Baseline Trends in Key Performance Indicators Among Colleges Participating in a Technology-Mediated Advising Reform Initiative

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Abstract

In 2015, 26 two- and four-year institutions received grants to help implement and sustain reforms consistent with the Integrated Planning and Advising for Student Success (iPASS) reform approach. Beginning in 2015, the colleges worked to launch or enhance technologies and related structural and procedural changes that would enable them to provide holistic, long-term support to all students by 2018. CCRC is analyzing key performance indicators (KPIs) of short- and long-term student outcomes at these institutions—including those measuring credits earned, GPA, progress in developmental and gateway courses, retention, and completion—to better understand progress made under the advising reforms.

Recognizing an institution's baseline level of performance prior to implementing a reform is critical to determining the reform's effectiveness. This paper provides baseline KPIs for 22 of the 26 colleges that were awarded an iPASS grant. We examine trends in institutional outcomes in the years prior to the start of the iPASS grant period. Our data indicate that, prior to the start of their funded iPASS reforms, grantee colleges exhibited wide variation in KPIs across institutions. We also find that four-year institutions generally exhibited higher performance than two-year institutions. Finally, our analysis of multiple KPIs across a time period prior to the iPASS grant period establishes that outcomes on these measures remained relatively stable for several years across the institutions. This stability will allow us to better interpret changes in the KPIs that may occur after the reforms are fully implemented.

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1. Introduction

Spurred by a shift in focus from college access to credential completion, colleges are looking to redesign advising and student support services in order to keep students on track to graduation. Many of these efforts incorporate technology to expand institutions' capacity to provide all students with long-term, intensive, and personalized support. The approach known as Integrated Planning and Advising for Student Success (iPASS) represents a comprehensive strategy for reform that combines technology, structural change, and new forms of student–advisor engagement with the goal of increasing student persistence and success in college (Kalamkarian, Karp, & Ganga, 2017; Karp, Kalamkarian, Klempin, & Fletcher, 2016). While some components of the iPASS approach appear promising (Fletcher, Grant, Ramos, & Karp, 2016), an evaluation of a comprehensive technology-mediated advising redesign has not yet been undertaken.

To help launch, establish, and study the utility of technology-mediated advising redesigns, the Bill & Melinda Gates Foundation and the Leona M. and Harry B. Helmsley Charitable Trust provided grants to 26 two- and four-year institutions to help implement and sustain iPASS reforms. Beginning in 2015, grantees worked to launch or enhance technologies and related structural and procedural changes that would enable them to provide holistic, long-term support to all students by 2018. As part of the grant, colleges were provided with technical assistance from two organizations, EDUCAUSE and Achieving the Dream. They were also expected to participate in a range of evaluation activities conducted by the Community College Research Center (CCRC) at Teachers College, Columbia University.[1]

CCRC's activities include analyzing key performance indicators (KPIs) to determine if the 26 institutions are making progress with their advising reforms. We examine selected short- and long-term indicators before and after a reform is implemented to provide evidence of changed student outcomes. The reason for using both kinds of indicators is straightforward. Relying on long-term measures alone would mean that practitioners, policymakers, and researchers might have to wait years in order

[1] In addition to the analyses presented here, some colleges participated in in-depth qualitative research. Others participated in a randomized control trial aimed at estimating causal impacts conducted in partnership with MDRC. A description of the study can be found at https://ccrc.tc.columbia.edu/research-project/integrated-planning-and-advising-services.html.

to determine if a reform is working. Measuring near-term indicators can give some provisional indication about whether reforms are working sooner, and they can also be a useful tool to continuously improve new programs and policies (Jenkins & Bailey, 2017).

Understanding an institution's baseline level of performance prior to implementing a reform is critical to determining the reform's effectiveness. This paper provides baseline KPIs for 22 of the 26 colleges that were awarded an iPASS grant. We examine trends in institutional outcomes prior to the start of the iPASS grant period in 2015. Our data indicate that, prior to iPASS-funded reforms, grantees exhibited wide variation in indicators of interest across all institutions. We also find that, as is the case nationally, four-year institutions generally exhibited higher performance than two-year institutions. Finally, our analysis of multiple KPIs across time in advance of the iPASS grant period establishes that the outcomes on these measures remained relatively stable for three years across the institutions prior to the grants. This stability will allow us to better understand changes that take place after the reform is fully implemented.

2. The Approach: Redesign of Technology-Mediated Advising

Ample research indicates that advising and student support are not optimized at most institutions, and that this may contribute to low levels of student persistence and completion (Bailey, Jaggars, & Jenkins, 2015; Grubb, 2006; Jaggars & Fletcher, 2014). Technology-mediated advising leverages efficiency created by technology to facilitate the type of support that research suggests leads to improved student outcomes. The goal of the iPASS approach is to improve students' advising experience by shifting the emphasis in advising from registration and enrollment functions toward the development of sustained, strategic, integrated, proactive, and personalized (SSIPP) relationships between students and college personnel (Kalamkarian, Karp, & Ganga, 2017; Karp & Stacey, 2013). This enables advising relationships to focus less on administrative tasks and more on developing students' reflective and metacognitive skills, a formulation often referred to as advising-as-teaching (Appleby, 2008).

SSIPP advising requires a comprehensive shift in the organization and delivery of student support. It cannot be fully realized without the implementation of new policies

and procedures to guide advising that may include a case management approach or mandatory advising meetings. SSIPP advising also requires advisors to develop new skills and methods, such as regularly reaching out to students, engaging in conversations about academic and nonacademic challenges to completion, and entering case notes into advising software.

These shifts can be encouraged and supported by technology tools that streamline processes, create new information channels, and perform administrative tasks more efficiently. Ideally, technology can reduce advisors' administrative workloads and give them time, space, and resources to help more students choose majors and careers, find support in times of need, and graduate in a timely manner with a plan for the future. As of 2014, there were over 100 advising-related technology tools, many with similar functions, made available mostly by vendors and put in use in U.S. postsecondary institutions, a number that has only grown since then (Tyton Partners, 2014).

Advising and student services technologies generally fall into one of four categories, and the colleges examined here had been using various combinations of these at the time they joined the iPASS project. *Early alert tools* and *predictive analytics* allow advisors, faculty, and staff to identify at-risk students. They enable individuals and institutions to intervene before a student falls off-track and to target resources so that students most in need of assistance receive help. *Degree planning tools* enable students to engage in long-term program planning that aligns with institutional graduation requirements. By enabling students to independently schedule courses early in their educational careers, these tools help advising sessions move away from immediate course registration and toward discussion of academic progress, career planning, and problem solving. Finally, *"case management" (or communication) platforms* enable students, faculty, staff, and advisors to communicate across offices and services. They enable shared information about students, their needs, and their use of services over time.

The presence of these technologies can serve as a catalyst for colleges to fundamentally redesign their advising and support services to move toward a much more intensive and personalized case management model (Karp et al., 2016). Note, however, that a technology launch is not the end goal of iPASS reform, nor is it enough on its own to ensure fundamental changes in advising and student support practices. Rather, by

leveraging technology tools, advising and student service programming can undertake changes that transform the experience of students. Previous research (Fletcher et al., 2016; Karp et al., 2016) has found that these changes are ideally multidimensional and integrated, encompassing structural change, including the use of new policies, as well as behavioral change, such as student support staff conversing with students about non-academic issues that impede their persistence. For example, using an early alert system to email students who did not complete a degree plan is likely to be less impactful than using the early alert system to facilitate personalized advising for those students to create long-term plans and to monitor their completion.

