

# Fight or Flight: How Restricting Faculty Autonomy Affects Productivity and Selection\*

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## Abstract

This paper examines the labor market effects of a series of policies in Florida in 2022-2023 that weakened faculty autonomy at public universities. Using a difference-in-differences approach, we compare faculty outcomes in Florida to other states. We find that the policies increased faculty exits, particularly among high-performing researchers. Additionally, we detect no productivity gains among incumbents and observe a decline in the research output of new hires. Overall, the findings suggest that restricting faculty autonomy negatively affects the research capacity and competitiveness of public universities.

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# 1 Introduction

Across the United States, a growing wave of state legislation aimed at restricting faculty autonomy is reshaping the incentive structures and governance of public universities. Proponents argue that measures such as post-tenure evaluations increase accountability and improve productivity. However, critics warn that curbing academic freedom may undermine faculty retention. For example, a 2023 survey by the American Association of University Professors found that one in three faculty members in Florida, Texas, Georgia, and North Carolina are actively seeking employment elsewhere. Among these jobseekers, 58% cited their state’s political climate as a reason for leaving, slightly more than the share who identified salary as a key factor (American Association of University Professors, 2023). Understanding how these legislative changes affect faculty retention, recruitment, and productivity is critical for policymakers and for understanding the geography of academic talent across the United States.

This paper studies the labor market effects of recent laws in Florida that restrict the autonomy of professors in public universities. We focus on Florida as it has been a leader in implementing new laws to regulate higher education. In 2022, Florida enacted a law requiring post-tenure evaluations every five years for professors at public universities, effectively transforming tenure into a renewable five-year contract. Later in the same year, they passed the Stop Woke Act, which prohibits the teaching of subjects related to race and gender. Then in 2023, a law was passed that banned the employment of international students from countries of concern. This was followed by another law that banned spending on DEI initiatives. Other states have since imitated Florida in passing similar policies. Leveraging detailed data on faculty employment and publication histories, we implement a difference-in-differences design comparing academic outcomes in Florida to those in other states not subject to the policy changes.

We present three sets of results. First, following a panel of researchers over time, we find that faculty exits from Florida state universities increased by about 0.8 percentage point from a base of 4 percent. The majority of this response is driven by professors moving to academic institutions outside the state, followed by a smaller share leaving academia entirely. In comparison, there was no change in the number of moves to private universities within Florida. As evidence that the rise in migration is due to the new policies targeting the State University System, we find no similar effects among faculty at private universities in Florida, suggesting that the increase in exits is not due to broader state-level trends. Moreover, consistent with the view that professors are leaving Florida to avoid restrictions to their workplace autonomy, we show that they are moving to specifically states that are unlikely

to introduce such policies.

Second, the increase in departures appears to reflect a brain drain effect rather than improved selection against low-performing faculty. At least one of Florida’s policies, the post-tenure reviews, was intended to increase exits among faculty with low research output. In contrast to the goals of this policy, we find that separation rates increased the most among scholars with the highest baseline levels of publications and citations in their respective fields. Many of these professors also moved before the date of the first post-tenure review, indicating that the moves were voluntary rather than the result of failing their evaluations.

Third, we find no evidence that the policies improved academic productivity. The number of publications, citations, and preprints remained unchanged after the policies were implemented, even among faculty with low baseline publication rates who were arguably most at risk under the new post-tenure evaluation system. We also test whether the reforms affected the quality of new hires by comparing the publication records of cohorts hired before and after the policy change. Contrary to the stated goal that post-tenure reviews would discourage low-productivity applicants, we instead find that new hires had fewer recent publications following the reform.

Our paper contributes to three literatures. First, we contribute to the literature on the role of tenure in academia. From a theoretical perspective, tenure has been viewed as a means of incentivizing effort (MacLeod and Urquiola, 2021), human capital investments (Kahn and Huberman, 1988; Waldman, 1990), and positive selection of new hires (Carmichael, 1988), all of which should increase research output. To our knowledge though, there are no empirical studies that test whether the tenure system actually increases productivity or hiring at universities. Previous papers find that publications and citations fall after individuals receive tenure (Brogaard, Engelberg, and Van Wesep, 2018; Tripodi et al., 2024), but that could reflect both an increase in productivity pre-tenure and a decrease in productivity afterwards.<sup>1</sup> Our paper contributes to this literature by examining a case where tenure is effectively removed, thereby allowing us to capture the aggregate effects of the tenure system.

Second, we contribute to a broader literature in personnel economics on incentivizing effort and retaining talent. To increase worker output, firms may create a structure of punishments and rewards, or mandate minimum job requirements. Studies on the former find that performance-linked incentives often succeed in increasing effort and attracting higher performing workers (Hoffman and Stanton, 2024).<sup>2</sup> On the other hand, experiments find that

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<sup>1</sup>Studies on the effect of tenure on teaching are also inconclusive. While Ehrenberg and Zhang (2005) find that the growth in adjunct professorships has adversely affected graduation rates, Figlio, Schapiro, and Soter (2015) find that students taught by nontenure track professors in their first year tend to do better in subsequent classes.

<sup>2</sup>For example, a large literature shows that school accountability reforms improve teacher perfor-

workers value autonomy and that overly restrictive rules can actually reduce performance (Falk and Kosfeld, 2006; Bartling, Fehr, and Herz, 2014; Friebe et al., 2025). We contribute to this literature by studying the introduction of new evaluation procedures and job restrictions on a traditionally flexible job that is at the center of many policy debates - university professors. We provide novel evidence that eliminating tenure and restricting faculty’s autonomy has no impact on academics’ productivity, but instead inhibits the ability of universities to attract and retain the most talented researchers.

Third, we contribute to the literature on brain drain. Prior research have studied instances of forced migration such as the immigration of Jewish scientist away from Nazi Germany (Becker et al., 2024), along with its effects on US innovation (Moser, Voena, and Waldinger, 2014) and the productivity of peers who stayed in Germany (Waldinger, 2012). In far less extreme circumstances, growing evidence finds that recent U.S. policies have caused researchers from China to pursue academic careers in other countries (Xie et al., 2023; Flynn et al., 2024). We add to this literature by showing that policies penalizing academics are also leading to relocation of researchers across state lines, shifting the geography of talent within the United States.<sup>3</sup>

The remainder of the paper is organized as follows. Section 2 describes Florida’s wave of policies starting in 2022. Section 3 describes our data. We report our results in section 4, discuss mechanisms in section 5, and conclude in section 6

## 2 Institutional Context

Florida passed four laws between 2022 and 2023 that restricted faculty autonomy. First, Florida signed bill SB-7044 on April 19, 2022, requiring tenured faculty members to undergo a comprehensive post-tenure review of their research, teaching, and service every 5 years. The State University System Board of Governors announced specific instructions for the post-tenure reviews a year later on March 29, 2023. Importantly, the instructions state that “each faculty member who receives a final performance rating of ‘unsatisfactory’ shall receive a notice of termination” (Florida Board of Governors, 2023). As a result, tenured faculty in the state university system are only guaranteed 5 years of employment protection. The first review for 20% of faculty was completed on September 2024. Of the 861 tenured faculty reviewed across 12 universities, 437 exceeded expectations and received \$5,000-10,000 one-time

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mance (Jacob, 2013; Dinerstein and Oppen, 2022; Taylor, 2022; Ng, 2024), increase exits among low-rated teachers (Sartain and Steinberg, 2016) and improve the quality of new hires (Kraft et al., 2020).

<sup>3</sup>This also relates to debates around the effect of abortion bans in the US on the supply of obstetricians and gynecologists (Strasser et al., 2024; Zhu et al., 2025).

bonuses; 350 met expectations; 64 did not meet expectations and would be terminated after a year if their performance did not improve; and 10 were deemed unsatisfactory, resulting in immediate termination (Atterbury, 2024). Thus, the post-tenure reviews were not merely performative, but had real consequences for university faculty.

Second, Florida implemented the Stop Woke Act in July 2022, which prohibits the teaching of subjects related to race and gender. However, the rule was issued a temporary injunction by a district judge just a month after it was passed over concerns that it violates businesses' First Amendment rights. The ruling was upheld on appeal and the law was permanently nullified in July 2024. Although the rule was never enforced, previous research has shown that even terminated policies can have persistent effects (Quach, 2025).

Third, Florida passed SB 846 in May 2023, which banned employment of international students from China, Cuba, Iran, North Korea, Russia, Syria, and Venezuela. This made it particularly difficult for faculty to hire graduate students as research or teaching assistants. Given prior research showing that international students tend to match with advisors from the same origin country (Fry and Glennon, 2025), we expect this policy to have a stronger effect on professors from the seven countries targeted by the policy. A lawsuit was filed against the law in 2024 by two Chinese doctoral students who had their employment offers withdrawn by Florida International University and by a professor at the University of Florida who was prevented from hiring his top pick for a postdoctoral assistant. SB 846 was ultimately blocked by Federal Court in March 2025.

Lastly, Florida also passed SB 266 in May 2023, which banned spending on diversity, equity, and inclusion (DEI) initiatives. In response, the University of Florida terminated administrative positions in the Office of the Chief Diversity Officer, but announced that it would reallocate the funds previously assigned for DEI expenses into a faculty recruitment fund (Angle, Hass, and Curry, 2024). This law is still being challenged in court by six professors from three universities, arguing that SB 266 violated First Amendment rights. Taken together, the policy landscape in Florida reflects growing state oversight of faculty's evaluation, curricula, and administrative flexibility.

The cumulative effect of the restrictions on faculty autonomy is theoretically ambiguous. On the one hand, a large literature in personnel economics finds that performance-linked incentives tend to improve worker productivity (see Hoffman and Stanton (2024) for a recent review). This reasoning motivated the introduction of the post-tenure review policy. On the other hand, if tenure and workplace autonomy are viewed as positive amenities, then their elimination may lead to increased separations (Sorkin, 2018). Moreover, if separations increase, it is unclear whether there would be positive or negative sorting. Previous papers have found that high-productivity workers self-select into jobs with stronger perfor-

mance incentives (Brown and Andrabi, 2020) and less workplace flexibility (Emanuel and Harrington, 2024). However, eliminating tenure could have opposite effects by incentivizing current faculty to hire less qualified individuals so that incumbents look better in comparison (Carmichael, 1988).

### 3 Data

Motivated by the competing theories, our empirical analysis focuses on two outcomes: retention and productivity. To measure these outcomes, our analysis takes advantage of two data sources. First, we leverage data collected from curriculum vitae (CVs) posted on Open Research and Contributor ID (ORCID) to follow researchers’ employment statuses over time. Second, we merge on publication records from OpenAlex to measure individuals’ productivity. Using these datasets, we construct a panel of faculty who started at a public university, and a repeated cross-section of new hires at each school. We explain the construction of our analysis samples in more detail below.

#### 3.1 CV Data: ORCID

ORCID is a free online platform that helps researchers and scholars connect their work with their identities. Users verify their identity with their university email address and then self-report their employment history on the website. They are then provided a unique ID that they can submit to journals upon publication of a new paper. This creates a transparent way to accurately attribute publications to researchers, without any ambiguity that may arise if multiple people have the same names. Users are incentivized to truthfully report their CV information as many grant institutions, such as the National Institutes of Health and National Science Foundation, ask for an ORCID in their funding applications.

Using the ORCID database, we are able to observe the employment history of over 15 million individuals. We query this large dataset to construct two subsamples. First, we create a balanced panel of all researchers affiliated with a public university in the U.S. in 2021, the year before the wave of bills restricting faculty autonomy was passed. We then follow the employment history of these individuals from 2018 to 2024. Second, we create a repeated cross-section of all new hires over the same time period for the same set of universities.

To ensure that we focus on individuals targeted by the post-tenure review, we restrict our samples to workers with “prof” in their job title. We also drop non-tenure track positions that contain the phrase “visiting”, “adjunct”, “clinical”, “emerit”, or “temporary”. Similarly, we drop teaching positions whose job titles include “teach”, “lecturer”, “instruct”, or “practice”. Lastly, we use the job title to make a distinction between assistant, associate, and tenured

faculty members.

