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Trends in Undergraduate Postsecondary Program Enrollment through the COVID-19 Pandemic



Office of the Chief Economist

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Trends in Undergraduate Postsecondary Program Enrollment through the COVID-19 Pandemic

The COVID-19 pandemic that began in the Spring of 2020 led to historic disruptions in all dimensions of life in the United States. Higher education was no exception. Students and their families together faced unprecedented spikes in the risk of job loss and economic uncertainty, both of which likely increased concerns about their ability to pay for their education. Colleges and universities variously were forced to close their campuses, sometimes for extended periods of time, and to transition learning activities to online or hybrid modes of delivery. After institutions reopened for in-person education, they managed new concerns related to class sizes, spacing between students, and other public health considerations. The range of these disruptions and responses to the pandemic are likely to have influenced the decisions of individuals to pursue, or not, different occupations and industries or related postsecondary credentials, and fields they choose to study.

This research brief assesses how the pandemic affected undergraduate enrollment in colleges and universities, with a focus on how these effects vary across programs in different fields of study. We use newly developed administrative data on program enrollment reported by institutions to the National Student Loan Data System (NSLDS) for all students who receive federal support, either grants or loans, to attend college between award years 2015-2016 and 2023-2024. We measure enrollment at each institution classified by their 2-digit Classification of Instructional Program (CIP) code and credential level (which we call "fields of study") and 4-digit CIP codes and credential level (which we call "programs").[1]

These new data provide a more up to date and granular view of enrollment trends compared to information typically available from the federal government on postsecondary enrollment with a substantial lag using data from the Integrated Postsecondary Education Data System (IPEDS). IPEDS data do not allow for disaggregated reporting on enrollment by detailed field of study or program; therefore, our newly developed data provide a more complete picture of national trends relative to analyses of enrollment that were specific to programs, institutions, or states.[2]

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[1] Specifically, we use the unique combination of the first six digits of its institution's Office of Postsecondary Education Identification ("OPEID") number, the program's CIP code measured at the 4-digit level, and the program's credential level (classified into the categories: undergraduate certificate, associate degree, bachelor's degree, post-baccalaureate certificate, master's degree, doctoral degree, first professional degree, or post-graduate certificate). We restrict to enrollment in undergraduate certificate, associate degree, and bachelor's degree programs. Institutions report this information for all enrolled Title IV students to the Department of Education. We use these records to calculate the number of students receiving Title IV, HEA funds in each program annually. Students may be enrolled in multiple programs during an academic year, either because they attend multiple institutions or are enrolled in multiple programs at the same institutions.

[2] IPEDS does include enrollment for a small number of aggregated fields at four-year institutions, but the narrow scope of this data collection has limited its widespread use for broad examinations of enrollment trends by field. Throughout the pandemic, researchers and policymakers released reports about trends at individual programs, institutions, states, or groups of states (Korotchenko and Dobbs 2023, Bulman and Fairlie 2022, Perez et al 2022). National data was analyzed by National Student Clearinghouse (2022) and Howell et al. (2021). Note that IPEDS does report the number of completions by detailed program of study for each institution, albeit with a lag (e.g., the most recent available are for award year 2023, ending in June of 2023). While we do not expect these data to align perfectly with enrollments (since completion rates are far from 100 percent), we caution that the data presented here do not always align well with those data and more research may be needed to fully assess the quality of both sources of information.

We present data on differences in enrollment trends across sector, field of study, and program. A robust analysis that analyzes the effect of the pandemic on institutions and programs is beyond the scope of this report. But we take a step in this direction by estimating the extent to which each program's enrollment during and after the pandemic deviated from its trend prior to the pandemic. Using these results, we consider several explanations for the patterns of enrollment changes observed in the data, including "supply-side" explanations involving the difficulty of offering some programs online, and "demand-side" explanations related to students' shifting preferences for different types of careers in the wake of the pandemic.

The 2021 award year (July 2020—June 2021) began with most programs still being offered remotely due to the pandemic. In that award year the typical undergraduate program had 8-10% lower enrollment than its pre-pandemic trend would have suggested.[3] The aggregate patterns, however, mask considerable variability across sectors and fields. At four-year colleges, enrollments were relatively stable until 2024 after an initial drop in 2020. For-profit colleges weathered the pandemic relatively well, expanding and maintaining enrollment since 2020. Community college enrollment was hit particularly hard in this first full year of the pandemic, and overall enrollment had still not recovered by 2024. For programs in some fields – such as in Liberal Arts, Security and Protective Services, and even in parts of Health – enrollment had already been in decline in the years before the pandemic emerged. In many of these cases, the pandemic accelerated existing patterns of enrollment loss.[4] For other programs and fields, such as in the industrial trades, large declines experienced at the onset of the pandemic ended up being transitory as short-run supply constraints were removed and enrollment recovered.

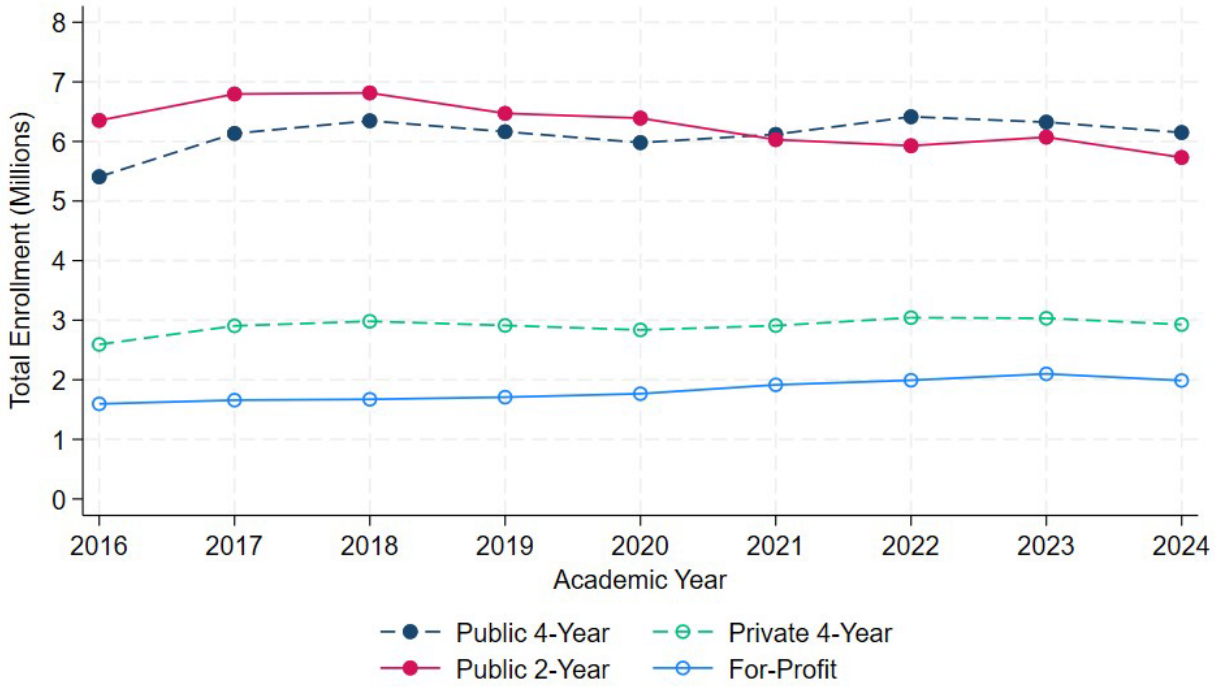
Broad Trends in Enrollment Through the Pandemic

We begin by documenting trends in enrollment across different sectors of the U.S. postsecondary education landscape. Figure 1 shows the number of enrolled students since the 2016 award year, by the control and predominant degree of the institution. Public institutions accounted for the majority of enrollment, with two-year public institutions enrolling about 5.8 million students and four-year public institutions enrolling about 5.5 million students in 2016. Over this period, enrollment at public four-year institutions declined slightly, but enrollment at community colleges fell substantially. As a result, by 2023 the gap in enrollment of federally aided students between public 2- and 4-year schools had grown to about 600,000 students. Enrollment at private four-year institutions stayed steady at about 3 million students per year, and for-profit colleges' enrollment levels grew slightly following the onset of the pandemic. Not shown are private two-year institutions, which only enrolled approximately one percent of undergraduate students annually.

[3] Throughout, we refer to the award year by the year in which it ends. For example, the 2021 award year is the year that begins in July of 2020 and runs through the end of June, 2021.

[4] Both fall and full-time-equivalent enrollment at community colleges and for-profit institutions declined substantially since their peaks in the early 2010s through the start of our analysis period (U.S. Department of Education, 2022).

Figure 1: Undergraduate Enrollment in Award Years 2016-2023, by Predominant Degree and Control of Institution



Notes: Figure plots the total undergraduate enrollment of Title IV recipients by the control and predominant degree of the institution. Enrollment is measured at the program level and then aggregated, where program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.

