For-Profit Colleges Say the Gainful Employment Rule Will Kill Access. Don't Believe Them. (Appendix)

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Appendix

About the data

The data for this analysis comes from the U.S. Department of Education's May 2023 release of program-level data examined in the Notice of Proposed Rulemaking (NPRM) Regulatory Impact Analysis (RIA) for a set of rules that contains the Gainful Employment rule.[1] For short, this dataset is called the "2022 PPD," in reference to the program performance data (PPD) it contains.

The 2022 PPD reports data on 155,582 programs. Of these, GE outcomes and data are reported for 26,073 programs. Generally, programs with fewer than thirty completers across the 2015–16 and 2016–17 years have no debt or earnings data reported.

Differences from proposed regulations

In practice, the results of the Gainful Employment rule could differ somewhat from the program-level evaluations made in the 2022 PPD. We review the most important differences below. The source for this information is the Department of Education's documentation of the 2022 PPD, as well as the Notice of Proposed Rulemaking.

- Colleges do not currently report certain data that are needed to assess programs under the proposed GE rule. That said, according to the Education Department's documentation, "ED believes the 2022 PPD give the best possible depiction of the rule's impact given the data currently available to the Department."
- In practice, the rule would evaluate programs at the six-digit CIP level.[2] The 2022 PPD reports programs at the four-digit CIP level, aggregating programs of the same four-digit CIP within the same credential level at the same institution. This increases the total enrollment represented by programs with data in the dataset.
- The 2022 PPD reflects programs that had completers in award years 2015–16 and/or 2016–17 and were operational as of March 2022. The universe of programs that are evaluated for GE if/when the rules take effect will likely be different, as newer programs are added and others shut down.
- For the purposes of the debt-to-earnings (D/E) measure, the proposed rule would cap an individual student's debt at their total net direct expenses: in other words, tuition, fees, books, and supplies minus grant aid from the institution. The necessary data to apply this cap have not

[1] The full name of this rule is "Financial Value Transparency and Gainful Employment (GE), Financial Responsibility, Administrative Capability, Certification Procedures, Ability to Benefit (ATB)."
[2] The Classification of Instructional Programs (CIP).

been reported to Department of Education, so the 2022 PPD does not factor in loan caps, which has an upward effect on D/E failure rates in the 2022 PPD.[3]

- For the purposes of the debt-to-earnings (D/E) measure, the proposed rule would include private debt in the calculation of debt. The necessary data have not been reported to Department of Education, so the 2022 PPD does not factor in private debt, which has a downward effect on D/E failure rates in the 2022 PPD.
- In the 2022 PPD, the metrics on debt and earnings use slightly different cohorts, although the proposed rule would use the same cohort.[4]
- Professional programs in medicine and dentistry that have post-graduation residency requirements are not included in the 2022 PPD. These programs would be evaluated under the proposed regulations with a longer time horizon for calculating earnings.
- For a program in which a majority of students are out-of-state, the proposed rule would compare the earnings of program graduates to a national earnings threshold, not a state-level earnings threshold. The 2022 PPD compares every program to a state-level earnings threshold, based on the state where the program is located.
- For programs with fewer than thirty completers within the two-year cohort period, the proposed rule would use a four-year cohort period. This is not done for the 2022 PPD, which has a downward effect on the total number of programs with performance data reported.

These limitations are important to note but should not preclude stakeholders from using the 2022 PPD to obtain valuable insights about the likely impacts of the Gainful Employment rule.

Methods

Simulation of Transfer from GE-Failing Programs to Non-failing Programs (Figures 1 and 2)

Step 1: Identifying nearest alternative program

To begin, we identify the set of programs subject to the GE rule that fail one or both GE tests (EP and D/E), **ge.fails**.[5] We also identify the set of programs that passes the GE tests or lacks sufficient cohort size for evaluation, **ge.alternatives.** The programs in **ge.alternatives** are not all subject to the GE rule, although every program in **ge.fails** is.[6]

