

Analysis Plan

Project Name: Investigating the Scope and Implications of Return to Title IV (R2T4)

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Project Description

Nearly 11 million undergraduate students received Title IV aid during the 2019-20 school year.¹ Title IV aid includes grant aid (i.e. the Federal Pell Grant, the Federal Supplemental Educational Opportunity Grant, and the TEACH grant) and loan aid (Direct Subsidized and Unsubsidized Loans, Direct Graduate PLUS Loans, Parent PLUS Loans, the Federal Perkins Loan). Students who receive Title IV aid and withdraw from college prior to completing the academic term are subject to a Return to Title IV (R2T4) calculation, which could require the student or college to pay back any unearned Title IV funds to the federal government.² Owing financial aid can make students ineligible for future federal aid, and may shape students' subsequent decisions to re-enroll in college, preventing them from returning and earning a degree. Moreover, the U.S. Department of Education (ED)'s office of Federal Student Aid (FSA) has identified R2T4 calculations as a possible source of improper payments in two high-priority programs (Pell Grants and Direct Loans).

Despite the potential influence R2T4 may have on students, colleges and the payment accuracy of federal financial aid, little is known about the dollar amounts associated with R2T4 calculations, what students are subject to these calculations, the influence of these calculations on their degree progress, and how colleges implement this process. The Office of Evaluation Sciences (OES) at the U.S. General Services Administration is collaborating with the Department of Education, including FSA and the Institute for Education Sciences (IES), to better understand R2T4. The overarching goal of this evaluation is to build foundational descriptive evidence that documents the landscape and scope of R2T4, in terms of students and colleges affected by the policy as well as associated aid amounts due and returned. As relevant and feasible, this descriptive analysis aims to identify possible behavioral bottlenecks, unintended consequences of the policy, and opportunities for intervention or policy change.

¹ Federal Student Aid, "Aid Recipient Summary," <https://studentaid.gov/sites/default/files/fsawg/datacenter/library/AidRecipientsSummary.xls>.

² Federal Student Aid, "Return of Title IV Funds," <https://fsapartners.ed.gov/financial-aid-delivery/return-of-title-iv-funds>. Students who do not receive Title IV funds, who do not begin the term, or who withdraw between terms, are not subject to R2T4.

Although the overarching project has multiple goals, the initial analysis to understand R2T4 reporting described below relies on a specific data query in the Common Origination and Disbursement (COD) system. Using the COD tool for R2T4 reporting is entirely optional for colleges.³ Thus, the first goal of the analysis described below is to better understand the characteristics of colleges that opt to use the COD tool. The analysis will use these data and publicly available data on college characteristics to describe the number of schools that report R2T4 calculations using the COD tool, the total number of calculations, and the total sum of funds moving through the system, including whether they are funds to be returned to the federal government or disbursed by colleges to students, disaggregated by various college characteristics (e.g., public versus private).

Among the colleges using COD, the data query will include individual student-level R2T4 calculations reported by colleges to FSA. Using these data, we will examine how R2T4 calculations differ by college characteristics, by further examining who reports, how much of their student population is subject to these calculations, and some typical patterns in the reporting of student withdrawals.

Initial discussions with FSA identified two additional areas of interest, which are not the primary focus of this current analysis. The first is the identification of “improper payments” in the R2T4 system. Unfortunately, the existing data prevent most analysis of potential “improper payments”, as we cannot assess whether a college made common mistakes, such as misstating the student’s date of withdrawal, or applying incorrect institutional costs.⁴ The second interest is in any “unintended consequences” of the R2T4 program, such that it discourages students from returning to school or earning a degree. However, additional FSA data sources may become available in the future that could allow OES to examine whether being subject to R2T4 is correlated with worse postsecondary outcomes; in this scenario we will create an additional Analysis Plan that identifies the specific research questions.

Preregistration Details

This Analysis Plan will be posted on the OES website at oes.gsa.gov before outcome data are analyzed.