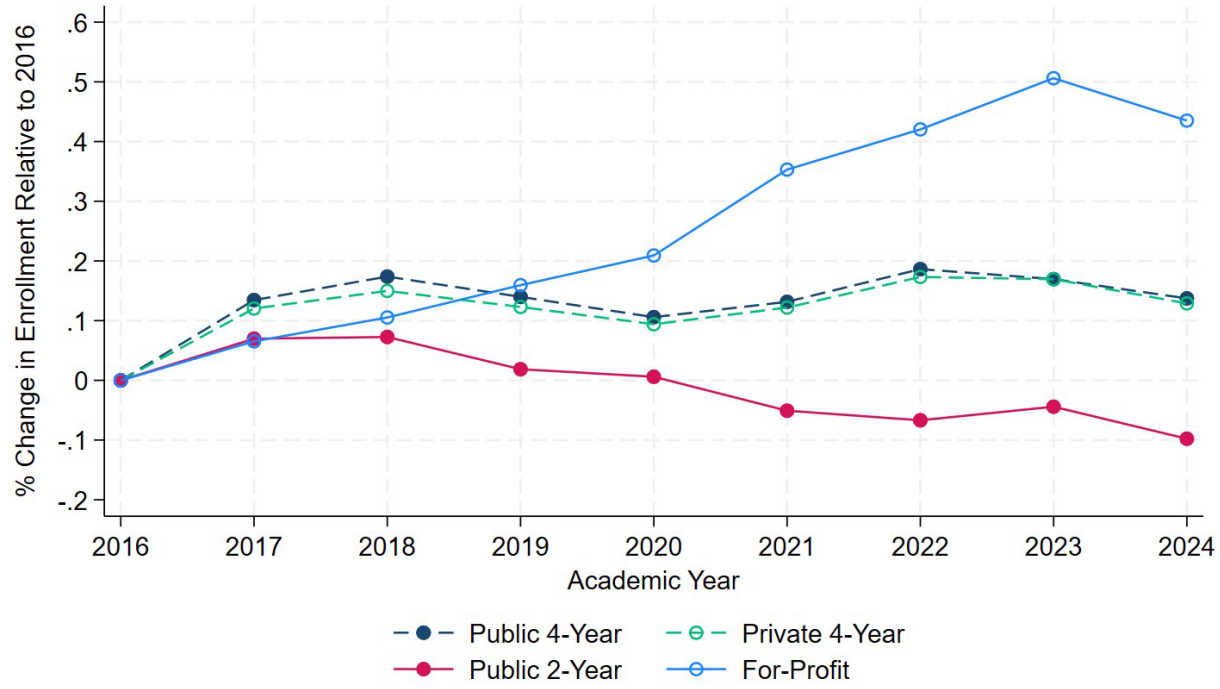
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

Figure 2 shows cumulative percent changes in enrollment relative to award year 2016. Steady increases between 2016 and 2020 in the for-profit sector were followed by a sharp jump in enrollment in the first full pandemic year, and further subsequent increases through 2024. Undergraduate enrollment at four-year public and private colleges followed similar trajectories before the pandemic: rising slightly from 2016 to 2018, and then declining to 2020. In the wake of the pandemic, enrollment at four-year public and private institutions remained relatively stable. These enrollment trends are somewhat different than enrollment trends in publicly available sources, especially from the National Student Clearinghouse (NSC), which have generally shown continued enrollment declines through the pandemic followed by bumps in the most recent year. This report does not contradict these findings, but instead delves deeper into how enrollment across different areas of study have changed through the pandemic.[5]

[5] The enrollment trends are somewhat different than enrollment trends in publicly available sources. Appendix Figure A1 shows comparable trends in enrollment of students receiving Title IV aid from 2010 to 2021 using IPEDS, with a vertical line showing the two years of data that overlap with what is in our main sample. The two datasets do align for public colleges, though it is important to note that the relative flat enrollment trends for community colleges between 2016-2018 followed several years of consistent drops in enrollment. Appendix Figure

At community colleges, enrollment started declining sooner than at four-year colleges and continued its pre-pandemic decline through the pandemic, albeit at a faster rate: enrollment was about 4% lower in 2019 compared to 2016 levels; but by 2024, enrollment was about 21% lower than 2016 levels.

Figure 2: Undergraduate Enrollment Change Relative to Academic Year 2016, by Predominant Degree and Control of Institution



Notes: Figure plots the percent change in total undergraduate enrollment of Title IV recipients by the control and predominant degree of the institution since 2016. Enrollment is measured at the program level and then aggregated, where program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

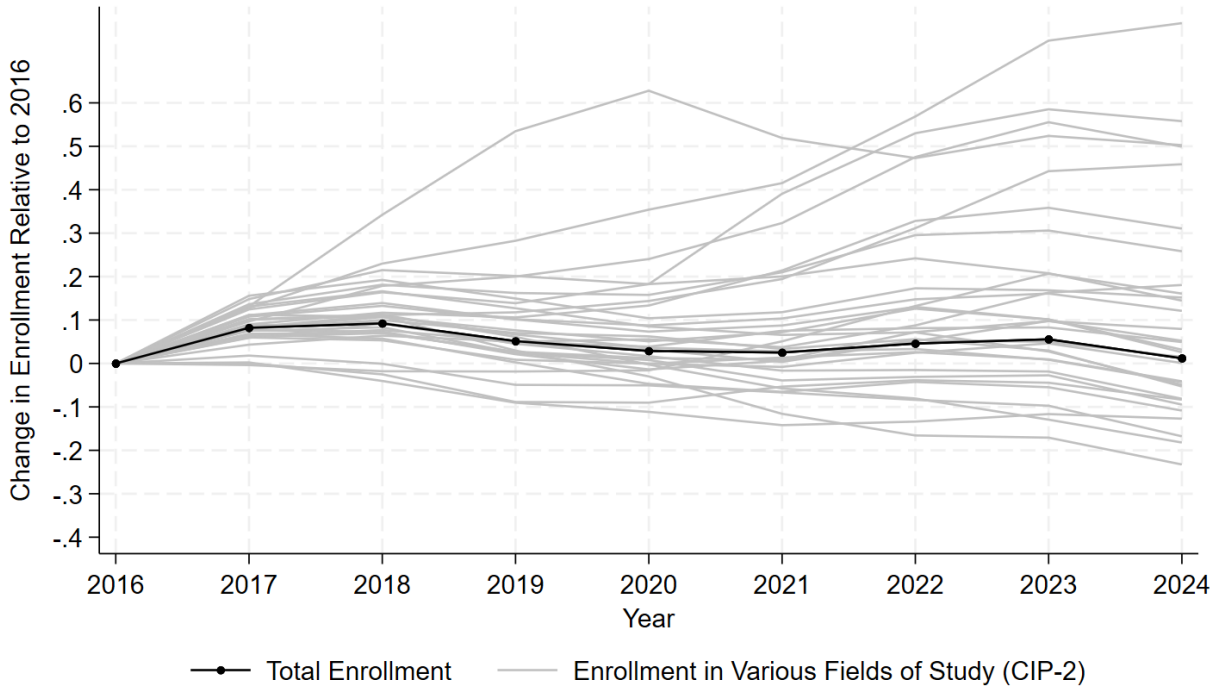
The overall changes in enrollment since 2016 mask substantial variation across fields of study within sector. In Figure 3, the solid line with circle markers shows the overall trend in enrollment across all sectors. The lighter lines without markers shows trends in enrollment for 32 broad

A2 shows trends in overall Spring enrollment from National Student Clearinghouse Reports. These go to 2023, but are not separated out by whether they receive financial aid. These trends are also comparable. Appendix Figure A3 includes data from the NCES Digest of Education Statistics.

fields of study defined by 2-digit CIP codes, such as Healthcare, Social Sciences, and Business and Management.[6]

Enrollment in more than half of these fields of study declined prior to the pandemic from 2016 to 2019. At community colleges, fields of study with pre-pandemic declining enrollment were particularly large, comprising about 85% of enrollment in 2016. In addition, Figure 3 demonstrates that enrollment in many programs breaks from the prior trend starting in the 2021 award year (the first full year of the pandemic), notably in both positive and negative directions.

Figure 3: Changes in Enrollment Relative to Academic Year 2016, by 2-Digit CIP Code



Notes: Figure plots the percent change since 2016 in total undergraduate enrollment of Title IV recipients at 2-year public, 4-year public, 4-year private, and for-profit institutions, by 2-digit CIP code. Enrollment is measured at the program level and then aggregated to the year and 2-digit CIP code, where program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

The large variation in enrollment changes across programs illustrated in Figure 3 begs the question: Why did different programs see such different responses around the pandemic? Given the substantial differences in trends across programs even prior to the pandemic, the analysis that follows focuses on enrollment deviations from trend.

[6] Appendix Figure A4 splits out this figure into the four sectors we consider throughout this report: community colleges, 4-year publics, 4-year privates, and for-profits.