To explore heterogeneity by demographic characteristics, we use individuals’ names to predict their gender and race. First, we infer gender from individuals’ first names using the Gender Guesser package in Python. The program classifies names into six categories: “mostly female”, “female”, “male”, “mostly male”, “androgynous” and “unknown”. We define a researcher as female or male using the first four classifications, resulting in a gender for 81% of the sample.<sup>4</sup> Second, we infer individuals’ race by linking their last names to the U.S. Census database of commonly occurring surnames and assigning the most likely racial group associated with each name.

### 3.2 Publication Data: OpenAlex

To measure individual productivity, we merge on publication records from OpenAlex, a widely trusted index of scholarly works that integrates metadata from across the global research ecosystem (Priem, Piwowar, and Orr, 2022). The database is the direct successor to the Microsoft Academic Graph (MAG), expanding its predecessor’s coverage while ensuring long-term open availability. At the time of writing, OpenAlex covers more than 250 million works, including journal articles, conference proceedings, books, and preprints. Culbert et al. (2025) indicates that OpenAlex offers coverage comparable to proprietary sources such as Web of Science and Scopus. Its widespread adoption in prior studies further underscores its credibility as a reliable source for analyzing research activity (Arora et al., 2024; Arts, Melluso, and Veugelers, 2025; Shvadron et al., 2025).

OpenAlex links ORCID identifiers to corresponding publications, enabling us to retrieve the publication histories of professors in our sample. We successfully merge on the publication history for 84% of the observations in our balanced panel and 85% in the repeated cross-section. To maximize statistical power, we keep the full sample whenever we do not need a measure of productivity in our analysis.

There are three advantages to using the OpenAlex database to measure research output relative to relying on self-reported records in ORCID. First, OpenAlex tracks the number of citations for each publication and provides a Field-Weighted Citation Impact (FWCI) metric. OpenAlex defines this variable as the ratio of a paper’s citations and the average number of citations for its subject field. The FWIC thus allows us to construct field-specific measures of productivity. Second, OpenAlex incorporates up-to-date bibliometric data from various sources, including preprint servers such as SSRN, allowing us to capture immediate changes in the research process and avoiding reliance on authors to promptly update their

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<sup>4</sup>In other research where we manually collected the genders of researchers, we found that Gender Guesser correctly identified 94% of the women in the data (Quach and Yu, 2024).

ORCID profiles. Third, OpenAlex classifies papers into four broad academic domains: Health Sciences, Life Sciences, Physical Sciences, and Social Sciences. We classify papers in the first three domains as STEM, and define an author as being in a STEM field if they had at least one STEM paper prior to 2022.

### 3.3 Descriptive Statistics

To understand the representativeness of the ORCID sample, Appendix B provides descriptive statistics of the data. We document four results. First, merging the ORCID data with administrative employment records from the Florida state university system, we find that our sample only contains about 20% of Florida faculty. Second, survey evidence from Porter (2025) finds that adoption of ORCID is very high (e.g. 75-93%) in STEM fields, but very low in the humanities, since many journals require an ORCID to submit a paper. Consistent with that survey, over 90% of our sample consists of researchers who have published a STEM related paper. Third, our analysis, along with that of Flynn et al. (2024), finds that individuals with ORCIDs tend to be more active researchers.

Fourth, from manually collecting data on professors in Florida, we verify that 92% of ORCID profiles are up-to-date and accurately reflect researchers' career history. When users do not update their profiles, this measurement error attenuates our estimates towards zero, biasing against finding our results. Although our findings are significant even without accounting for the measurement error, we provide a back-of-the-envelope calculation in Appendix B that shows the true effect on migrations to other states can be up to 1.5 times larger than our estimates and the effect on moves out of academia is approximately 3 times larger.

Together, the descriptive statistics suggest that the data comprises largely of motivated researchers in the natural sciences. Empirically, this selection into the data poses no problems for the causality of our difference-in-difference design. However, it does affect the external validity of our results. Our analysis is most informative about the behavior of active researchers in STEM. Although we conduct some heterogeneity analyses by field and productivity, our estimates may not be representative for researchers in the humanities or for unproductive researchers. Nevertheless, understanding the response of active scientists is of key policy relevance given their contributions to science and innovation.



## 4 Results

### 4.1 Empirical Strategy

We begin our analysis by studying the impact on incumbent researchers using the panel sample. To identify the effect of introducing post-tenure reviews, we estimate a difference-in-difference regression of the form

$$y_{it} = \sum_{\substack{t=2018 \\ t \neq 2021}}^{2024} \beta_t \cdot Florida_i \times D_t + \alpha_i + \gamma_{t,c(i)} + \epsilon_{it} \quad (1)$$

where  $y_{it}$  is an outcome of interest for researcher  $i$  in year  $t$ , such as a dummy variable for being employed outside the state university system.  $Florida_i$  is an indicator that equals one if researcher  $i$  was employed in Florida in 2021.  $D_t$  equals one at year  $t$ . We control for individual ( $\alpha_i$ ) and year-characteristic ( $\gamma_{t,c(i)}$ ) fixed effects. To compare people of similar ranking and mobility, our preferred specification allows for the year fixed effects to differ by assistant vs. associate/full professors, and by the year that they were hired at their job. Our reference period is 2021, the year before the post-tenure review policy was first passed in legislation. We cluster standard errors at the state of employment in 2021.

### 4.2 Effect on Retention

Figure 1 examines the effect of Florida’s post-tenure review policy on faculty retention. Panel A plots the difference-in-difference estimates over time, with the outcome variable being an indicator that equals 1 if the researcher is employed outside their state’s public university system. We find that leading up to 2022, separation rates were trending similarly between scholars in Florida and other states. However, after Florida started passing restrictions on faculty in 2022, we observe a gradual increase in separation rates.

The increase in separations from the public university system can reflect three types of responses: movement to a private university within the state, migration outside the state, and exits from academia altogether. Panels B to D of Figure 1 decompose the change in separation into each of these components. In Panel B, we find no change in the probability that individuals move from a public university to a private one within the same state. Instead, Panel C shows that the increase in separations is largely driven by professors moving out-of-state. Panel D finds to a smaller extent that some faculty are also responding by leaving academia, which we define as an employment gap in individuals’ CV on ORCID.<sup>5</sup>

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<sup>5</sup>By default, ORCID assumes someone is still employed at a school unless manually updated. As a result, employment gaps occur when someone provides an end date for their job without entering a

If we account for the fact that researchers do not always update their profiles, then the separation effects would be even larger. Appendix B shows that users only report about two-thirds of moves to universities out of state and one-third of moves outside academia. As a result, our estimate for the effect on separation out of state should increase from 0.68 percentage points in 2024 to 1.02 percentage points. Similarly, the effect on exits from academia should increase from 0.25 percentage points to 0.75. Cumulatively, accounting for measurement error in the ORCID sample approximately doubles the net effect on separations from the public university system.

To assess the robustness of our results, Table 1 reports estimates of the effect on separations using a series of alternative controls. Column (1) estimates a standard two-way fixed effects model, controlling for individual and year fixed effects. This baseline specification suggests that separation rates increased by 0.86 percentage points on a base of 3.9 percent, equivalent to a 22% increase in separations. We find similar results in column (2) where we flexibly allow for differential time-trends between tenured and nontenured faculty. Column (3) shows that the results are also robust to allowing the year fixed effects to differ by individuals' duration at their job in 2021. Since recent hires may be less attached to their employer relative to entrenched incumbents, column (3) controls for differences in baseline mobility across workers. Lastly, column (4) reports the fully saturated model corresponding to Panel A of Figure 1. In this most conservative specification, separation rates increased by 13% from baseline. Overall, we find that our results are stable across a range of alternative specifications.

Next, we implement three placebo tests to show that the increase in separation rates is driven by the wave of policies starting in 2022 and not other contemporaneous shocks. First, we test whether the migration out of Florida is really a Florida-specific event or simply part of a broader migration away from the South. Appendix Figure A1 plots our event study estimates while restricting the sample to only states in the same Census division as Florida. We find that even when comparing Florida to nearby states, there is still a larger exodus from Florida, suggesting that the migration reflects a Florida-specific shock.

Second, we test whether the out-migration is unique to public universities. If the rise in separation rates reflects a general economic downturn specific to Florida, then we would expect professors in private universities to also leave to other states. However, Appendix Figure A2 finds that even when we use within-Florida variation, separation rates increased in public universities relative to private ones.

Third, Appendix Figure A3 examines whether Florida naturally has a higher separation

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new position. This can occur if someone is unemployed, retired, or moves to industry and chooses not to list the company in their ORCID profile.

rate whenever we condition on a panel of incumbents. For example, if working in Florida is an undesirable outcome, then workers may leave faster due to reversion to the mean, similar to an Ashenfelter dip phenomenon (Ashenfelter, 1978). To test for this effect, we replicate our analysis using alternative reference and treatment years. Panel A of Figure A3 sets 2018 as the reference year when we require all workers to be employed and 2019 as the treatment year. In this case, we find no rise in separations, indicating that our results are not driven by mean reversion. Panel B uses 2017 to define treatment status and, following this group over time, we continue to find that separations only increase in Florida after 2022.

Together, the placebo tests indicate that there is something unique about public universities in specifically Florida that is driving away faculty beginning 2022, which we attribute to the wave of policies restricting faculty autonomy. New College of Florida represents an extreme case within the broader set of state interventions restricting faculty autonomy. In 2023, the governor appointed six new trustees who rapidly dismissed the sitting president, eliminated the DEI office, rejected multiple tenure cases, and ultimately abolished the Gender Studies program. These abrupt governance changes ultimately led to the departure of roughly one-third of the faculty by mid-2023 (Greenberg, 2023). However, the share of our sample from New College of Florida is very small as the school only has about 100 faculty. To directly assess whether the observed increase in separations across the Florida State University System is driven exclusively by New College, Appendix Figure A4 excludes its faculty from the sample. The results remain nearly identical to those presented in Panel A of Figure 1, indicating that the exodus of researchers is not driven by the extreme case in New College.

### 4.3 Effect on Productivity

Although separations increased in Florida, it is important to note that this fall in retention may not be an unintended consequence. For example, by design, the post-tenure review policy is supposed to terminate unproductive workers. In this section, we test whether the policies in Florida increased productivity by either removing unproductive workers, incentivizing more effort, or improving selection of new hires.

#### Selection in Separations

To begin, Figure 2 explores heterogeneity in separation rates by baseline productivity levels. To measure productivity, we aggregate the total number of peer-reviewed publications and citations that each professor received in the three years between 2018 and 2021. Panels A and B separately estimate the effect on separations for scholars with below and above median citations within their field, respectively. We find that highly cited scholars

are the most likely to leave the Florida public university system.<sup>6</sup> Similarly, Panels C and D show that the increase in separations was quicker among researchers with above median number of recent publications. The uptick in separations in 2024 among low-publication and low-citation authors also matches the timing of the first post-tenure reviews. Taken together, the estimates indicate that Florida’s multiple policies caused a brain drain effect that exceeded the direct effect of firing unproductive workers, leading to a positive selection in the productivity of leavers.

To understand which types of faculty are driving the attrition response, Appendix Figure A6 reports additional heterogeneity analyses by scholars’ field of study and demographic characteristics. We highlight three results. First, we find similar effects between STEM and Non-STEM researchers. The increased separations among STEM researchers suggests that our results are unlikely to be driven by selection into the ORCID database, as Porter (2025) finds that take-up of ORCID are 75-93% in the largest STEM fields.<sup>7</sup> Second, the strongest response is concentrated among young junior faculty, where we infer researchers’ age from their first year of employment and separate the sample into those above and below median age in the sample.<sup>8</sup> Third, there is a racial gap in mobility responses to the new policies in Florida, but no discernible differences in response between men and women. This is somewhat surprising given evidence that in general, couples are more likely to move for the man’s career advancement relative to the woman’s (Jayachandran et al., 2024).

## Productivity of Incumbents

Although highly productive researchers are more likely to leave as a result of the policies, aggregate productivity may nevertheless increase if stayers are incentivized to exert more effort. To test for such responses, we estimate our difference-in-difference regression using the number of publications and the Field-Weighted Citation Impact as the outcome variables.<sup>9</sup>

Figure 3 reports the effect of Florida’s policies on research productivity. Panels A shows that, on average, there is no discernible increase in publication output or citation counts following the policies’ implementation. Although the reforms did not yield overall improve-

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<sup>6</sup>Since citation norms vary across disciplines, we use OpenAlex’s “Field-Weighted Citation Impact” (FWIC) as our preferred metric of productivity. Appendix Figure A5 separates the sample by raw citation counts and finds a greater separation effect in low-citation fields, but this is driven primarily by fields with more citations rather than individual performance within the field.