³ Colleges are not required to use COD data system, or the prior “FAA Access to CPS online” data systems, to conduct R2T4 calculations, as they may simply choose to do them using paper records or their own internal systems.

⁴ Colleges may be audited, and these in-depth analyses often describe types of R2T4 mistakes, as noted by [School Audit Findings](#) or described in detail in specific college reports (e.g., [Baker College System](#))

Research Questions

Understanding that this analysis plan describes analysis conducted using data from a private FSA dataset that captures R2T4 calculations from their COD data system (for colleges who use this system) linked to publicly available data from the Integrated Postsecondary Education System (IPEDS) (for Title IV participating colleges), we focus on the following research questions:

- What are the characteristics of colleges that do and do not report R2T4 calculations to FSA using the COD tool?
- What is the size and scope of the R2T4 program reported among colleges using the COD tool? How many R2T4 calculations occur using this tool, how large are the dollar amounts, and how many adjustments are reimbursements to the federal government versus post-withdrawal disbursements from colleges to the student?
- Among colleges that report using the COD tool, is there a relationship between observable college characteristics and the prevalence and type of R2T4 calculations?

Although we cannot observe most R2T4 errors that lead to improper payments, there may be some empirical anomalies (described further below) that indicate a college may be implementing R2T4 in a manner different than intended. In short, colleges with few R2T4 calculations, or large numbers of calculations showing students left at exactly 50% of the semester or after 60% of the semester, could be indicative of poor R2T4 implementation, though we acknowledge that data limitations prevent stating these findings as definitive evidence of poor implementation.

Data and Data Structure

This section describes variables that will be analyzed, as well as changes that will be made to the raw data with respect to data structure and variables.

Data Source(s):

FSA typically pulls data through SQL queries on their EDWA (Enterprise Data Warehouse) system, which combines data from multiple distinct data sources. As obtaining a full EDWA query was deemed challenging in the short-run, this analysis will focus on college-level variation in R2T4 calculations using one data source. FSA has identified one pre-approved data query located in the [Common Original and Distribution \(COD\)](#) system (page 398), which contains the full set of R2T4 data from colleges that choose to use this system (e.g., withdrawal date, institutional charges, type of aid for school to return, etc.). The plan is for FSA to pull and share the entire set of R2T4 query variables, as this is easier logistically than a query that pulls additional student demographics or longitudinal enrollment patterns (i.e., FSA has pre-approved the R2T4 query, so it does not require additional data validation).

R2T4 identifies the college attended, allowing us to link the R2T4 calculation to [Integrated Postsecondary Education Data System](#) (IPEDS) data based on the Office of Postsecondary Education (OPE) ID. The IPEDS [handbook](#) describes it as a “a single, comprehensive system that is built around a series of interrelated survey components designed to collect institution-level data in such areas as enrollment, admissions, program completions, graduation rates and other outcome measures, retention rates, student financial aid, tuition and fees, faculty, staff, library data, and finances.”

Outcomes to Be Analyzed:

The first part of the analysis will document the characteristics of colleges that choose to use the COD R2T4 tool to report R2T4 calculations to FSA. This analysis will serve two purposes:

1. Contextualize our analysis of the scope of R2T4 calculations captured in the COD tool and the degree of uncertainty in which these estimates are representative of all R2T4 calculations.
2. Document the characteristics of colleges that opt into using the COD tool or not, which coupled with the other analysis described below may suggest opportunities for future intervention or policy change.