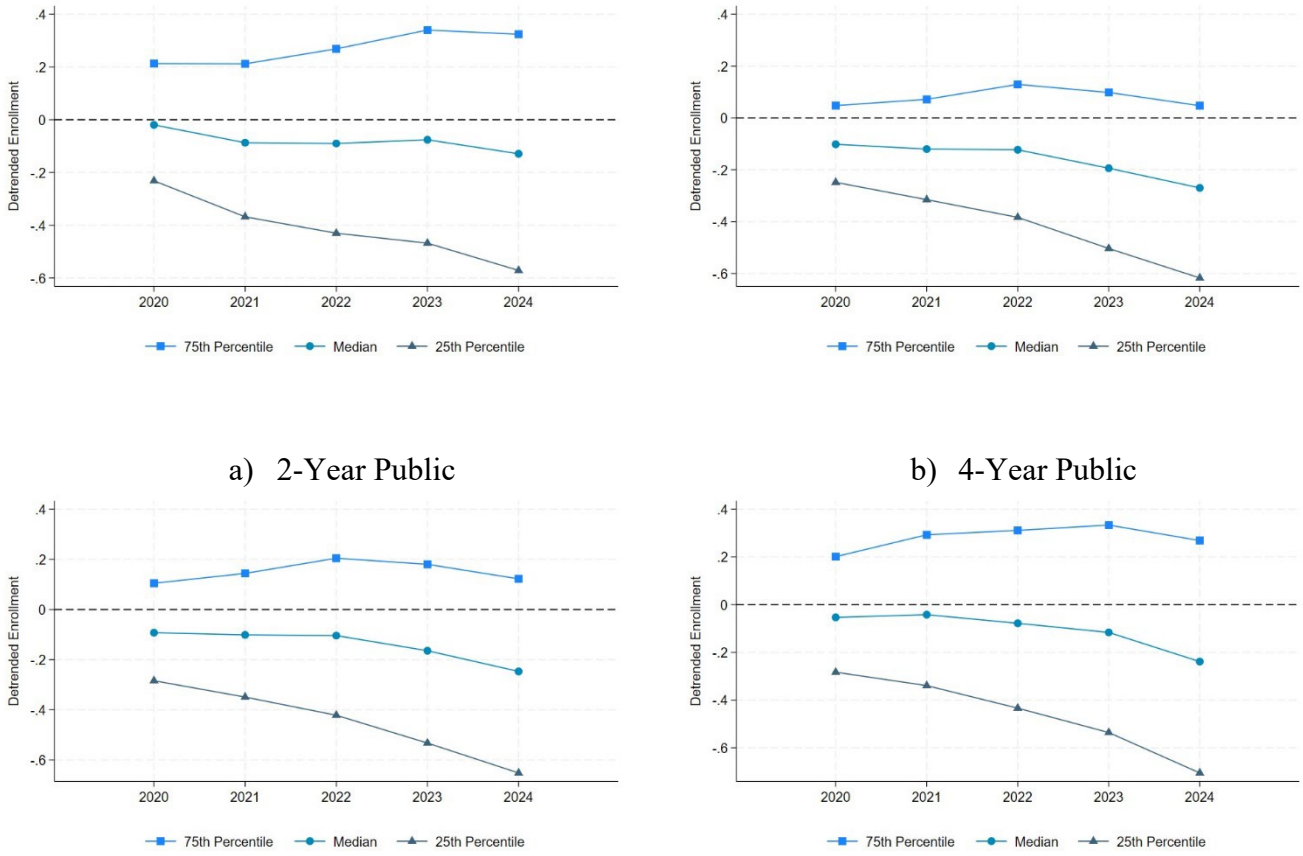
Overall Patterns in Detrended Enrollment

To measure the effect of the pandemic on enrollment it is not enough to just measure the change in enrollment from one year to the next. As shown earlier, about half of all fields of study had declining enrollment even before the pandemic began, and most students at community colleges were enrolled in fields with pre-pandemic declines. Therefore, enrollment declines after the pandemic's onset are not necessarily evidence of its impact. Similarly, generally level enrollment through the pandemic, such as that observed in the four-year college sector, is also not evidence that the pandemic had no effect. To investigate this further, we estimate changes in enrollment relative to the trends that existed prior to 2020. We first estimate linear time trends in log enrollment in the four pre-pandemic years in our data, 2016 through 2019 for each program, defined here as sharing a 4-digit CIP code, separately by sector.

For the remaining years that include the pandemic and beyond, 2020 through 2024, we calculate the difference between the actual log enrollment in each year for that program and the log enrollment predicted by the pre-pandemic trend. We refer to this difference as the *detrended enrollment*. We then use these data to identify and explain which programs saw increases and decreases in enrollment, beyond what would have happened had they continued to follow their pre-pandemic trend.

Figure 4 shows the distribution of detrended enrollment in each of the four years following the onset of the pandemic across all programs. There is one panel for each sector. The middle line in each panel shows the detrended enrollment for the median program, and the outer lines show the 25^{th} and 75^{th} percentile across all programs in each year.

Figure 4: Detrended Undergraduate Enrollment in 2020-2023



a) 2-Year Public

b) 4-Year Public

c) 4-Year Private

d) For-Profit

Notes: Figure plots the 25th, 50th, and 75th percentile of the from-trend deviation in total program enrollment of Title IV recipients in each pandemic and post-pandemic year. Program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

In 2020, a partial pandemic year, enrollment in the median community college program was just slightly below its trend in the previous four years. The following award year, 2021, was fully affected by the pandemic, and there is an obvious shift down in enrollment for the median program: the typical field experienced 7 percent lower enrollment than its pre-pandemic trend would have predicted. Changes in enrollment were not, however, uniform across programs: about 38% percent of community college programs had positive detrended enrollment in 2020-21. In fact, the wide variation in detrended enrollment across programs, as can be seen by the gap between the 25th and 75th percentiles, is an important feature for all the sectors. The next three years, 2022 -2024, the median community college program's enrollment continued to be below its pre-pandemic trend, but there was more variation in enrollment outcomes across programs. This spreading out is shown by the widening gaps between the 25th and 75th percentile lines.

Panels b) and c) show the analogous results for public and private four-year colleges. Both sectors exhibit similar detrended enrollment patterns. Unlike for community colleges, there is no drop in 2021, the first fully affected pandemic year. In fact, the three years 2020-2022 remain fairly flat, meaning that, while enrollment was somewhat lower for the typical program than pre-pandemic trends would have predicted, the declines did not accelerate as they did for community colleges. As with community colleges, though, the variation across programs widened over time. In 2023 and 2024, however, enrollment did drop relative to pre-pandemic trends.

Finally, panel d) shows that for-profits saw a different pattern of detrended enrollment than the public and private colleges. Enrollment in 2021 was almost identical for the typical program as trends would have predicted.

Understanding Patterns Across Fields of Study

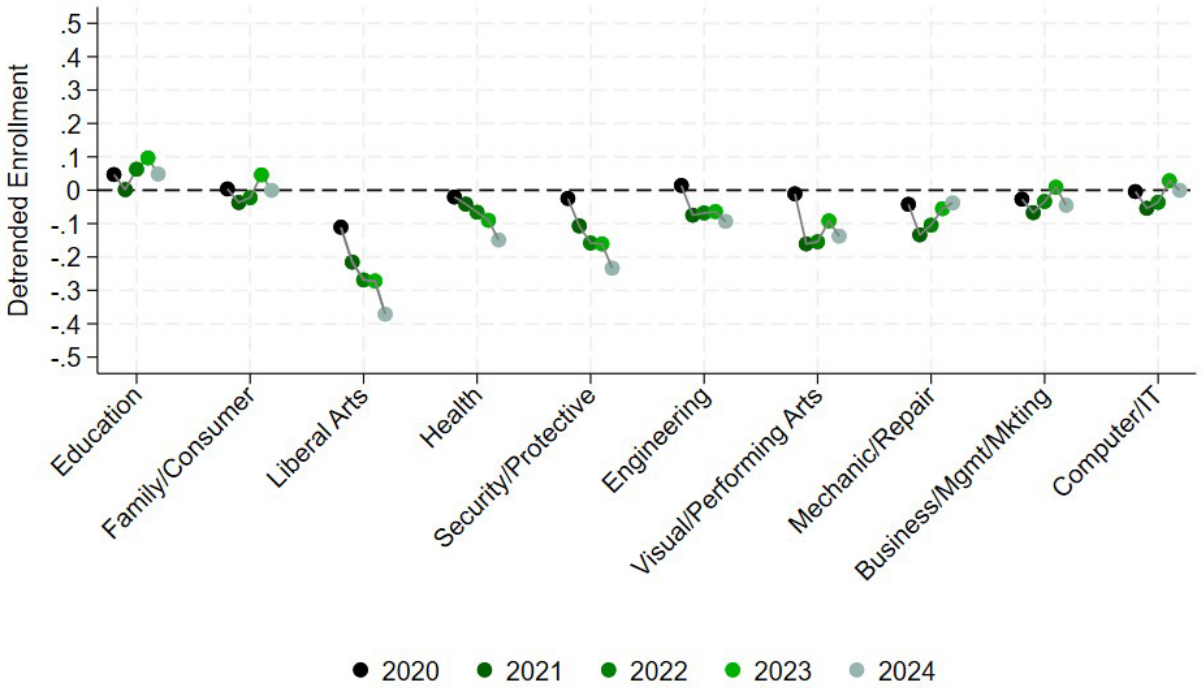
Just as the pandemic affected people and communities differently, it also had differential effects on postsecondary programs. In addition to describing overall trends in the distribution of enrollment changes during the pandemic, it is thus also useful to understand which programs were more likely to experience larger than expected declines or increases. The Appendix includes tables with the median detrended enrollment in 2020-2024 for each 2-digit CIP code and for each sector.[7]

Figure 5 shows the median community college program's detrended enrollment for the 10 largest community college fields of study. Each point represents the percent difference in enrollment relative to the pre-pandemic linear trend. Points that fall on (below) the zero line represent enrollment that is equal to (lower than) what would be predicted given trends that existed prior to the pandemic. There is considerable variation in how these areas of study fared during the pandemic. In some, like Education and Family & Consumer Sciences, enrollment stayed on trend in the pandemic or even increased. In others, the trend accelerated. This is particularly pronounced in the Liberal Arts, for which the enrollment decline accelerated in 2020 (a partial pandemic year) but continued as the pandemic hit full-swing. For Health and Security & Protective Services, enrollment began to decline relative to trend at the beginning of the pandemic and continued to decline even further as the pandemic receded.