3. Grantees' Pre-Grant Use of Technology-Mediated Advising Reform

In 2015, the Bill & Melinda Gates Foundation and the Leona M. and Harry B. Helmsley Charitable Trust provided 26 institutions with iPASS grants to allow them to implement new technologies or enhance existing ones. Grantees used the funding to support college-developed projects addressing education planning, advising, counseling, coaching, risk targeting, and intervention. Importantly, the vast majority of colleges in our sample had already begun some form of technology-mediated advising reform *prior* to the start of the grant period. In fact, some of the colleges in this study had previously received a Gates Foundation grant to implement advising technology.

We conducted a document review of project proposals and funder updates in part to identify whether the colleges were using the iPASS grant to implement new technologies or to enhance or replace pre-existing ones. We found that only four of the 26 grant recipients had never implemented any advising technology, so we chose to categorize the colleges by their prior experience with technology-mediated advising reform. We found that most colleges were already using more than one technology to improve advising (see Table 1). Using a rubric to score colleges' experience and implementation levels, we grouped the colleges into four "new implementation" colleges, 15 "launch" colleges, and seven "early adopter" colleges.

Table 1
iPASS Colleges' Experience With Advising Technologies Prior to the Start of the iPASS Grant Period

Type of College	Definition	Number of Colleges
New implementation	Institution was not using any advising technologies prior to receiving the iPASS grant in 2015 and plans to implement them for the first time during the grant period.	4
Launch	Institution had one or more advising technologies that were up and running prior to 2015. These colleges purchased and rolled out advising technologies on campus, but advisors were not actively using them with students. These colleges are beginning to implement the technology during the grant period.	15
Early adopter	Institution had one or more advising technologies that were up and running prior to 2015. In addition, end-user staff and students utilized at least one of these technologies at scale or for a majority of students. These colleges are replacing old technologies or adding additional technologies during the grant period.	7

In future reports we will describe changes in implementation and outcomes by the groups listed in Table 1. We anticipate that institutions that were early adopters will be more advanced in iPASS implementation because they got a head start. Likewise, if these colleges are implementing the program better, we anticipate that these early adopter colleges may also be more likely to improve outcomes than colleges in the other categories.

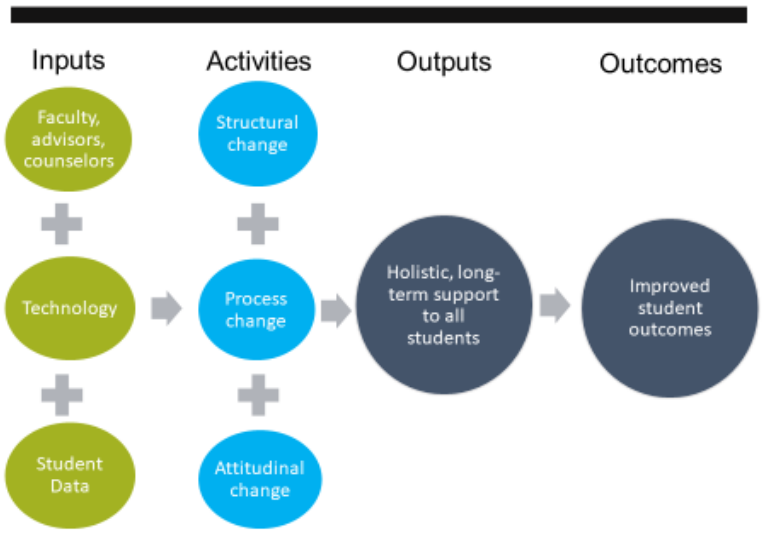
Most colleges were implementing multiple technologies prior to receiving the iPASS grant. We divided the advising technologies into the following categories: early alert tools, predictive analytics, degree planning tools, case management platforms. For this baseline report, we counted the number of technologies that were implemented prior to colleges' receipt of their iPASS grant through our document review of project proposals and funder updates.

4. Study Design

To document changes in student outcomes as a result of technology-mediated advising reforms at iPASS grantee colleges, CCRC is tracking KPIs over the course of the grant period. Using KPIs to measure expected outcomes necessitates identifying performance indicators that we can reasonably expect to be influenced by the reforms. Figure 1 shows a generalized logic model for the types of inputs, activities, and outcomes expected from technology-mediated advising.[2]

Building off this model, with a focus on outcomes, we created a table that aligns specific components of the iPASS model with KPIs that they theoretically affect. A list of all of the KPIs that are tracked through this project is provided in Table 2. Ideally, all of these should increase over time following implementation of iPASS reforms.

Figure 1
Logic Model of Technology-Mediated Advising Interventions



[2] An explanation of this logic model design and its use can be found in Lawton, Brandon, Cicchinelli, and Kekahio (2015).

Table 2
Tracked KPIs and What They Measure

KPI Categories	What Each KPI Measures
Credit momentum	% of students who attempted 15 or more credits during the first term
Credits earned	Average number of credits earned in Year 1
	% of credits attempted that were earned
Grade point average (GPA)	Average first-term GPA
	Average cumulative GPA
Dev. ed. progression in English and math	% of students not college ready
	% of students who attempted English or math dev. ed. in Year 1
	% of students who completed dev. ed. In Year 1
Gateway course progression	% of students who required gateway courses in Year 1
	% of students who attempted gateway courses in Year 1
	% of students who completed gateway courses in Year 1
Retention	% of students retained after Year 1
Completion	% who completed associate degree in 100% time
	% who completed associate degree in 150% time
	% who completed bachelor's degree in 150% time

Note: These KPIs also align with indicators of momentum (Bailey & Jenkins, 2017) and the Bill & Melinda Gates Foundation's momentum metrics (Janice & Voight, 2016).

Over the course of the study we will release two reports that track changes in KPIs from their baseline state (pre-grant) prior to the implementation of iPASS to a time when iPASS has been fully implemented. This change-over-time framework enables us to identify shifts in institutional performance as advising reforms take root and are refined.

KPIs are reported at the institutional level. Thus, in order to observe the desired changes, the iPASS reforms must not only be implemented by each college, but they must also be implemented for most students. Implementation for most students, which we refer to as implementation *at scale*, means that the technology tools a college uses are deployed and used in a way that makes a meaningful difference in the student experience and are used by most students, faculty, and staff.

Although KPIs are useful for identifying trends in institutional performance, they are imperfect measures of an intervention's true effect. Trend lines may change for many reasons, including the influence of other reforms, changes in enrollment patterns, or external policy conditions. Moreover, given the diversity among colleges in terms of their size, sector, students served, and the range of advising reforms implemented, we are

unable to provide a direct assessment of each reform's impact. Further, it is not possible to make comparisons in performance between colleges, even with common data definitions. The colleges were performing differently at the beginning of the study, so any difference in performance over time could be due to systematic differences between the colleges at the start of the study.

5. Study Data and Student Sample

This report focuses on a descriptive analysis of the baseline trends in KPIs for colleges prior to the iPASS grant period in 2015. The student data we received concern metrics that have been standardized according to definitions used across the Bill & Melinda Gates Foundation's Postsecondary Success portfolio.[3] Institutions worked with a third party to create the necessary datasets and upload them to a secure website for validity checks. Once the data quality was assessed, the third party then transmitted the data to CCRC.

We supplemented this student-level data with information about institutional characteristics from the Integrated Postsecondary Education Data System (IPEDS) as well as with information about institutions' technology choices based on a document review of project proposals and funder updates to categorize the status of the implementation of advising reforms before the start of the grant period.

Our sample for the study included only first-time-in-college (FTIC) students from each academic cohort between 2011 and 2014. Students were divided into cohorts based on the academic year in which they entered the college.[4] We aggregated the student-level data by cohort and institution in order to create cohort average metrics at each college in the years prior to the start of the iPASS grant period. We limited the sample to exclude students who had transferred in or had previous (non-dual enrollment) college experience. Institutions also excluded all students who were actively dually enrolled at high schools from the data collection, but they included current college students who had

[3] For more information, visit https://www.gatesfoundation.org/What-We-Do/US-Program/Postsecondary-Success.