<sup>7</sup>In fact, 94% of our sample are in a STEM field. Given the low take-up of ORCID among non-STEM researchers, the estimates for this group should be interpreted with caution.

<sup>8</sup>The median researcher started working in 2008.

<sup>9</sup>We estimate equation (1) as a Poisson regression when analyzing the effect on the number of publications since it is a count variable. Estimates from this regression can thus be interpreted as perfect changes in the number of publications.

ments in productivity among incumbent faculty, this null result may mask heterogeneity by baseline performance. For example, since the least productive researchers are at the greatest risk of losing their jobs from the post-tenure reviews, we would expect productivity to increase more for this group.

Panels B and C disaggregate the productivity effects by faculty’s baseline productivity, measured by their citation counts in the three years before the enactment of the policy. We find no positive productivity effects even for faculty with below-median citations. In fact, there is some evidence that the number of publications might have even dropped among low-FWIC faculty in 2024. This implies that the policies did not improve research productivity, even among faculty members who would have been most incentivized to increase performance under the post-tenure review system.

Appendix Table A1 shows the robustness of the null effect on productivity. Across multiple specifications — including models with year fixed effects interacted with tenure status and job duration — none of the estimated coefficients on the interaction between the Florida indicator and post-policy period are statistically significant. For example, the 95% confidence bounds for our preferred specification in column (4) can rule out increases in the number of publications by more than 1.8%.

One potential explanation for the muted response in productivity is that three post-treatment years is insufficient time for increased effort to translate into new publications and citations. To assess whether faculty are increasing the number of early-stage research projects, Appendix Figure A7 explores the effect on unpublished research. The estimates are fairly volatile but we find no clear evidence of an increase in the number of working papers after 2022.

Since Florida policymakers may not care about the impact of their policies on individuals who move out of state, we also explore whether the average productivity of those who remained employed in the Florida public university system increased. Appendix Figure A8 presents results restricted to faculty who stayed from 2021 to 2024. Again, we find no statistically meaningful changes in the number of publications or citations over time. Overall, our analysis finds no evidence of systematic improvements in productivity as a result of Florida’s recent policies.

## **Selection in New Hires**

A final channel through which restrictions on faculty autonomy could influence worker quality is via the hiring pipeline. On the labor supply side, it might improve the quality of applicants if only the most productive researchers are confident in their ability to keep a job in a system without tenure. Alternatively, if the most productive researchers place a greater

value on autonomy as a workplace amenity, then Florida’s policies may lead to lower quality applicants. On the labor demand side, Carmichael (1988) predicts that in a system without tenure, incumbents would be less willing to hire talented researchers if they worry that new entrants will replace their jobs.

To study the effect of Florida’s policies on the quality of new hires, we turn to our repeated cross-section sample, where each year of the data represents a new cohort of researchers. We measure a new hire’s quality by the number of publications and citations they received in the 3 years prior to hiring. To identify the impacts of the policies, we make two adjustments to our difference-in-difference design in equation 1. First, since each individual appears only once in the sample, we no longer control for individual-level fixed effects. Second, it is similarly infeasible to control for year interacted with duration of employment fixed effects since by definition, each person is starting a new job. Instead, our preferred specification will control for state, year-tenured/non-tenured, and year-Census division fixed effects.

Figure 4 reports the event study estimates over time. For full transparency, Panels A and B report our estimates without Census division interacted with year fixed effects to match our specification for incumbents as closely as possible. We find that leading up to 2022, the productivity of incoming cohorts of new hires was improving in Florida relative to other states. After 2022, we observe a trend reversal in the number of prior publications and citations among new hires in Florida. To construct a more comparable counterfactual control group to Florida, Panels C and D control for time-trends by Census division. Using only within-Census division variation eliminates much of the initial pre-trends, but we continue to find a dip in the productivity of new hires after Florida began introducing its restrictions on faculty autonomy in 2022.

Appendix Table A2 summarizes our results and tests their sensitivity to alternative specifications. Column (1) includes only state and year fixed effects. Column (2) adds controls for differential time trends across Census divisions. Column (3) further accounts for differential time trends by tenure status, and Column (4) incorporates university-specific fixed effects. In all cases, we find a significant negative effect on the productivity of new hires ranging from a 10-15% drop in prior publications. Similarly, we find that prior field-weighted citations fell by 6-8 from a base of 33 in the past three years. Together, these results suggest that the pool of new hires in Florida’s public universities became less research-productive after the new restrictions on faculty autonomy were enacted.

## 5 Mechanism

We next consider the extent to which each of the four policies discussed in Section 2 contributed to the exodus of faculty from Florida. While it may be tempting to identify a single policy as the leading mechanism, we argue that it is the cumulative impact of the policies that led to faculty departures. Consistent with this view, we present evidence that none of the policies, when considered individually, can explain the results.

### Stop Woke Act

To start, it is unlikely that the Stop Woke Act, which prohibited professors from teaching subjects related to race and gender, can account for the entire rise in separations. Our heterogeneity analysis in Appendix Figure A6 finds an increase in separations among researchers in STEM. Although faculty in STEM do teach about racial and gender inequality, it is less common relative to the social sciences and humanities. Moreover, the Stop Woke Act was overturned by the courts and never enforced.

### SB 846

From March 2023-2025, Florida banned the employment of international students from 7 countries viewed as geopolitical opponents to the United States. Since graduate students are more likely to work with advisors from their origin country than would occur by random chance (Fry and Glennon, 2025), we expect this policy to have a stronger effect on professors from these countries. To impute researchers' country of origin, we first identify all individuals who completed a degree in one of the seven countries. We then classify all faculty with a last name from that list as affected by SB 846.<sup>10</sup>

Panel A of Appendix figure A9 reports the event study estimates separately by whether the faculty is from a country affected by SB 846. We note two results. First, researchers from affected countries started leaving Florida in 2022, before SB 846 was passed. Second, the increase in separations was similar across both groups by 2024, suggesting that faculty more directly exposed to SB 846 did not respond differently in the long run. Together, the timing and magnitude of the response suggests that SB 846 does not account for the observed rise in separations.

### SB 266

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<sup>10</sup>We manually remove common last names from the list such as "Miller" and "Smith". The five most common last names among our sample of affected professors are Wang, Chen, Li, Zhang, and Liu. Our sample consists of 6,181 faculty from banned countries out of a total of 59,631.

Another potential reason for the increase in separations is SB 266, which passed in May 2023 and banned all spending on DEI initiatives. Florida was not the only state in recent years to pass legislation that limits diversity efforts at public universities. Appendix Table A3 shows that in 2023-2024, fourteen states introduced some form of anti-DEI law. If researchers quit their jobs in response to SB 266, then we would expect a similar response in the other states too. In contrast, Panel B of Appendix Figure A9 finds that separation rates in Florida increased quicker compared to other states that also banned DEI initiatives in 2023.

## Post-Tenure Reviews

Post-tenure reviews alone also cannot explain the entire increase in separations. First, Panel C of Appendix Figure A9 finds an increase in separations even among non-tenure track faculty. Since post-tenure reviews do not affect this group, professors must be leaving for other reasons as well.<sup>11</sup>

Second, we find that post-tenure review policies in other states did not have as large an effect on separations as in Florida. Appendix Table A4 lists all other states that have adopted post-tenure review policies between 2018 and 2025. Excluding Florida from the sample, Appendix Figure A10 estimates an event-study design using all the policies in our study period. Although it is too early to evaluate the effects of the more recent reforms, the general pattern indicates no significant impact of post-tenure reviews on faculty retention outside of Florida.

In summary, we show that none of the policies can individually explain the brain drain from Florida. Prior research finds that workers face substantial moving costs, so it often takes a large incentive for them to switch employers (Caldwell, Haegele, and Heining, 2025). Consequently, we hypothesize that it is the cumulative effect of all four policies that is driving away academic talent. As evidence that faculty are indeed concerned about the restrictions to their academic autonomy, Appendix Figure A11 shows that the entire cross-state migration is accounted for by moves to states with Democratic governors where no such laws have been introduced.

## 6 Conclusion

This paper studies the impact of weakening faculty autonomy on retention and productivity. Leveraging detailed data on faculty employment histories and research output, we document

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<sup>11</sup>Recall from section 4.2 that we already ruled out Florida-wide shocks as an explanation, as the migration out of Florida is specific to public schools and not private universities.



a sharp increase in departures from Florida’s public universities following a series of laws that weakened tenure protections, restricted curriculum content and DEI spending, and introduced barriers to hiring international students. Researchers leaving Florida specifically moved to Democratic-leaning states that do not have similar faculty restrictions. These patterns are unique to Florida public universities and not observed among professors in the state’s private colleges.

The rise in researchers leaving Florida public universities led to overall decreases in faculty quality. Although there was no change in the productivity of incumbent faculty, we find that the researchers who left Florida had above average citations and publications. Moreover, the quality of new hires, as measured by their pre-hire research output, declined following the policies enactment, suggesting a deterioration in the attractiveness of Florida’s public universities to top talent.

Taken together, these findings inform ongoing debate around the growing wave of state and federal policies that aim to restrict the autonomy of professors. Our results indicate that these policies could potentially have negative consequences, leading to a diminished ability to attract and retain high-caliber scholars. As other states consider similar reforms, our results underscore the need for caution.