[3] Tia Caldwell and Rozanne Garza, "Previous Projections Overestimated Gainful Employment Failures," New America, July 2023, https://www.newamerica.org/education-policy/edcentral/ge-failures-overestimated/.
[4] Specifically, earnings data reflect Title IV students who completed their credential in 2014–15 or 2015–16, and debt data reflect Title IV students who completed their credential in 2015–16 or 2016–17.
[5] We exclude foreign programs from this analysis entirely.
[6] When determining which programs are alternatives for a program that is subject to the GE rule and fails under the GE rule, we include any program that passes the GE metrics or has no data for a determination under the GE rule's tests, regardless of whether it is also subject to the GE rule, so long as it meets conditions for programmatic alignment (credential level and CIP code). We do not count a program that is not subject to the GE rule—but which fails under the GE metrics—as an alternative. One reason is that, if the program fails the debt-to-earnings test, then students enrolling in that program will be required to certify that they are aware it is a

For each program in **ge.fails**, we calculate the distance from that program to each program in **ge.alternatives** that is in the same state or an adjacent state *and* has the same credential level and the same four-digit CIP code as the failing program. We use the ZIP codes reported in the 2022 PPD to calculate distance between programs using an R package called zipcodeR.[7] We do not account for whether a program is fully online, making our estimates conservative.

For each program in **ge.fails**, we identify the program in **ge.alternatives** that is the nearest in miles to the failing program. To break ties, we select the program with the highest median earnings according to the 2022 PPD. In **ge.fails**, we record the unique identifying information of the nearest alternative program ("Prog_ID"), and we record the cohort size of the failing program ("TransferStudents").

We then store these two variables in a dataset called **ge.transfers**. In case multiple failing programs have the same alternative program, we sum "TransferStudents" by "Prog_ID."

Step 2: Simulating transfer

Starting with the 2022 PPD dataset, we filter for programs with earnings and debt data provided (i.e. programs with sufficient cohort size), and call this dataset **ge.all**. This includes programs that are subject to the GE and those that are not. We then filter for programs that receive a passing evaluation under GE and call this dataset **ge.passing**.

Into **ge.passing**, we import[8] data from **ge.transfers**: whenever a program from **ge.passing** is the nearest alternative for a program in **ge.fails**, the cohort size of that failing program ("TransferStudents") is assigned to that program in **ge.passing**.

Next, we recalculate the cohort size of each program in **ge.passing** as the sum of its existing cohort size ("count_AY1617") and its simulated transfers ("TransferStudents"). The cohort size of each program in **ge.passing** has been increased if it is a nearest alternative for a failing program, commensurate with the cohort size of the failing program.

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high-debt program. In addition, if the program fails the earnings premium test, then the student may be wary of enrollment, having learned about the GE rule's earnings premium measure through the failing program they were enrolled at or considering enrolling in. This produces slightly conservative estimates for Table 1 in the report, somewhat increasing the average distance students would have to travel, and slightly liberal estimates for Figures 1 and 2, somewhat increasing the earnings of alternative programs and somewhat reducing the debt of alternative programs. Because most programs lack data for evaluation, we do not consider this problematic for reporting general trends in the impacts of the GE rule.

[7] The [zipcodeR package](https://cran.r-project.org/web/packages/zipcodeR/zipcodeR.pdf) was developed by Gavin Rossi; see https://cran.r-project.org/web/packages/zipcodeR/zipcodeR.pdf.

[8] More specifically, we perform a left-join where data from **ge.fails** is only merged into **ge.passing** if the unique identifying information for a "nearest alternative" in **ge.fails** matches with the unique identifying information for a program in **ge.passing**.

Step 3: Aggregating statewide statistics

Recall that we have two datasets, **ge.all** and **ge.passing**. These contain the size of each program's cohort of completers, median annual earnings three years after completion, and median annual debt payment. Mean values are not provided in the 2022 PPD. In the absence of mean values, we use the medians as proxies for means, in order to produce weighted averages at the state level.[9]

The 2022 PPD identifies the U.S. state each program is located in. For each state, we calculate the weighted average of annual earnings using cohort size as the weight, first for **ge.all** and then for **ge.passing**. We then filter out programs without debt data from **ge.all** and **ge.passing**, and then for each state we calculate the weighted average of annual debt payments using cohort size as the weight, first for **ge.all** and then for **ge.passing**. We do the same for the United States overall as well. These weighted averages reflect all financial aid recipients, before and after we simulate transfer.