[4] For example, the 2011–12 cohort refers to students who began college for the first time ever during the summer 2011, fall 2011, or spring 2012 semesters.

dually enrolled in the past. Only after all identifying information was removed and data were cleaned were they shared with CCRC. The final dataset covers the spring semester of 2015.

In Table 3 we display students' background characteristics for the entire sample of 22 institutions for which we received student data between 2011 and 2014.[5] We divided students' characteristics into measures of enrollment intensity, residency, age, gender, race/ethnicity, socioeconomic status (SES), and academic preparation. We divided the sample by two-and four-year colleges because each sector tends to serve different student populations.

Table 3 shows that the majority of students in two-year colleges were part-time students (80 percent), while the majority of four-year college students were attending full-time (82 percent). Two-year colleges served a higher share (94 percent) of in-state students compared with four-year institutions (82 percent). Students in four-year colleges tended to be younger than those in two-year colleges. Ninety percent of students in four-year colleges were 19 and under compared with 62 percent of students in two-year schools. Seventeen percent of students in two-year colleges were 20–24 years old, and 20 percent of students were 25 years old or older. Students of color made up the majority of students at both two-year and four-year colleges in the sample. The two-year colleges tended to have a larger percentage of Black students, while the four-year colleges tended to have a larger percentage of Asian students, Hispanic students, and students of mixed race/ethnicity. About 33 percent of the two-year and four-year students in the sample were the first in their family to attend college. A larger share of two-year students (26 percent) came from neighborhoods with a household income of less than $35,000 compared with four-year students (17 percent).

The student body at the colleges also differed in academic preparation. Two-year students were less likely to have earned a high school diploma, but they were more likely to have dually enrolled compared with four-year students. In English and math, two-year students were less likely than four-year students to be college-ready at entry overall. Within each sector, students were more likely to be college-ready in English than in math at entry.

[5]Four of the 26 grantee colleges did not report data.

Table 3
Descriptive Characteristics of iPASS Colleges, by Sector

Variable	Two-Year (%)	Four-Year (%)
Enrollment intensity in first term		
Full-time (12 or more credits)	20	82
Part-time (fewer than 12 credits)	80	18
Residency		
In-state	94	82
Out-of-state	3	14
Age		
19 and under	62	90
20–24	17	4
25 and older	20	6
Gender		
Female	51	53
Male	47	47
Ethnicity		
American Indian	3	3
Asian	6	10
Black	22	10
Hispanic	13	15
Mixed race/ethnicity	4	9
Native Hawaiian	1	0
Non-resident alien	2	4
White	43	42
Missing	7	8
SES indicators		
First-generation		
First-generation student	34	32
Not first-generation student	34	56
Missing	32	12
Neighborhood income		
Household income less than $35,000	26	17
Academic preparation		
High school graduate		
High school diploma	78	91
Missing	14	3
Dual enrollment		
Past dual enrollment	10	4
English readiness at entry		
College-ready	42	67
Not college-ready	48	9
Missing	11	24
Math readiness at entry		
College-ready	32	60
Not college-ready	57	16
Missing	11	25
Number of students	126,766	315,266
Number of institutions	8	14

6. Baseline Trends in KPIs

In this section we present our baseline results on the study's KPIs. For each KPI we plot the average for each of the baseline years (2011–2014) for all iPASS colleges. Because two-year and four-year colleges tend to serve different groups of students, we present the results separately for each sector.

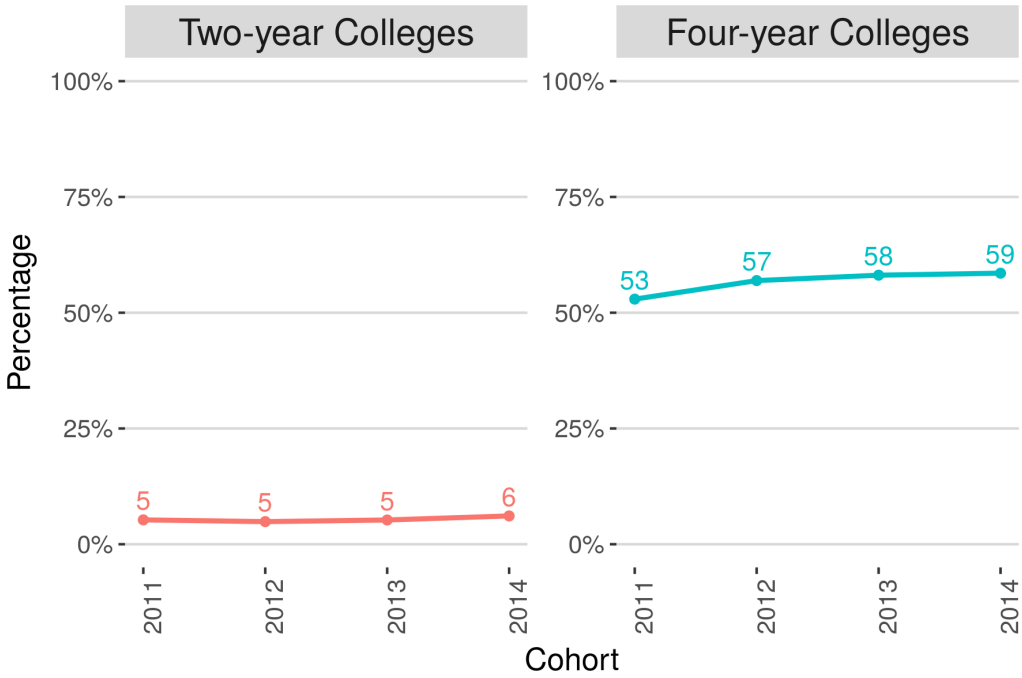
Overall, our analysis found that there was considerable variation between the sectors. However, there typically were only small changes from year to year in KPIs within each sector. We also conducted an analysis of differences between new implementation, launch, and early adopter colleges, but we were not able to find any meaningful patterns in the data by these categories.

6.1 Credit Momentum and Credits Earned

Previous research on college success has found that what happens in the first year of college is important in students' subsequent academic achievement, aspirations, and involvement on campus (Feldman, 2005; Pascarella & Terenzini, 2005; Tinto, 1993). Figure 2 examines the percentage of students with credit momentum, defined here as those students who attempted 15 or more credits in their first term. Students at four-year colleges are much more likely to attempt 15 or more credits in the first term on average compared with students at two-year institutions (57 percent versus 5 percent across all years). These differences between two-year and four-year colleges are to be expected, given the large differences in the percentage of full- and part-time students enrolled. Overall, a slightly larger percentage of four-year students achieved credit momentum over time.