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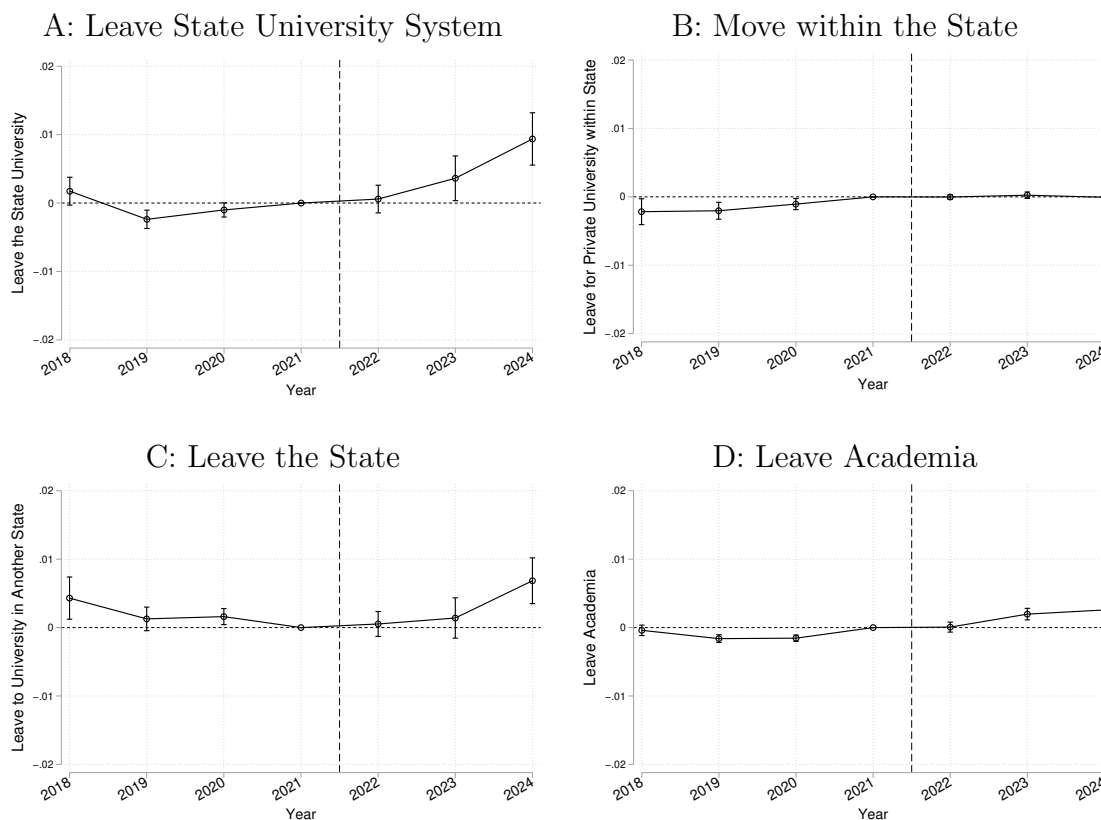
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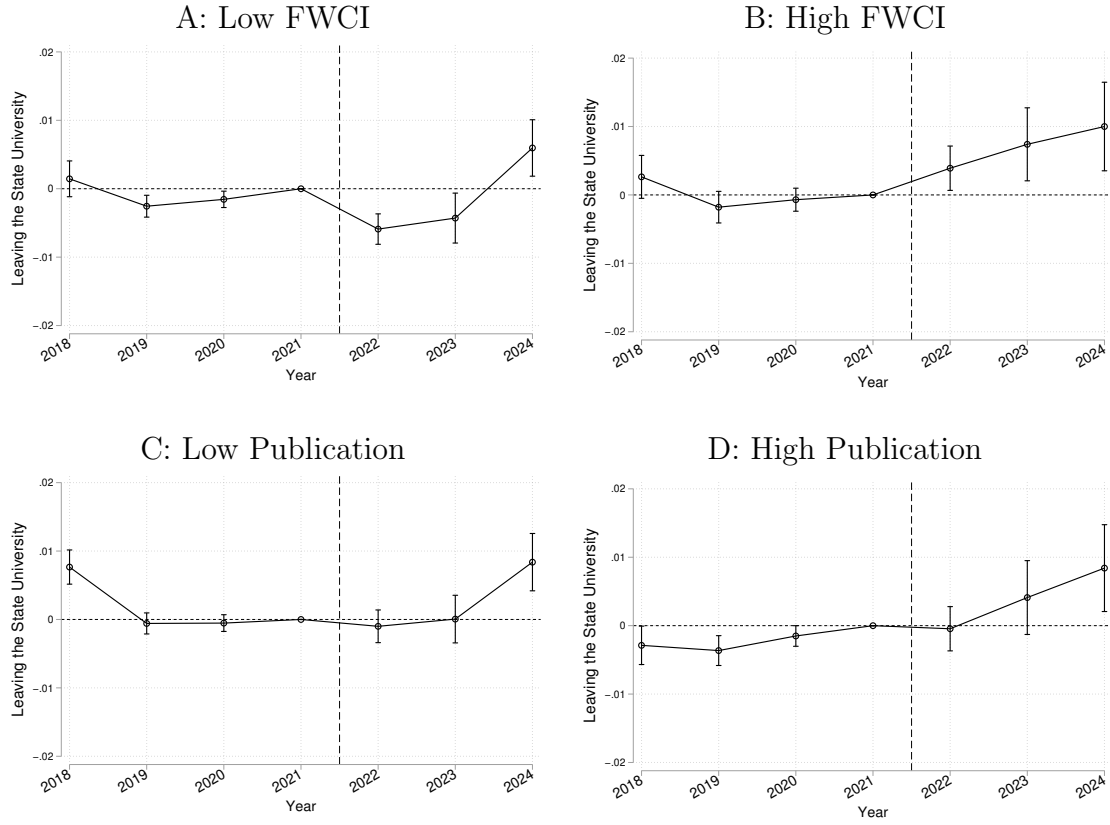
## Figures and Tables

Figure 1: Effect of Restrictions on Faculty Autonomy on Retention



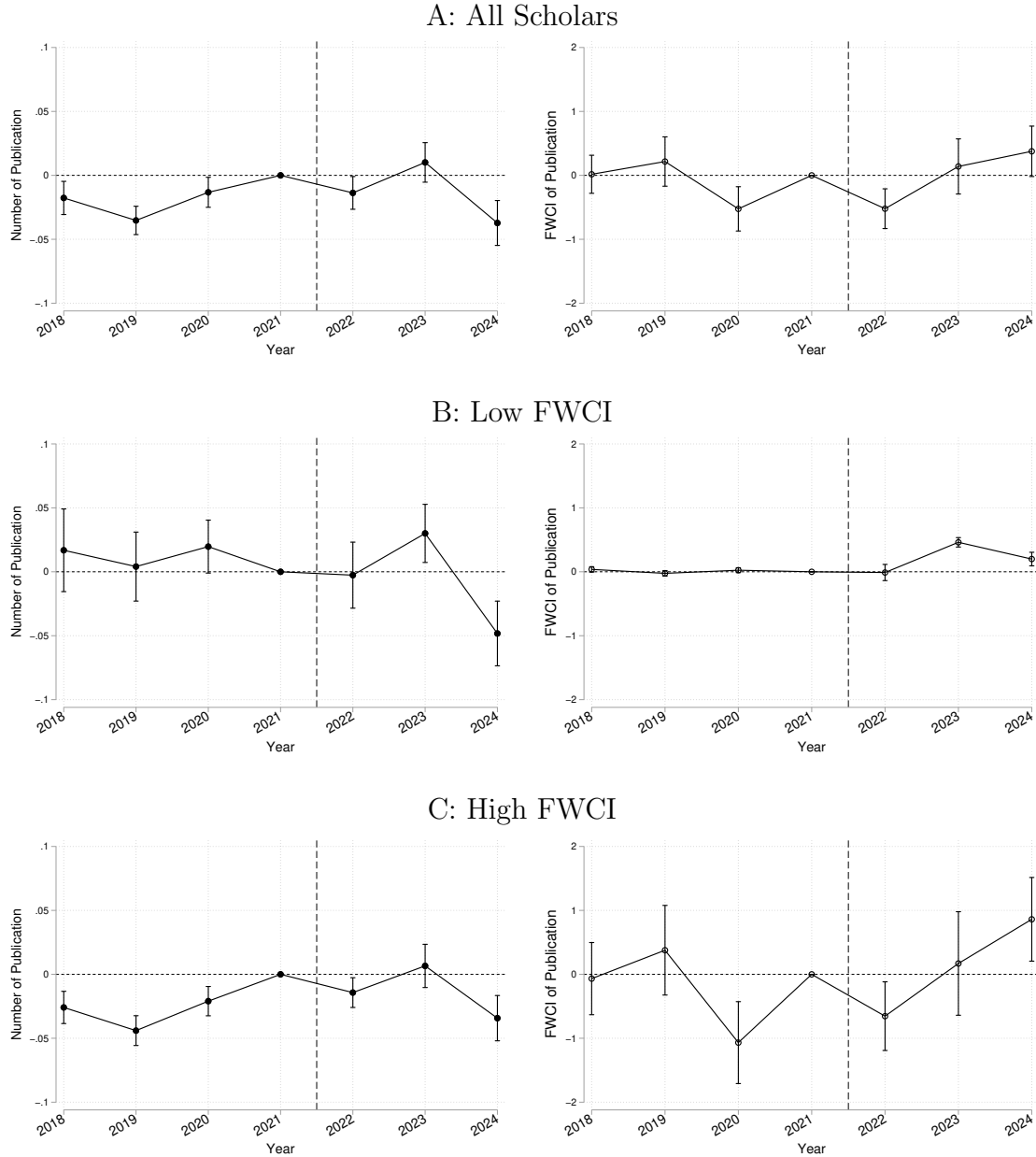
Note: These figures compare outcomes of Florida state university faculty to professors at public universities in other states. Panel A shows the effect on leaving the state university system in which the faculty were employed in 2021. Panel B reports the effect on moving to other in-state academic institutions. Panel C shows the effect on relocating to out-of-state academic institutions. Panel D presents the effect on exiting academia. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Figure 2: Heterogeneous Effects on Retention by Baseline Research Productivity



Note: These figures plot the heterogeneous effects of Florida's restrictions on faculty autonomy on the retention of tenured and tenure-track faculty at Florida state universities. Panels A and B show the effect for faculty with below-median and above-median field-weighted citation counts during 2018–2021, respectively. Panels C and D report the effects for faculty with below-median and above-median publication counts during 2018–2021, respectively. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

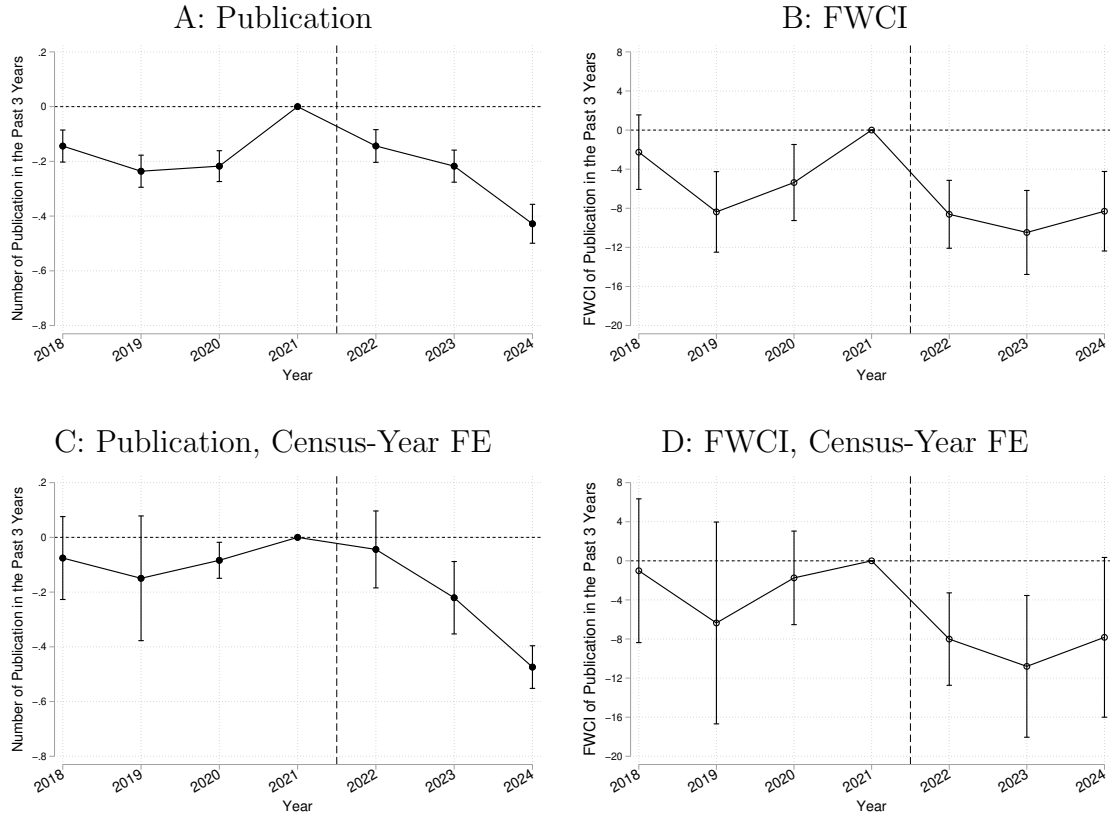
Figure 3: Effect of Restrictions on Faculty Autonomy on Research Productivity



Note: These figures plot the effects of Florida's restrictions on faculty autonomy on the research productivity of faculty at Florida state universities. Panel A shows the effect on the number and field-weighted citation of publications for all faculty members. Panels B and C show the effects separately for faculty with below and above median field-weighted citation counts, respectively. Publication counts are estimated using Poisson regressions, while field-weighted citation outcomes are estimated using OLS regressions. All estimates include 95% confidence intervals based on standard errors clustered at the state level.