The second part of the analysis will examine the scope of R2T4 calculations (all variables and specific columns derived from [COD R2T4 query on page 398](#)) among colleges in the COD sample, asking:

1. How many calculations happen each academic year (or term). We will focus on the number of unique individuals who receive calculations. If students receive more than one calculation in a given year we will use just their first withdrawal at a given college. We do not anticipate many students who withdraw multiple times in a given year.
2. The total monetary value of R2T4 “adjustments”, disaggregated by: money owed to the federal government by students; money owed to the federal government by schools, and; money owed to students via post-withdrawal disbursements.
3. For each of these calculations, we will disaggregate the number of calculations and “adjustments” by:
 - a. College sector (e.g., public vs non-profit vs for-profit; two-year vs four-year) (‘sector’ variable derived from IPEDS)
 - b. Type of aid: grants, unsubsidized loans, subsidized loans, and “all other funds”
 - c. Student education level

- i. The COD query has limited student-level information, but future data queries may be able to link to additional student-level background characteristics captured by the FAFSA submission (e.g., sex, median income of zip code of residence)

The third part of the analysis will examine R2T4 calculations and focus on three college-level outcomes, only for colleges that report using the COD tool:

1. A variable that measures “percent of Title IV students receiving an R2T4 calculation”, after removing colleges that do not report to COD. We will proxy for this rate using a numerator (number of R2T4 calculations from COD query) and a denominator that is constructed using publicly-available IPEDS data (number of Title IV recipients), described in the next section below.
 - a. This variable simply measures how many students have an R2T4 calculation in the COD tool during the semester among the eligible Title IV population, and is not intended to capture whether all withdrawn students are receiving an R2T4 calculation.

For the next two variables we use the total number of college-level R2T4 calculations as the denominator:

2. The percent of R2T4 calculations within a college that list the student as attending exactly 50% of the term.
3. The percent of R2T4 calculations within a college that list the student as attending greater than 60% of the term.

These values were selected as 50% is the default value that colleges use if they do not know when the student withdrew, and anything greater than 60% is a value when the student and school are not required to return any funds. The variable that identifies when a student withdrew should be available as “Percentage of Title IV Aid Earned (Box H)”, which takes on a value between 0 and 100% of the semester.⁵

Colleges that exhibit outlier numbers of calculations may be indicative of poor R2T4 implementation. Specifically, having very few R2T4 calculations, after controlling for the size of the Title IV population, may indicate that R2T4 should be occurring with higher frequency.

⁵ This can be cross-referenced against the “Withdrawal Date” field, to see if there is consistency in the colleges calculations (i.e., do two students in the same college in the same term who have the same percentage of aid earned also have the same withdrawal date).

Similarly, having very high numbers of students withdrawing at exactly 50% or greater than 60% could be indicative that the institution is not sufficiently monitoring or following through on ascertaining withdrawal date, and so could require additional monitoring.

Imported Variables:

The R2T4 data includes college attended (OPEID, or Office of Postsecondary Education Identifier) and term in which this occurred. We will match this to IPEDS data imported via Stata's 'educationdata' package, which can be merged via the OPEID variable.⁶ Specifically, we plan to download:

- "college ipeds directory": identifies institutions that participate in Title IV federal financial aid programs and the type of college ("sector"; four-year/two-year/less than two-year interacted with public/non-profit/for-profit)
- "college ipeds sfa-all-undergraduates": identifies the number of students receiving Title IV grants and loans, and their percent of the population
 - For the "rate of R2T4 calculations", this variable is used as the denominator for the college, with the number of R2T4 calculations used as the numerator
- We will use additional IPEDS data to download characteristics of each college for exploratory analysis that measures the relationship between college characteristics and the prevalence of R2T4 calculations:
 - College size:
 - "college ipeds enrollment-headcount": total student headcount in a year
 - College success:
 - "college ipeds fall-retention": percentage of first-year students who persisted in or completed their educational program a year later.
 - "college ipeds grad-rates": 150% of regular time completion rates
 - "college ipeds grad-rates-pell": 150% of regular time completion rates for Pell recipients
 - "college scorecard default": default rates three years after entering repayment (2017 most recent data; 2014 cohort)
 - College composition:
 - "college ipeds fall-enrollment race sex": racial composition of the college
 - % of college receiving Pell grants: is constructed from "college ipeds sfa-all-undergraduates" above (numerator) and headcount above (denominator)
 - College resources:
 - "college ipeds salaries-noninstructional-staff": number of staff in non-instructional positions that could relate to R2T4 processing (Business

⁶ We will likely not match on the academic year, as certain IPEDS data may be a few years behind in terms of reporting, and year-to-year variation in the types of variables we are interested in is not large.