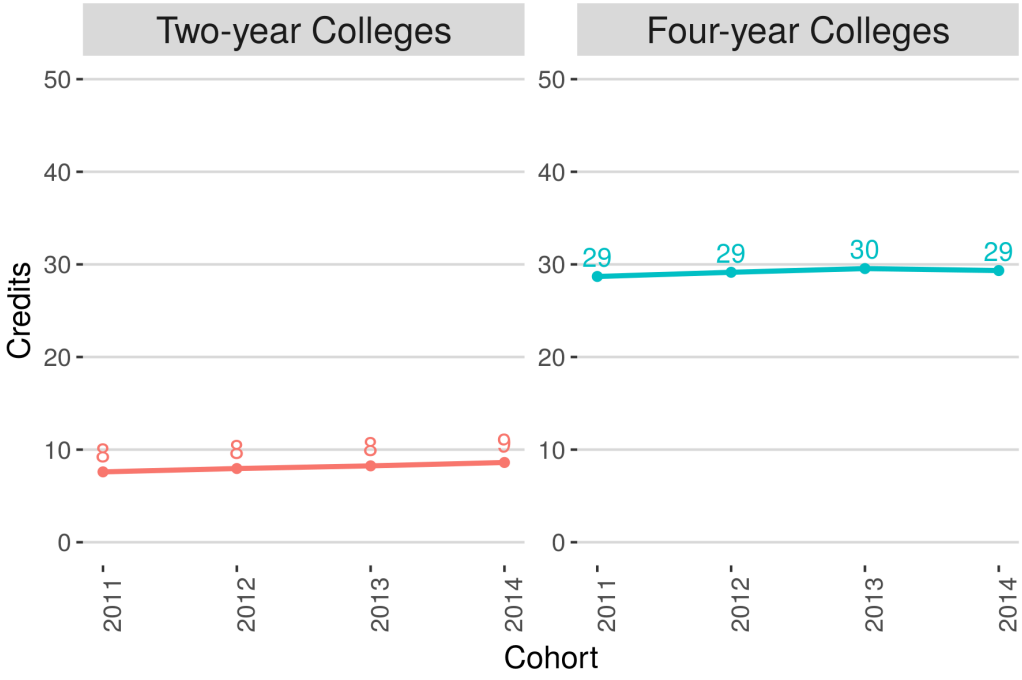
The average number of credits students attempted and earned in students' first year across cohorts is displayed in Figure 3. The graphs show that students in two-year colleges earned substantially fewer credits on average than students in four-year colleges in the first year. The number of credits earned stayed stable over time.

Figure 2
Percentage of Students With Credit Momentum, by Sector and Cohort



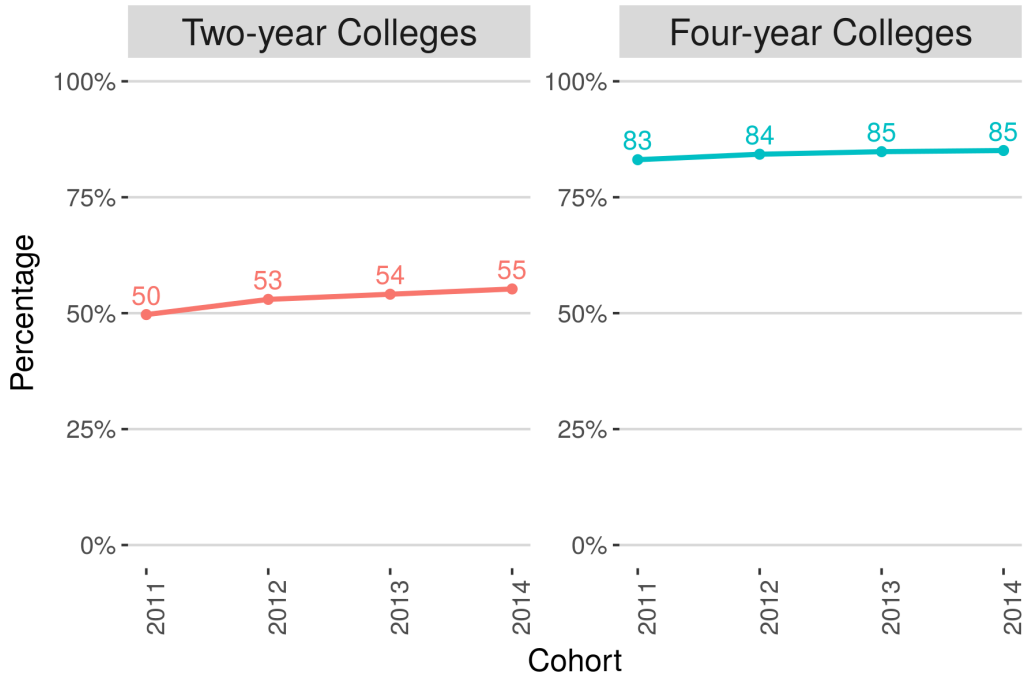
Note. Credit momentum is defined as attempting 15 or more credits during the first term.

Figure 3
Average Number of Credits Earned in Year 1, by College and Cohort



The percentage of credits attempted that were earned is displayed in Figure 4. At most four-year colleges, students earned about 84 percent of credits attempted; students at two-year colleges earned 53 percent of credits attempted. These trends are fairly consistent over time, but students at two-year colleges showed more improvement over time than those at four-year colleges.

Figure 4
Percentage of Credits Earned That Were Attempted in Year 1, by College and Cohort



6.3 Grade Point Average

Each cohort's first-term grade point average (GPA) is displayed in Figure 5. Students at four-year colleges had higher GPAs on average compared with students at two-year colleges (2.8 versus 1.9), and both groups' GPAs increased over time. The trend lines of the GPAs for each cohort across the colleges increased slightly from 2011 to 2014.

The average cumulative GPA for every cohort is displayed for each sector in Figure 6. Two-year students had a GPA close to 2.1, and their GPAs improved slightly over time. Four-year students had a 2.8 GPA on average, a figure that remained stable over time.

Figure 5

Average First-Term GPA, by Sector and Cohort

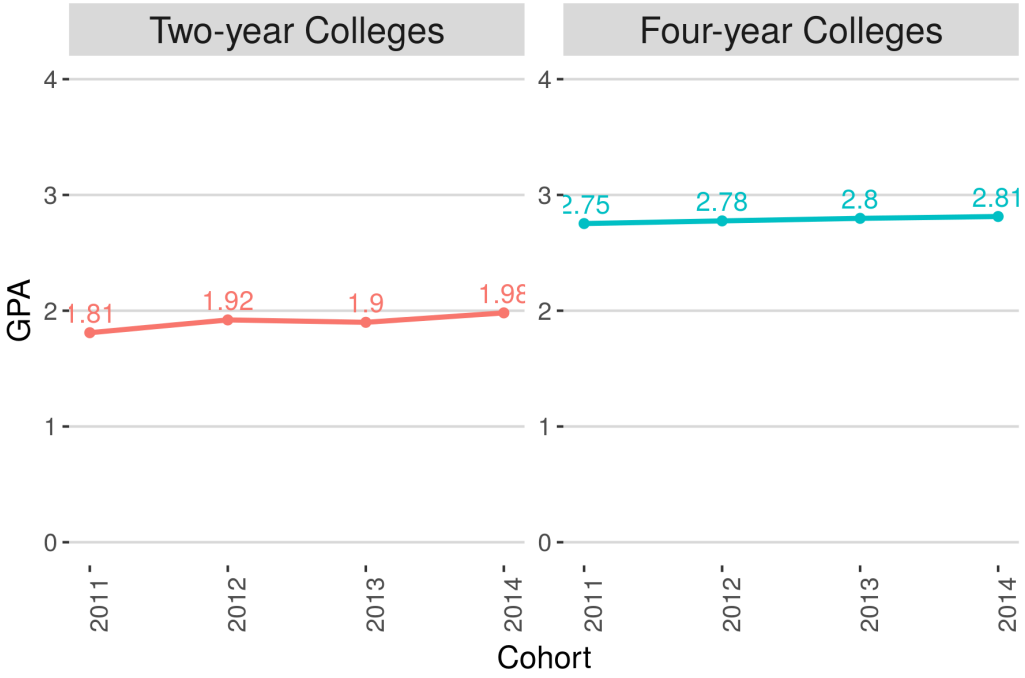
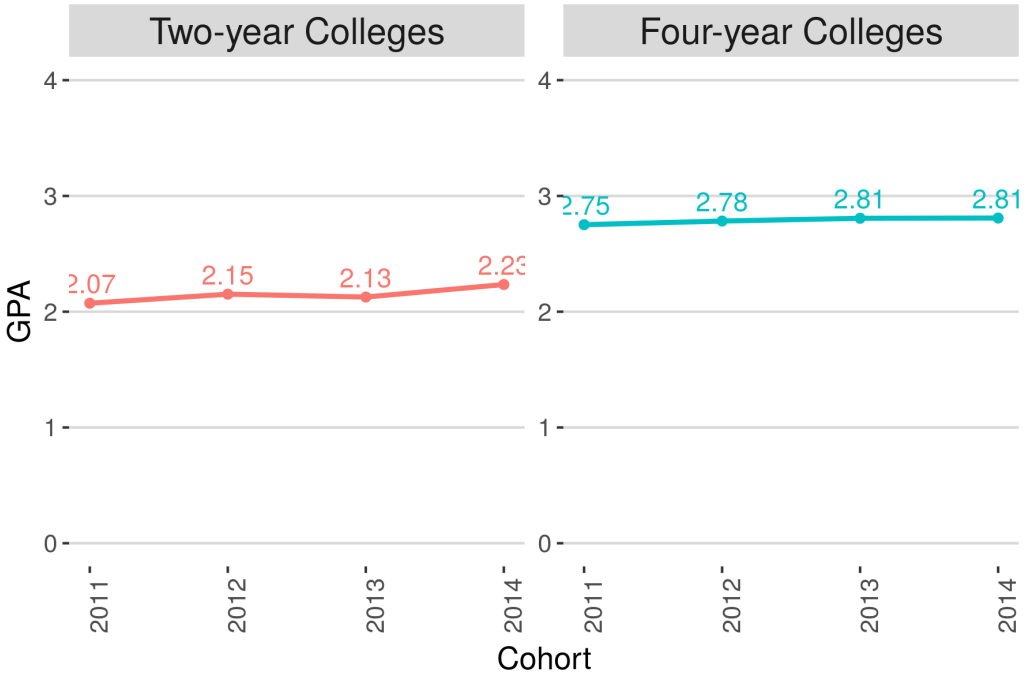