Some areas of study had a trend break that seemed to linger for the next few years. This was true in Engineering as well as in Visual and Performing Arts. In other areas, a temporary disruption from the pandemic was followed by a slow reversion back to trend. For example, enrollment in Mechanic and Repair programs declined off trend in 2021 but was almost back to trend by 2024. This is most likely due to these types of programs not being able to be offered virtually, a theme that we return to in the next section. Business, Management and Marketing, as well as Computer and IT, saw smaller declines but also slowly reverted.

Figure 5. 2019-2022 Detrended Undergraduate Enrollment, Community Colleges, by 2-Digit CIP Code

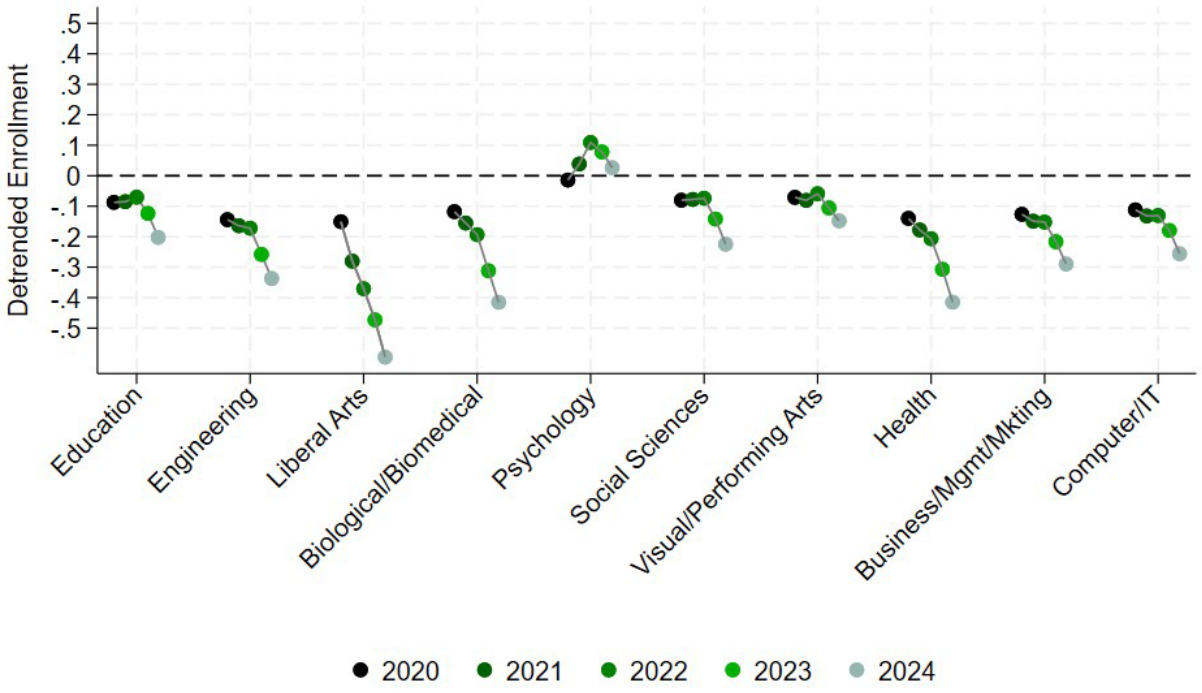
[7] The detrended enrollment is calculated using programs defined at the institution, 4-digit CIP, and credential level, where there were at least 10 programs with positive enrollment.



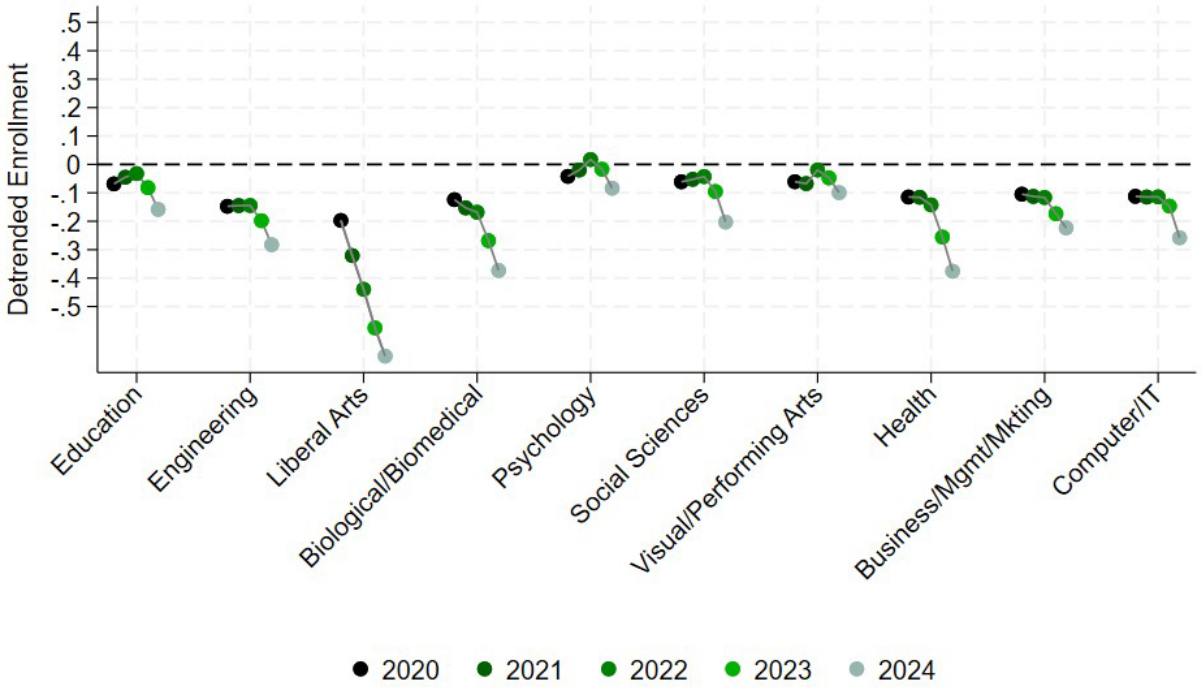
Notes: Figure plots the 50th percentile of the from-trend deviation in total program enrollment of Title IV recipients at public 2-year institutions in each pandemic and post-pandemic year, separately for selected 2-digit CIP codes. Program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

Figure 6 shows corollary graphs to Figure 5, but now for public and private four-year enrollment for the 10 largest fields of study. In general, most fields saw declines in detrended enrollment in the final year, 2024. However, as with community college detrended enrollment, there was a variety of patterns across fields. Some fields, like the Liberal Arts, Biology, and Health, seemed to face enrollment declines that grew in magnitude each year. Others were relatively flat, including Engineering, the Social Sciences, and the Arts. Psychology, one of the largest undergraduate majors, had positive detrended enrollment in the three pandemic years, at public institutions. The patterns were largely similar for the other fields between the public and private sectors.