Figure 4: Effect of Restrictions on Faculty Autonomy on the Quality of New Hires



Note: These figures plot the effects of Florida's post-tenure review policy on the quality of incoming tenured and tenure-track faculty at Florida state universities. Panel A shows the effect on quality measured by the number of publications in the year of hire and the two preceding years. Panel B shows the effect on quality measured by field-weighted citations to those publications. Panels C and D include Census-division interacted with year fixed effects. Publication counts are estimated using Poisson regressions, while field-weighted citation outcomes are estimated using OLS regressions. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

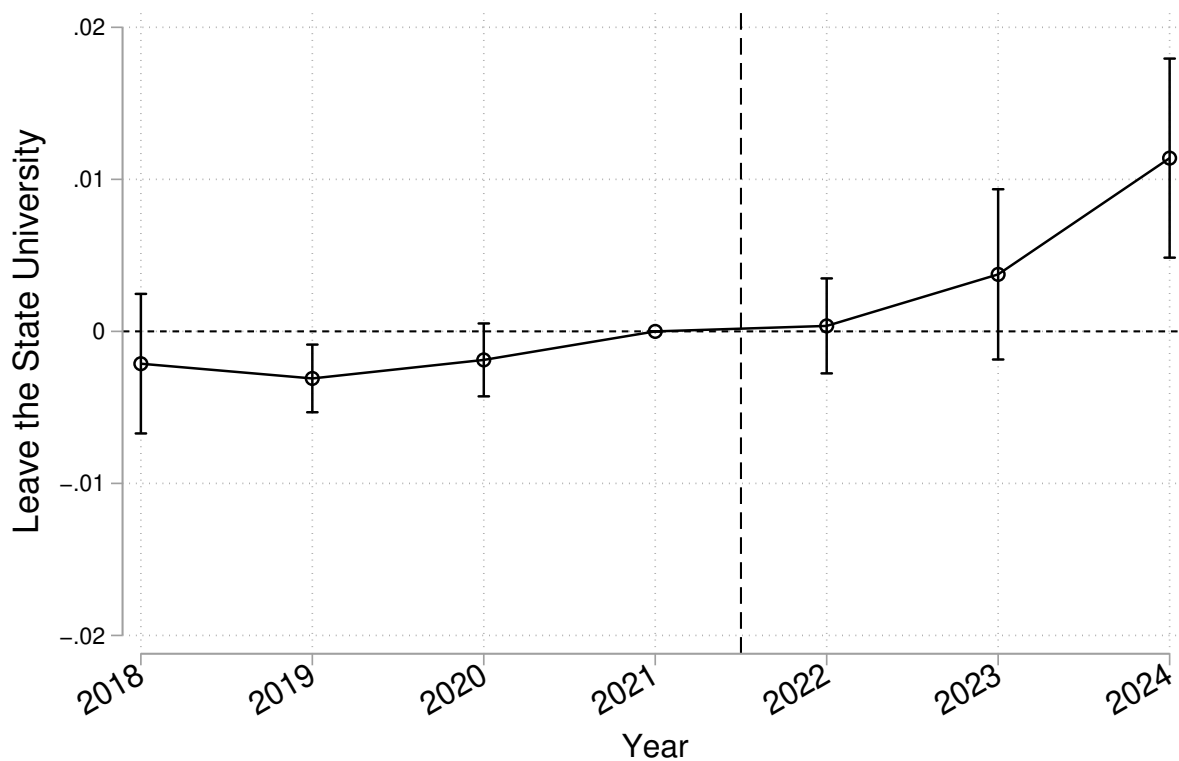
Table 1: Effect of Restrictions on Faculty Autonomy on Retention

	Probability of Leaving the State University			
	(1)	(2)	(3)	(4)
Florida $\times$ Post	0.0086*** (0.0019)	0.0078*** (0.0019)	0.0059*** (0.0015)	0.0049*** (0.0016)
Baseline Mean	0.0392	0.0392	0.0392	0.0392
Individual FE	Yes	Yes	Yes	Yes
Year FE	Yes	No	No	No
Year $\times$ Tenured FE	No	Yes	No	Yes
Year $\times$ Duration FE	No	No	Yes	Yes
Number of Obs	417417	417417	417389	417389

Note: This table reports difference-in-differences estimates of the effect of Florida's restrictions on faculty autonomy on the probability that incumbents leave the state university system in which they were employed in 2021. The treatment group consists of tenured or tenure-track faculty at Florida state universities, and the control group includes their counterparts at other public universities. Column (1) includes individual and year fixed effects. Column (2) adds controls for year interacted with tenure status. Column (3) controls for the duration of the position held in 2021. Column (4) includes both the year  $\times$  tenured and year  $\times$  duration controls. Statistical significance: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

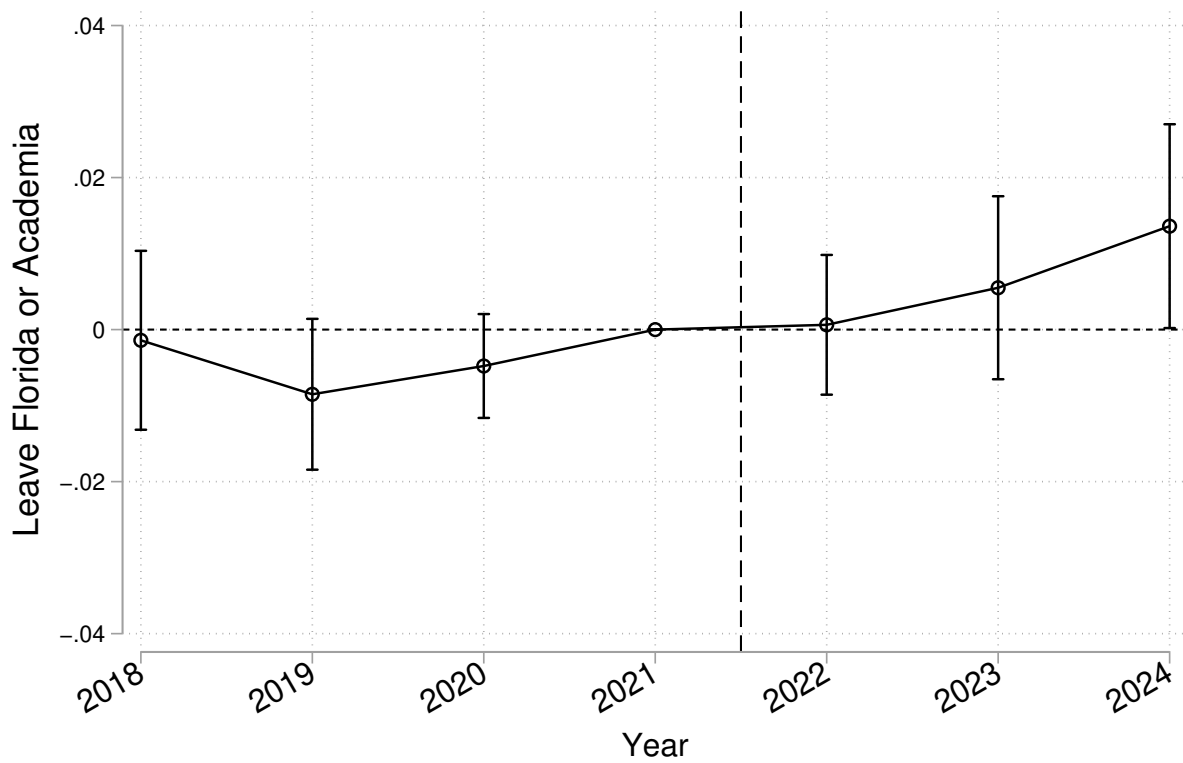
## Appendix A Additional Figures and Tables

Figure A1: Effect on Retention within South Atlantic Census Division



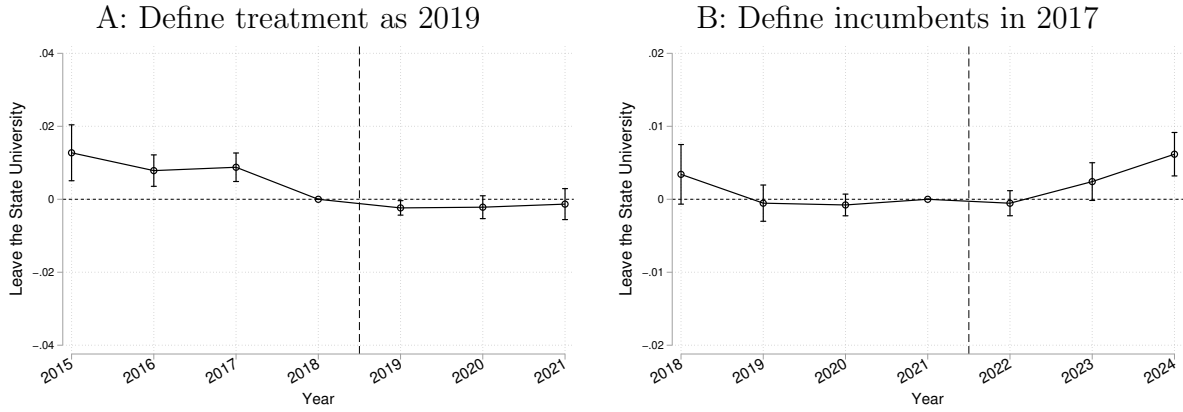
Note: This figures plot the effects of Florida's restrictions on faculty autonomy on the probability that tenure-track faculty leave the state public university system. The sample is restricted to only states in the South Atlantic Census Division. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Figure A2: Effect on Retention within Florida



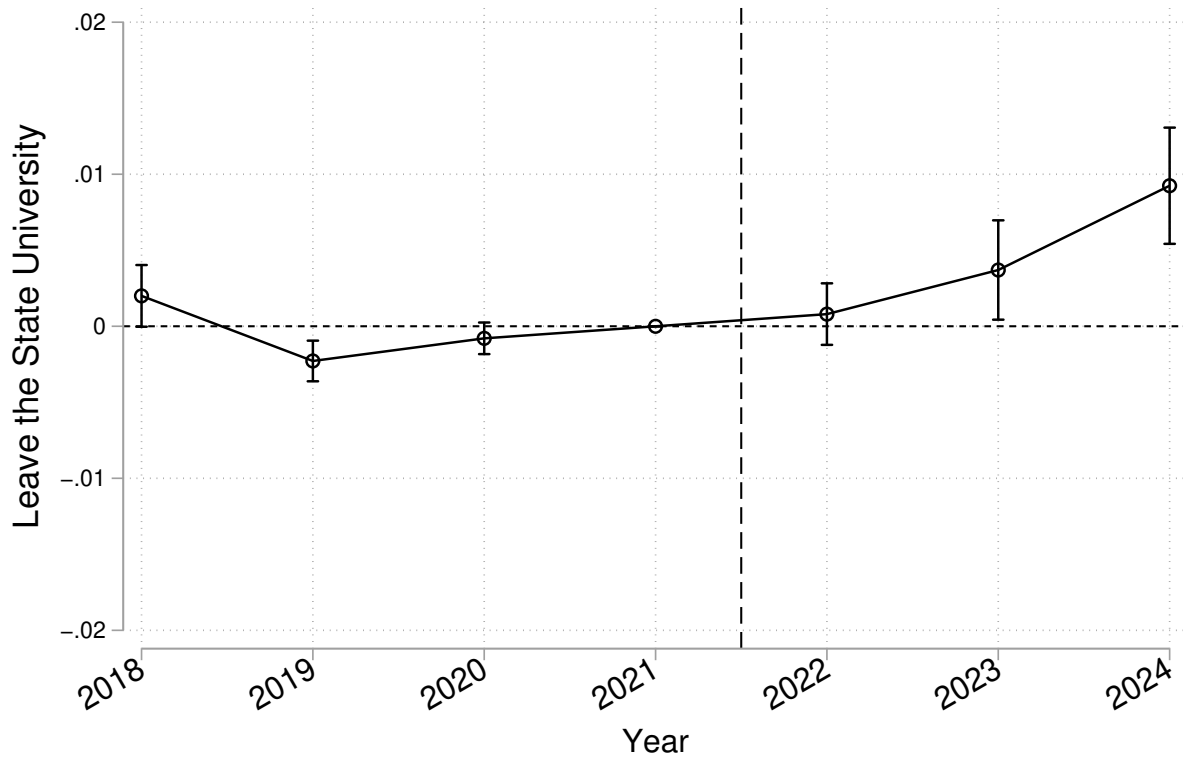
Note: This figures plot the effects of Florida's restrictions on faculty autonomy on the probability that tenure-track faculty leave the state public university system. The estimates compare faculty in the public university system with those in the private university system within Florida. All estimates include 95% confidence intervals based on standard errors clustered at the author level.