Figure 6
Average Cumulative GPA, by Sector and Cohort



6.4 Developmental Education Progression in English and Math

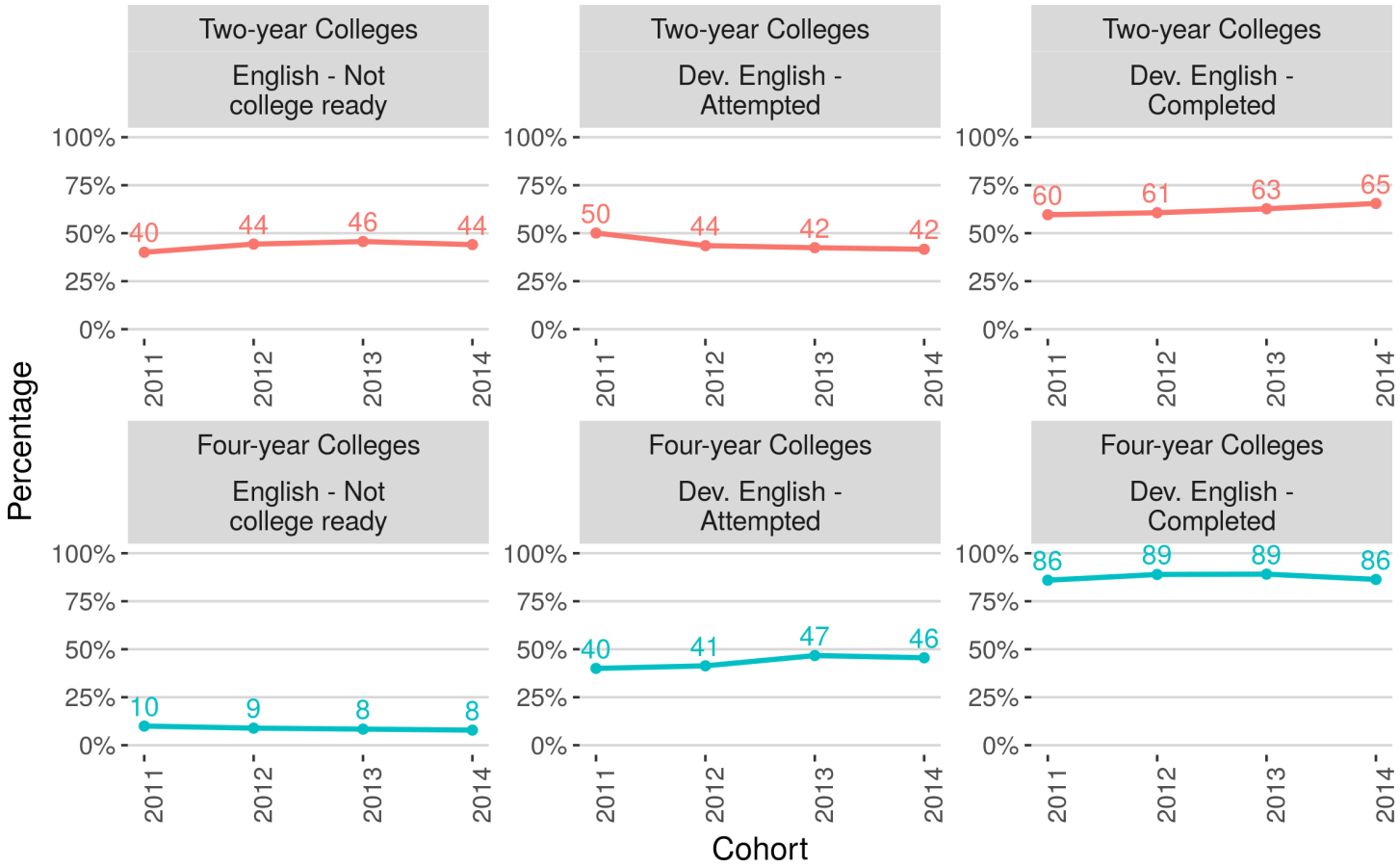
In this section we describe our findings for developmental English and math course taking among first-year students. Similar to first-semester student experiences, we see mostly flat trends for both sectors.

Figure 7 presents six graphs describing the students' progression in English developmental courses. The top row is two-year colleges and the bottom row is four-year colleges. The pipeline begins with the first graph in each row illustrating the percentage of first-year students who were not college-ready upon entry into college, as measured by college placement examinations. The middle graph shows the percentage of students deemed not college-ready who attempted developmental English. The third graph illustrates the percentage of students who passed developmental English among those students who enrolled in a developmental English course.

The graphs show distinctly different rates of progression across the two sectors. In two-year colleges, a larger proportion of students were not college-ready (43 percent), and a similar share attempted developmental English (45 percent). A smaller proportion of four-year students were not college-ready (12 percent), yet the same share of four-year students identified as not college-ready attempted developmental English (45 percent) as two-year students. The completion rate for developmental English slightly increased for two-year college students over time (from 60 percent to 65 percent) and is constant for four-year college students over time but at a higher rate (87 percent).