Figure 6. 2019-2022 Detrended Undergraduate Enrollment, 4-Year Institutions, by 2-Digit CIP Code



a) Public

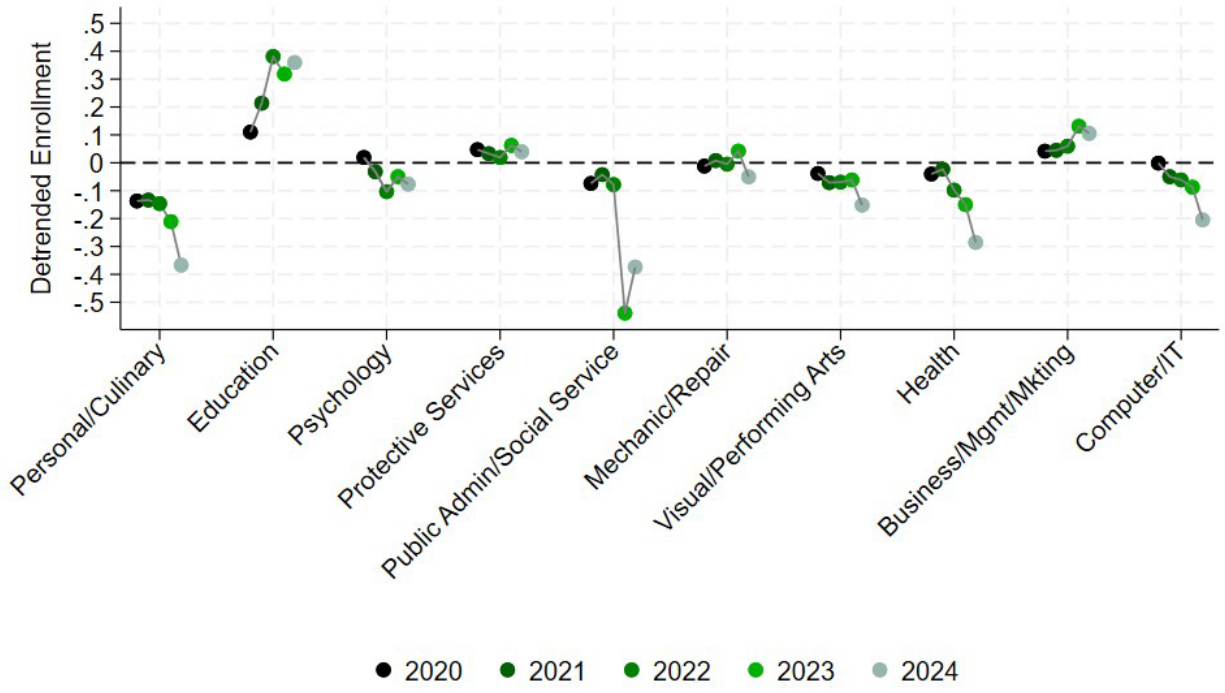


b) Private

Notes: Figure plots the 50th percentile of the from-trend deviation in total program enrollment of Title IV recipients at public and private 4-year institutions in each pandemic and post-pandemic year, separately for selected 2-digit CIP codes. Program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

Figure 7 shows the same analysis for for-profit institutions. Here the patterns are markedly different than for the community colleges and four-year public and private institutions. More of the fields actually saw higher than expected enrollment during the pandemic, even as some others did not. As with the four-year institutions, Psychology saw increases during the pandemic. Protective Services and Mechanic/Repair programs also saw higher than expected enrollment throughout the pandemic. In other fields detrended enrollment did reflect similar patterns as the other types of institutions. For example, enrollment in Health programs at for-profit institutions declined relative to trend in 2022 and 2023.

Figure 7. 2019-2022 Detrended Undergraduate Enrollment, For-Profit Institutions, by 2-Digit CIP Code



Notes: Figure plots the 25th percentile of the from-trend deviation in total program enrollment of Title IV recipients at for-profit institutions in each pandemic and post-pandemic year, separately for selected 2-digit CIP codes. Program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

Potential Explanations for the Patterns of Enrollment Across Fields of Study

The COVID-19 pandemic forced education online in the short-term. Over a longer time horizon, the pandemic may change the way that some organizations—schools as well as workplaces—think about remote work and classes. One way to interpret the differences across fields in the effects of the pandemic is that they may be tied to the careers that their students seek. In other words, the ways that the pandemic will alter labor market may already be reflected in trends in postsecondary enrollment. For this analysis we focus on community college and for-profit

enrollment since their career technical programs have a more direct link to specific occupations and employment.

We categorized programs following conventions in the prior literature to understand different theories of how the pandemic may have changed enrollment patterns.

We start with supply-side factors; Schanzbenbach and Turner (2022) document that enrollment drops were particularly acute in programs that required in-person training. They focused on programs that train students for so-called Assembly, Repair, and Maintenance ("ARM") occupations, whose training is particularly hands-on and thus were less likely to be amenable to virtual or remote learning.[8] Schanzenbach and Turner (2022) find that in a subset of states, the colleges that were most concentrated in training in ARM fields saw the largest declines in overall enrollment during the first full year of COVID, 2021.

We extend their analysis, looking at enrollment in ARM programs across all two-year public colleges in the country, and for two additional years. The first results in Figure 8 below shows a similar finding: ARM fields saw declines in enrollment of approximately 14 percent relative to their prior trend in the first full year of the pandemic—echoing the findings of Schanzenbach and Turner (2022). Our data allow us to examine enrollment trends beyond the first year of the pandemic, however. In the next academic year, 2022, we observe that as students returned to in-person classes, detrended enrollment in ARM programs started to rebound. By the last year of data these fields had almost entirely reverted to trend. Thus, while the immediate effects of the pandemic on ARM training were stark, they do not seem to have been permanent. This suggests that temporary supply-side constraints on the delivery of hands-on instruction is an important explanation for the short-run enrollment patterns in the initial years of the pandemic.

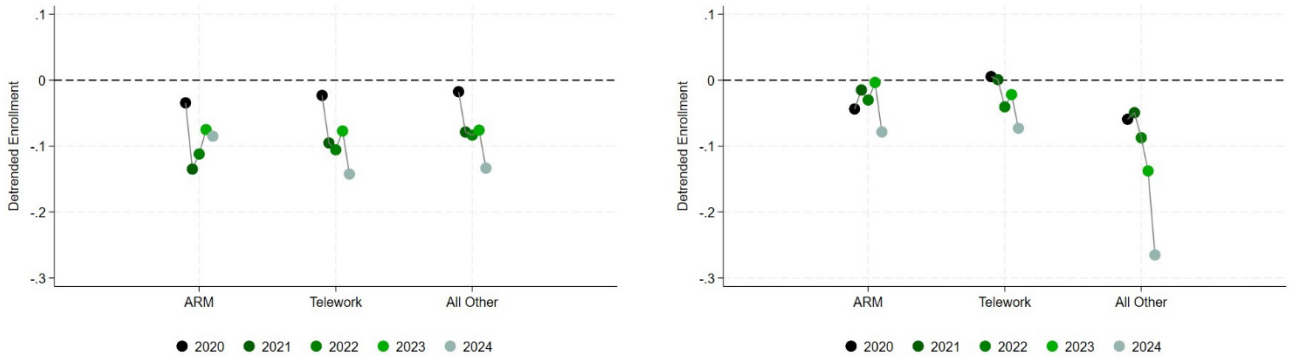
The second set of results in Figure 8 focus on a demand-side explanation: how enrollment relates to occupations that most lend themselves to telework. One persistent consequence of the pandemic has been that the telework policies that were put in place as temporary measures have stuck around even as the acute health threat of COVID has dissipated (Parker et al. 2022). Not all occupations easily transition to telework, and we follow Dingel and Neiman (2020) to identify the most telework-eligible programs.[9] These are occupations that do not involve activities outdoors, with in-person interactions, or with large amounts of physical activity. These fields saw detrended enrollment declines that persisted throughout the pandemic and recovery, with only a very small reversion in 2023.

[8] Using the ONET data, these are programs related to occupations that scored a 3 or higher in importance along the Repairing, Equipment Maintenance, Equipment Selection, and Operation and Control skills. We matched these groups of occupations to each 4-digit CIP code using crosswalks created by the NCES. There can be multiple CIP codes that match to each occupation. Therefore, we defined a CIP code as ARM if at least half of its underlying matched occupations are coded as ARM.

[9] Using ONET data, the telework-eligible occupations are those that did not score highly on a variety of skills and contexts, such as occupations that are primarily outdoors; include exposure to disease or injury; spend time walking or running; include operation of machinery or vehicle; and include other physical tasks. In an analogous way as for ARM occupations we defined a CIP code as telework-eligible if at least half of its underlying matched occupations are coded as telework-eligible.

The final set of results in Figure 8 show the remaining fields, which were not ARM and were also not particularly fit for telework. In 2019, the year prior to the pandemic, this represented the majority (86%) of enrollment in community colleges. These programs declined relative to their trend in 2021, and declined even further in later years. Thus, for most community college programs, there has been an acceleration of existing enrollment trends that predated the pandemic.

Figure 8. 2019-2022 Detrended Undergraduate Community College Enrollment, by Training Types



a) 2-Year Public b) For-Profit

Notes: Figure plots the 50th percentile of the from-trend deviation in total program enrollment of Title IV recipients at public 2-year institutions in each pandemic and post-pandemic year, separately for programs in Assembly, Repair, and Maintenance (ARM) and those leading to occupations that are telework eligible. See details of this characterization in the text. Program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

Conclusion

The sizeable disruption to postsecondary education caused by the pandemic was experienced differently across different postsecondary programs. The most significant enrollment losses were in the community college sector, where the pandemic accelerated the pace of decline that predated the pandemic. Many of the fields that experienced substantial enrollment losses (beyond trend) during the first full year of COVID, such those associated with Assembly, Repair, and Maintenance professions, have rebounded as instruction has returned to in-person. Still others, such as those associated with remote work, have seen only a modest reversion to the pre-pandemic trend. Liberal Arts and General Studies, a very large category that includes many transfer-prep programs, has seen accelerating enrollment decline even after the pandemic.