Figure A3: Placebo Test using Alternative Baseline and Treatment Periods



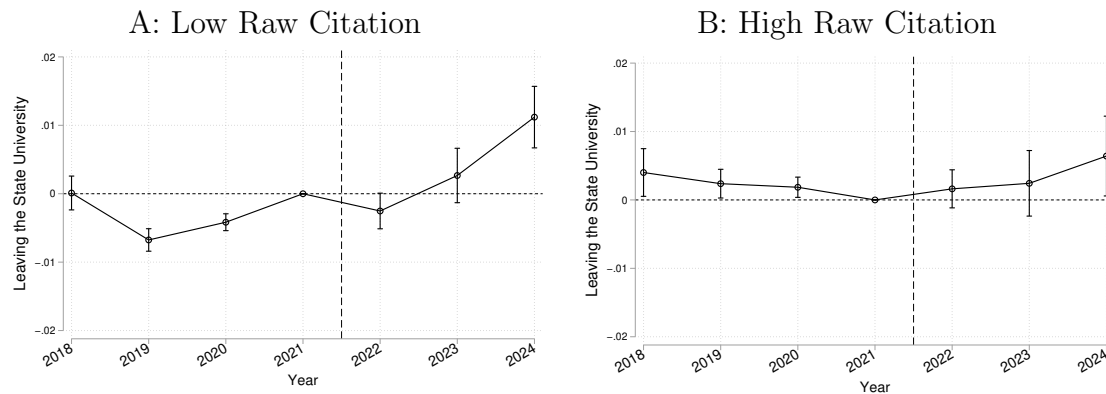
Note: This figure repeats the analysis of Figure 1 using alternative definitions for the baseline and treatment period. Panel A defines the baseline period as 2018 and considers 2019 as the treatment year. Panel B defines incumbents in 2017 and keeps the 2022 treatment year. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Figure A4: Effect on Retention, excluding New College of Florida



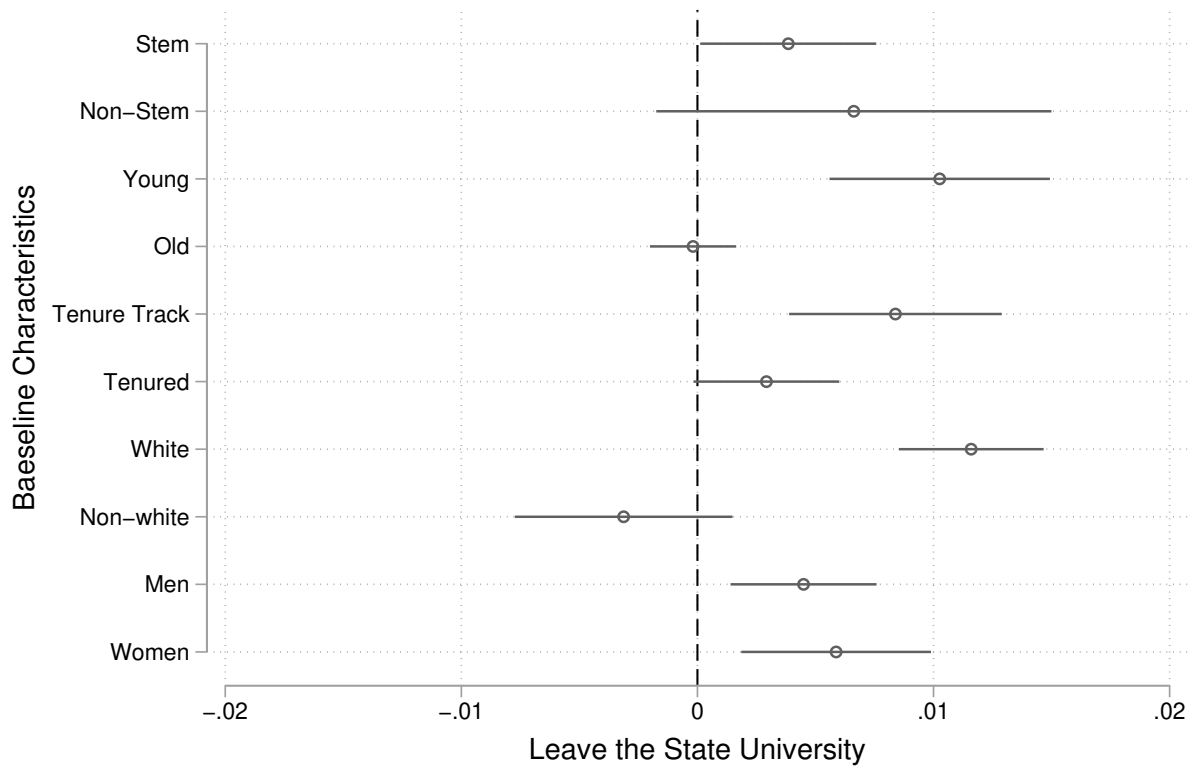
Note: This figures plot the effects of Florida's restrictions on faculty autonomy on the probability that tenure-track faculty leave the state public university system. The estimates compare professors in the Florida public university system, excluding New College of Florida, with professors at public universities in other states. All estimates include 95% confidence intervals based on standard errors clustered at the author level.

Figure A5: Heterogeneous Effects on Retention by Baseline Research Productivity



Note: These figures plot the heterogeneous effects of Florida's restrictions on faculty autonomy on the retention of tenured and tenure-track faculty at Florida state universities. Panels A and B show the effect for faculty with below-median and above-median raw citation counts during 2018–2021, respectively. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

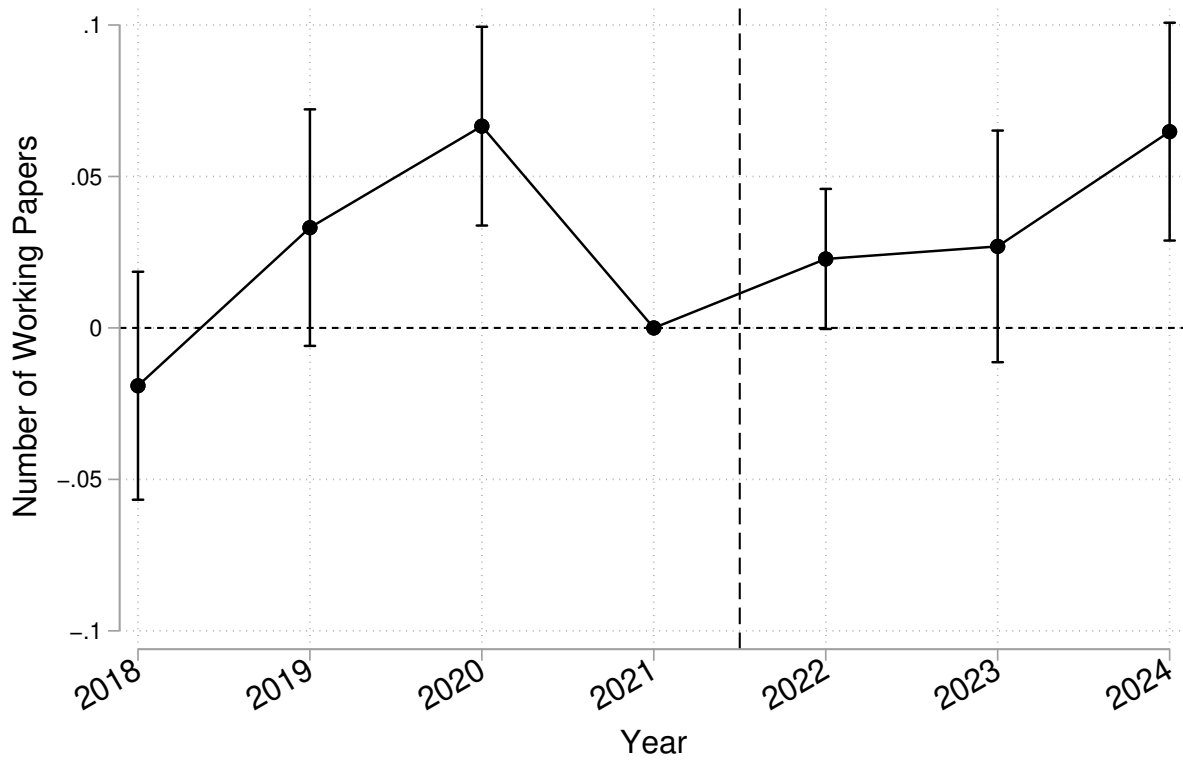
Figure A6: Heterogeneous Effects on Retention by Baseline Characteristics



Note: This figure plots the heterogeneous effects of Florida's restrictions on faculty autonomy by baseline characteristics: STEM vs. non-STEM majors, above-median vs. below-median career starting year (i.e. younger vs. older), white vs. non-white, and men vs. women. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

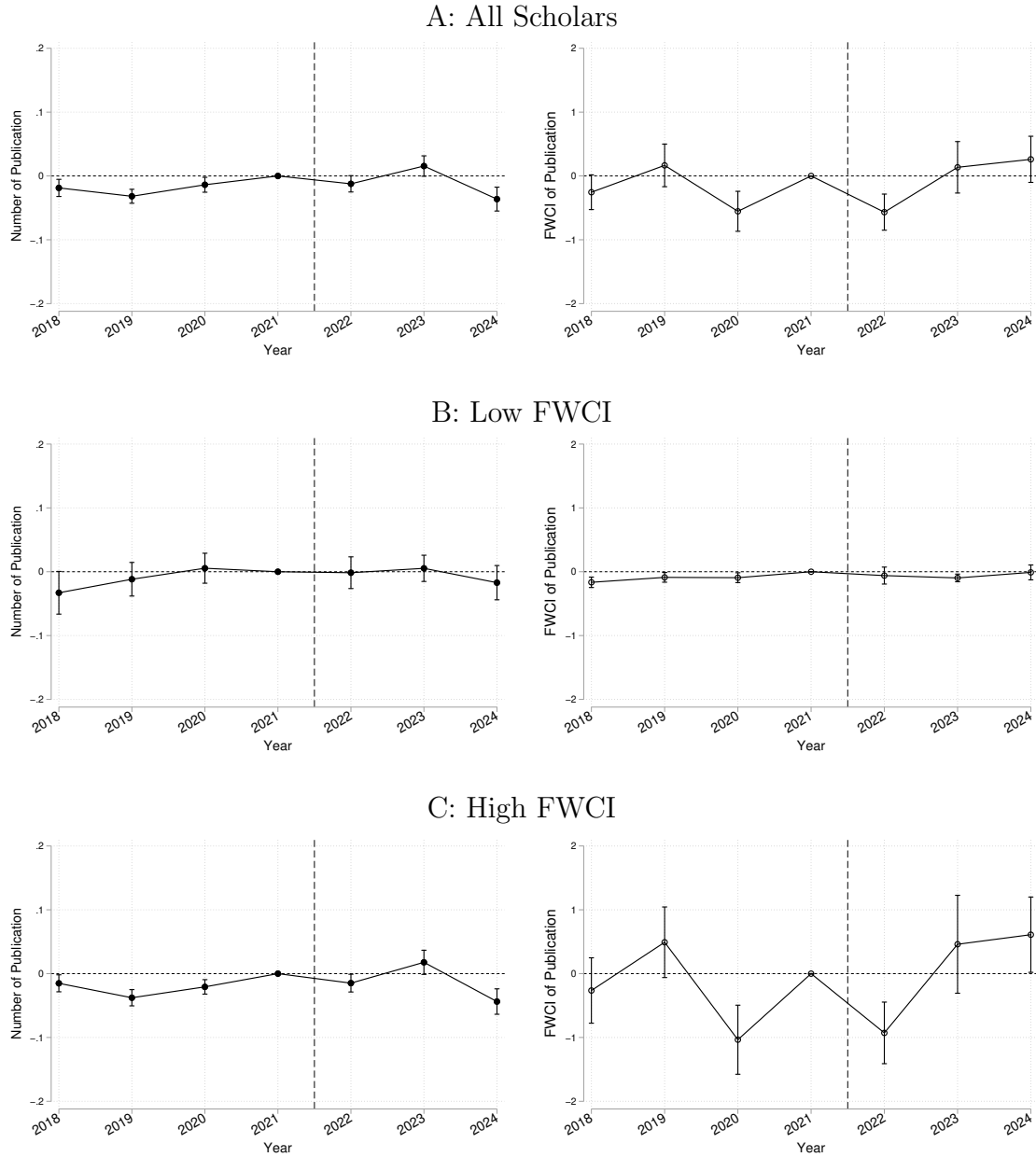


Figure A7: Effect of Restricting Faculty Autonomy on Productivity (Unpublished Works Only)