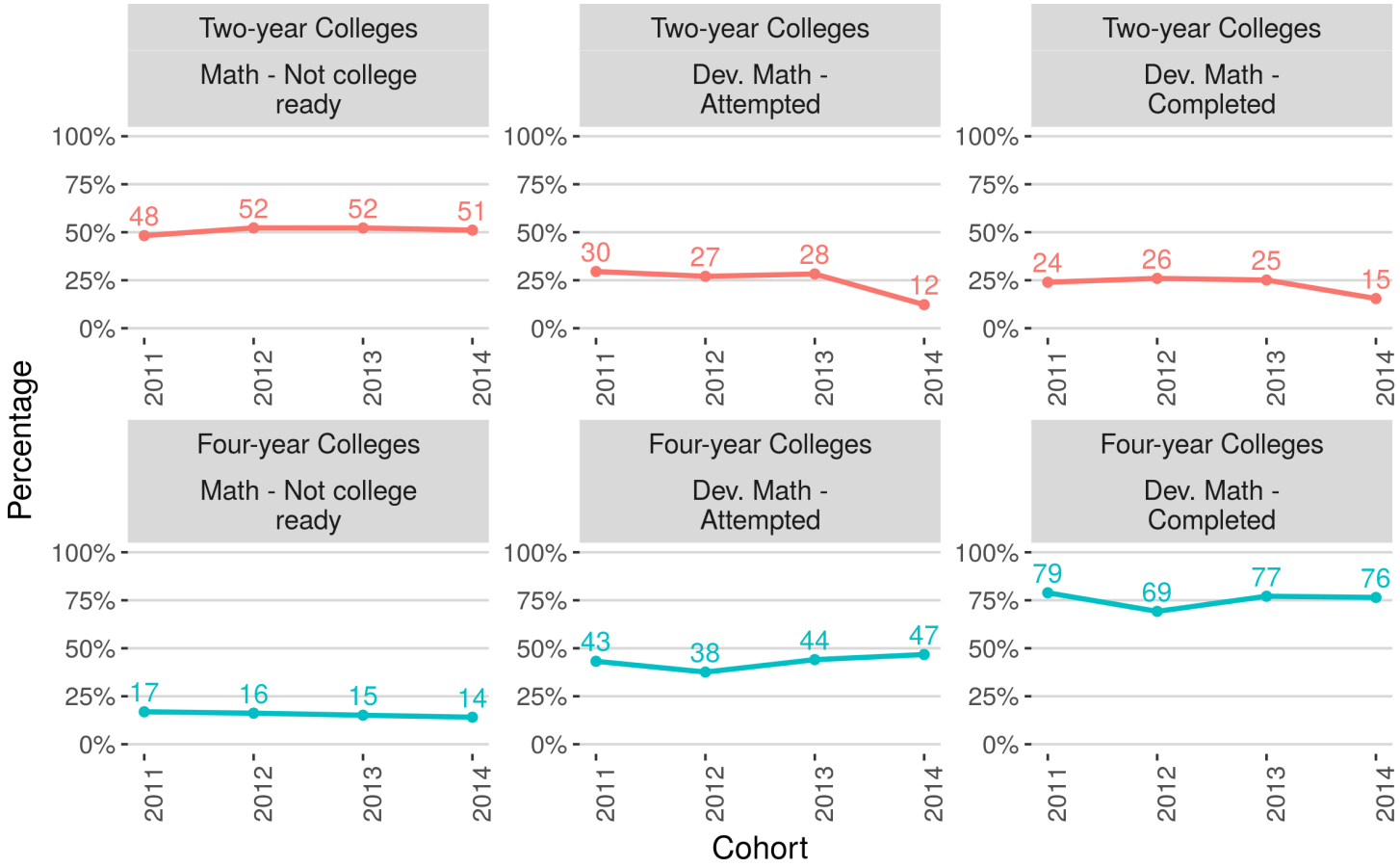
Similar to Figure 7, Figure 8 presents six graphs describing the students' progression in developmental math courses. The graphs also show differences across the two sectors. In two-year colleges, a larger proportion of students were not college-ready in math (50 percent); however, a smaller share attempted developmental math (25 percent). Fewer four-year students were not college-ready (15 percent), yet a greater share of those students attempted developmental math (45 percent). The completion rate of developmental math over time decreased for two-year college students (from 24 percent to 15 percent) and decreased slightly for four-year colleges students (79 percent to 76 percent).

Figure 7
Developmental English Education Progression, by Sector and Cohort



Note. Six colleges were not included due to missing data. "Not college-ready" is defined as students who are required to complete developmental English. The percentage of students who attempted developmental English is conditional on being required to take developmental English. The percentage of students who completed developmental English is conditional on attempting developmental English.

Figure 8
Developmental Math Education Progression, by Sector and Cohort



Note. Six colleges were not included due to missing data. Students who are required to completed developmental math are also defined as not college-ready in math. The percentage of students who attempted developmental math is conditional on being required to take developmental math. The percentage of students who completed developmental math is conditional on attempting developmental math.

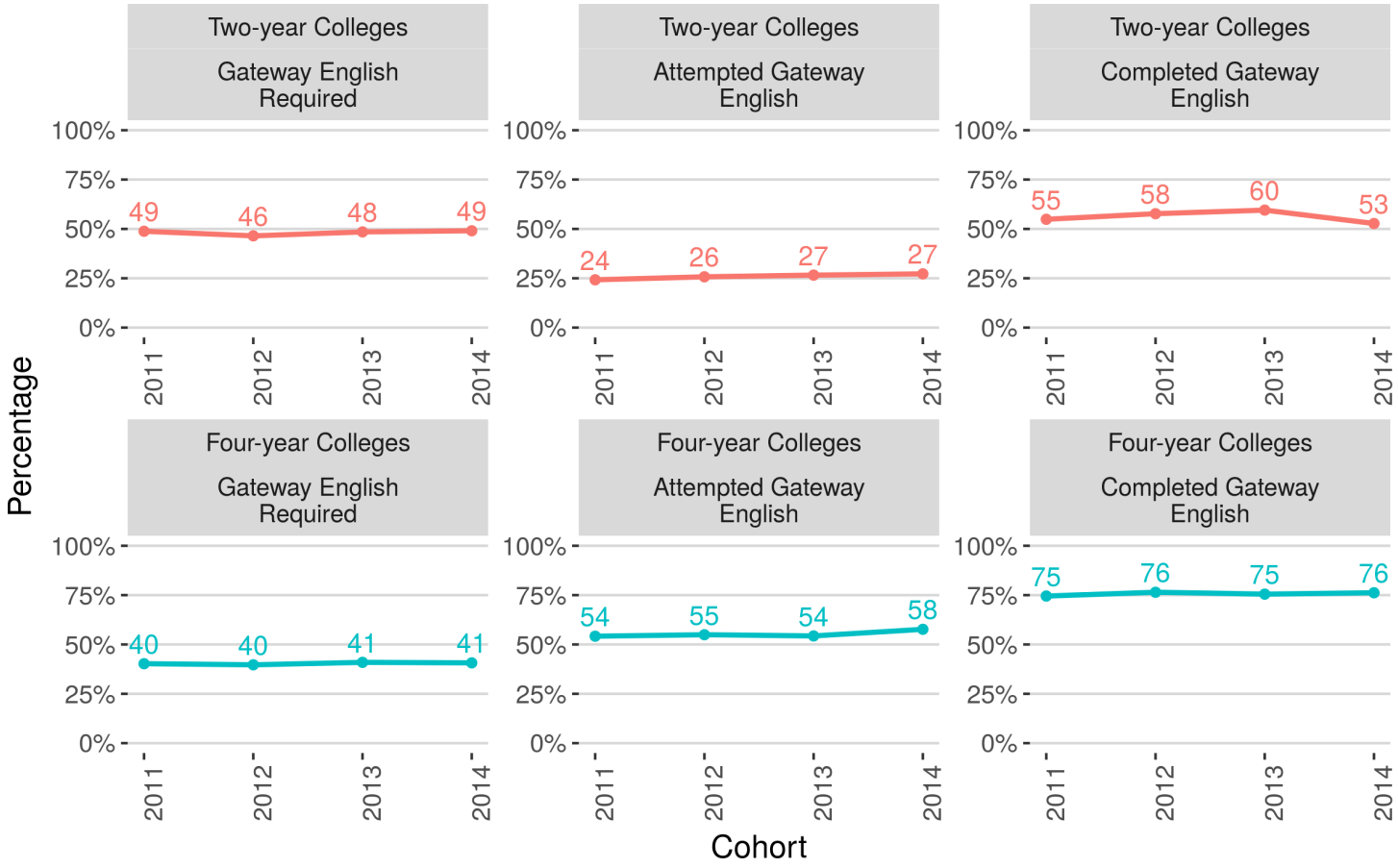
6.5 Gateway Course Progression

Figure 9 and Figure 10 examine the gateway course progression—defined as the requirement, attempt, and completion of the first college-level course in math or English for any program within the first year—at each of the iPASS colleges between 2011 and 2014. The graphs show that similar shares of students at two-year and four-year colleges were required to take gateway courses.[6]

Of those who were required to take gateway courses, only about 25 percent of two-year students attempted a course in English or math during their first year, compared with about 55 percent of four-year students. The percentage of students attempting a gateway course in English and math increased slightly over time for both sectors. In the two-year sector, about half of students who attempted a gateway course in English and about 70 percent of students who attempted a gateway course in math completed it in the first year. In the four-year sector, about 75 percent of students who attempted a gateway course in English and 88 percent of students who attempted a gateway course in math completed it in the first year.