At public and non-profit four-year colleges, enrollment declined relative to trend in 2020, which mostly predated the pandemic; there was little additional enrollment decline in the first full year of the pandemic, though enrollment has not returned to trend. For-profit institutions largely maintained or even expanded enrollment during the pandemic.

This work has focused on broad patterns by sector and field, though there is substantial variation in enrollment patterns across individual programs within these groups. The new availability of up-to-date and finely-grained information on program-level enrollment should facilitate deeper research into the forces driving student choice, program expansion, and contraction. For instance, geographic differences in communities' response to COVID, changes in the goals or preparation of secondary students, or shifts in labor market demand may all alter the types of postsecondary programs students enroll in.

It will also be important to see whether the enrollment reductions seen during COVID reduce credential attainment at the certificate, Associate's, and Bachelor's level. The lack of bounce-back of the 2-year sector may signal a need for more investment in affordability and student support at these institutions. This real-time information provided by NSLDS can be used to track whether these investments are paying off.

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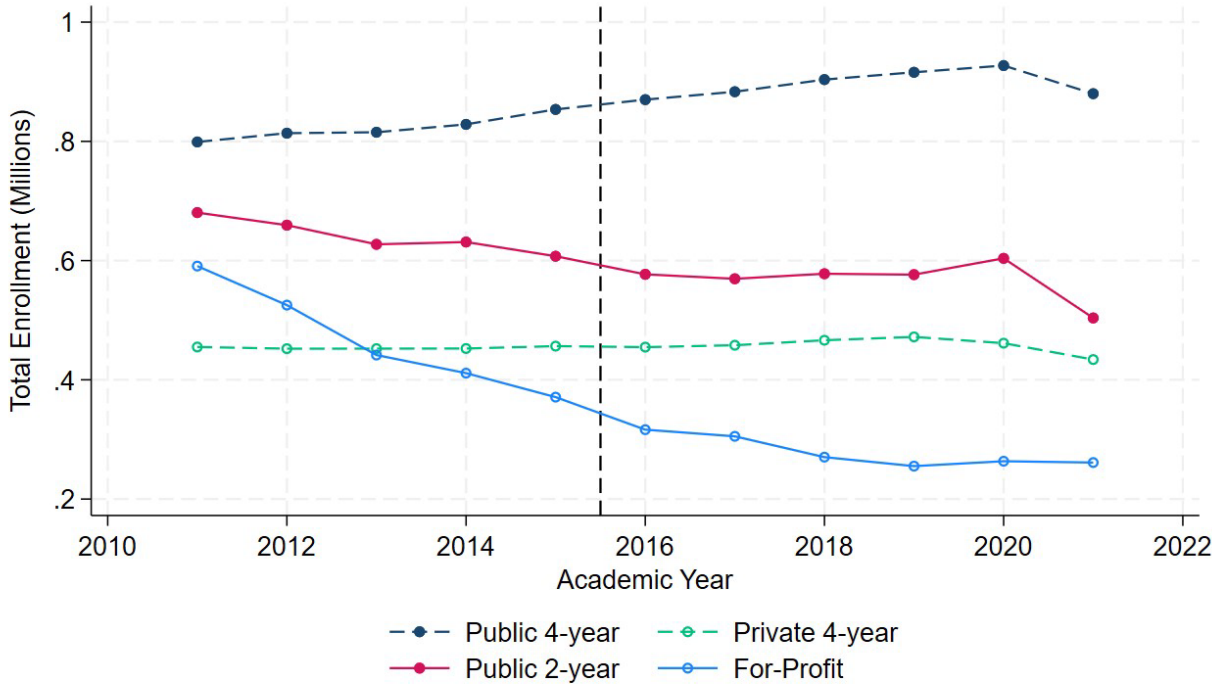
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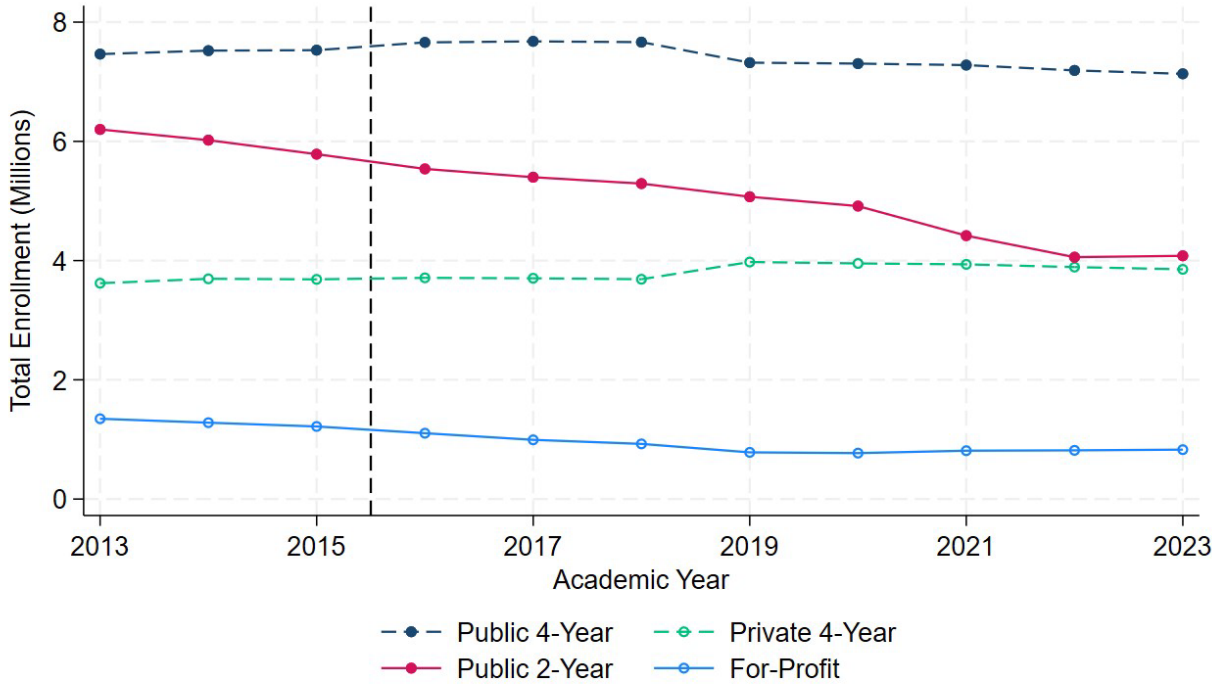
U.S. Department of Education, National Center for Education Statistics. (2022). *2022 Digest of Education Statistics*. Tables 303.25 and 307.10.

Appendix Figure A1: Enrollment for Undergraduate Recipients of Title IV Aid, by Predominant Degree and Control of Institution, Using IPEDS Data



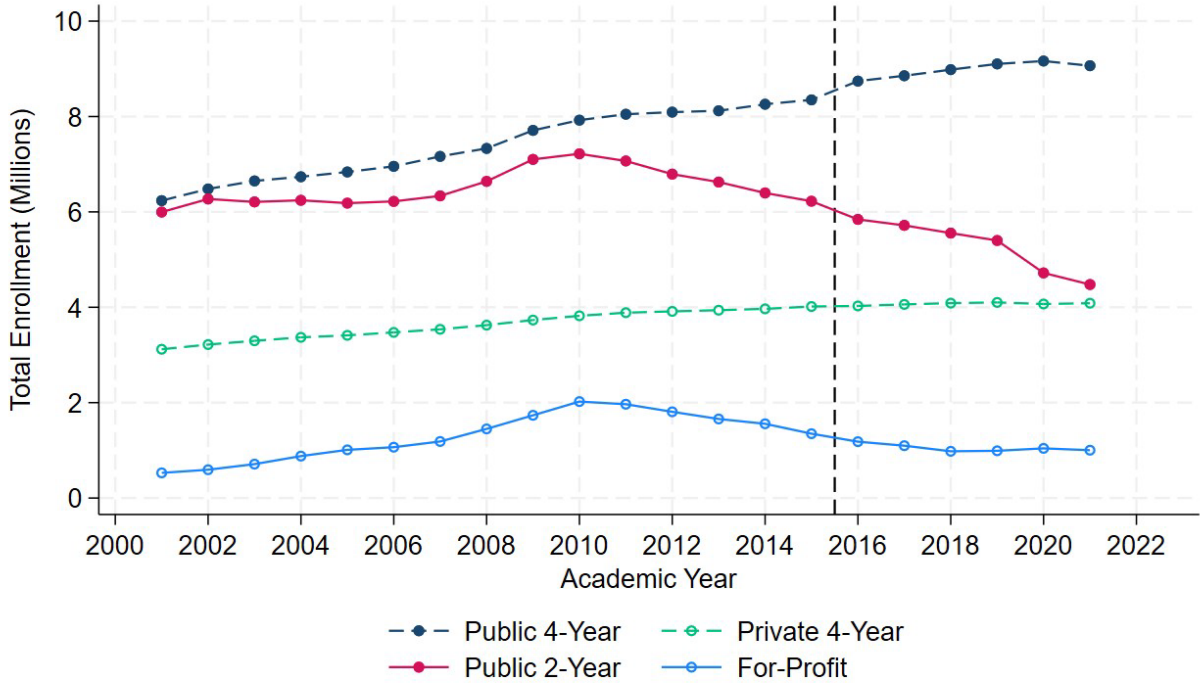
Notes: Figure plots the total enrollment of first-time full-time undergraduate Title IV recipients by the control and predominant degree of the institution as reported in IPEDS. Enrollment is measured at the institution level and then aggregated across institutions. Students can be counted in multiple instituitons in the same academic year if they attend more than one institution.
Source: ED analysis of data from IPEDS.

