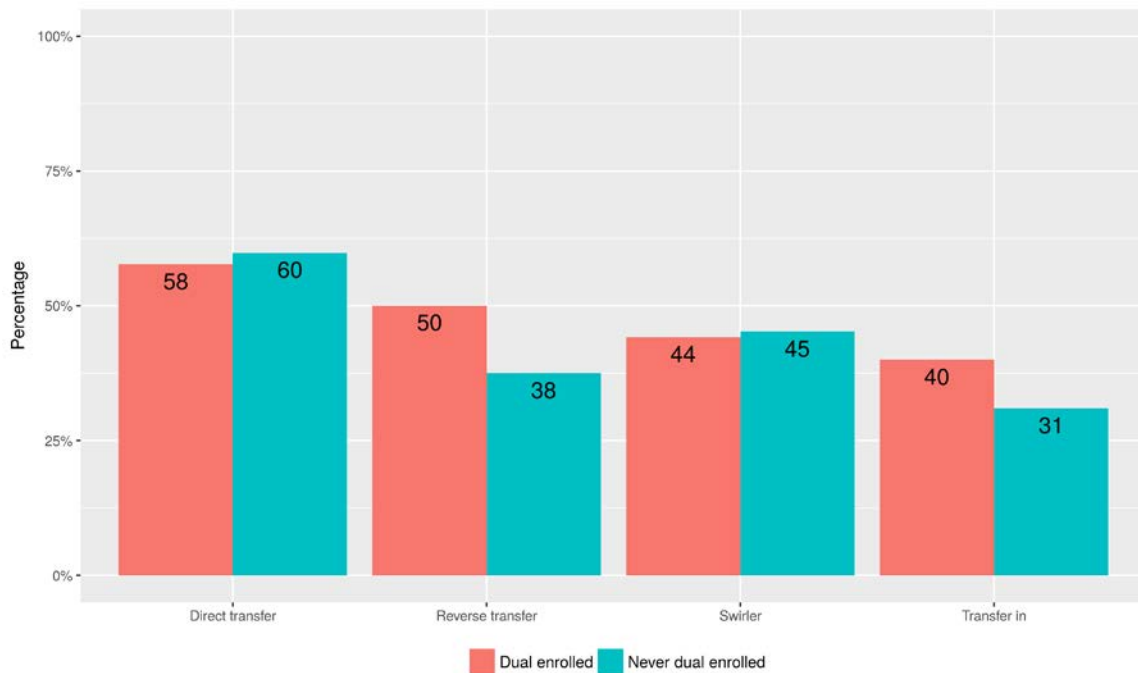


Figure 9
Bachelor's Degree Completion Rate of Macomb Transfer Students (Matched Transcripts Sample) by Matching Status and Transfer Pattern



Dual enrollment. Dual enrollment accounts for a growing share of community college enrollments, but without good advising and guidance, it is possible that high school students will choose to enroll in courses that do not end up meeting requirements for their eventual majors. To test this hypothesis, we compare excess credits accumulated by students who participated in dual enrollment with those who never did. Overall, 51 percent of the dual enrollment students compared to 48 percent of never dual enrolled students accumulated excess credits. Our only reliable measure of excess credit accumulation is for direct transfer students, and for those students there is no substantial difference in excess credits between the students who did or did not have dual enrollment credits (see Figure 10).

Figure 10
Percentage of Macomb Transfer Students (Matched Transcripts Sample)
With Excess Credits by Dual Enrollment Status



5. Limitations

It is important to emphasize that this is a descriptive report in which we present relationships between variables. While these relationships may be suggestive they do not necessarily mean that one variable causes the other. Differences in bachelor's degree completion rates of Macomb transfer students among the U-PAC colleges may mean that one institution does a better job than another or that Macomb has more effective transfer agreements with some colleges, but it may mean that some institutions attract better prepared students. Transfer students who attend the University of Michigan are more likely to earn a bachelor's degree than those attending some other colleges, but the University of Michigan is also more selective. While it is possible to take account of some student characteristics, others, such as motivation, hours worked, or having dependents, are not available. Moreover, other policies that are related to the policy in question may also influence the measured outcomes. Therefore these results should be taken as indications of areas that need further investigation rather than as definitive findings.

A second limitation has to do with the nature of what we refer to as the Matched Transcripts sample. Using the NSC and Macomb transcript data we identify 10,511 students who earned 9 or more credits and transferred to a U-PAC college between fall 2007 and spring 2009 to create the U-PAC Transfers sample. However, we are only able to match transcript records with those of U-PAC colleges for 2,352 students to create the Matched Transcripts sample, so we are unable to calculate all of the excess credit outcomes for the majority of transfer students. Given the fact that the students in the Matched Transcripts sample had characteristics associated with better academic outcomes, we suspect that the findings for the Matched Transcripts sample may underestimate the issue of excess credits among a more representative sample of students. For example, the bachelor's degree completion rate was 78 percent for the Matched Transcripts sample (for which we have transcripts from both Macomb and the U-PAC destination) but 63 percent for the U-PAC Transfers sample.

Another problem with analysis of credit accumulation is that even for the more limited Matched Transcripts sample, we do not have complete credit information for swirler and transfer-in students because these students may have attended colleges other

than Macomb and the U-PAC institutions. Therefore, as we have emphasized in the text, the most reliable measures of excess credits are for direct transfer students who started at Macomb and then transferred to one U-PAC college.