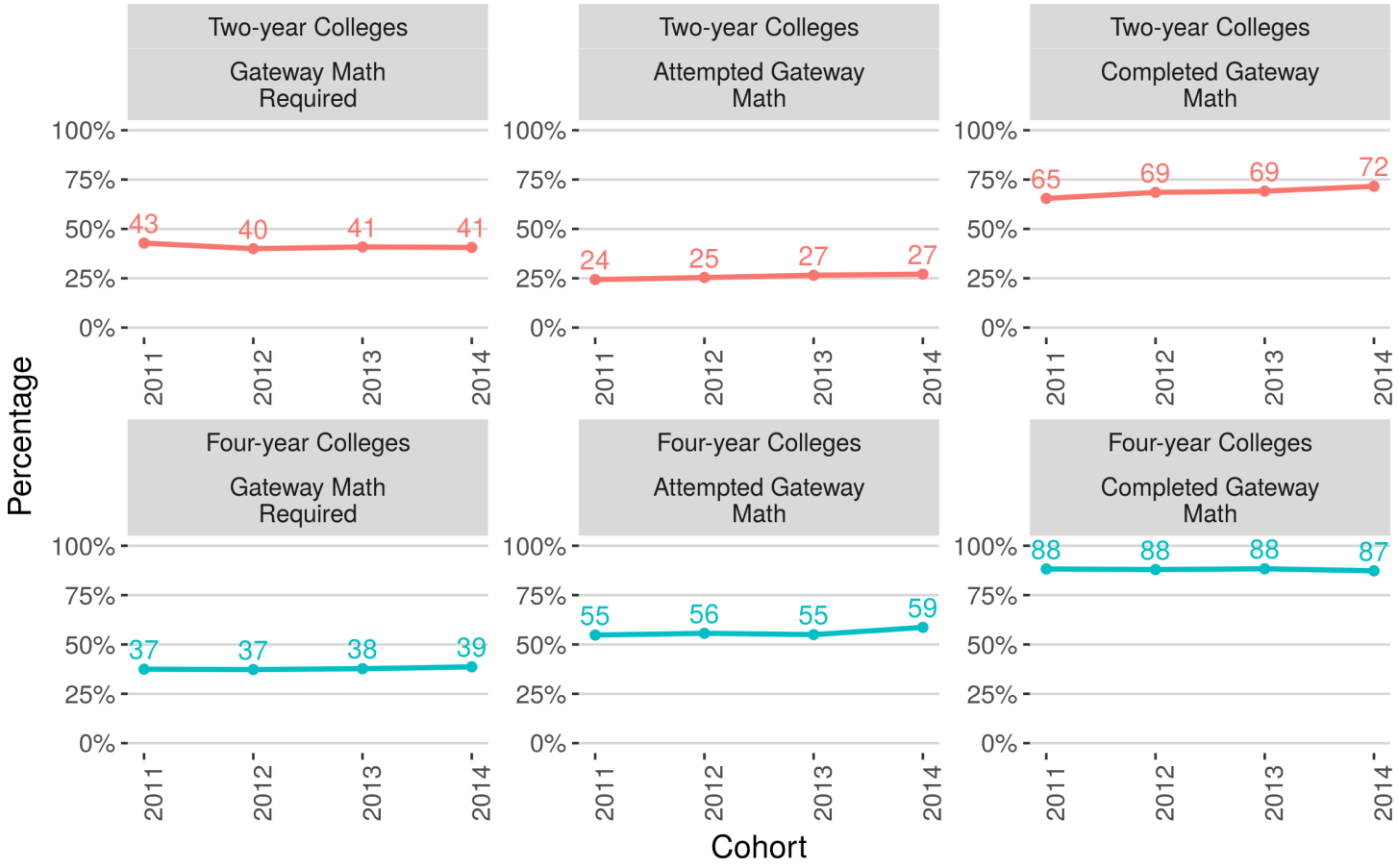
[6] Some students may be exempt from gateway math coursework; for example, students transferring from another institution where they completed the requirement, students fulfilling the requirement by successful completion of AP, IB, or similar high school coursework, or those enrolled in majors that do not require a gateway math course.

Figure 9: Gateway Course Progression in English, by Sector and Cohort



Note. Six colleges were not included due to missing data. The percentage of students who attempted gateway English is conditional on being required to take gateway English. The percentage of students who completed gateway English is conditional on attempting gateway English.

Figure 10: Gateway Course Progression in Math, by College and Cohort

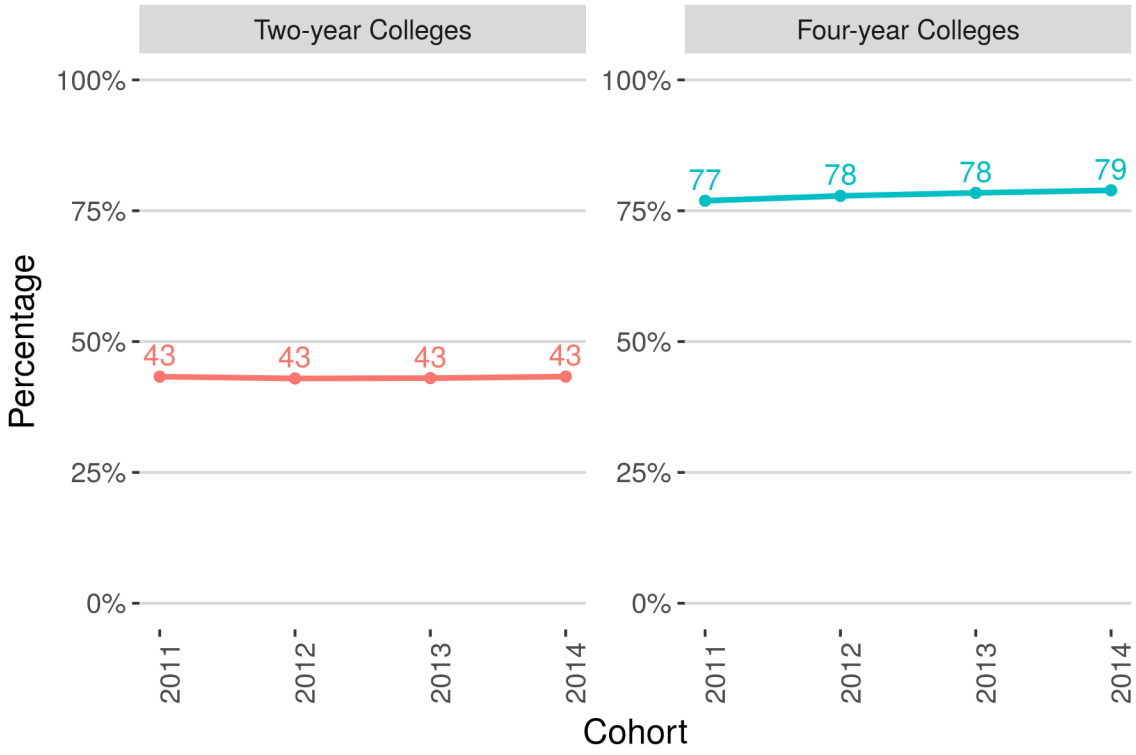


Note. Six colleges were not included due to missing data. The percentage of students who attempted gateway math is conditional on being required to take gateway math. The percentage of students who completed gateway math is conditional on attempting gateway math.