Appendix Figure A2: Undergraduate Enrollment by Sector, Using NSC Data



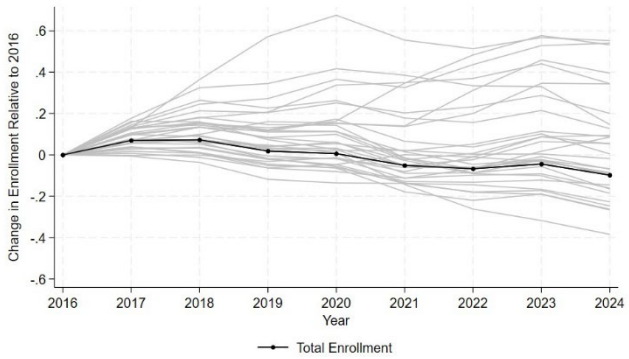
Notes: Figure plots the total enrollment of all students by the control and sector of the institution as reported to the National Student Clearinghouse. The data cover 97 percent of Title IV degree-granting institutions. Enrollment is reported at the sector and control level.
Source: NSC Spring 2023 Enrollment Estimates

Appendix Figure A3: Enrollment for Recipients of Title IV Aid, by Predominant Degree and Control of Institution, Using NCES Digest Data

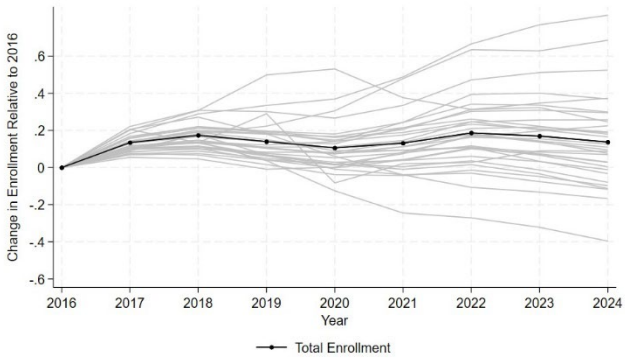


Notes: Figure plots the total enrollment of all students by the control and sector of the institution as reported in Digest of Education Statistics, which draws from IPEDS . Enrollment is measured xxx.
Source: Digest of Education Statistics 2022, Table 303.25

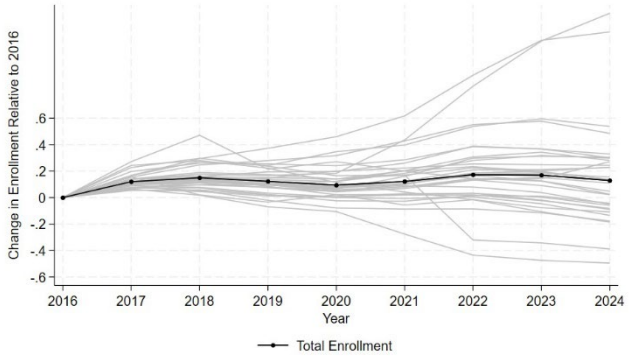
Appendix Figure A4: Changes in 2-Year Public Enrollment Relative to Academic Year 2016, by 2-Digit CIP Code



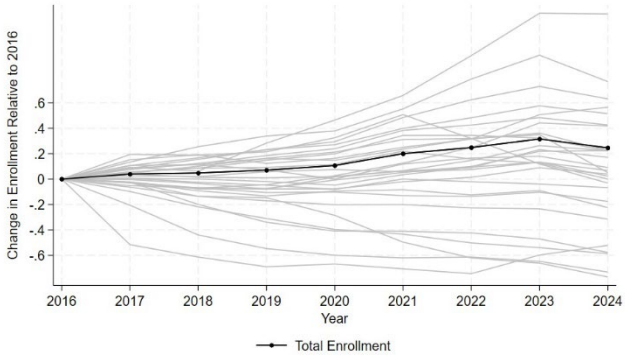
a) 2-Year Public



b) 4-Year Public



c) 4-Year Private



d) For-Profit

Notes: Figure plots the percent change since 2016 in total enrollment of Title IV recipients at 2-year public, 4-year public, and 4-year private institutions, by 2-digit CIP code. Enrollment is measured at the program level and then aggregated, where program is defined by the combination of 6-digit OPEID code, 4-digit CIP code, and credential level. Students can be counted in multiple programs in the same academic year.
Source: ED analysis of data from the National Student Longitudinal Data System (NSLDS).

Appendix Table. Detrended Enrollment, Community Colleges, by 2-Digit CIP Code

		2020	2021	2022	2023
	Total	-0.03	-0.11	-0.12	-0.12
1	Agriculture, Agriculture Operations, And Related Sciences.	-0.01	-0.07	-0.05	-0.02
3	Natural Resources And Conservation.	-0.02	-0.08	-0.09	-0.15
4	Architecture And Related Services.	-0.04	-0.09	-0.11	-0.15
5	Area, Ethnic, Cultural, Gender, And Group Studies.	-0.07	-0.11	-0.13	-0.18
9	Communication, Journalism, And Related Programs.	-0.07	-0.23	-0.34	-0.35
10	Communications Technologies/Technicians And Support Services.	-0.02	-0.19	-0.20	-0.17
11	Computer And Information Sciences And Support Services.	-0.03	-0.10	-0.08	-0.05
12	Personal And Culinary Services.	0.00	-0.07	-0.02	0.09
13	Education.	0.02	-0.02	0.02	0.02
14	Engineering.	-0.08	-0.22	-0.27	-0.30
15	Engineering Technologies And Engineering-Related Fields.	-0.03	-0.14	-0.13	-0.15
16	Foreign Languages, Literatures, And Linguistics.	-0.05	-0.18	-0.28	-0.35
19	Family And Consumer Sciences/Human Sciences.	0.01	-0.04	-0.02	0.05
22	Legal Professions And Studies.	0.06	0.09	0.14	0.09
23	English Language And Literature/Letters.	-0.04	-0.17	-0.26	-0.33
24	Liberal Arts And Sciences, General Studies And Humanities.	-0.09	-0.20	-0.25	-0.27
25	Library Science.	-0.15	-0.07	-0.35	-0.15
26	Biological And Biomedical Sciences.	-0.10	-0.21	-0.39	-0.51
27	Mathematics And Statistics.	-0.04	-0.21	-0.31	-0.33
29	Military Technologies And Applied Sciences.	0.51	0.91	1.33	1.57
30	Multi/Interdisciplinary Studies.	-0.05	-0.19	-0.32	-0.33
31	Parks, Recreation, Leisure, And Fitness Studies.	-0.03	-0.16	-0.22	-0.21
38	Philosophy And Religious Studies.	-0.02	-0.13	-0.29	-0.18
40	Physical Sciences.	-0.07	-0.19	-0.27	-0.38
41	Science Technologies/Technicians.	0.00	-0.22	-0.29	-0.41
42	Psychology.	0.06	0.00	-0.04	-0.05
43	Homeland Security, Law Enforcement, Firefighting And Related Protective Services.	-0.03	-0.14	-0.21	-0.25
44	Public Administration And Social Service Professions.	0.00	-0.04	-0.05	-0.06
45	Social Sciences.	-0.06	-0.18	-0.31	-0.37
46	Construction Trades.	0.00	-0.10	-0.05	-0.05
47	Mechanic And Repair Technologies/Technicians.	-0.04	-0.13	-0.10	-0.06
48	Precision Production.	-0.02	-0.16	-0.11	-0.07
49	Transportation And Materials Moving.	0.01	0.02	0.07	0.12
50	Visual And Performing Arts.	-0.01	-0.18	-0.17	-0.14
51	Health Professions And Related Programs.	-0.02	-0.04	-0.08	-0.11
52	Business, Management, Marketing, And Related Support Services.	-0.04	-0.08	-0.07	-0.06
54	History.	-0.04	-0.14	-0.27	-0.34

Appendix Table. Detrended Enrollment, 4-Year Public Institutions, by 2-Digit CIP Code