- and Financial Operations; Office and Administrative Support); using 'headcount' as denominator, this will be a ratio of students to staff
 - "college ipeds finance": total annual revenue; use "total current revenue" with headcount as a denominator, to construct revenue per student.
- College operational calendar:
 - "college ipeds institutional-characteristics": 'calendar_system' variable (e.g., semester, quarter, other) and 'dist_progs_all' (are all programs distance-based)

Imported COD data includes the following broad categories (not all variables are listed below but are available in the [COD](#) document from pages 398 to 413):

- Student characteristics: SSN, date of birth, college grade level
- Key information on student withdrawal: award year, withdrawal type, withdrawal date,
- Aid disbursed or "could have been" disbursed by categories: Subsidized direct loan, unsubsidized direct loan, Pell grant, and other categories
- Summary aid values: Total Title IV Aid Disbursed for the Period, Percentage of Aid Earned, Post Withdrawal Disbursement, Title IV Aid to be Returned, Amount for School to Return, Title IV Grant Funds for Student to Return
- Notification dates: Date student notified, School repaid date, days until deadline to disburse aid, date school referred student to FSA

Transformations of Variables:

The COD data that capture R2T4 calculations are individual-level records of R2T4 calculations that identify the student and term the calculation was completed, and will be transformed to college-by-year (or college-by-term) level measures. Before transforming to the college-by-year level, multiple calculations for the same student will be collapsed to the student level.

In the three outcomes that describe continuous measures of R2T4 prevalence and type (i.e., 50%, >60%) they will be turned into a rate using the size of the Title IV population (from "college ipeds sfa-all-undergraduates" listed above) as the denominator.

Most IPEDS values will require some type of transformation from a raw count (e.g., 1000 white students) to a rate (e.g., 40% of the campus is white).

Transformations of Data Structure:

The main transformation will be to aggregate R2T4 calculations up to the college-level for descriptive analysis.

Data Exclusion:

The R2T4 data identifies which Title IV institutions report their data using the COD tool, so that we can classify which types of institutions are predicted to be more likely to report. Given that one question of interest is which institutions report to the COD, the IPEDS data will first exclude all institutions that do not participate in the Title IV program, and so would not theoretically be part of the R2T4 data under any circumstances.

We will focus the analysis on the Fall 2019 data for two reasons. First, FSA has noted that the COD system began offering the tool in April 2019, so this constitutes the first complete semester of data. Second, COVID began in March 2020, and likely had some implications for student withdrawals and COD reporting.

Treatment of Missing Data:

Missing R2T4 data constitutes a topic of interest, as one primary question is which institutions report their data using the COD tool. We anticipate that any institution that reports R2T4 calculations to COD data are Title IV participants, and will be observable in IPEDS.

Additionally, some colleges may report a subset of their R2T4 calculations in the COD tool. Absent additional data sources that capture these calculations, there is no obvious approach to measure the proportion of R2T4 calculations a college submits in the COD tool among all R2T4 calculations conducted. In practice, calculations a university conducts outside the COD tool will be counted as a “0” or no calculation made.

Among COD reporting colleges, we also anticipate incomplete data for some reported R2T4 calculations. For each of the key outcome values below we will create a separate dummy that indicates whether the value is missing, rather than zero. For example, if the “Percentage of Title IV Aid Earned” variable is missing, which should range from 0-100%, then we create a variable that identifies this as missing rather than 0%, and will report this as an additional outcome measure.

Descriptive Statistics, Tables, & Graphs

The entire report will consist of descriptive statistics, showing the prevalence and magnitude of R2T4 calculations and the correlational relationship between various college characteristics and the rate of R2T4 calculations.