6. Discussion and Conclusion

In this section we review our main conclusions and make some suggestions for reforms in policies and practices that have the potential to improve transfer outcomes for Macomb students. Since we only used data on transfer students, our focus is on improving outcomes for students who have transferred rather than on getting more students to transfer, which would be another approach to helping more students achieve their bachelor's degree aspirations.¹⁸

Choose transfer target institutions with which to work. Three quarters of Macomb students transfer to four U-PAC colleges. This suggests that Macomb should prioritize work with these institutions. Of course the other colleges are important, but perhaps the most efficient approach would be to develop policies and models with these colleges with the goal of applying them to the others. Or it might make sense to develop strong transfer pathways to the primary targets and then work to encourage more students to transfer to those institutions.

Improve bachelor's degree completion. About 63 percent of the transfer students in the Macomb U-PAC Transfers sample completed bachelor's degrees. This is very close to the national average. But there is also significant variation in completion rates across the U-PAC colleges. Overall, national research suggests that transfer students are more successful when they are provided with more structure and support (Bailey, Jaggars, & Jenkins, 2015; Baker, 2016; Jaggars & Fletcher, 2014; Scott-Clayton, 2011). The *Transfer Playbook* (Wyner, Deane, Jenkins, & Fink, 2016), published by the Aspen Institute and the Community College Research Center, recommends three broad strategies to improve transfer: (1) prioritize transfer, (2) create clear programmatic

¹⁸ National data suggest that while 80 percent of community college students express an aspiration to transfer, only 30 percent actually transfer (Jenkins & Fink, 2016).

pathways with aligned high-quality instruction, and (3) provide tailored transfer student advising. Macomb could begin by working on these strategies with their primary transfer target institutions.

An interesting result we found in the current study is that students who earned an associate degree after they transferred had a slightly higher probability of completing a bachelor's degree than either those who transferred with an associate degree or those who transferred without an award. In our data, we cannot determine whether these students were in special reverse transfer programs, but this is worth further investigation to determine whether the colleges are doing something that is effective with these students or whether the difference can be explained by differences in students who choose these different pathways.

About two fifths of the Macomb transfer students in the Matched Transcripts sample changed their majors when they transferred, and we found that these students were somewhat less likely to complete a bachelor's degree than those who stayed with the same major. Some major switching is inevitable and productive since students often do not have a good idea about what they want to study. Nevertheless, community colleges can do a better job of helping students choose their programs and majors. This does not mean that students would no longer be able to make their own choices, but rather that they would be given more help to make informed choices. We know that as part of its strategy to implement guided pathways, faculty and advisors at Macomb are working to develop better information and advising strategies to help students choose their programs of study earlier. The data that we have presented here suggest that this will likely improve bachelor's completion rates for Macomb transfer students.¹⁹

Reduce excess credits. We found that a substantial portion of all transfer students in the Matched Transcripts sample earned excess credits. About 50 percent of transfer students earned more than 65 credits at Macomb before they transferred, and about 48 percent of them earned over 130 credits in total at Macomb and the U-PAC colleges. The most reliable data on excess credits are for direct transfer students (the only group for which we have a record of all of their credits). About 60 percent of direct transfer

¹⁹ See Jenkins, Lahr, and Fink (2017) for examples.

students earned excess credits. Even swirler and transfer-in students, for whom we do not have a record of all of their credits, earned excess credits: 45 percent of swirlers and 31 percent of transfer-in students earned more than 130 total credits. It appears that most of these excess credits were earned at Macomb. The clearest evidence for this is from students who earned associate degrees, and all groups of these students had average credits at Macomb at or above the excess credit threshold. These excess credits do not appear to have been counted toward the bachelor's degree at the U-PAC receiving institutions because bachelor's degree earners for whom we have accurate credit counts earned on average more than 60 credits at those institutions. The evidence is more ambiguous for those who transferred without a degree, but it may be that some credits earned at Macomb were not accepted at the U-PAC college. So the first step in reducing excess credits for Macomb transfer students would be to explore why students need so many credits to earn an associate degree at Macomb and then analyze whether and why Macomb credits are not being accepted at the receiving institutions.

Consider transfer in the context of comprehensive institutional reform. While we think that these strategies can help improve the bachelor's completion rates of Macomb transfer students, they are likely to be most effective if they are implemented as part of a broader reform strategy. Over the last two years, working with the Michigan Student Success Center, Macomb has embarked on an ambitious effort to develop and implement guided pathways. There are four broad elements to the guided pathways model: (1) mapping pathways to student end goals, (2) helping students get on a path, (3) helping students stay on a path to completion, and (4) making sure that students learn the skills and knowledge appropriate to their program and goals.²⁰

We can see that a strategy to improve transfer at Macomb fits well with the broad guided pathways themes. Since most community college students want bachelor's degrees,²¹ then a central element of mapping pathways to student end goals must include better transfer pathways. We have emphasized that the data we have presented in this

²⁰ For more on guided pathways, see Bailey, Jaggars, and Jenkins (2015).

²¹ A 2011 National Center for Education Statistics study based on a representative sample of students who started higher education for the first time in 2003–04 found that 81 percent of students who began at a community college indicated that they intended to earn a bachelor's degree or higher (Horn & Skomsvold, 2011, Table I-A).

study suggest that bachelor's completion can be improved by strengthening the design of transfer pathways. We have also suggested that better guidance and efforts to help students choose their programs and majors—a central element of guided pathways—can help reduce excess credits and late major switching, both of which can improve transfer outcomes. Therefore, improving transfer outcomes is an important goal, but it is more likely to be sustainable if it is incorporated into a more comprehensive framework. At the same time, the guided pathways reforms at Macomb will be much less likely to be successful if they do not incorporate the types of transfer reforms that we have discussed in this report.

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