The resulting statistics are then plotted in Figures 1 and 2. Although the D/E test contains two measures of debt burden–the discretionary D/E rate and the annual D/E rate–we only use one, annual D/E, since both show similar changes.[10]

Step 4: Calculating changes for students from failing programs

We are also interested in the changes to debt and earnings for the students who would transfer from failing programs to non-failing programs in our simulation. However, the availability of data requires us to adjust our process: when we do the same process as above, we find that only a small number of programs that receive transfer students in the simulation have data on debt and earnings (154 programs).

For the sake of this exercise, we re-run the simulation but modify the alternative programs to only include those with data on debt and earnings. This may not be how students would select their program in real life, but it helps us build averages based on a larger set of programs. As with the earlier analysis (Steps 1 through 3 in this section), we simulate transfer to the nearest alternative program with the same credential level and same four-digit CIP code as the failing program. We then compare the weighted averages of debt and earning of the failing programs and the transfer programs, using the cohort size of the failing programs as the weight.

Calculating Distance from Each Failing Program to Nearest Non-Failing Program (Table 1)

The following paragraph is mostly the same as in Step 1 of "Simulation of Transfer from GE-Failing Programs to Non-failing Programs (Figures 1 and 2)," above.

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[9] This is not mathematically ideal. However, because it is in the public interest to understand the potential outcomes of enacting the GE rule, we use these median variables while acknowledging that they are just one indicator of the typical earnings and debt outcomes of students in a given program.

[10] In Figure 2, the discretionary D/E rate is calculated as ("Annual debt payment" - ("Annual earnings" – $18,735)), in accordance with how the Department of Education calculates this rate.

To begin, we identify the set of programs subject to the GE rule that fail one or both GE tests (EP and D/E), **ge.fails**.[11] We also identify the set of programs that passes the GE tests or lacks sufficient cohort size for evaluation, **ge.alternatives.** The programs in **ge.alternatives** are not all subject to the GE rule, although every program in **ge.fails** is. For each program in **ge.fails**, we calculate the distance from that program to each program in **ge.alternatives** that is in the same state or an adjacent state *and* has the same credential level and the same four-digit CIP code as the failing program. We use the ZIP codes reported in the 2022 PPD to calculate distance between programs.[12] For each program in **ge.fails**, we record the smallest distance to a program in **ge.alternatives**. We call this dataset **ge.fails1**.

We repeat the process described above twice more. First, we repeat the process but allow **ge.alternatives** to include programs with the same two-digit CIP code as the failing program, and we call the resulting dataset **ge.fails2**. Second, we repeat the process but we allow **ge.alternatives** to include programs in the same credential category (undergraduate or graduate), and we call the resulting dataset **ge.fails3**.

We now have **ge.fails1**, **ge.fails2**, and **ge.fails3**. For each:

- We count an online program as having an alternative 0 miles away if there is an alternative that is also online. (See the section "Classifying online programs using IPEDS" for how we classified online programs.)
- We count the cohort size of programs that have no alternative within 30 miles in a new variable, "Students with no nearby options," and for those programs we set "count_AY1617," the cohort size variable, equal to 0.
- We then find the weighted mean of distance to the nearest alternative, using "count_AY1617" as the weight.
- We then calculate the overall share of students with no options, by dividing the sum of "Students with no nearby options" by the sum of "count_AY16171."

The resulting values are presented in Table 1.

[11] We exclude foreign programs from this analysis entirely.
[12] The zipcodeR package was developed by Gavin Rossi, see https://cran.r-project.org/web/packages/zipcodeR/zipcodeR.pdf.

Calculating the Share of Programs Subject to the GE Rule in Low-Wage Areas (Tables 2 and 3)

Step 1: Formatting Census Bureau data on income

As a first step, we need to define what is a “low-wage” geographic area. We start with data on income by ZCTA[13], courtesy of the Census Bureau, reflecting five years of pooled American Community Survey data from 2017 to 2021.[14] Specifically, we use household income data reflecting households with wage or salary income. The Census Bureau dataset provides the estimated total number of households in each five-digit ZCTA with wage or salary income and the mean income of those households in the ZCTA.

Generally, ZCTAs take the five-digit name of the ZIP Code they correspond to, and one can identify the region where a ZCTA is located by its first few digits. In other words, for the least geographic specificity, one could use the three-digit ZCTA (for example, 112 for Brooklyn), and for the greatest geographic specificity, one could use the five-digit ZCTA (for example, 11205 for northwest Bedford–Stuyvesant). We choose to use four-digit ZCTA, in order to find a middle ground between three-digit ZCTA and five-digit ZCTA. (Correspondingly, we use the first four digits of each program’s ZIP code to match it to a four-digit ZCTA.)