Statistical Models & Hypothesis Tests

Statistical Models:

We will engage in four primary analyses:

1. The first question will characterize the types of Title IV colleges that submit one or more R2T4 calculations using the COD tool and the types of Title IV colleges who submit no R2T4 calculations in the COD tool. This analysis will be presented in table format via summary statistics and where appropriate via scatter plots and bar graphs. Our initial characterization of colleges will use the IPEDS variables described above.
2. The second question on the “scope of the R2T4” program will be presented in table format via summary statistics including the total number of R2T4 calculations and sums of the monetary size of the adjustments, as described above. These will also be disaggregated by college sector, the types of aid (Pell grant; federal loans; other), and student background (education level).
3. For the subsequent three R2T4 outcome measures we will provide a table showing: percent of eligible population with an R2T4 calculation, percent withdrawing at 50%, and percent withdrawing at greater than 60%. This initial table will include one row for all colleges and then disaggregated by ‘sector’
 - a. For all colleges, and separately for each sector, we will provide histograms that show the distribution of R2T4 calculations (between 0 and 100%). These can be used to better understand how much R2T4 patterns vary across colleges, and whether there are clear outliers worth understanding better.
4. For each continuous predictor of R2T4 calculations (e.g., college size, racial composition of college) we will present the following:
 - a. A scatter plot of the continuous predictor and the three outcome measures. We plan to present these for all colleges and by sector.
 - b. A correlation between the continuous predictor and the outcome measure, estimated in the following form:

$$y_c = \beta_0 + \beta_1 X_c + \theta_s + \varepsilon_c$$

where y_c is the outcome of interest, X_c is the predictor variable, and θ_s is a sector fixed effect. The sector is defined in IPEDS, and identifies colleges as being a combination of four/two/less than two year college and public, non-profit, or for-profit.⁷ We will present heteroskedastic robust standard errors (Stata’s HC2). This regression tests the null hypothesis that there is no association between the predictor variable and the outcome measure.

⁷ We will also explore the possibility of looking at the differences across Minority Serving Institutions and other nuanced categories included in the Carnegie Classification.

Confirmatory Analyses:

Our basic analysis is to describe the scope of the R2T4 program among colleges using the COD tool, how it varies across a few key college characteristics, and differences in who reports their data to FSA. We will then engage in more exploratory analysis examining the relationship between college characteristics and the prevalence of certain types of R2T4 outcomes.

Exploratory Analysis:

Our basic analysis is to describe the scope of the R2T4 program, how it varies across a few key college characteristics, and differences in who reports their data to ED. We will then engage in more exploratory analysis examining the relationship between college characteristics and the prevalence of certain types of R2T4 outcomes.

Inference Criteria, Including Any Adjustments for Multiple Comparisons:

All correlations will be tested using the regression above, by presenting the coefficient and *p-value* of the bivariate relationship. Given this is an exploratory analysis, we will not be adjusting for multiple hypotheses, but simply examining any possible extant relationships between college characteristics and R2T4 calculations.

Limitations:

The biggest limitations of the analysis are likely to be:

- FSA switched from having R2T4 calculations in the “FAA” system to the new “COD” system only recently (2019). Given this recent change, we do not know how consistently colleges report their data, and may be unable to observe the magnitude of changes from year to year within a college. At this point FSA has agreed to share data from 2019 to the present, and although COVID may have disrupted some aspects of this policy (see [here](#) and [here](#)), FSA has noted that most colleges continued to engage in typical R2T4 calculations, and that there is a flag to indicate COVID-related withdrawals.
 - FSA is working on additional queries that might capture the same data but prior to 2019.
- We suspect that there may be incomplete data reporting, but will not know what this looks like until we can actually view the data query.
- The data will only include colleges that utilize the “COD” system. Therefore, this sample of colleges may be systematically different from the broader population of colleges in the U.S. which could limit the external validity for some analyses.