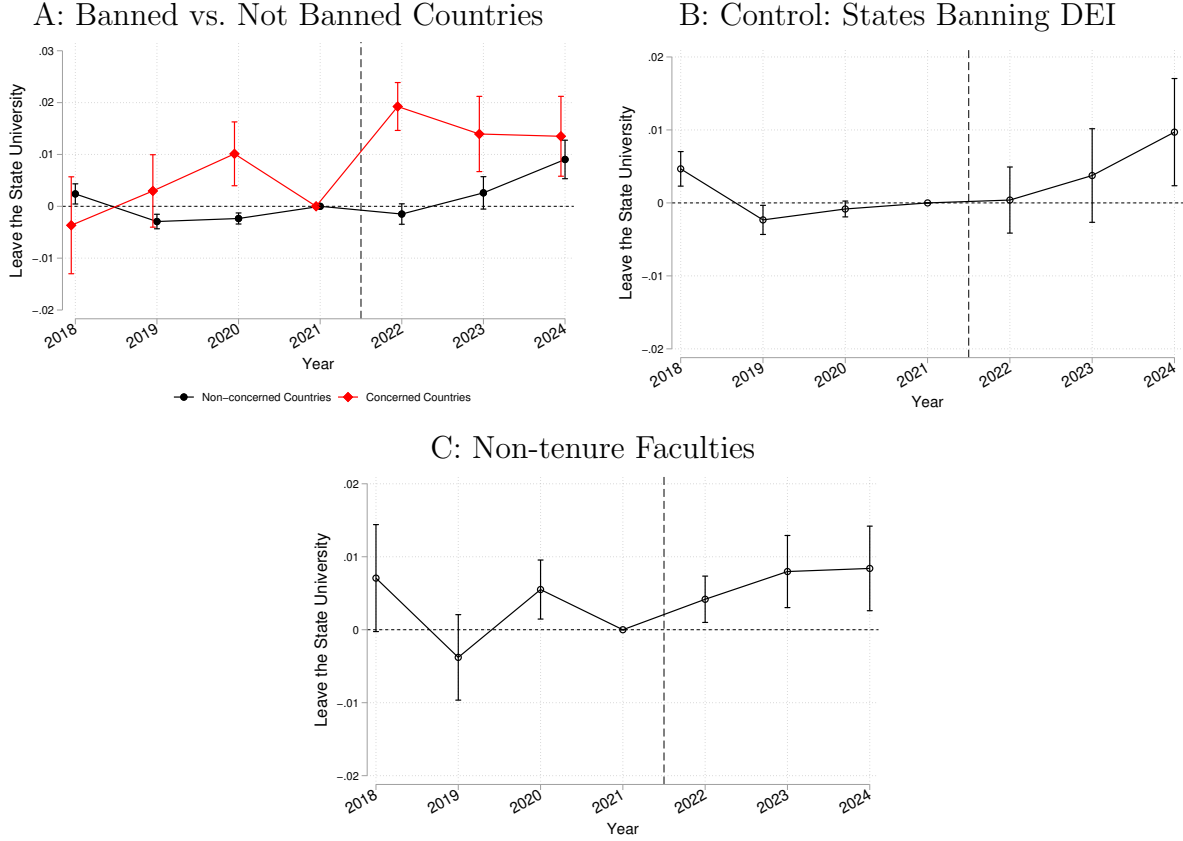
Note: This figure plots the effect of Florida's restrictions on faculty autonomy on the number of working papers by faculty at Florida state universities. Estimates are computed using Poisson regression. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Figure A8: Effect on Research Productivity of Stayers



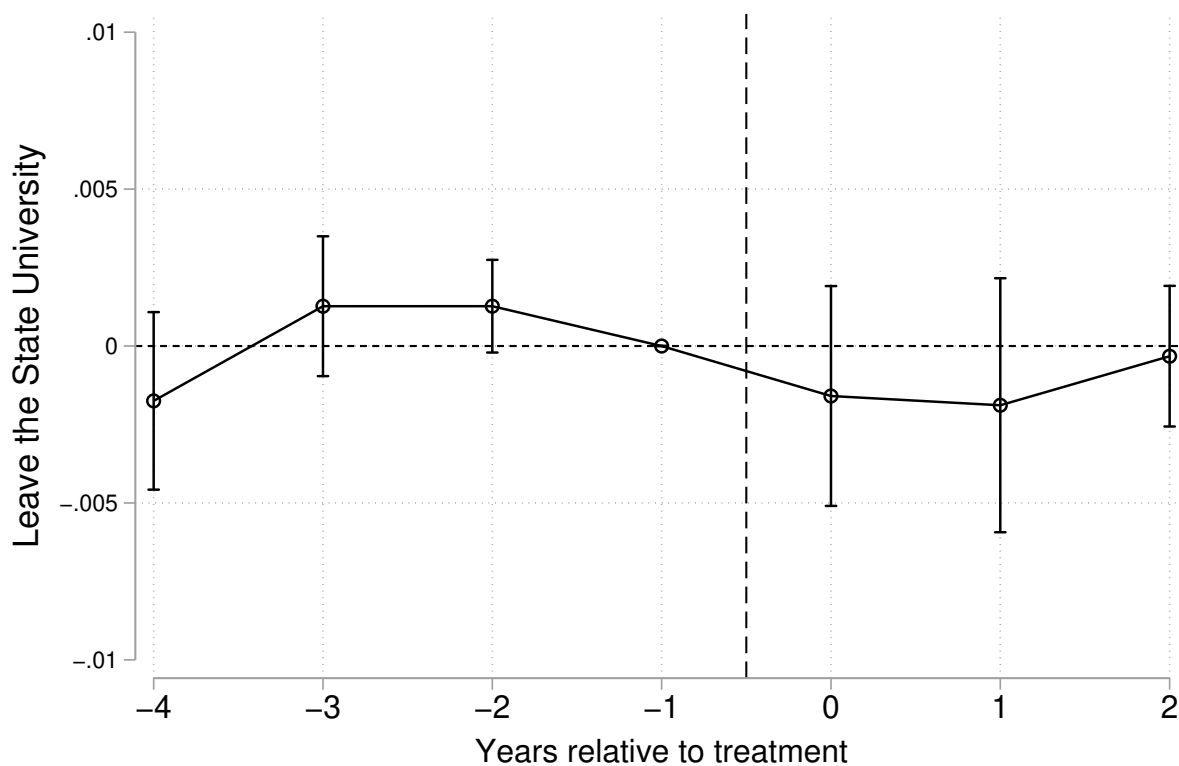
Note: These figures plot the effects of Florida's restrictions on faculty autonomy on the research productivity of tenured and tenure-track faculty, who remained employed at Florida state universities from 2021 onward. Panel A shows the effect on the number and field-weighted citation of published research for all faculty. Panels B and C shows the effect on faculty with below-median and above-median field-weighted citation counts during 2018–2021, respectively. Publication counts are estimated using Poisson regressions, while field-weighted citation outcomes are estimated using OLS regressions. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Figure A9: Effect of Post-Tenure Review on Retention, Placebo Checks



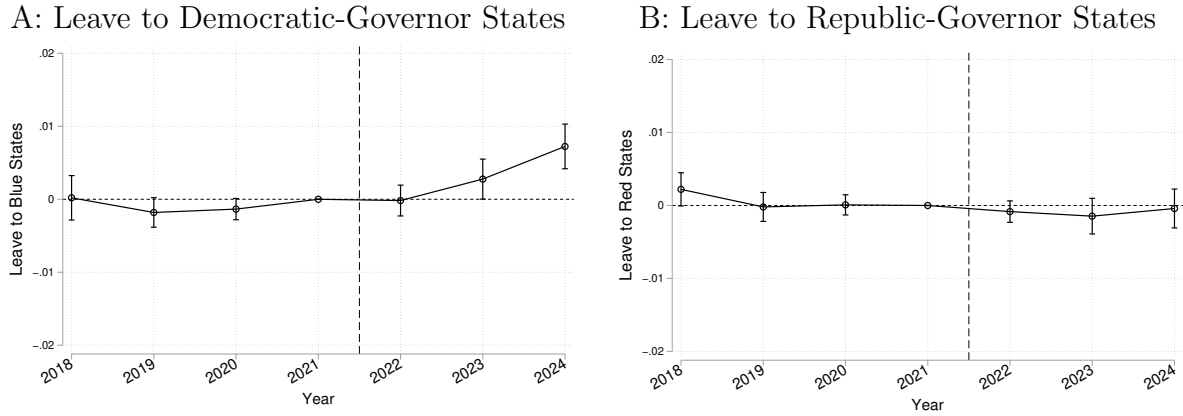
Note: These figures present heterogeneity tests comparing separation rates in Florida state universities to other universities in the US. Panel A reports heterogeneous treatment effects for scholars with and without names originating from the 7 countries affected by SB 846. Panel B compares faculty in Florida public universities to faculty in other states that also banned DEI initiatives (see table A3). Panel C reports effects for non-tenure-track faculty. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Figure A10: Effect of Post-Tenure Review on Retention (Excluding Florida)



Note: This figure plots the effect of post-tenure review (PTR) on the retention of tenured and tenure-track faculty. The treated states include all states that implemented (or changed) PTR policies between 2018 and 2024 (excluding Florida). The control group consists of all other states. To account for the staggered introduction of PTR across states, the figure reports estimates using Sun and Abraham (2021). All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Figure A11: Effect of Restrictions on Faculty Autonomy on Retention



Note: These figures compare outcomes of Florida state university faculty to professors at public universities in other republic-governor states. Panel A shows the effect on leaving the state university system in which the faculty were employed in 2021 to a democratic-governor state. Panel B shows the effect on leaving the state university system in which the faculty were employed in 2021 but still within a republic-governor state. All estimates include 95% confidence intervals based on standard errors clustered at the state level.

Table A1: Effect of Restrictions on Faculty Autonomy on Research Productivity

	Number of Publication				FWCI of Publication			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Florida $\times$ Post	0.0090 (0.0089)	0.0075 (0.0084)	0.0001 (0.0085)	0.0013 (0.0083)	0.0347 (0.2080)	0.0664 (0.2040)	0.0427 (0.2022)	0.0745 (0.2017)
Baseline	4.71	4.71	4.71	4.71	10.16	10.16	10.16	10.16
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	No	No	Yes	No	No	No
Year $\times$ Tenured FE	No	Yes	No	Yes	No	Yes	No	Yes
Year $\times$ Duration FE	No	No	Yes	Yes	No	No	Yes	Yes
Number of Obs	345891	345891	345856	345856	351533	351533	351498	351498

Note: This table reports difference-in-differences estimates of the effect of Florida's restrictions on faculty autonomy on research productivity. The treatment group consists of tenured or tenure-track faculty at Florida state universities, and the control group includes their counterparts at other public universities. Columns (1) to (4) report the estimates on the number of publication and columns (5) to (8) reports the results on the field-weighted citations to those publications. Columns (1) and (5) includes individual and year fixed effects. Columns (2) and (6) adds controls for year interacted with tenure status. Columns (3) and (7) controls for the duration of the position held in 2021. Columns (4) and (8) includes both the year  $\times$  tenured and year  $\times$  duration controls. Publication counts are estimated using Poisson regressions, while field-weighted citation outcomes are estimated using OLS regressions. Robust standard errors are clustered at the state level. Statistical significance: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Table A2: Effect of Restrictions on Faculty Autonomy on the Quality of New Hires

	Number of Publication in Recent 3 Years				FWCI of Publication in Recent 3 Years			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Florida $\times$ Post	-0.0984*** (0.0175)	-0.1543*** (0.0299)	-0.1169*** (0.0217)	-0.1067*** (0.0221)	-5.8789*** (0.8911)	-7.5704*** (1.3285)	-6.6715*** (1.2148)	-6.9737*** (1.3416)
Baseline	12.27	12.27	12.27	12.27	32.73	32.73	32.73	32.73
State FE	Yes	Yes	Yes	No	Yes	Yes	Yes	No
University FE	No	No	No	Yes	No	No	No	Yes
Year FE	Yes	No	No	No	Yes	No	No	No
Year $\times$ Census Div FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year $\times$ Tenured FE	No	No	Yes	Yes	No	No	Yes	Yes
Number of Obs	29246	29244	29244	29204	29246	29244	29244	29206