We aggregate income at the four-digit ZCTA level, using the number of households with wage or salary income in each five-digit ZCTA as the weight. We then assign each four-digit ZCTA to whichever state is represented by the largest number of its five-digit ZCTAs. For reference, the number of four-digit ZCTAs in each state is provided below. The total nationwide is 5,850.

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[13] ZIP Code Tabulation Areas (ZCTAs) are geographic areas defined by the Census Bureau for the publishing of statistics reflecting local communities (see https://www.census.gov/programs-surveys/geography/guidance/geo-areas/zctas.html). These are similar but not precisely the same as the ZIP codes produced by the USPS. Every ZCTA does not perfectly overlap with one ZIP Code, but the relationship is sufficiently robust for our purposes. For example, the majority of ZCTAs share more than 90 percent of their area with their corresponding ZIP Code, and only 11 percent share less than half of their area with their corresponding ZIP code (see https://www.policymap.com/blog/what-are-zip-code-tabulation-areas).

[14] Specifically, Table S1902 on the data.census.gov website, https://data.census.gov/table?q=income&g=010XX00US$8600000&tid=ACSST5Y2021.S1902.

AK	35	GA	128	MD	89	NH	43	SC	77
AL	121	HI	12	ME	69	NJ	113	SD	59
AR	104	IA	145	MI	151	NM	76	TN	108
AZ	75	ID	45	MN	126	NV	36	TX	324
CA	334	IL	204	MO	172	NY	286	UT	41
CO	90	IN	152	MS	85	OH	202	VA	195
CT	58	KS	113	MT	58	OK	114	VT	46
DC	5	KY	193	NC	135	OR	65	WA	102
DE	13	LA	95	ND	65	PA	303	WI	119
FL	199	MA	128	NE	88	PR	28	WV	170
						RI	13	WY	43

Step 2: Categorizing ZCTAs as "Bottom 25%" or "Top 75%" by income

For each 4-digit ZCTA (ZCTA4), we find the percentile of its income value among the income values of all ZCTA4s in the same state.[15] If this percentile is below 0.25, then the ZCTA4 is classified as being in the bottom 25% of ZCTA4s; if not, it is classified as being in the upper 75%.

It is important to note that we calculate every ZCTA4's percentile in relation to the other ZCTA4 *in its own state*. This is because our analysis responds to the concern that a program in a low-income area may have difficulty meeting the earnings threshold of its state.

Step 3: Merging GE data with income data

We load in the 2022 PPD dataset and filter for non-online programs subject to the GE rule.[16] Using the first 4 digits of each program's ZIP code, we merge in the ZCTA data on whether each ZCTA is a bottom-25% or upper-75% geography by income. For Table 1, we aggregate the count of programs and calculate the share that are located in a bottom-25% ZCTA, with a breakout by EP pass/fail category (pass EP, fail EP, or no data on EP provided).

Results from alternative approaches: Median earnings

We also considered using the Census Bureau's data on median household income. The argument for using this alternative measure would be that, because GE measures programs' median earnings, our categorizations of geographies should follow suit.

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[15] Within a distribution of scores, a percentile at value *k* is defined as the percentile of scores that fall below the value *k*.

[16] We exclude foreign programs from this analysis entirely.

However, the difference between mean and median may not be meaningful in the context of our categorization of geographies, since we are only comparing each ZCTA against the others. Assuming median income and mean income have a strong ranked correlation, it does not significantly matter.[17]

Another reason to use the mean is that the Census Bureau provides mean income for households with wage or salary income, but does not do the same for median income, instead only providing the median income for all households.

For transparency, we provide below the results when median household income courtesy of the Census Bureau.[18] All other steps in the analysis are the same as detailed above, using four-digit ZCTA.

Table 2.1: Programs subject to the GE rule by earnings premium evaluation and income quartile of surrounding area relative to state.

	Located in ZCTA4 that is bottom 25% by income	Located in ZCTA4 that is upper 75% by income	Percent located in bottom 25% by income
Passes Earnings Premium test	399	1,485	21.2%
Fails Earnings Premium test	270	1,137	19.2%
No data for EP test	5,935	17,854	24.9%
All programs	*6,604*	*20,476*	*24.4%*

Note: This table applies only to non-online programs located in the U.S. that are subject to the GE rules and have sufficient cohort size to evaluate the earnings premium test.