6.6 Retention

We also examine the percentage of students in each cohort who were retained in their second year, as shown in Figure 11. On average, about 78 percent of students in four-year colleges were retained compared with about 43 percent of students in two-year colleges. The percentage of students retained was stable over time within two-year colleges but increased slightly at four-year colleges.

Figure 11: Percentage of Students Retained in Their Second Year, by Sector and Cohort



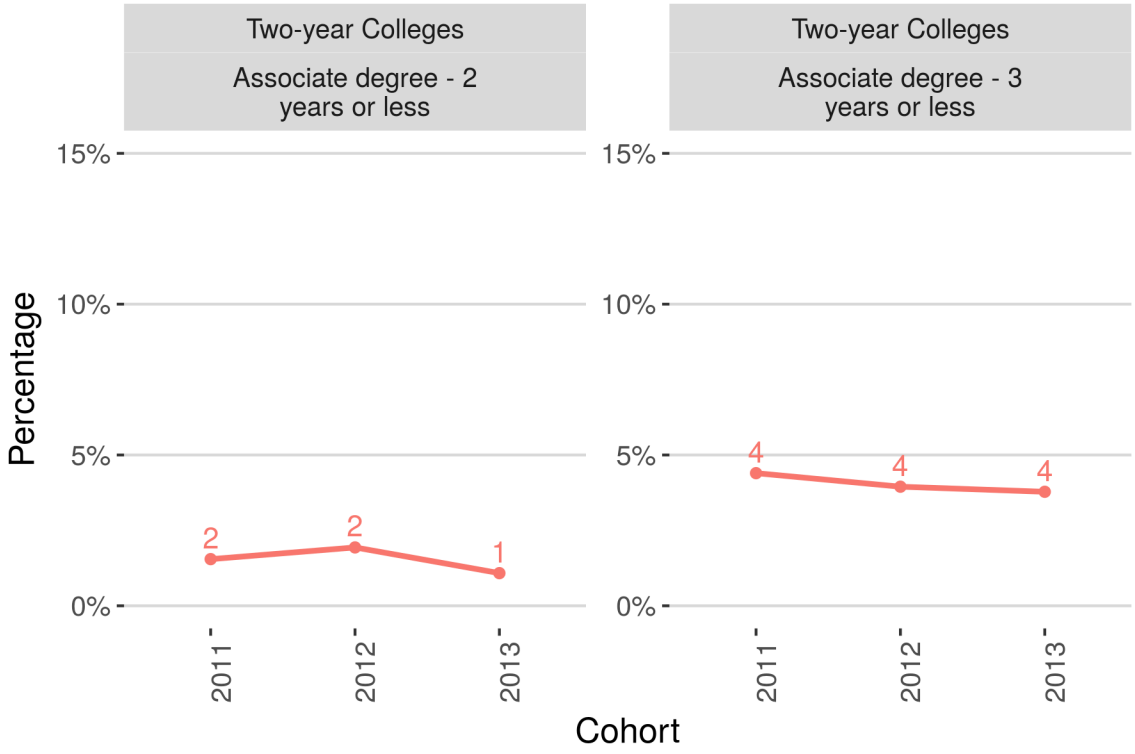
6.7 Completion

Two of our longer term outcomes were the percentage of students in each cohort that completed an associate degree in two years or less and in three years or less. We excluded the 2014 cohort from the analysis because that cohort had not had three full years to earn an associate degree when the data were collected.

Associate degree completion. Figure 12 shows that of students in two-year colleges, fewer than 5 percent earned an associate degree in two years or less or in three

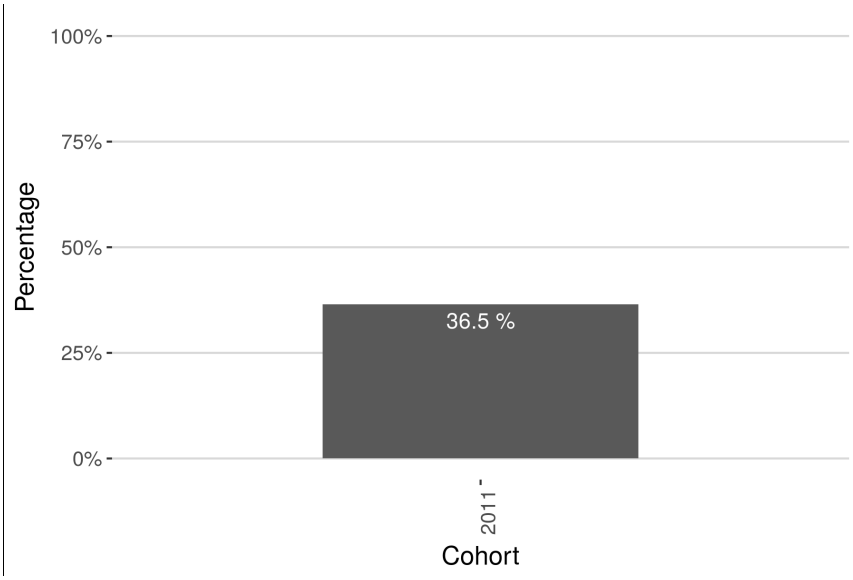
years or less. These results are lower than national comparisons. Nationally, about 12 percent of students at two-year institutions earned an associate degree within two years (Ifill et al., 2016).

Figure 12: Associate Degree Completion, by Cohort



Bachelor's degree completion. Our longest term outcome, the percentage of students in the 2011 cohort who completed a bachelor's in six years or less, is shown in Figure 13. We focus on four-year college students in the 2011 cohort because only that cohort originally enrolled in college six years ago as of the latest data upload. Overall, 36.5 percent of the sample earned a bachelor's degree within six years This result is lower than national comparisons. Nationally, about 60 percent of full-time students at four-year institutions earned a bachelor's degree within six years (U.S. Department of Education, National Center for Education Statistics, 2018).

Figure 13: Bachelor's Degree Completion Among Students in the 2011 Cohort



7. Discussion and Conclusion

Tracking KPIs over time is important in understanding the year-to-year variation in student outcomes by sector. We see considerable differences between the two-year and four-year institutions under study. Four-year colleges tended to have a student body that was younger, more academically prepared, and more likely to attend full-time. Four-year students were more likely to select a major in their first term, earn more of the credits that they attempted, and remain enrolled in their second year compared with two-year students. Overall, there was little change in KPIs between the 2011 cohort and the 2014 cohort within either sector.

This method of tracking multiple years of baseline data can serve to strengthen our evaluation analyses. Studies that simply track one year pre-intervention and one year post-intervention do not take into account year-to-year variation. What might otherwise be considered a positive or negative difference could really reflect expected year-to-year variation. We control for this year-to-year variation by analyzing multiple years of baseline data. In future reports we will look for differences in KPIs from the baseline pattern to those patterns of future cohorts who have experienced iPASS reforms.

Over the next year, we will continue to collect implementation and KPI data and share the results with our college partners so they can adjust and adapt their reforms. We encourage the colleges to provide accurate and complete data for each metric; this will help CCRC provide more meaningful and useful results to our partners. Some metrics, particularly those measuring developmental education and gateway course participation and completion, suffer from missing data that limits their utility as outcome measures in future studies. The missing data are particularly problematic because they could be useful in the early evaluation of advising reforms.

Additionally, we encourage institutions to explore their KPIs by looking at subgroups of students by race/ethnicity, gender, age, program of study, and economic status. Subgroup analyses can help to uncover differences in outcomes between groups and is thus an important consideration for faculty, staff, and administrators involved in reform. Future areas of CCRC research will include examining the impact of the iPASS grant and studying the implementation of the colleges' reforms.

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