Note: This table reports difference-in-differences estimates of the effect of Florida's restrictions on faculty autonomy on the quality of incoming faculty. The treatment group consists of newly hired tenured or tenure-track faculty at Florida state universities in each year, and the control group includes their counterparts at other public universities. Columns (1)–(4) show effects on research quality measured by the number of publications in the year of hire and the two preceding years. Columns (5)–(8) report effects based on the number of field-weighted citations to those publications. Columns (1) and (5) include state and year fixed effects. Columns (2) and (6) include state fixed effects and year interacted with Census division fixed effects. Columns (3) and (7) add year-by-tenure status fixed effects. Columns (4) and (8) include university, year interacted with tenure status, and year-by-Census division fixed effects. Publication counts are estimated using Poisson regressions, while field-weighted citation outcomes are estimated using OLS regressions. Robust standard errors are clustered at the state level. Statistical significance: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Table A3: States that Ban DEI Initiatives at Public Universities

State	Law or Policy	Year
Alabama	SB 129 (Act 2024-34)	2024
Idaho	SB 1274	2024
Iowa	SF 2435 (FY2024 Education Appropriations Act)	2024
Kansas	HB 2105	2024
Utah	HB 261 (Equal Opportunity Initiatives Act)	2024
<b>Arkansas</b>	Arkansas ACCESS Act (HB 1512, Act 341)	2023
<b>Florida</b>	SB 266 (Higher Education Act)	2023
<b>Kentucky</b>	HB 4	2023
<b>North Carolina</b>	SB 364	2023
<b>North Dakota</b>	SB 2247	2023
<b>Tennessee</b>	SB 102 (Public Chapter 321)	2023
<b>Tennessee</b>	HB 1376 (Public Chapter 250)	2023
<b>Texas</b>	SB 17 (88th Legislature, Regular Session)	2023
<b>Wyoming</b>	HB 147 (Enrolled Act 67)	2023



Table A4: States that Implement Post-Tenure Review Policy Changes (2018-2025)

State	Law or Policy	Year
Kentucky	HB 424	2025
Arkansas	SB 246	2025
North Dakota	HB 1437	2025
Utah	HB 438	2024
Ohio	SB 83	2024
Indiana	SEA 202 & HEA 1001	2023 & 2025
Texas	SB 18	2023
Florida	SB 7044	2022
Mississippi	IHL Board of Trustees Tenure Policy (rev. 2022)	2022
Georgia	USG Board of Regents Post-Tenure Review Policy	2021

## Appendix B Characteristics of the Data

In this section, we provide descriptive statistics of the ORCID data that we use in our analysis. First, we explore baseline differences in faculty characteristics between Florida and other states within the data. Next, we examine how the ORCID data compares to the universe of public university employees.

Appendix Table A5 reports descriptive statistics of our panel dataset, averaged over the pre-treatment period from 2018 to 2021. We restrict the sample to only public sector universities, and define the treatment group to be researchers in Florida and the control group to be scholars in all other states. In general, academics in Florida have more publications and are more likely in STEM. They are also less likely to be white. However, the differences in baseline characteristics are fairly small. Moreover, our analysis only requires that the treatment and control groups have similar trends prior to the policy change, which we validate in the data.

Given that researchers self-select into the ORCID system, the interpretation of our analysis depends on the representativeness of the data. We summarize three analyses that compare the ORCID sample to external data sources.

First, Flynn et al. (2024) compare researchers in the Dimensions database (i.e. another repository of publication records like OpenAlex) with an ORCID to those without one. They find that only 15.4% of researchers in Dimensions have an ORCID, and that these users tend to have more publications and have been publishing longer. However, since Dimensions captures all individuals who have ever published a paper, it also includes people outside academia who seldom publish and have no use for an ORCID. As such, while Dimensions gives some sense of the characteristics of ORCID users, it may not be an ideal benchmark.

Second, Porter (2025) conducted a nationally representative survey of faculty at US public research universities to understand adoption of ORCID. In their sample of 3,968 professors, they find that 72% reported having an ORCID. However, this varied widely across fields. For example, while 93% of biologists report having an ORCID, only 24% of English and literature professors indicated the same. A key reason for this distinction is that many journals in the natural sciences require an ORCID upon submission or publication. Overall, ORCID is far more representative for researchers in STEM than other fields.

Third, we conduct our own analysis to benchmark the ORCID database with administrative data on Florida public university employees. To do this, we obtained payroll information for all employees in the Florida state university system in 2025. We then restrict the sample to assistant, associate, or full professors. Next, we merge this dataset with the ORCID

sample of Florida faculty by university and employee names.<sup>12</sup>

Figure A12 reports the overlap of the merge. The first outcome of note is that the ORCID sample only has 22% the number of observations as the payroll data. This is around the share to be expected if we expect only STEM researchers to have an ORCID account. In fact, Appendix Table A5 shows that 95% of our sample in Florida publishes papers in a STEM related journal.

We find that of the 2,871 workers in our ORCID sample, 1,758 (i.e. 61%) immediately merge with the payroll data. Of the 1,113 observations that did not match, we know from ORCID that 169 of them are no longer employed at a Florida public university in 2025. That leaves 944 that ORCID believes is still employed in Florida but did not merge with the payroll data. We manually Googled the CVs and LinkedIn profiles of these researchers and find that the majority (i.e. 727) of them are in fact still working at a Florida public university, but their names did not exactly match across the two datasets due to initials, hyphens, or abbreviations.<sup>13</sup> Together, we find that 92% (i.e.  $\frac{1758+169+727}{2871}$ ) of the observations in the ORCID data accurately report researchers' employment.

The remaining 212 observations thus represent true misreporting by ORCID. Of these, 82 left academia, 54 moved out of Florida, and 3 moved to a private university in Florida after 2021.<sup>14</sup> Moreover, 73 were already no longer working in Florida's public university system as of our baseline year in 2021. This measurement error in researchers' profiles will bias our estimates towards zero.

In particular, our difference-in-difference estimator aims to measure the causal effect on  $\frac{Y_{post}}{N_{pre}}$ , where  $Y_{post}$  is the number of leavers after Florida passed its policies and  $N_{pre}$  is the baseline number of workers. Suppose we only measure  $\alpha < 1$  share of all migrations after 2021 and we overestimate the number of workers at baseline by  $(1 + \gamma)$ . In that case, our difference-in-difference estimator is identifying the impact on  $\frac{\alpha Y_{post}}{(1+\gamma)N_{pre}}$ .<sup>15</sup> To recover the true treatment effect, we need to multiple our estimates by  $\frac{1+\gamma}{\alpha}$ . For moves to universities out of state,  $1 + \gamma = \frac{2,871}{2,871-73} = 1.026$  and  $\alpha = \frac{121}{54+121} = 0.691$ . The  $1 + \gamma$  term is the same for moves outside academia but the  $\alpha$  term equals  $\frac{42}{42+82} = 0.339$ , indicating that the data only captures about a third of moves outside academia as researchers are no longer incentivized to update their ORCID. Computing the  $\frac{1+\gamma}{\alpha}$  multiplier implies that we can scale our moves

<sup>12</sup>99.7% of payroll records are unique when defining a person by their full name and university. We drop 3 pairs of individuals in the ORCID data who share the same name-university.

<sup>13</sup>We include in this group 5 names that were too ambiguous to credibly identify from our manual search.

<sup>14</sup>The moves outside academia can be further broken down to 27 moves to industry, 47 to retirement, and 1 death.

<sup>15</sup>We are implicitly assuming the same degree of measurement error in both the treatment and control groups.

out of state estimates by 1.485 and our moves out of academia estimates by 3.027 to recover the true impact of Florida’s policies.

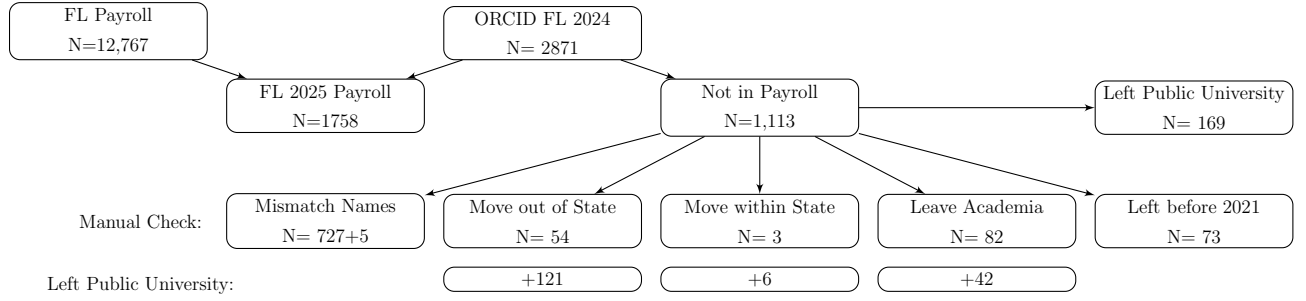
To understand how the ORCID sample differs from the full population of Florida researchers, Table A6 reports the characteristics of individuals that do and do not have ORCID accounts. We find that professors with ORCIDs tend to have higher salaries and are more likely to be tenured. Overall, the share of matches and the positive selection into the ORCID database matches closely with the the analysis by Flynn et al. (2024) discussed above. Together, the descriptive evidence suggests that the results of our paper should be interpreted as capturing the behavior of active researchers, particularly in STEM.

Table A5: Descriptive Statistics

Baseline (2018-2021)	Treatment		Control		T – C
	Mean	St. Dev.	Mean	St. Dev.	Difference
Not at State University	0.0392	0.1410	0.0432	0.1496	−0.0040
Number of Pub	18.8315	21.5486	17.2863	22.2780	1.5452***
FWCI	40.6739	75.8458	40.0494	95.1802	0.6245
White	0.5513	0.4975	0.5710	0.4949	−0.0198**
Men	0.5085	0.5000	0.5033	0.5000	0.0052
Women	0.2892	0.4535	0.3057	0.4607	−0.0165*
STEM	0.9553	0.2066	0.9380	0.2411	0.0173***
First Year	2005.4779	10.5292	2005.5085	10.6096	−0.0306
Assistant Professor	0.2829	0.4505	0.2994	0.4580	−0.0164*
Number of obs	2877		56754		

Note: This table summarizes baseline characteristics for tenured and tenure-track faculty during the pre-treatment period (2018–2021). The treatment group contains researchers employed at a Florida state university in 2021, and the control group comprises of researchers at public universities in the rest of the US, excluding Florida. Row (1) reports the share of faculty not working at the state university system in which the faculty were employed in 2021. Rows (2) and (3) show the number of publications and field-weighted citations, respectively. Rows (4)–(7) present the percentage of faculty who are white, men, women, and STEM majors. Row (8) shows the average year in which individuals began their first job. Row (9) reports the percentage of assistant professors. Column (5) shows the difference between the treatment and control groups. Statistical significance: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Figure A12: Match Rate Between ORCID and Florida Public University Payroll Data



Note: This figure decomposes the merge between the ORCID data with the Florida Public University Payroll data. The sample is restricted to only assistant, associate, and full professors. The node “Mismatch Names” refers to ORCID that did not merge with the payroll data due to different spelling of the names, but are actually in the data once the name is standardized. The bottom row decomposes the individuals who left the public university system in the ORCID data into whether they moved out of state to another university, moved to a private university within the state, or left academia, which includes moving to industry, retiring, or passing away.

Table A6: Ranking of ORCID Users in Florida Public Universities

	Merged		Not Merge		Difference
	Mean	St. Dev.	Mean	St. Dev.	Difference
Baseline (2018-2021)					
Annual Compensation	109163	70994	100577	87054	8586.0505***
Assistant Professor	0.1155	0.3197	0.3936	0.4886	-0.2781***
Associate Professor	0.3845	0.4866	0.2879	0.4528	0.0967***
Full Professor	0.5000	0.5001	0.3186	0.4659	0.1814***
Number of obs	1758		11009		

Note: This table reports the characteristics of tenure-track employees in the Florida state university payroll data, separately by whether or not they have an ORCID.