The corresponding average number of graduates per year is thirty for programs in areas in the bottom quartile by income, and thirty-nine for programs in areas in the top three quartiles by income.

Results from alternative approaches: 5-digit ZCTA

We also considered using the five-digit ZCTA (ZCTA5) instead of four-digit ZCTA (ZCTA4). This would have provided the greatest degree of specificity. At the same time, we worry that the five-digit ZCTA is too narrow to represent the local economy that many of a career program's graduates are likely to work in. We prefer using ZCTA4, but we provide the results using ZCTA5 below for transparency.

Table 2.2: Programs subject to the GE rule by earnings premium evaluation and income quartile of surrounding area relative to state.

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[17] Indeed, the ranked correlation between mean household income using Census Bureau table S1902 and median household income using Census Bureau table S1903 has a coefficient of 0.909. (Here, we use the apples-to-apples comparison of all households' income. In the analysis, we use income among households with wage or salary income.)

[18] Specifically, Table S1903 on the data.census.gov website, https://data.census.gov/table?q=income&g=010XX00US$8600000&tid=ACSST5Y2021.S1903.

	Located in ZCTA5 that is bottom 25% by income	Located in ZCTA5 that is upper 75% by income	Percent located in bottom 25% by income
Passes Earnings Premium test	329	1,468	18.3%
Fails Earnings Premium test	248	1,133	18.0%
No data for EP test	3,850	17,449	18.1%
All programs	*4,427*	*20,050*	*18.1%*

Note: This table applies only to non-online programs located in the U.S. that are subject to the GE rules and have sufficient cohort size to evaluate the earnings premium test.

The corresponding average number of graduates per year is thirty-three for programs in areas in the bottom quartile by income, and thirty-nine for programs in areas in the top three quartiles by income.

Treatment of online programs

We treat online programs differently for different analyses in this report, depending on the nature of the analysis.

- For Figures 1 and 2 in the report, which provide state-level aggregates, we do not make any changes based on whether programs are online.
- For Table 1, we define the distance from an online program to *another* online program as 0 miles, since a student could enroll in another online program without having to relocate. The same conditions on field of study, discipline, credential level, and credential category still apply. We do not assume that students enrolled in in-person programs would consider an online program, but we do assume that students enrolled in online programs would consider another online program.
- For Tables 2 and 3, which focus on local economies, we exclude online programs entirely.
- For the GE Explorer Tool, we make no adjustments based on online enrollment.

Our rationale for including online programs in the state-level analyses (Figures 1 and 2), but not the local-level analyses (Tables 1 through 3), is that many online programs will not enroll the lion's share of their students from their surrounding local areas, but they may enroll a meaningful portion of their students from their respective states, especially if they are state universities.

Classifying online programs using IPEDS

The 2022 PDD does not indicate whether a program is online, so we use the Integrated Postsecondary Education Data System (IPEDS).[19] The "c2019dep.csv" complete data file reports the number of programs offered, and the number of online programs offered, by UnitID-level campus, by six-digit CIP code, and by credential level. We load in the data on OPEIDs using the "hd2019.csv" complete data file.

The 2022 PPD is organized by six-digit OPEID, four-digit CIP, and credential level.[20] After formatting the variables from IPEDS to match, we aggregate the IPEDS data by six-digit OPEID, four-digit CIP, and credential level. If 50 percent or more of the programs in a given row are online, then we classify that row as an online program. We then merge it with the 2022 PPD and proceed with each analysis as detailed above.

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[19] See page 32,412 of the notice of proposed rulemaking: "The proposed rule would use a national ET if more than half of a program's students are out-of-state, but the 2022 PPD use an ET determined by the State an institution is located." "Financial Value Transparency and Gainful Employment, Financial Responsibility, Administrative Capability, Certification Procedures, Ability to Benefit," U.S. Department of Education, May 19, 2023, https://www.regulations.gov/document/ED-2023-OPE-0089-0001.

[20] The credential levels in IPEDS do not exactly match the credential levels in the 2022 PPD. We developed a crosswalk for aligning these variables. Refer to the code for full details.