		2020	2021	2022	2023
	Total	-0.09	-0.10	-0.09	-0.17
1	Agriculture, Agriculture Operations, And Related Sciences.	-0.08	-0.05	0.02	-0.04
3	Natural Resources And Conservation.	-0.10	-0.10	-0.06	-0.14
4	Architecture And Related Services.	-0.07	-0.08	0.02	-0.09
5	Area, Ethnic, Cultural, Gender, And Group Studies.	-0.11	-0.18	-0.11	-0.24
9	Communication, Journalism, And Related Programs.	-0.07	-0.07	-0.07	-0.12
10	Communications Technologies/Technicians And Support Services.	0.03	0.07	0.01	-0.01
11	Computer And Information Sciences And Support Services.	-0.11	-0.11	-0.12	-0.19
12	Personal And Culinary Services.	-0.04	0.06	0.20	0.29
13	Education.	-0.09	-0.07	-0.05	-0.12
14	Engineering.	-0.12	-0.12	-0.11	-0.20
15	Engineering Technologies And Engineering-Related Fields.	-0.04	-0.07	-0.11	-0.20
16	Foreign Languages, Literatures, And Linguistics.	-0.04	-0.07	-0.07	-0.13
19	Family And Consumer Sciences/Human Sciences.	-0.07	-0.07	-0.03	-0.09
22	Legal Professions And Studies.	-0.05	-0.01	0.02	-0.07
23	English Language And Literature/Letters.	-0.08	-0.09	-0.07	-0.12
24	Liberal Arts And Sciences, General Studies And Humanities.	-0.13	-0.24	-0.34	-0.43
25	Library Science.	0.06	0.31	0.60	0.59
26	Biological And Biomedical Sciences.	-0.11	-0.14	-0.17	-0.29
27	Mathematics And Statistics.	-0.12	-0.17	-0.20	-0.35
29	Military Technologies And Applied Sciences.	-0.15	-0.45	-0.72	-1.06
30	Multi/Interdisciplinary Studies.	-0.14	-0.18	-0.25	-0.39
31	Parks, Recreation, Leisure, And Fitness Studies.	-0.10	-0.11	-0.09	-0.15
38	Philosophy And Religious Studies.	-0.04	-0.06	-0.06	-0.17
40	Physical Sciences.	-0.11	-0.15	-0.15	-0.25
41	Science Technologies/Technicians.	-0.18	-0.09	-0.34	-0.28
42	Psychology.	0.00	0.07	0.14	0.11
43	Homeland Security, Law Enforcement, Firefighting And Related Protective Services.	-0.05	-0.03	-0.07	-0.16
44	Public Administration And Social Service Professions.	-0.09	-0.11	-0.11	-0.22
45	Social Sciences.	-0.08	-0.07	-0.05	-0.14
46	Construction Trades.	-0.09	0.32	0.30	0.37
47	Mechanic And Repair Technologies/Technicians.	-0.22	-0.50	-0.58	-0.99
49	Transportation And Materials Moving.	-0.03	0.00	0.04	0.03
50	Visual And Performing Arts.	-0.05	-0.04	0.00	-0.04
51	Health Professions And Related Programs.	-0.12	-0.14	-0.17	-0.28
52	Business, Management, Marketing, And Related Support Services.	-0.11	-0.12	-0.11	-0.17
54	History.	-0.06	-0.06	-0.01	-0.09

Appendix Table. Detrended Enrollment, 4-Year Private Institutions, by 2-Digit CIP Code

		2020	2021	2022	2023
	Total	-0.08	-0.08	-0.08	-0.15
1	Agriculture, Agriculture Operations, And Related Sciences.	-0.12	-0.10	-0.08	-0.13
3	Natural Resources And Conservation.	-0.07	-0.01	0.02	-0.03
4	Architecture And Related Services.	-0.08	-0.17	-0.15	-0.17
5	Area, Ethnic, Cultural, Gender, And Group Studies.	-0.07	-0.09	-0.05	-0.09
9	Communication, Journalism, And Related Programs.	-0.10	-0.10	-0.12	-0.18
10	Communications Technologies/Technicians And Support Services.	-0.03	0.08	0.12	0.15
11	Computer And Information Sciences And Support Services.	-0.10	-0.09	-0.09	-0.12
12	Personal And Culinary Services.	0.17	0.22	0.14	0.11
13	Education.	-0.06	-0.04	-0.03	-0.10
14	Engineering.	-0.10	-0.04	0.00	-0.05
15	Engineering Technologies And Engineering-Related Fields.	-0.02	0.03	0.08	-0.03
16	Foreign Languages, Literatures, And Linguistics.	-0.03	-0.03	-0.01	-0.06
19	Family And Consumer Sciences/Human Sciences.	-0.10	-0.10	-0.09	-0.07
22	Legal Professions And Studies.	0.06	0.07	0.05	0.07
23	English Language And Literature/Letters.	-0.09	-0.11	-0.10	-0.14
24	Liberal Arts And Sciences, General Studies And Humanities.	-0.17	-0.26	-0.36	-0.47
26	Biological And Biomedical Sciences.	-0.11	-0.12	-0.14	-0.25
27	Mathematics And Statistics.	-0.10	-0.14	-0.13	-0.24
29	Military Technologies And Applied Sciences.	-0.82	-1.19	-1.72	-2.17
30	Multi/Interdisciplinary Studies.	-0.13	-0.19	-0.21	-0.36
31	Parks, Recreation, Leisure, And Fitness Studies.	-0.09	-0.06	-0.03	-0.07
38	Philosophy And Religious Studies.	-0.04	-0.07	-0.10	-0.14
39	Theology And Religious Vocations.	-0.09	-0.13	-0.15	-0.21
40	Physical Sciences.	-0.09	-0.08	-0.10	-0.18
41	Science Technologies/Technicians.	-0.05	-0.12	-1.37	-0.39
42	Psychology.	-0.05	-0.01	0.03	-0.02
43	Homeland Security, Law Enforcement, Firefighting And Related Protective Services.	-0.05	-0.04	-0.05	-0.12
44	Public Administration And Social Service Professions.	-0.10	-0.13	-0.17	-0.29
45	Social Sciences.	-0.07	-0.06	-0.06	-0.12
47	Mechanic And Repair Technologies/Technicians.	0.12	-0.12	0.29	-0.28
48	Precision Production.	-0.36	-0.33	0.42	0.79
49	Transportation And Materials Moving.	0.03	0.10	0.11	0.14
50	Visual And Performing Arts.	-0.06	-0.06	-0.03	-0.06
51	Health Professions And Related Programs.	-0.09	-0.08	-0.12	-0.23
52	Business, Management, Marketing, And Related Support Services.	-0.10	-0.10	-0.10	-0.16
54	History.	-0.07	-0.06	-0.05	-0.10

Appendix Table. Detrended Enrollment, For-Profit Institutions, by 2-Digit CIP Code

		2020	2021	2022	2023
	Total	-0.05	-0.02	-0.03	-0.07
1	Agriculture, Agriculture Operations, And Related Sciences.	1.49	1.53	0.49	-0.10
3	Natural Resources And Conservation.	0.09	0.14	0.16	0.29
4	Architecture And Related Services.	-0.03	0.13	-0.32	-0.86
9	Communication, Journalism, And Related Programs.	-0.12	-0.13	-0.26	-0.47
10	Communications Technologies/Technicians And Support Services.	0.06	0.14	0.08	-0.01
11	Computer And Information Sciences And Support Services.	-0.06	-0.09	-0.09	-0.10
12	Personal And Culinary Services.	-0.11	-0.07	-0.07	-0.13
13	Education.	0.11	0.14	0.22	0.31
14	Engineering.	0.05	0.01	0.04	0.10
15	Engineering Technologies And Engineering-Related Fields.	-0.03	0.08	0.06	0.06
19	Family And Consumer Sciences/Human Sciences.	-0.24	-0.43	-0.58	-0.59
22	Legal Professions And Studies.	0.17	0.29	0.37	0.42
23	English Language And Literature/Letters.	-0.45	-0.53	-0.84	-1.02
24	Liberal Arts And Sciences, General Studies And Humanities.	0.17	0.24	0.05	0.08
26	Biological And Biomedical Sciences.	-0.09	-0.08	-0.15	-0.20
30	Multi/Interdisciplinary Studies.	0.01	0.03	0.06	0.01
31	Parks, Recreation, Leisure, And Fitness Studies.	-0.10	-0.04	-0.09	-0.25
38	Philosophy And Religious Studies.	0.61	0.88	1.28	1.63
42	Psychology.	0.14	0.27	0.39	0.47
43	Homeland Security, Law Enforcement, Firefighting And Related Protective Services.	0.14	0.13	0.08	0.16
44	Public Administration And Social Service Professions.	0.02	0.04	-0.21	-0.36
45	Social Sciences.	-0.08	-0.07	-0.01	-0.11
46	Construction Trades.	-0.21	-0.19	-0.32	-0.20
47	Mechanic And Repair Technologies/Technicians.	0.01	0.05	0.13	0.14
48	Precision Production.	-0.02	0.09	0.00	-0.01
49	Transportation And Materials Moving.	-0.08	-0.04	0.02	0.08
50	Visual And Performing Arts.	-0.06	-0.05	0.00	0.02
51	Health Professions And Related Programs.	-0.05	0.00	-0.05	-0.10
52	Business, Management, Marketing, And Related Support Services.	0.02	0.02	0.04	0.07
54	History.	-0.08	0.09	0.11	0.14